FIFTY-SECOND ANNUAL

COLORADO BUSINESS ECONOMIC OUTLOOK

2017

Leeds School of Business
UNIVERSITY OF COLORADO BOULDER
BUSINESS RESEARCH DIVISION

FIFTY-SECOND ANNUAL

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2017

Sponsored by the University of Colorado Boulder, Leeds School of Business

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UNIVERSITY OF COLORADO BOULDER
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Introduction

The Business Research Division (BRD) in the Leeds School of Business is proud to present our 52nd annual Colorado Business Economic Outlook. This 2017 consensus forecast is a product of partnerships that rely on research conducted by our students and staff, and members of the public and private sectors in service and outreach to the state of Colorado.

This forecast analyzes changes that have occurred in all economic sectors during the past year, and looks at the opportunities and challenges that will shape population, employment, and the overall economy in the coming year. The information in this book is initially presented at the fifty-second annual Colorado Business Economic Outlook Forum in Denver, followed by approximately 50 forecast speeches that are held throughout the state during the year, ranging from presentations to industry associations and nonprofit organizations to the Federal Reserve Bank of Kansas City.

Methodology

We are fortunate to have more than 100 individuals from the business, education, and government communities who serve on 13 sector estimating groups. These groups convene at a kickoff meeting in September where members discuss trends and issues that are likely to affect economic growth during the upcoming year. During the second half of September and into October, the committees apply this information to their industry. From this series of meetings, the sector write-ups and forecasts are prepared and submitted to the BRD in early November, when they are edited and published in this book. The following June, the Steering Committee, which is made up of the sector chairs, meets to review their forecasts and identify factors that will positively or negatively drive change in their industry's economic performance during the second half of the year. These updates are published in the summer issue of our quarterly newsletter, the *Colorado Business Review.*

Related Economic Research

The BRD conducts customized business and economic research that expands the knowledge base of decision makers throughout the state and region. The annual *Colorado Business Economic Outlook* provides the foundation for all research the BRD conducts within the state. Among the other BRD research tools available to businesses and organizations is the Leeds Business

Confidence Index, a forward-looking index that gauges Colorado business leaders' opinions about national and state economic trends and how their industry will perform in the coming quarter, and the *Colorado Business Review,* which explores current topics of importance to the state's economy. Visit www.colorado.edu/business/brd for more information about BRD offerings.

Acknowledgments

We are humbled and thankful to have dedicated partners in producing this forecast. A complete list of committee members appears at the back of this book. Their efforts are very much appreciated. We also thank the staff of the Colorado Department of Local Affairs and the Colorado Department of Labor and Employment who supply us with much of the employment and population data used in the forecast.

Finally, I would like to thank the many Leeds School of Business and CU Boulder personnel who worked hard at preparing, presenting, and promoting this project. My sincerest thanks go to Brian Lewandowski, Associate Director; Cindy DiPersio, Project Coordinator; Kristin Weber, Graphic Designer; Denise Munn, Senior Manager of Print Production and Account Management; and John Griswold, Michael Hansen, William Maguire, Lucas Oliveira, and Jackson Rueter, Student Research Assistants, for their help in assembling and presenting the 2017 Colorado Business Economic Outlook Forum.

The assistance provided by Leeds School staff, including Laurel Page, Events Coordinator; Zeel Patel, Director of Marketing and Communications; Erik Jeffries, Director of Creative Services; Nicole Waldrip, Graphic Designer; Trisha McKean, Assistant Dean for Advancement; Kathryn Marshall, Executive Director for Corporate and External Relations; Margaret Arreola, Assistant Director of Development; and Anna Linn, Corporate and Board Relations Program Coordinator, is greatly appreciated. I am also appreciative of the help provided by Elizabeth Lock and Dirk Martin with the CU Boulder Office of News Services.

Colorado Economic Forecast for 2017

The sections that follow provide a summary of 2016, a forecast for 2017, and industry-specific data analysis and insight into the key factors influencing each sector. We believe this information will prove useful in your business and policy decision-making process.

Richard L. Wobbekind

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Executive Director, Business Research Division
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Colorado Then and Now

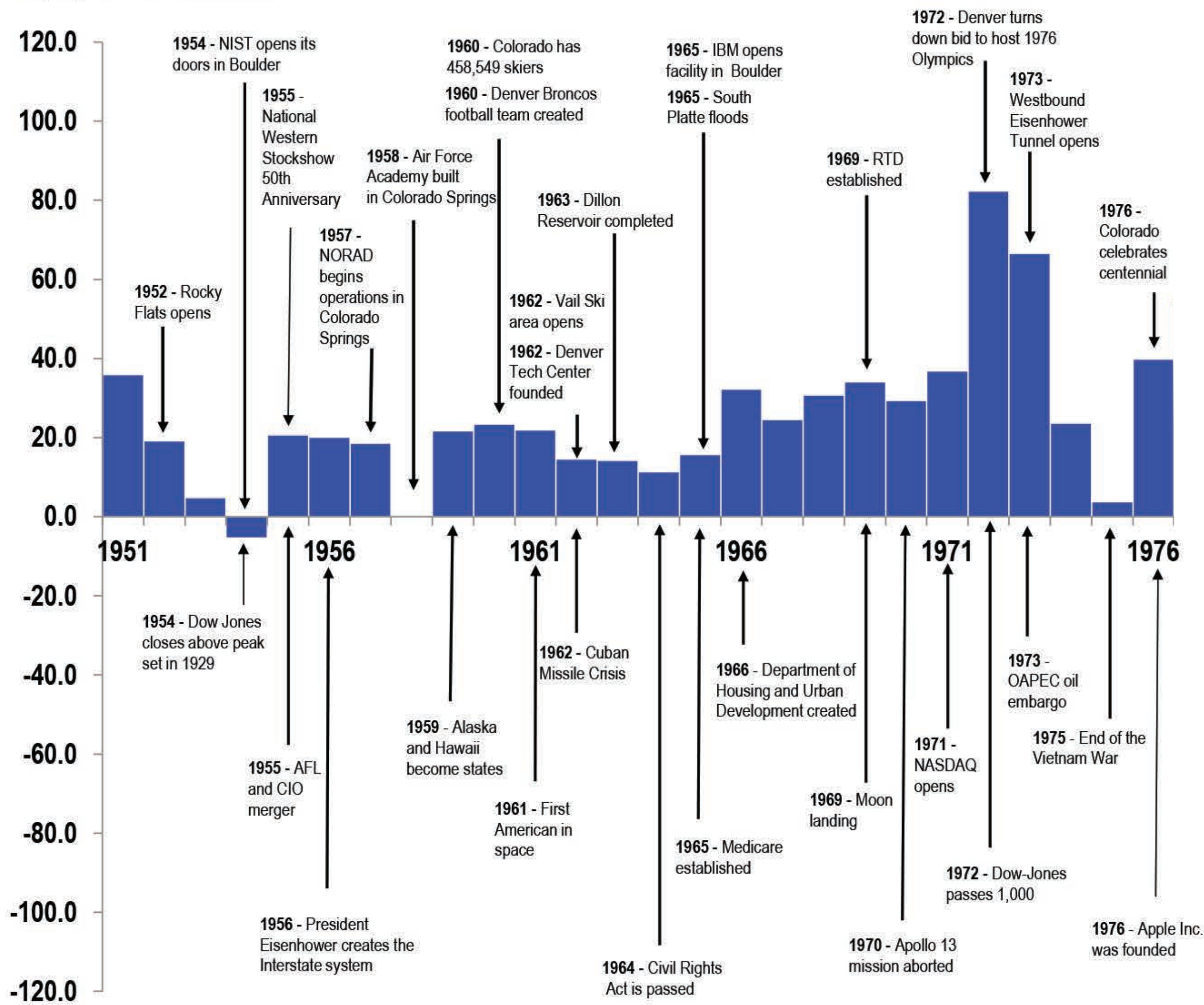
Over the past 45 years in Colorado, employment, labor force composition, and the economy have changed significantly.

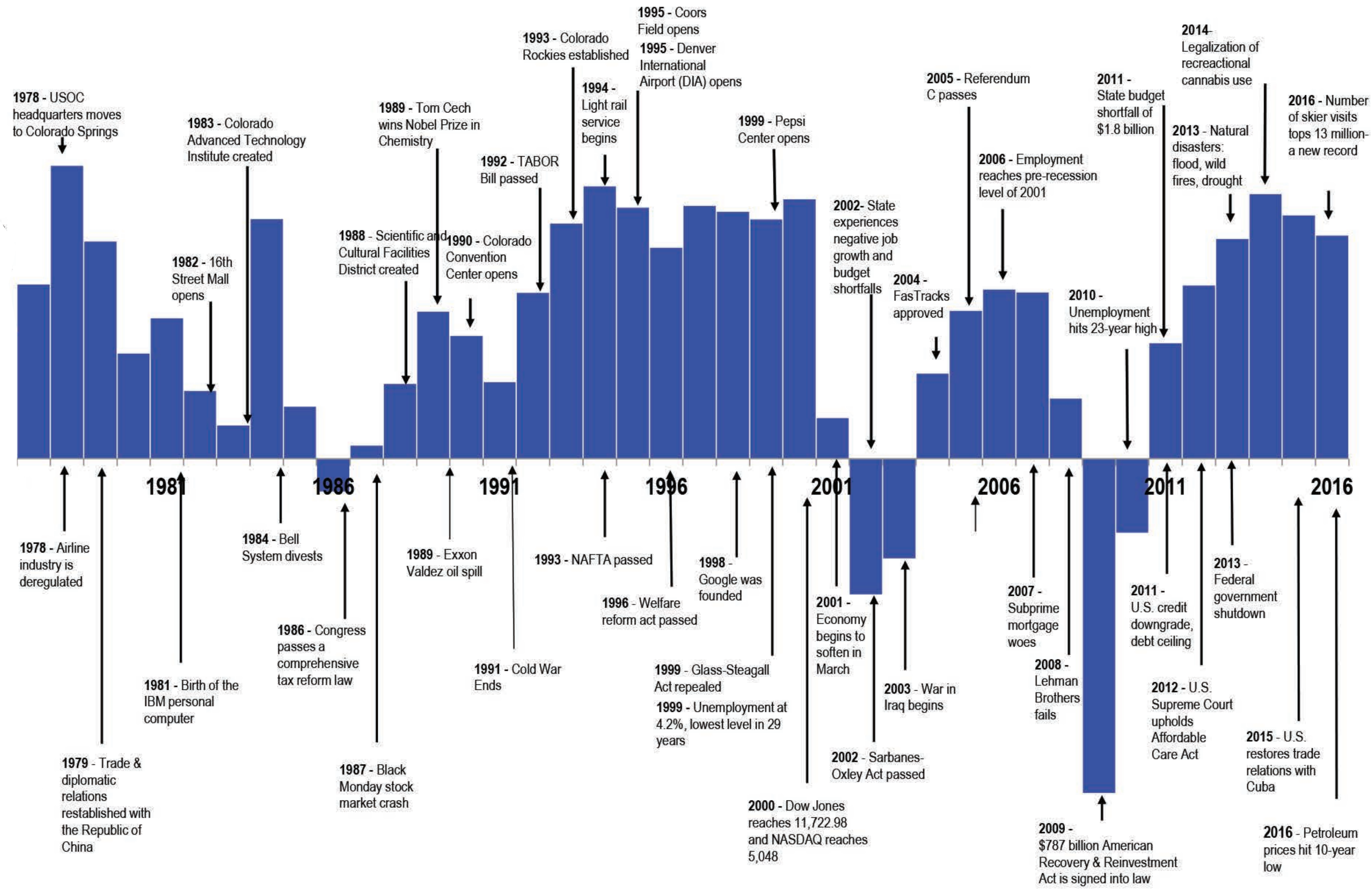
In 1970, just over one million individuals were employed in Colorado and the average annual earnings were $6,538. Goods-producing industries accounted for 23.4% of jobs and made up 26.7% of the Colorado GDP. Proprietor employment represented less than 17% of total employment. Females made up 37% of Colorado's labor force, according to data from the Colorado Demography Office. Throughout the 1970s, the Colorado economy benefited profoundly from booms in petroleum and mining production as both industries experienced peak employment for the time.

Colorado wage and salary employment has grown to more than 2.6 million, not including proprietor employment in the state, and average annual pay for covered wage and salary earners topped $54,182. Goods-producing sectors now account for less than one-in-seven of total jobs and 16.5% of the Colorado GDP. Proprietor employment has increased to 25% of total employment. The share of females in the state's labor force increased to nearly half (46%), a nine percentage point increase from 1970. In just over four decades, the state has undergone a huge increase in college-educated population as the percent of Colorado residents 25 years or older with four or more years of college more than tripled, from 14.9% in 1970 to 39.3% today. With more highly qualified employees, new high-tech industries have added significantly to Colorado's economy and key industry clusters, specifically aerospace, biosciences, IT-software, and telecommunications.

The timeline to the right provides a glimpse into the past, showing the annual change in state employment. Changes in employment have been accompanied by numerous social, economic, educational, and political changes. Colorado events are listed above the line; national events are noted below.

Annual Change in Colorado Employment in Thousands




1978 - USOC headquarters moves to Colorado Springs
1983 - Colorado Advanced Technology Institute created
1982 - 16th Street Mall opens
1989 - Tom Cech wins Nobel Prize in Chemistry
1988 - Scientific and Cultural Facilities District created
1990 - Colorado Convention Center opens
1992 - TABOR Bill passed
1993 - Colorado Rockies established
1994 - Light rail service begins
1995 - Coors Field opens
1995 - Denver International Airport (DIA) opens
1999 - Pepsi Center opens
2002- State experiences negative job growth and budget shortfalls
2004 - FasTracks approved
2005 - Referendum C passes
2006 - Employment reaches pre-recession level of 2001
2010 - Unemployment hits 23-year high
2011 - State budget shortfall of $1.8 billion
2013 - Natural disasters: flood, wild fires, drought
2014- Legalization of recreactional cannabis use
2016 - Number of skier visits tops 13 million- a new record
1981
1986
1991
1996
2001
2006
2011
2016
1978 - Airline industry is deregulated
1979 - Trade & diplomatic relations restablished with the Republic of China
1981 - Birth of the IBM personal computer
1984 - Bell System divests
1986 - Congress passes a comprehensive tax reform law
1987 - Black Monday stock market crash
1989 - Exxon Valdez oil spill
1991 - Cold War Ends
1993 - NAFTA passed
1996 - Welfare reform act passed
1998 - Google was founded
1999 - Glass-Steagall Act repealed
1999 - Unemployment at 4.2%, lowest level in 29 years
2000 - Dow Jones reaches 11,722.98 and NASDAQ reaches 5,048
2001 - Economy begins to soften in March
2002 - Sarbanes-Oxley Act passed
2003 - War in Iraq begins
2007 - Subprime mortgage woes
2008 - Lehman Brothers fails
2009 - $787 billion American Recovery & Reinvestment Act is signed into law
2011 - U.S. credit downgrade, debt ceiling
2012 - U.S. Supreme Court upholds Affordable Care Act
2013 - Federal government shutdown
2015 - U.S. restores trade relations with Cuba
2016 - Petroleum prices hit 10-year low

U.S. Economic Outlook

Exhibiting an acceleration, the U.S. economy grew 1.7% in 2013, 2.4% in 2014, and 2.6% in 2015. However, real gross domestic (GDP) growth stalled in three of the last four quarters: 0.9% growth in Q4 2015, 0.8% in Q1 2016, 1.4% in Q2 2016, and 2.9% in Q3 2016 (advance estimate).

Recessions

According to the National Bureau of Economic Research, the United States has experienced 11 business cycles post-World War II. The nation is about 7½ years into an expansion, making it currently the fourth-longest expansion over the past 70 years. The longest expansion during this period occurred in the 1990s, lasting 10 years. The shortest expansion occurred in the early 1980s, lasting 12 months. The average length of an expansion was about 5 years. Employment recovery from the last four recessions has taken progressively longer, hence the term "jobless recovery."

Nonetheless, the United States has recovered from the last recession. Positive signals about the current economy include employment growth, low unemployment rates, (modest) wage growth, and higher personal spending. Consumers are on a more stable footing and exhibit more confidence today than they were coming out of the Great Recession. Two components of the economy targeted by Fed policy are employment and inflation (the dual mandate). Employment growth remains healthy, and consumer prices are nearing the target rate, leading to expectations that the Federal Reserve will opt to increase interest rates. Nonetheless, the U.S. dollar and U.S. exports are being affected by political uncertainty and slower global economic growth. The eurozone and Asia Pacific regions are expected to register slightly slower growth in 2017.

With this backdrop, the following sections examine forecasts of output and the key components of GDP.

Total Output

The National Bureau of Economic Research (NBER), the organization chartered with dating the recessions, pegged the last recession at 18 months, ending in June 2009—the longest contraction since the Great Depression. The worst decline was 8.2% in Q4 2008. Since the recession, the United States has recorded almost uninterrupted growth. While expectations are subdued, growth will continue; 2016 growth is projected at 1.5%, accelerating to 2.2% in 2017.

Consumer Spending

Personal consumption of goods outpaced growth in services in 2015, 4% to 2.8%, and this pattern extended

REAL GROSS DOMESTIC PRODUCT
2008–2017
(In Millions of Chained 2009 Dollars)

Economic Indicator	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[b]
Real Gross Domestic Product	$14,830.4	$14,418.7	$14,783.8	$15,020.6	$15,354.6	$15,612.2	$15,982.3	$16,397.2	$16,649.7	$17,016.0
Percentage Change	-0.3%	-2.8%	2.5%	1.6%	2.2%	1.7%	2.4%	2.6%	1.5%	2.2%
Personal Consumption Expendit	$10,007.2	$9,847.0	$10,036.3	$10,263.5	$10,413.2	$10,565.4	$10,868.9	$11,214.7	$11,506.3	$11,782.4
Percentage Change	-0.3%	-1.6%	1.9%	2.3%	1.5%	1.5%	2.9%	3.2%	2.6%	2.4%
Fixed Business Investment[c]	$1,934.4	$1,633.4	$1,673.8	$1,802.3	$1,964.1	$2,032.9	$2,155.6	$2,200.2	$2,191.4	$2,257.1
Percentage Change	-0.7%	-15.6%	2.5%	7.7%	9.0%	3.5%	6.0%	2.1%	-0.4%	3.0%
Government Expenditures	$2,994.8	$3,089.1	$3,091.4	$2,997.4	$2,941.6	$2,857.6	$2,833.0	$2,883.7	$2,906.8	$2,927.1
Percentage Change	2.8%	3.2%	0.1%	-3.0%	-1.9%	-2.9%	-0.9%	1.8%	0.8%	0.7%
Net Exports	-$557.8	-$395.4	-$458.8	-$459.4	-$447.1	-$404.9	-$425.7	-$540.0	-$550.0	-$580.0

[a]Estimate. [b]Forecast. Ccomponents do not sum to total since fixed business investment excludes residential investment and changes in inventories.

Sources: Bureau of Economic Analysis, Economy.com, National Association for Business Economics, and Colorado Business Economic Outlook Committee.

in Q2 and Q3 2016. Durable goods saw the sharpest decline during the recession, but now exhibit the most robust growth, with growth rates from 2012 – 2015 of 7.4%, 6.2%, 6.7%, and 6.9%, respectively. On a quarterly basis, this trend continues to hold with strong gains especially in durable goods and modest gains in services and nondurables.

Growth is being spurred by confidence on the part of consumers, fueled by growing employment, income, and wealth. National employment increased 1.7% year-over-year in October 2016, standing 4.7% above the peak prior to the Great Recession, and continuing to reach all-time employment levels each month nationally. Private-sector employment grew 1.8% year-over-year, and was 5.8% above the pre-recession peak as of October 2016. Forty-three states registered year-over-year growth in September.

The national unemployment rate continues to improve, standing at 4.9% in October 2016; this is the first year since 2007 that the unemployment rate average was under 5%. The U-6 unemployment rate, reflecting unemployed as well as underemployed, dropped to 9.5% in October compared to 17.4% in October 2009. All but four states now have unemployment rates below 6%, and more than half of the states have rates under 5%. The labor force increased 1.7% in October compared to the same period in 2015, and the labor force participation rate turned in 2016, increasing year-over-year in 8 of the first 10 months of the year. The participation rate is just as much about fewer job leavers as it is about new entrants to the workforce—initial unemployment claims fell to 235,000 in November, which is the lowest level since 1973. Unemployment is plaguing age cohorts and educational cohorts differently—the lowest unemployment rates in October were observed for individuals with a bachelor's degree and higher (2.6%) and those 45 to 54 years (3.4%).

Personal income increased 3.2% year-over-year in Q3 2016. This builds on growth observed in 2012 (5%), 2013 (1.1%), 2014 (5.2%), and 2015 (4.4%). Real disposable personal income decreased 1.4% in 2013 but rebounded 3.5% in 2014, 3.5% in 2015, and 2.3% year-over-year in Q3 2016. Per capita personal income has increased at a slightly slower rate—increasing 2.7% in 2014 and in 2015, and 1.6% year-to-date in 2016, resting at record levels.

Data from the Federal Housing Finance Authority show every state recording year-over-year gains in home prices according to the purchase only index, which helps with homeowner liquidity and labor mobility. The personal savings rate decreased year-over-year in Q3 2016.

Household balance sheets remain healthy in 2016, with a financial obligation ratio (financial obligations as a percentage of disposable personal income) of 15.4% in Q2 2016 compared to over 18.1% in Q4 2007. Consumers have demonstrated a return to the market, with greater levels of consumption and a resumption of growth in revolving credit. Retail and food services sales increased 4.2% in 2014, but slowed to 2.3% in 2015. Sales accelerated in 2016, increasing 3% through September compared to the same nine months in 2015. With the consumer fundamentals in place, growth will continue in 2016. Inflation inched toward the target rate in 2016. The Consumer Price Index (all items) was up 1.6% year-over-year in October, while core inflation increased 2.2%.

Investment

Housing starts will continue a slow improvement, increasing from about 1.1 million units in 2015 to 1.2 million in 2016 and 1.3 million in 2017, barring an unusually large reaction to rising mortgage rates. Regional demand and consumer preferences will continue to dictate the type of additions to the housing stock.

Fixed investment includes investment in residential structures, as well as nonresidential structures, equipment, software, and changes in inventory. Excluding changes in inventory, real business fixed investment fell

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U.S Economic Outlook

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in 2016 by 0.4%, but is expected to increase 3% in 2017. In 2015, nearly 80% of fixed investment (excluding inventory) was business related.

Government Expenditures

In 2015, government consumption expenditures and gross investment increased by 1.8%. Growth in 2016 is forecast to be 0.8% and has been revised down over the course of the year indicating expectations of more conservative growth. Government consumption expenditures and gross investment are expected to be 0.7% in 2017, continuing a trend of slowing expectations. More than 60% of total government expenditures and investment are state and local, and roughly one-quarter are allocated to national defense and 15% to nondefense programs. The deficit peaked at $1.4 trillion in FY2009. In FY2015, the federal deficit decreased to -$438 billion, but is projected at around -$580 billion in 2016 and 2017.

Net Exports

Global economic growth will continue to increase the U.S. trade deficit. Political dynamics may influence net exports as well, though it is difficult to anticipate in what way and the magnitude of the effect. In Q2 and Q3 2016, export growth outpaced import growth, reducing the trade imbalance. The trade imbalance is forecast to be -$550 billion in 2016 and -$580 billion in 2017, compared to -$540 billion in 2015. ✤

STATE AND NATIONAL ECONOMIC COMPARISON, 2005–2015

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Colorado											
Real GDP ($ billions, chained 2009 dollars)	240.2	244.2	249.3	252.9	250.1	253.4	256.3	262.4	267.9	278.8	288.8
Nominal GDP ($ billions)	222.4	233.1	245.2	255.2	250.1	258.1	266.8	277.6	288.8	305.4	314.9
Total Personal Income ($ billions)	176.1	189.5	201.7	208.6	198.1	201.6	219.9	234.0	246.6	266.5	277.7
Per Capita Personal Income ($)	38,025	40,143	41,996	42,663	39,838	39,929	42,946	45,073	46,792	49,768	50,899
Employment (thousands)[a]	2,226.0	2,279.1	2,331.3	2,350.3	2,245.6	2,222.3	2,258.6	2,313.0	2,381.9	2,464.9	2,541.2
Unemployment Rate (percent)	5.0	4.3	3.7	4.8	7.3	8.7	8.4	7.9	6.8	5.0	3.9
Labor Force Participation Rate (percent)	72.3	72.4	72.2	72.1	70.9	70.4	69.7	69.1	68.3	67.9	66.7
CPI-All Items (percent change)	2.1	3.6	2.2	3.9	-0.6	1.9	3.7	1.9	2.8	2.8	1.2
All Items Less Food and Energy (percent change)	0.6	4.0	1.8	2.8	1.7	1.4	2.3	2.0	3.2	2.9	3.3
Shelter (percent change)	-1.7	3.8	2.2	1.7	1.2	0.5	1.7	2.7	4.5	5.0	5.7
United States											
Real GDP ($ billions, chained 2009 dollars)	14,234	14,614	14,874	14,830	14,419	14,784	15,021	15,355	15,612	15,982	16,397
Nominal GDP ($ billions)	13,094	13,856	14,478	14,719	14,419	14,964	15,518	16,155	16,692	17,393	18,037
Total Personal Income ($ billions)	10,614	11,394	12,000	12,502	12,095	12,477	13,255	13,915	14,074	14,810	15,459
Per Capita Personal Income ($)	31,760	33,589	34,826	36,101	35,616	36,274	37,804	39,441	39,129	40,794	42,026
Employment (thousands)	134,051	136,453	137,999	137,242	131,313	130,361	131,932	134,175	136,381	138,958	141,865
Unemployment Rate (percent)	5.1	4.6	4.6	5.8	9.3	9.6	8.9	8.1	7.4	6.2	5.3
Labor Force Participation Rate (percent)	66	66.2	66	66	65.4	64.7	64.1	63.7	63.2	62.9	62.7
CPI-All Items (percent change)	3.4	3.2	2.8	3.8	-0.4	1.6	3.2	2.1	1.5	1.6	0.1
All Items Less Food and Energy (percent change)	2.2	2.5	2.3	2.3	1.7	1	1.7	2.1	1.8	1.7	1.8
Shelter (percent change)	2.6	3.4	3.7	2.5	1.1	-0.4	1.3	2.2	2.3	2.8	3.1

[a]Revised.

Note: Unless noted, figures are not inflation-adjusted.

Sources: Bureau of Labor Statistics and Bureau of Economic Analysis.

Colorado Economic, Employment, and Population Outlook

Economy

Colorado continued to post faster economic growth than the nation in 2015, ranking fourth in real GDP growth, behind California, Oregon, and Texas. The pace of employment growth ranked the state 8th nationally in September 2016 and 2nd in the region. The notion of an outperforming economy is not new to the state—even viewing longer-term growth statistics, Colorado tends to be above the median for growth in GDP, employment, population, and the labor force. Per capita personal income and average annual pay remain above the national average, though the pace of income growth is lagging.

Nominal GDP in 2015 increased to $314.9 billion in Colorado. Real GDP increased 3.6% year-over-year compared to 2.6% growth nationally. Personal income rose 4.2% in 2015. Per capita personal income rose 2.3% compared to 3.7% nationally. Colorado's unemployment rate stood at 3.6% in September, making it the eighth lowest nationally—a symptom of the talent shortage that currently exists in the state. The only period that the unemployment rate was lower in Colorado was during the late-1990s tech boom.

COLORADO RANK AMONG OTHER STATES

Metric	1-Year	3-Year	5-Year	10-Year
Real GDP Growth	4	3	5	11
Employment Growth	8	5	3	4
Population Growth	2	3	3	4
Personal Income Growth	23	1	2	7
PCPI Growth	43	1	2	30
PCPI	13	18	22	13
Average Annual Pay Growth	28	26	18	23
Average Annual Pay	13	14	13	11
Unemployment Rate	8	18	29	20
Labor Force Growth	7	10	7	5
FHFA Home Price Index	2	2	4	3

Data Sources: Bureau of Economic Analysis (2015), Bureau of Labor Statistics (9/16), U.S. Census Bureau (2015), Bureau of Labor Statistics (2015), Bureau Federal Housing Finance Agency All Transactions Index (Q3 2016), BRD calculations. Note: 1-year, 3-year, and 5-year are based on the compound annual growth rate.

The U.S. city average all items Consumer Price Index for All Urban Consumers (CPI-U) increased by 1.5% in 2013, 1.6% in 2014, and 0.1% in 2015. Inflation is expected to average 1.2% in 2016 and 2.2% the following year. Core inflation—all items less food and energy—increased nationally 1.8% in 2013, 1.7% in 2014, and 1.8% in 2015.

Inflation is reported by the Bureau of Labor Statistics for the Denver-Boulder-Greeley combined metropolitan statistical area, which is often used as a proxy for Colorado. The state typically tracks closely with national inflation, although prices recently increased faster, at 2.8% in 2013, 2.8% in 2014, and 1.2% in 2015. In 2016 and 2017, Colorado prices are expected to rise 2.7% and 2.8%, respectively. Core inflation in the Denver-Boulder-Greeley region increased 3.2% in 2013, 2.9% in 2014, and 3.3% in 2015. Shelter prices increased 4.5% in 2013, 5% in 2014, and 5.7% in 2015.

For more than 50 years, the Colorado Business Economic Outlook has been compiled by industry leaders in the state, and presented by the Business Research Division (BRD) of the Leeds School of Business at the University of Colorado Boulder. This book presents historical data and forward-looking estimates on employment for each sector of the economy. It also offers discussion on other relevant economic metrics, ranging from sales and cash receipts to building permits and airport enplanements. This section lays the foundation for the each of the NAICS supersectors by providing an overview of labor force and wage and salary employment totals.

Labor Data Sets

The data for this forecast are derived from two U.S. Bureau of Labor Statistics (BLS) sources: Current Employment Statistics (CES) and Local Area Unemployment Statistics (LAUS).

The CES data set is the most frequently cited labor series and is typically used to evaluate sector trends. Compiled from a survey of companies, it includes full-time and part-time workers, temporary workers, employees on paid holiday or sick leave, and those who worked for only part of a pay period. It does not include sole proprietors. CES data for a particular year are revised twice—3 months and 15 months after the end of the year—based on the Quarterly Census of Employment and Wages (QCEW) that all firms are required to submit.

AVERAGE ANNUAL PAY BY SECTOR, 2015
COLORADO AND THE UNITED STATES

Sector	Colorado	United States
Agriculture, Forestry, Fishing, Hunting	$34,524	$31,977
Mining	114,722	102,462
Utilities	93,263	101,445
Construction	55,347	57,009
Manufacturing	66,483	64,305
Wholesale Trade	79,148	73,363
Retail Trade	30,070	29,742
Transportation and Warehousing	51,848	49,931
Information	94,154	95,098
Finance and Insurance	88,023	100,286
Real Estate and Rental and Leasing	53,067	54,006
Professional and Technical Services	88,868	89,785
Mgmt of Companies and Enterprises	142,412	116,737
Administrative and Waste Services	37,681	37,275
Educational Services	38,888	47,968
Health Care and Social Assistance	48,166	47,296
Arts, Entertainment, and Recreation	35,368	36,128
Accommodation and Food Services	20,375	19,415
Other Services	37,475	35,116
Government	52,407	53,309
All Industries	54,182	52,942

Source: Bureau of Labor Statistics, Quarterly Census of Employment an Wages.

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Colorado Economic, Employment, and Population Outlook

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COLORADO RESIDENT LABOR FORCE
2008-2017
(Not seasonally adjusted)(in thousands)

Labor Force	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[b]
Colorado Labor Force	2,716.6	2,723.0	2,724.4	2,736.1	2,759.4	2,780.5	2,815.2	2,828.5	2,891.5	2,958.0
Total Employment	2,585.2	2,524.4	2,486.4	2,507.3	2,542.3	2,590.7	2,674.6	2,718.7	2,791.0	2,844.0
Unemployed	131.4	198.5	238.0	228.8	217.2	189.9	140.6	109.8	100.5	114.0
Unemployment Rate	4.8%	7.3%	8.7%	8.4%	7.9%	6.8%	5.0%	3.9%	3.5%	3.9%

[a]Estimated. [b]Forecast.

Note: There are slight differences between the LAUS data series and the CES employment data series that is used throughout the rest of this book.

Source: Colorado Department of Labor and Employment (LAUS data) and Colorado Business Economic Outlook Committee.

COLORADO NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT
2008-2017
(in thousands)

Sector	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[b]
Natural Resources and Mining	28.5	24.2	24.4	27.9	30.3	30.6	34.1	31.1	23.2	23.0
Construction	161.8	131.3	115.1	112.5	115.8	127.5	142.2	149.5	157.0	166.0
Manufacturing	142.3	128.0	124.2	128.1	130.9	132.8	136.6	141.4	143.7	146.0
Trade, Transportation, and Utilities	429.3	403.8	397.6	401.7	409.7	420.2	432.9	445.3	454.7	461.8
Information	76.8	74.7	72.0	71.4	69.8	69.8	70.3	70.7	71.4	72.5
Financial Activities	155.6	148.0	144.3	143.9	146.7	151.0	153.9	159.5	164.1	169.4
Professional and Business Services	353.7	331.8	330.8	341.5	356.9	372.6	386.5	397.9	404.0	413.2
Educational and Health Services	250.5	257.2	264.7	273.7	282.6	286.7	298.9	312.9	325.0	335.6
Leisure and Hospitality	272.9	262.4	263.0	271.4	279.7	289.4	300.4	313.3	324.1	336.1
Other Services	94.8	93.7	92.4	93.7	96.0	97.7	100.7	103.0	105.2	107.6
Government	384.1	390.5	393.8	392.9	394.8	403.7	408.5	416.7	423.7	428.4
Total[c,d]	2,350.3	2,245.6	2,222.3	2,258.6	2,313.0	2,381.9	2,464.9	2,541.2	2,596.1	2,659.6

[a]Estimated. [b]Forecast.

[c]Nonagricultural self-employed, unpaid family workers, and domestics are excluded from the total.

[d]Due to rounding, the sum of the individual sectors may not equal the total.

Sources: Colorado Department of Labor and Employment (CES Data) and Colorado Business Economic Outlook Committee.

The LAUS labor series provides an estimate of the size of the total labor force and is used to calculate the unemployment rate. The LAUS data considers the labor force as everyone of working age who is actively employed or looking for a job. Students, retirees, stay-at-home parents, institutionalized individuals, and discouraged workers are not included in the workforce. This data series, which is more inclusive than the CES data set, is compiled from a survey of households. It includes farm workers, self-employed individuals, and full-time or part-time employees.

Labor Force and Unemployment

The unemployment rate in Colorado has declined steadily for the past five years coming out of the Great Recession. The unemployment rate averaged 8.7% in 2010, falling to 3.9% in 2015. Unemployment fell further in 2016, dropping to 2.9% in March before inching up to 3.6% in September. Through September 2016, Colorado's labor force increased year-over-year uninterrupted for six years while the number of unemployed decreased. The number of unemployed increased year-over-year in mid-2016 for the first time in 64 months as job creation lagged growth in the labor force.

Employment

After growing by 76,300 jobs (3.1%) in 2015, the pace of employment growth moderated in Colorado in 2016, with the state adding 54,900 jobs, or 2.2% growth. Incomes rose in the state, real estate prices spiked, and the value of construction grew year-over-year. New companies were lured to the state, and many more grew organically as demand for goods and services improved. This trend will continue in 2017, with the state adding 63,400 jobs, or 2.4% growth.

Population Overview

Total Population Change and Comparison to United States

Colorado's July 2015 population was estimated at 5,456,584, an increase of almost 100,000 from the previous year. Natural increase (births minus deaths) accounted for 30,000 of the increase, with net migration contributing to the remaining 70,000. The increase of 1.9% ranked second in the nation, behind North Dakota, and seventh in total change. Year 2015 was the first time

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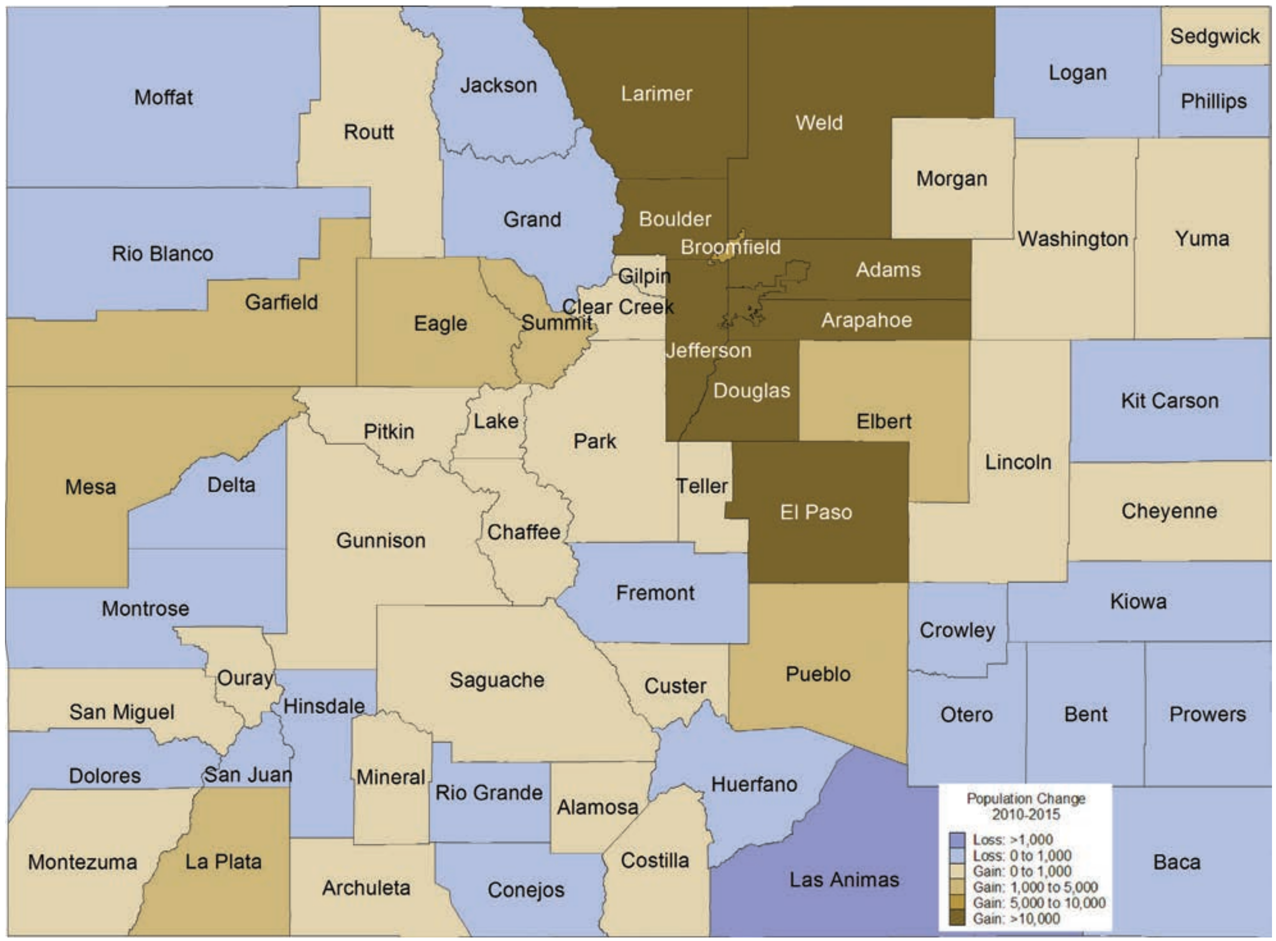
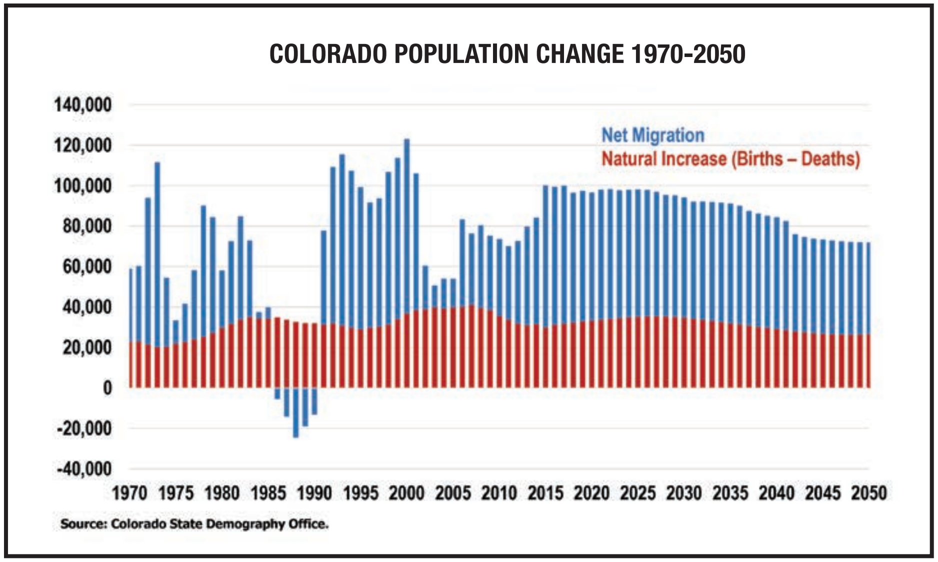
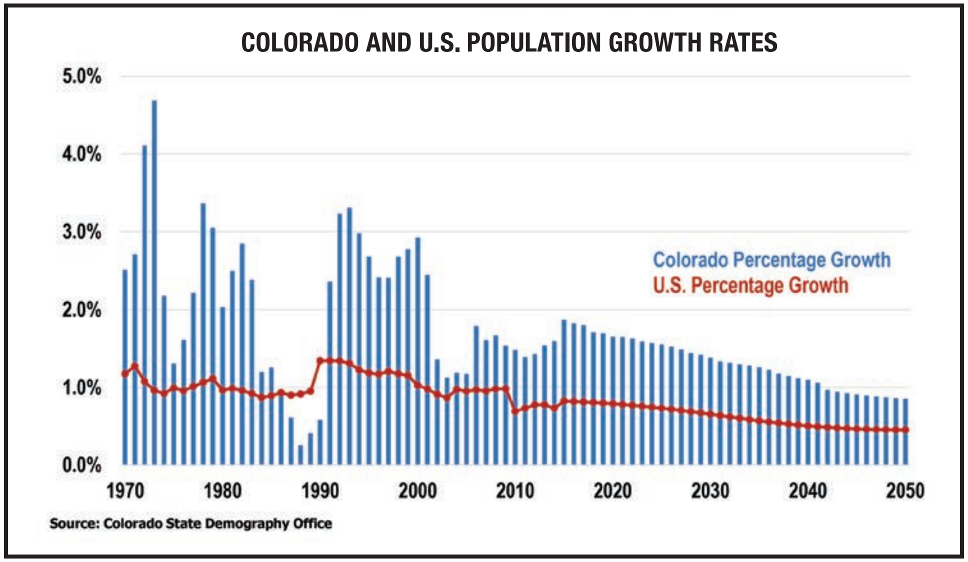
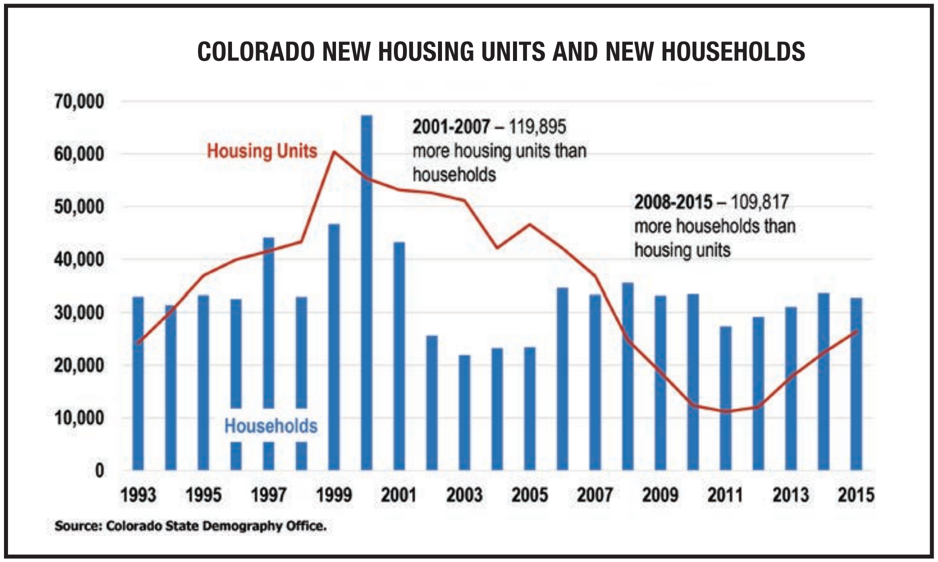
COLORADO POPULATION CHANGE 2010 TO 2015

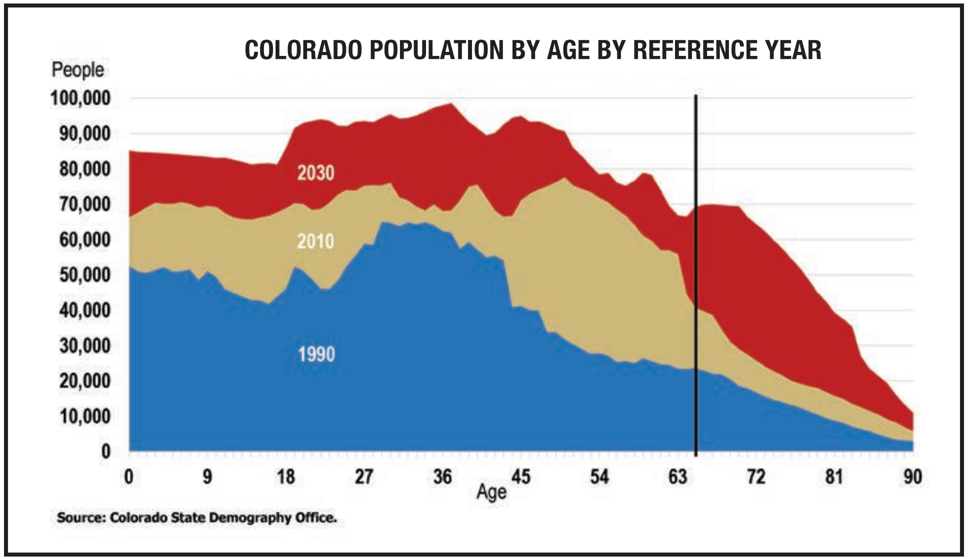


Source: Colorado State Demography Office.









Colorado had increased by 100,000 since 2001. During the 1990s Colorado increased by more than 100,000 in seven of the years. Total births were estimated at 66,000, and deaths estimated at 36,000. The birth rate for Colorado fell during the recession and is still below pre-recession rates. Total births have picked back up in the last two years but are also still below 2007 levels. Deaths have been steadily increasing from 28,000 annually in 2000 to 36,000 annually in 2015 due to the aging of the population. Colorado's net migration of 70,000 ranked fifth among states in the United States. Florida was first, with over 330,000 net migrants. Colorado's net migration per 1,000 in population is 12.5, which ranks fourth in the United States. Although Colorado has been growing relatively fast compared to other states, its growth rate of 1.9% is significantly lower than its 3% growth rate during the 1990s.

Colorado Economic, Employment, and Population Outlook

Change by County

Growth throughout the state has been disparate, with 96% of the population growth between 2010 and 2015 occurring in the Front Range and 68% of the total in the Denver Metro area. Twenty-three counties outside the Front Range recorded a population loss between 2010 and 2015. Twenty-nine counties experienced net out-migration and 15 counties experienced a natural decline. Many of the counties with natural decline have also been experiencing net out-migration, which will make their long-run population sustainability difficult.

In 2015, Denver became the county with the largest population, surpassing El Paso. Denver also experienced the largest increase in population, by more than 18,000. The largest decline in population was in Conejos County, with a loss of 170. The fastest-growing counties were a mix of larger metro counties and smaller mountain counties. Most of the counties experiencing declines are those on the Eastern Plains and in the San Luis Valley that depend on agriculture or smaller Western Slope counties that rely on natural resources.

Housing

Housing unit growth has picked up to an estimated 26,300 units in 2015 but it is still behind household formation, which is creating continued tightness in the housing market and price escalation. Household formation is forecast to continue to grow around 33,000–35,000 annually, indicating that housing unit growth is still running behind. Demographically, it will be important to keep an eye on both the baby boomers, who are currently age 52–72, and the millennials, who are age 16–36. The boomers are quickly moving into the 70+ age group, where downsizing or moving to homes with fewer stairs and smaller yards to maintain often occurs. The 70+ age group is increasing by approximately 6% per year. The leading edge of the millennials is also a group to watch as they start to enter the group often associated with home ownership. The peak number of millennials was born in 1991, making them 25 years old in 2016. The majority are still in age groups where they would primarily live at home or are renters, but as a larger share of them enter their 30s there will be stronger growth in first time homebuyers.

COMPONENTS OF COLORADO RESIDNET POPULATION, 2008-2017
(In Thousands)

Year	Births (Resident)	Deaths (Resident)	Natural Increase	Net Migration	Population Change	Total Population[a]
2008	70.7	31.0	39.7	40.5	80.2	4,901.9
2009	69.1	30.5	38.6	36.3	74.9	4,976.9
2010	67.3	31.4	35.9	37.6	73.5	5,050.3
2011	65.9	32.0	33.9	36.4	70.4	5,120.7
2012	64.7	32.8	32.0	40.4	72.4	5,193.1
2013	64.7	33.6	31.1	48.5	79.6	5,272.7
2014	65.7	34.0	31.7	52.2	83.9	5,356.6
2015	66.3	36.2	30.1	69.8	100.0	5,456.6
2016[b]	66.9	35.7	31.2	67.0	98.2	5,554.8
2017[c]	68.3	36.5	31.8	67.0	98.8	5,653.6

[a]Due to rounding, the sum of the individual items may not equal the total.

[b]Estimated.

[c]Forecast.

Source: Colorado Department of Local Affairs, State Demography Office (July 1 estimates).

Forecasts

Colorado's population is forecast to continue to grow but at a slowing rate. The population is forecast to increase by an estimated 100,000 between 2015 and 2016 as well as between 2016 and 2017. The slowing growth is forecast due to a slowing economy, slowing birth rates, aging population, and slowing labor force growth. Although Colorado's growth is forecast to be slow, it is projected to continue to outpace the nation, growing at roughly twice the rate. Colorado is forecast to increase from 1.7% of the U.S. population currently to 2.1% by 2050.

The largest population growth by county continues to be along the Front Range. Between 2015 and 2020 the state is forecast to increase by almost 500,000. Eighty-six percent of this growth, or 420,000, is forecast for the Front Range, and of that, 270,000 is forecast for the Denver Metro area. The fastest growth is forecast for the north Front Range, at an annual average 2.6%, or 85,000. The 2040 forecast for the state remains at 7.8 million, with 6.5 million along the Front Range, or 83% of the total population.

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Colorado Economic, Employment, and Population Outlook

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Age

Age in Colorado remains a dominate force when understanding most trends in the state. The current and unique age distribution of the state (very few people over 65) is the result of years of migration trends, where Colorado has historically attracted young adults age 22–37 in large numbers. Today, many of the migrants to Colorado in the 1970s are aging into the 65+ group at a rate of approximately 6% per year. Most of the growth between 2015 and 2020 will be in the 65–74 year old age group. Due to the aging of the population, Colorado will experience faster growth in industries supporting the 65+ population, such as health care. However, Colorado will also experience faster growth in leavers from the labor force as many retire and slower growth in the labor force, both due to aging.

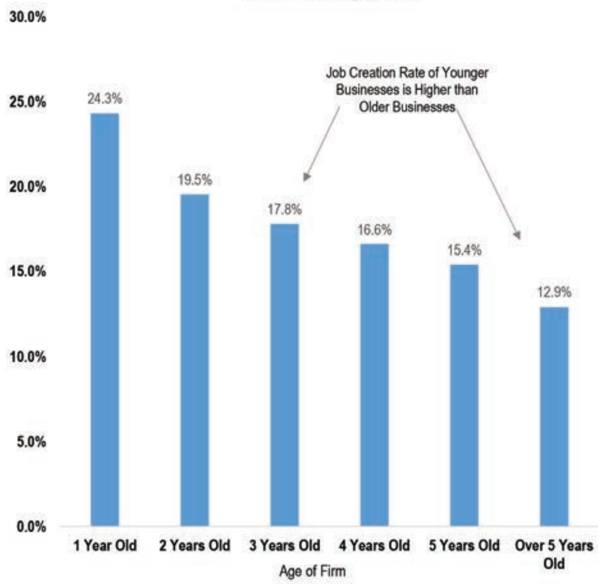
Colorado's race/ethnic composition is also very diverse by age. Forty-three percent of Colorado's population under 18 is nonwhite compared to 16% of the population over 65. As the population under 18 age into the prime working-age population, Colorado's labor force will become more racially and ethnically diverse. Since the highest level of diversity already exists at the youngest ages, the forecast changes between 2015 and 2050 will be largest in the ages over 25. Health outcomes, fertility, mortality, educational attainment, consumer preferences, and cultural differences, such as multigenerational housing, will be topics to follow.

The Importance of New Businesses to Economic Growth

The formation of new businesses is an important driver of economic and job growth. Although older businesses employ more people, new businesses tend to add more new jobs. In addition, the new businesses that stay in business grow faster than older businesses and are responsible for more innovations and productivity gains in an economy. The most recent data available show continued growth in new businesses in the state, which is expected to help generate further job gains into 2017.

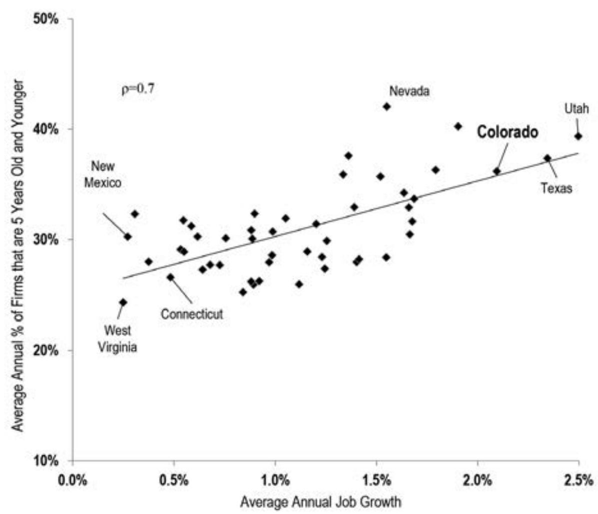
Colorado has experienced sustained growth in new business formation over the current expansion and has among the highest business startup rates in the nation,

JOB CREATION RATES BY AGE OF BUSINESS DURING CURRENT ECONOMIC EXPANSION



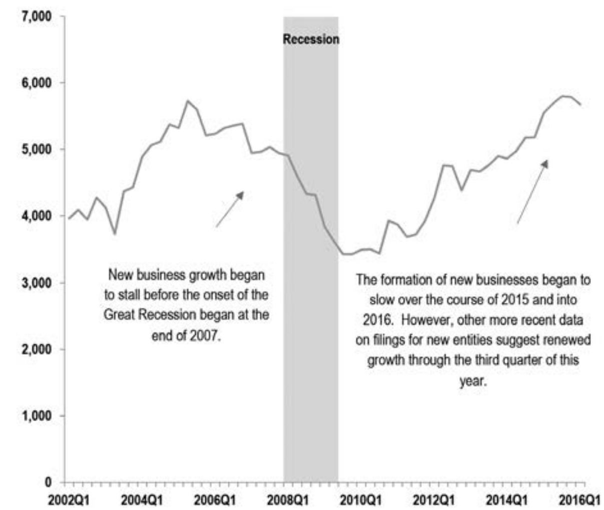
Source: U.S. Census Bureau, Business Dynamic Statistics and Governor's Office of State Planning and Budgeting calculations.

RELATIONSHIP BETWEEN PROPORTION OF YOUNG FIRMS IN STATE AND AVERAGE ANNUAL JOB GROWTH



Sources: U.S. Census Bureau, Business Dynamic Statistics; U.S. Bureau of Labor Statistics; and Governor's Office of State Planning and Budgeting calculations.
Note: The age of firm data is from 2010 to 2014, the latest year of available data, while the average annual job growth is from 2010 to 2015. The correlation analysis excludes North Dakota because of the unique circumstances of its job growth coming out of the Great Recession. Its growth was mostly tied to the oil and gas production boom coming that makes it an outlier among states. The correlation between young firms and job growth is stronger, at 0.8, over a longer period going back to 1990.

NEW BUSINESS FORMATION IN COLORADO, 2002-Q1 2016, SEASONALLY ADJUSTED



Source: Colorado Department of Labor and Employment; Governor's Office of State Planning and Budgeting calculations.

helping it generate better job and economic growth than most states. This growth has occurred across a diverse set of industries, including in high tech-related industries, which have been important drivers of Colorado's economic performance in recent years. New business formation tends to be higher along the Front Range, with its large, educated population and diverse economy.

Job Gains from New Businesses

A constant supply of new businesses is vital for job growth. Without the formation of new businesses, the economy would lose jobs in most years. During the current expansion, from 2010 to 2014 (the latest data available), new businesses added an average of 47,000 jobs each year in Colorado. This information is based on data from the U.S. Census Bureau's Business Dynamics Statistics (BDS) dataset, which contains data on employment levels by firm age. All other businesses, in total, actually shed jobs during this time.

Although some new businesses do not survive, the data indicate that, on average, roughly 45% of new businesses still exist after five years. Also, new businesses that survive and are successful in developing new products and business practices add jobs at a more rapid pace than older businesses. However, young businesses exit the marketplace at a higher rate than older businesses and thus also have a higher rate of job loss.

The experimentation process of new business formation, with some succeeding and growing while others exit, leads to innovation and productivity growth. Research indicates that a large portion of productivity gains in an economy are driven by the displacement of less productive businesses by newer, more productive businesses (Davis, Haltiwanger, and Jarmin. *Turmoil and Growth: Young Businesses, Economic Churning, and Productivity Gains.* 2008). New firms are also responsible for most of the innovations that improve living standards (Baumol, Litan, and Schramm. *Good Capitalism, Bad Capitalism, and the Economics of Growth and Prosperity.* 2009). This is because entrepreneurs seek to create value by developing new products and ideas.

Colorado's High Rate of New Business Formation

Colorado had a higher proportion of new and young firms—firms five years old and under—compared to other states during the current economic expansion period, from 2010 to 2014, based on the latest available BDS data. During this time, Colorado had the seventh-highest concentration of young firms, with 36.2% of all business five years old and younger. More recently, the Kauffman Foundation, a leading organization for entrepreneurship research and advocacy, ranked Colorado fifth among the 25 largest states in its 2016 Index of Startup Activity.

Colorado's high proportion of young firms is one important factor that helps explain the state's relatively high overall job growth rate. Because of the significance of new businesses to job creation, the portion of a state's businesses that are young—firms five years old and under—correlates strongly with a state's overall job growth over time. The scatterplot shows the relationship between a state's proportion of young firms and its average job growth during the current expansion.

There are several reasons for Colorado's high rate of new business formation. The state has an entrepreneurial culture and population of risk-taking individuals, as well as a business climate that supports new businesses and a diverse base of growing industries. It also has had favorable age demographics for entrepreneurship and a growing population of people who have successfully created businesses and can provide their expertise and knowledge to help others.

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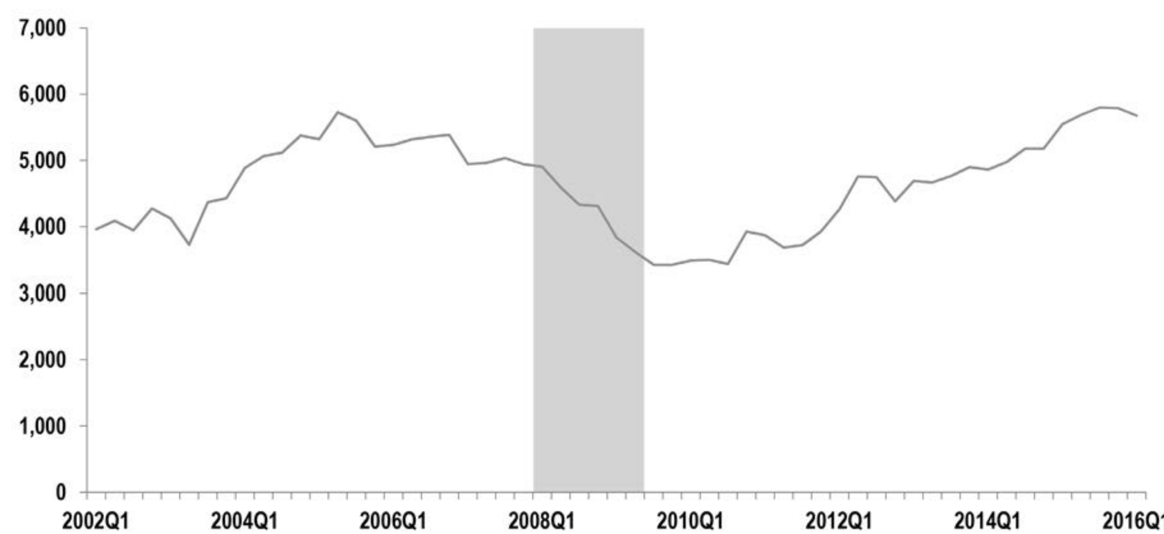
NEW HIGH-TECHNOLOGY BUSINESSES FORMED IN COLORADO, Q1 2016



Source: Colorado Department of Labor and Employment; Governor's Office of State Planning and Budgeting calculations.

Colorado Economic, Employment, and Population Outlook

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Networking opportunities for entrepreneurs are one of the most important ingredients for new business activity to occur and sustain itself. Such networks enable entrepreneurs to collaborate, find investors and employees, share knowledge and information, and learn from others. Coloradans' collaborative nature fosters such networks of people and institutions, a phenomenon helping new businesses to start and grow.

Though Colorado has a higher proportion of young businesses than most states, this proportion is lower than in earlier periods. The nation overall also has a lower level of new business activity. The proportion of young businesses has steadily declined for the United States and Colorado over time. For example, Colorado's proportion of all businesses that are five years and younger was 34.4% in 2014, down from 47.9% in 1990, while the nation's proportion was 32.4% in 2014, down from 45.9% in 1990. Given the importance of young businesses to job growth, innovation, and productivity, these trends are likely contributing to the more modest overall economic growth in recent years.

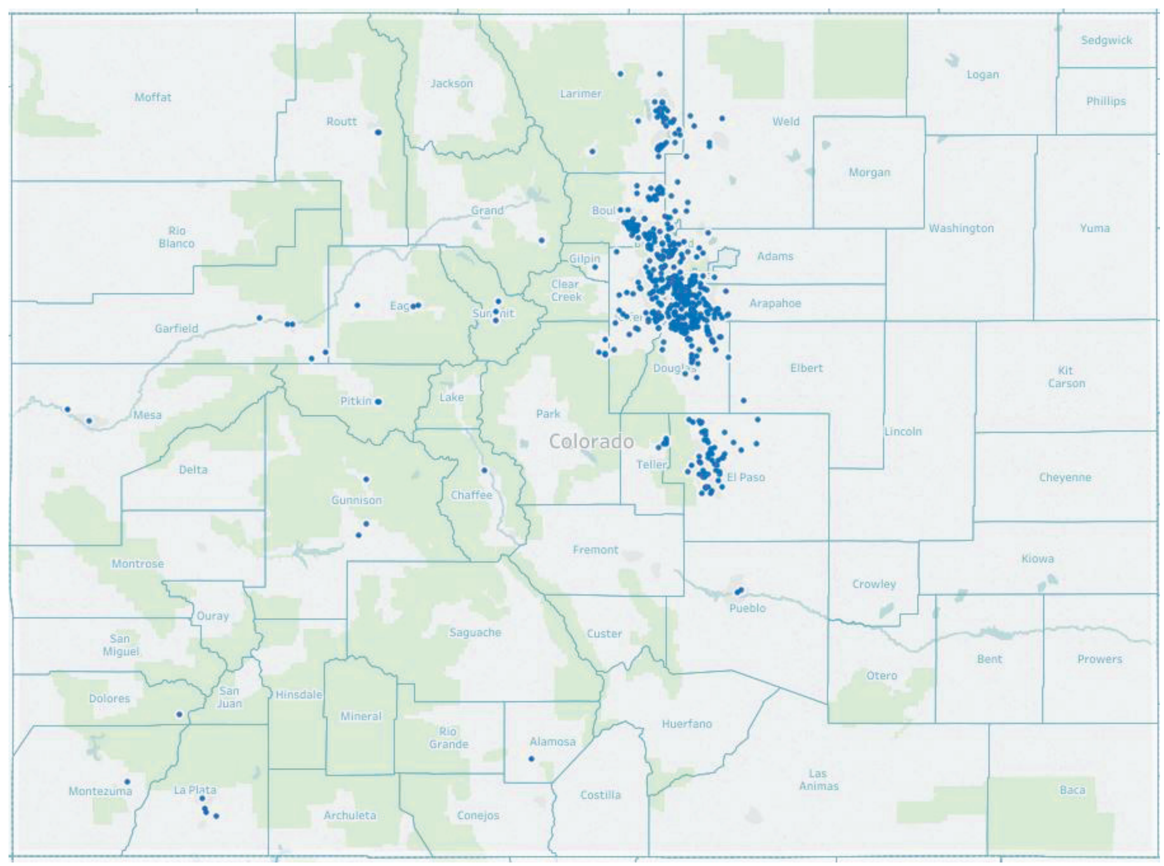
Recent Trends in New Business Formation

Sustained growth in new business formation in Colorado has been an important factor in the state's economic and job growth in recent years. Based on data from the Colorado Department of Labor and Employment on businesses that file with the state's unemployment insurance system, the number of new businesses grew 62.8% from Q1 2010, when 3,780 new businesses were started, to Q1 2016, when 6,150 new businesses were started. (Generally, every new business with at least one paid employee must file with the state's unemployment insurance system.)

Business formation began to slow over the course of 2015 and into the first part of 2016, but has remained positive. The number of new businesses in Colorado increased just 2.3% in Q1 2016 over Q1 2015. In comparison, new business formation grew 14.1% over the same period a year prior. This slowdown is likely one reason for the state's moderating job growth since 2015. However, there is evidence that business formation has picked up in 2016. Data from the Colorado Secretary of State show that filings of new entities formed to do business in the state, which mostly consist of limited liability companies and corporations, were 7.4% higher in the Q3 2016 compared with the year prior. This increase in activity will help support continued economic growth for the state.

The trends in new business formation are shown in the new business formation in Colorado chart. After a decline starting in 2007, preceding the Great Recession,

NEW HIGH TECHNOLOGY BUSINESS FORMED IN COLORADO, Q1 2016

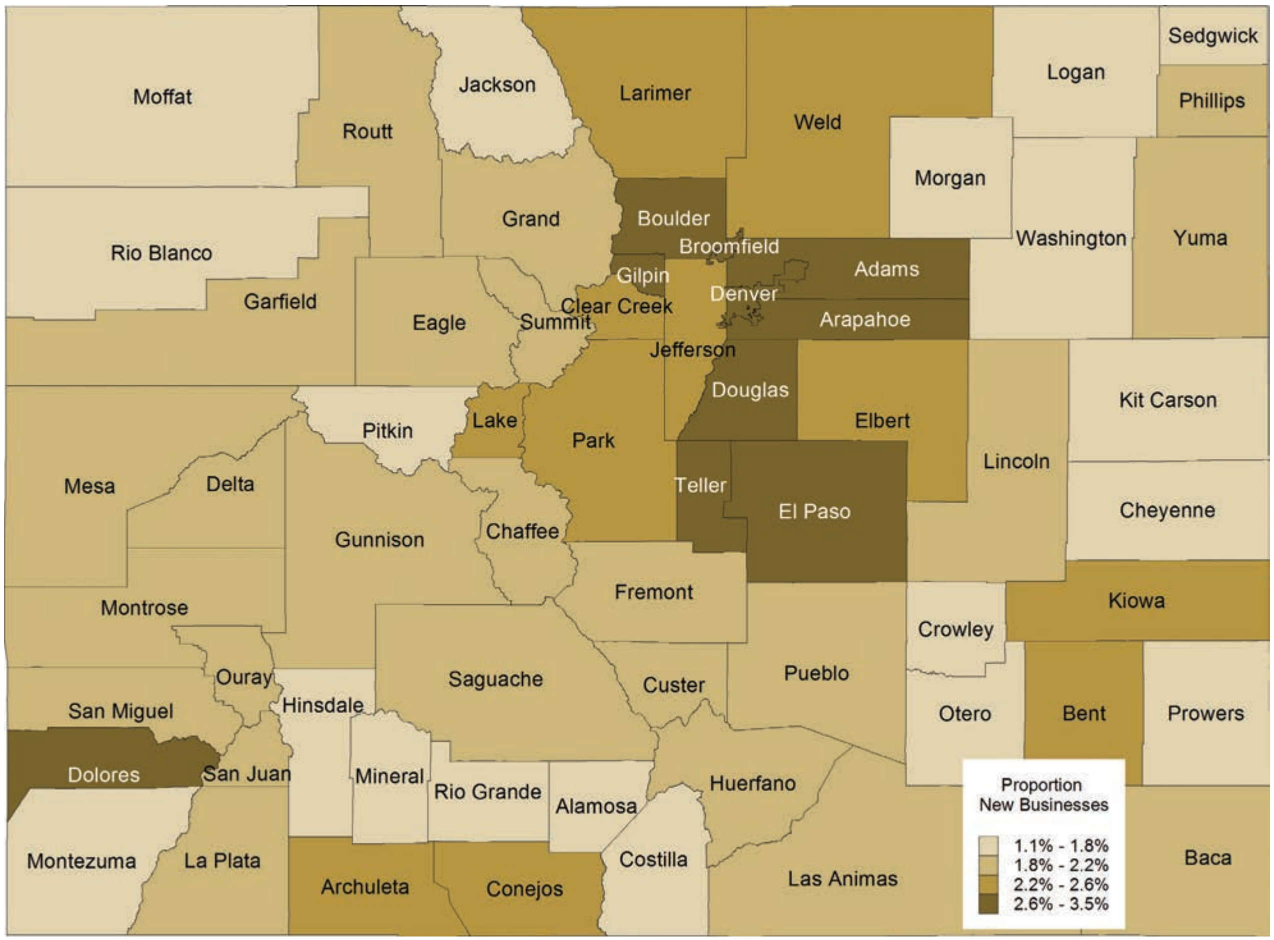


Sources: Colorado Department of Labor and Employment, and Governor's Office of State Planning and Budgeting. Note: As with many statistics, these data do not provide a perfect representation of economic activity. Some of the data may not exactly indicate a new firm was created in a given time period.

new business growth resumed in 2010. The three-year decline in new businesses, as well as the slow recovery in new business growth, was a major contributor to the high level of job losses and weak job growth during and subsequent to the recession. The slowdown in new business formation in 2015 into the early 2016 is also evident.

Continued growth in new business formation is expected to help fuel job creation in the state in 2017. Colorado has a growing population, a highly skilled workforce, and diverse mix of industries that are producing goods and services that are in demand in today's economy, including technology-intensive and business services industries.

PROPORTION OF NEW FIRMS BY COUNTY, 2010-Q1 2016



Sources: Colorado Department of Labor and Employment, and Governor's Office of State Planning and Budgeting calculations.

This mix is producing business creation opportunities, not only from new product ideas, but also from providing products and services to expanding businesses.

Additionally, the pool of resources available to support entrepreneurs to bring their ideas to fruition, such as business funding, managerial talent, and technical expertise, has grown as a result of the ongoing efforts of community leaders and entrepreneurs. The state's growing reputation as a place where entrepreneurs can succeed has helped to attract more resources to support new businesses. Finally, increased networking activities for entrepreneurs will help build the resources and support necessary for continued new business formation.

However, despite these favorable characteristics, there are some constraints on new business growth. Some businesses report difficulty obtaining enough financing and skilled workers to build and grow. In addition, many rural areas across the state have less of the necessary ingredients to support high levels of new business growth, and thus will continue to have more subdued growth.

New Businesses by Industry

In Q1 2016, the most recent data available, new businesses were formed across a diverse set of industries in the state. However, the professional, scientific, and technical services and construction industries generated the most new businesses. Professional, scientific, and technical services accounted for over 20% of new businesses, while construction added more than 9% of all new businesses.

New High-Tech Businesses

An important driver of the Colorado economy is economic activities surrounding ideas, information, and technology. Industries with high concentrations of workers skilled in science, technology, engineering, and mathematics (STEM), called "high-technology" industries, are the main drivers of this activity. The state's high-tech

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Colorado Economic, Employment, and Population Outlook

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firms are involved with a wide range of activities, such as computing and software, data processing, aerospace, medicine, communications, architecture, engineering, and other professional and technical services. Colorado has a relatively high concentration of technology-related firms and workers, especially along the Front Range.

The high-tech industries and the economic activities associated with them have been an important part of the state's growth in the current expansion. These industries sell much of their products outside the region, generating income for the state. They are also involved with innovative activities and have high-paying jobs. As a result, growth in high-tech sectors leads to job growth in other sectors, from doctors and lawyers to services jobs, such as restaurants and personal services. Research has found that for every high-tech job created, five additional jobs are created over time in other sectors (Moretti. *The New Geography of Jobs.* 2012).

Growth in wages paid to workers in the high-tech sector accounted for about 14% all wage growth that occurred in the state from 2010 to 2015. However, considering the multiplier effect of the industry, which includes economic activity within the high-tech sector's supply chain as well as in other industries throughout the economy, the sector contributed an estimated 19% to total wage growth over the period. (The multiplier effects are based on EMSI's [Economic Modeling Specialists International] input-output model for Colorado.)

The new high-technology firms map shows the location of the 600 new companies in high-technology sectors formed in Q1 2016 (latest data available). New high-tech firms added about 675 new jobs to the economy in the first quarter and accounted for roughly 10% of all new business formation in the state. The largest number of high-tech businesses formed were in the following industries: computer systems design services, computer programming services, data processing, engineering services, and software publishing. Most of these businesses are forming in or near urban areas, but activity in high-technology sectors is occurring across the state. The continued strong level of new high-tech business formation, at least through the beginning of 2016, bodes well for the state's economic performance in the near term.

New Business Formation across Colorado

As with differences across states, not all areas within Colorado have the same levels of new business formation. Areas with larger, growing populations and more diverse economies with more skilled workforces tend to have higher concentrations of new businesses than those without. As a result, these areas have more job growth. The proportion of new firms by county map displays the proportion of all firms in each county that were new during the current expansion, from 2010 through the first quarter of 2016.

Broomfield, Denver, and Douglas counties have had the highest level of new business formation during the current economic expansion. Other Front Range counties with high levels of new business formation include Adams, Arapahoe, Boulder, El Paso, Jefferson, Larimer, and Weld. Dolores, Elbert, Gilpin, Lake, and Teller counties are among the counties that have had the higher levels of new business formation despite their smaller populations. The following counties, all rural, have had the lowest levels of new business concentration during the expansion: Cheyenne, Costilla, Jackson, Logan, Mineral, Moffat, Otero, Prowers, Rio Grande, and Sedgwick. ✤

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Agriculture

Colorado Agriculture Is on a Rough Road

It is going to be a tough couple of years for Colorado agriculture. Farmers and ranchers who were in a good financial situation heading into 2016 will weather this current downturn, but the effects of low cattle and grain prices will reverberate throughout Colorado's economy. Already, implement dealers have closed, agricultural lenders are reporting increases in nonperforming loans, and land prices, which had climbed substantially in recent years, have begun to moderate.

Colorado's net farm and ranch income is projected to fall to $444 million in 2016, well below the nearly $1.3 billion reported in 2015 and the lowest since 1986. The forecast for 2017 does not present a rosier picture, with a further drop in net income, to $392 million. Colorado had a record-high net farm income of $1.8 billion in 2011.

Colorado farms and ranches face a far different outlook than just a few years ago. Profits in the largest sectors, cattle and small grains, are the lowest in years, and farm incomes will take a hit. While some production costs, such as fuel and fertilizer, are lower, they do not sufficiently counterbalance cattle prices, which are currently averaging 17% less than last year's season average price, and are forecast to drop further in 2017.

According to statistics from the Global Trade Atlas (State Edition), exports of Colorado food and agricultural products reached a high of about $1.8 billion in 2014. Exports have since declined, based on the relative strength of the U.S. dollar compared to other currencies but the longer-term growth of exports of Colorado food and agricultural products has been significant, increasing by 375% in the past two decades. The International Trade Administration reports that every dollar of exports creates another $1.40 of economic activity and every $1 billion of exports supports some 5,000 jobs.

Exports are not forecast to rebound quickly because of the strength of the dollar and shakiness of the rest of the world's economy compared to the United States. However, food and agricultural interests stand to benefit in the longer-term from the proposed Trans-Pacific Partnership (TPP) and Transatlantic Trade and Investment Partnership (T-TIP) trade agreements. These agreements would increase access and decrease import tariffs on products important to Colorado, such as beef, wheat, and dairy products. China has also signaled a willingness to begin discussions that could potentially open its markets to U.S. beef for the first time since 2003.

Huge returns in recent years provided the motivation to aggressively expand the U.S. beef herd. The economic stage has quickly changed, but the adjustment in cattle numbers is just starting. Other protein sources, such as chicken and pork, whose retail prices have dropped quickly, are now more attractive to consumers.

Negative returns have made cattle feeders reluctant to bid aggressively for feeder animals, even as the prices of corn and other feed sources fell, as they are still raising animals they bought at higher prices and are now forced to sell at very low profit levels—or even a loss. Lower prices are, however, leading to better export numbers for beef.

The share of heifers being sold as feeder cattle is beginning to increase, indicating that breeding herd expansion is slowing earlier than expected.

Prices for wheat and corn are hitting lows not seen for more than 10 years. Both corn and wheat prices are below farmers' cost of production. Wheat and corn prices are expected to rebound slightly in 2017.

A factor that is hard to quantify in farm receipts is income from energy leases, such as oil and gas royalties and wind farm leases. These monies are often a

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COLORADO FARM INCOME AND PRODUCTION EXPENSES
2008–2017
(In Millions of Dollars)

Year	Gross Value of Farm Revenue	Total Farm Production Expenses	Net Farm Income
2008	$6,989.6	$5,882.4	$1,107.2
2009	6,910.1	6,044.2	865.9
2010	7,089.6	5,856.2	1,122.2
2011	8,485.5	6,650.0	1,828.1
2012	8,340.6	7,003.2	1,269.4
2013	8,551.6	7,211.0	1,340.6
2014	9,087.2	7,942.7	1,144.5
2015	8,794.3	7,500.0	1,294.3
2016[a]	7,244.4	6,800.0	444.4
2017[b]	7,141.8	6,750.0	391.8

[a]Estimated.

[b]Forecast.

Source: Colorado Business Economic Outlook Agriculture Committee.

Agriculture

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significant source of income to farm and ranch families when commodity prices are low, but current depressed oil and gas prices have led to a decrease in these revenues as well. An estimated 10,000 Colorado farmers and ranchers have oil and gas wells on their property, although they may not own the mineral rights. Wind turbine lease payments, which are stable and do not fluctuate like oil and gas royalties, accounted for $9 million in payments to all Colorado landowners in 2015 (*Denver Post,* March 25, 2016).

Urban and small acreage farms are growing in number. In aggregate, they might not contribute huge volumes of production but they are helping meet the demand among chefs for more local produce and create new linkages between agriculture and consumers. The emergence and growth of nontraditional food production is creating more diversity in Colorado food systems.

Cattle Prices Continue Slide from Record Highs

Livestock continue to make up the largest share of Colorado's agriculture economy, accounting for 65% of estimated cash receipts in 2016. While cash receipts declined overall, livestock continued to hold about the same share.

Prices for steers and heifers reached a record high in 2014, but have been dropping ever since and do not look any more favorable for 2017. The 2016 season average prices for steers and heifers is estimated at $123 per hundredweight (cwt), and the 2017 season average price for steers and heifers is forecast at $117 per cwt, the lowest since 2010, and a 21% drop from 2014 prices that averaged $148 per cwt. These reduced prices reflect the rebuilding of the U.S. cattle herd after years of drought and the resulting higher supply of cattle and beef to purchase. Lower corn and hay prices and improved grazing conditions gave ranchers the opportunity to increase their herds, but returns per animal will not be as high as they were just a few years ago.

Colorado fed cattle numbers are projected to rebound slowly, from the 2015 record low of 1.6 million to 1.67 million in 2016 and 1.7 million in 2017.

Colorado **hog** numbers are down as pork prices continue to decline despite lower corn prices. High prices caused by the porcine epidemic diarrhea virus (PEDV) in other parts of the country led to optimistic rebuilding of the herd, increasing the available supply and reducing prices. Colorado hog producers will see cash receipts drop to $165 million in 2016 and $160 million in 2017 due to less production.

Feed costs for **dairy** producers are down, giving them a rather stable price environment, although milk prices are down and close to the break-even point for most farmers. The bright spot for dairy farmers is that the rest of world has been adjusting milk production down, so U.S. exports are up, supporting prices beyond those supported by U.S. consumption alone.

Sheep prices performed better than expected in 2016. Lamb feeding may continue to rebound into 2017. Lamb and sheep are experiencing little to no price declines in contrast to other sectors. Imports from Australia are down in part to drought conditions there, allowing U.S. lamb to capture a larger share of the U.S. market.

Egg prices have not just settled but have hit their lowest level in six years, with eggs now in surplus as farmers rebuilt the U.S. flock after avian flu. Colorado egg producers maintain a flock of about 4.5 million hens, slightly less than one hen per Colorado resident, and produce 1.2 billion eggs annually.

Commodity Oversupply

The story across Colorado and the rest of the nation for corn is high yields and low prices. Lower prices increase demand for corn in the ethanol and export markets, as well as for use as feed. This increased demand has not

VALUE ADDED BY COLORADO AGRICULTURAL SECTOR
2008–2017
(In Millions of Dollars)

Year	Livestock	Crops	Total Value of Production	Value of Services and Forestry[a]	Government Payments[b]	Gross Value of Farm Revenue
2008	$3,844.3	$2,166.4	$6,010.7	$717.9	$261.0	$6,989.6
2009	3,462.9	2,249.3	5,712.2	1,006.1	191.8	6,910.1
2010	3,831.1	2,249.3	6,080.4	737.6	271.6	7,089.6
2011	4,320.2	2,740.8	7,061.0	1,189.1	235.4	8,485.5
2012	4,490.7	2,577.3	7,068.0	1,056.9	215.7	8,340.6
2013	4,682.4	2,284.6	6,967.0	1,345.6	239.0	8,551.6
2014	5,322.4	2,425.8	7,748.2	1,053.1	285.9	9,087.2
2015	5,501.0	2,145.3	7,646.3	929.4	218.6	8,794.3
2016[c]	4,131.4	1,963.0	6,094.4	950.0	200.0	7,244.4
2017[d]	4,074.9	1,871.9	5,946.8	975.0	220.0	7,141.8

[a]Includes sales of forest products, custom feeding fees, custom harvest fees, and other farm income. [b]Includes farm program payments directly to producers. [c]Estimated. [d]Forecast.

Source: Colorado Business Economic Outlook Committee.

brought about higher prices as corn production is up because of higher yields across the United States.

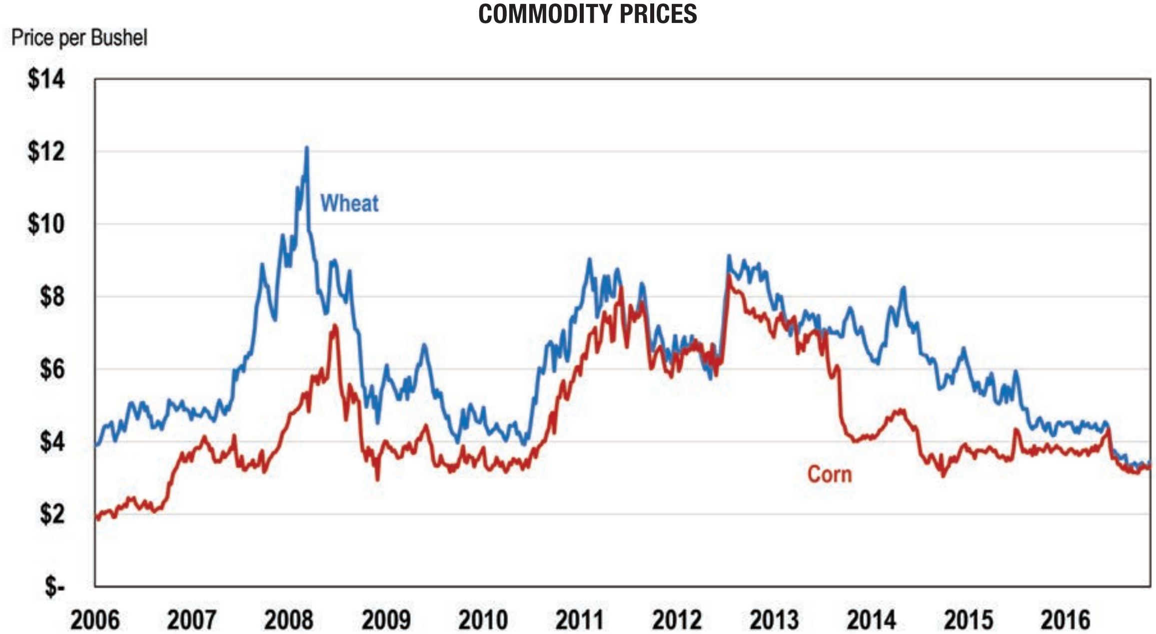
Corn production in Colorado for 2016 is forecast at 164.2 million bushels, up 22% from 135 million bushels the previous year, and the U.S. corn crop is projected to be a record 15.2 billion bushels. Prices dropped from $3.70 a bushel in 2015 to an estimated $3.15 per bushel in 2016, with a projected slight upturn in 2017, to $3.40, still less than half of the 10-year high corn price of $6.86 per bushel in 2012.

Despite projected lower prices, Colorado farmers still planted more acres of corn in 2016 than they did in 2015. Colorado corn producers are projected to harvest 1.20 million acres in 2016—240,000 acres more than the 950,000 acres harvested in 2015.

Colorado **wheat** farmers completed a record-breaking harvest in 2016, gleaning 105 million bushels of wheat compared to 81 million bushels in 2015. Although planted and harvested acres declined, timely rains and good growing conditions pushed winter wheat to a record-high yield of 48 bushels per acre. Slightly fewer wheat acres are projected for 2017, mostly due to farmers' regular crop rotation. Wheat does have the advantage of lower input costs than corn, although most wheat is projected to be sold at below the cost of production in 2016.

Wheat prices, already down to an estimated $3.25 for 2016 from $4.30 in 2015, are projected to rebound slightly, to a season average of $4.00 in 2017. Total cash receipts from wheat in Colorado are projected to decline from $359 million in 2015 to an estimated $342 million in 2016 and a projected $321 million in 2017. Lower prices have made U.S. wheat more competitive on the export market, but other countries also are awash in wheat and can provide better values to importers because of the relatively strong position of the U.S. dollar. A 29-year high in U.S. wheat stocks and high worldwide wheat stocks do not offer a rosy outlook in the near future for wheat prices.

COMMODITY PRICES



Sources: Bloomberg (USDA Toledo No.2 Yellow Corn Not on the River Spot Price, USDA No. 1 Hard Red Winter Wheat Spot Price/Kansas City Missouri). As of 11/21/16.

Hay prices continue to be significantly down from the highs seen when the United States was experiencing widespread drought. Production remained steady in 2016 and is expected to decrease slightly in 2017 as prices fall from $179 per ton in 2015 to an estimated $150 per ton in 2016 and a projected $145 per ton in 2017.

Colorado breweries continue to demand quality malting **barley.** Barley farmers harvested 74,000 acres of barley in 2016, up 11,000 acres from 2015, and production is estimated at 9.55 million bushels, up 17% from 2015. Barley prices are estimated to be lower for 2016, down to $4.75 per bushel from $6.20 in 2015, and to remain steady, at $4.75, in 2017 as production increases. Barley that does not meet quality standards for malting is sold as livestock feed at a much lower price.

Prices for Colorado **dry beans** are highly dependent on how much of the crop is exported to Mexico. If Mexican farmers have a poor bean crop, Mexico imports more Colorado beans. The average price for dry beans for 2016 is estimated to be $29 per bushel, down slightly from $30.20 in 2015. The price for 2017 is forecast to slip to $24 per bushel. Production is expected to increase as demand is currently good, and some acres are moved away from irrigated corn.

Consolidation in the retail market has created some price stabilization for **potatoes.** Large retailers, such as Kroger, Safeway, and Walmart, now purchase their potatoes on a contract price that is renegotiated every three months, providing a more stable price structure for the industry. The cash receipts for 2016 for the Colorado potato industry are estimated at $151 million, down from $165

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Agriculture

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million in 2015, and they are forecast to fall, to $148 million, in 2017. A favorable price differential in 2015 elevated potato exports to Mexico, which were down slightly for the first six months of 2016.

Colorado **sweet corn** had a good year in 2015 with an average crop and good prices. A steady stream of trucks left the Western Slope loaded with corn and demand was high enough that farmers were unable to fill all the orders at the end of the season. There was less loss to weather, insect pressure, and disease than usual.

Sunflower production in 2016 is up 12% from 2015 because of higher yields. Colorado remains the largest U.S. producer of millet, but farmers are not likely to increase millet acreage because its profitability is not expected to be greater than wheat or corn, even at their lower current prices.

Grape production was above average but not as large as 2015's bumper crop. The crop was undamaged by spring frosts in 2016, and hot weather in mid-summer allowed early ripening in some areas and varieties.

Western Slope **peach** growers had another strong year, with little hail damage and no significant frost affecting the crop. Cash receipts from fruit, including peaches, apples, and pears, are estimated to increase to $31 million in 2016, up from $26 million in 2015.

Detrimental weather continues to prevent maximum yields of Colorado **melon** and **cantaloupe.** Early hail took out a few acres in the spring, and high humidity and dew levels later in the season caused powdery mildew in some melon fields. Still, the cantaloupe, honeydew, and watermelon crop was slightly larger than in 2015, with somewhat more harvested acres and yields, and prices similar to that year. Farmers will base production decisions for 2017 on snow pack in the mountains in the winter and its contribution to available irrigation water.

Colorado's **green industry** is a bright spot for the agriculture economy as Colorado's population continues to increase and new homes are built, requiring sod, trees, and plants for landscaping. Cash receipts from the nursery and greenhouse industry are estimated at $314 million for 2016 and projected at $336 million for 2017. Receipts were $293 million in 2015.

Colorado farmers planted 5,800 acres of industrial **hemp** in 2016, nearly half of the industrial hemp planted in the United States. As of November 2016, it is difficult to estimate the value of this crop as different varieties are planted for different end uses, and it is not certain what the end market for all Colorado hemp will be. However, to put this into perspective, acres planted to industrial hemp in Colorado in 2016 was 10 times greater than acreage planted to cantaloupe and about double the acres in orchards that produce peaches.

Government payments to producers continued a recent downward trend in 2016, to $200 million from $219 million in 2015, but are expected to increase in 2017 as Agricultural Risk Coverage and Price Loss Coverage programs kick in for wheat and corn growers.

Total cash receipts to farmers and ranchers are expected to decline in 2016 and 2017 while expenses decrease modestly. Interest rates remain low, and fuel prices are at lower levels than a few years ago. Lower commodity prices are also bringing some downward adjustments in land costs. Farmers of all Colorado crops will need to be aware of their costs of production and practice cost control where they can. Near-term growth opportunities appear to not be in traditional commodity agriculture, but in niche products and value-added agriculture.

While the outlook for 2017 is anything but rosy, Colorado agriculture is in a relatively better place than much of the country. In September 2016, USDA's Economic Research Service reported that Colorado cash receipts had declined from $7.6 billion in 2014 to $7.4 billion for 2015—a decrease of only about 3% compared to a more than 10% decrease at the national level. Compared to Colorado, other states (especially the Midwestern corn-growing states, such as Iowa) had a higher ratio of crops versus livestock, and livestock was doing fairly well during those years. In addition, Colorado's agriculture sector is diverse. Similarly, Colorado did better than the national benchmark in 2014 when cash receipts rose 8.6% compared to 5.1%.

This is of little or no comfort to farmers and ranchers facing significantly less income while their expenses remain about the same. Diversification may be a solution, but in much of Colorado, there is insufficient water to grow different crops than those traditionally planted. Farmers and ranchers who cut costs to make it through the next one or two challenging years will certainly see an upturn in the future, but those facing the strongest headwinds are newer farmers with less capitalization. Established operations, if they planned well for future adversity while enjoying times of prosperity, should again weather this economic storm as they have downturns in the past. ✜

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Natural Resources and Mining

The Natural Resources and Mining Sector constitutes about 1.2% of Colorado employment, or 31,100 jobs in 2015. Colorado is an energy- and mineral-rich state. In the U.S. Energy Information Administration's (EIA) most recent assessment of 2014 proved reserves, Colorado was ranked 7th for petroleum liquids and 7th for wet natural gas. Colorado continues to be home to all, or part of, 12 of the top 100 natural gas fields in the nation and has the 4th-largest oil field (Wattenberg). In 2015, Colorado ranked 10th among the states in the production of coal, 4th in gold production, and 1st in the production of molybdenum. The Henderson Mine was again the nation's largest primary producer of molybdenum in 2015.

COLORADO NATURAL RESOURCES AND MINING EMPLOYMENT 2008–2017 (In Thousands)

Year	Employment	Percentage Change
2008	28.5	13.1%
2009	24.2	-15.1
2010	24.4	0.8
2011	27.9	14.3
2012	30.3	8.6
2013	30.6	1.0
2014	34.1	11.4
2015	31.1	-8.8
2016[a]	23.2	-25.4
2017[b]	23.0	-0.9

[a]Estimated. [b]Forecast.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

In addition to traditional energy resource development, Colorado is also one of the nation's leading renewable energy states, developing a portfolio mix of wind, solar, biomass, and hydroelectric energy resources. Colorado law now mandates that investor-owned utilities (IOUs) generate 30% of electricity from renewable energy by 2020. Cooperatives must achieve a 20% standard by that same year. From 2005 to 2015, Colorado had a net increase in electricity generation of 3.3 billion kilowatt hours (kWh), all from wind and solar. This was the highest increase in renewables among the six mountain region states according to the EIA.

The Natural Resources and Mining (NRM) industries make a significant contribution to Colorado's GDP, and generate some of the highest per worker income levels in the state. Despite the increases in crude oil production, driven by continued development of the Niobrara resource play in the Denver Basin, the low commodity price environment has significantly decreased the value (noninflation adjusted) of the NRM Sector, to $12.5 billion in 2016, a decrease of 11% from the previous year and 34% lower than the valuation peak in 2014. With the assumption of commodity stabilization and a modest price increase in 2016, the state's NRM Sector is expected to slightly increase value in 2017.

NRM employment represents about 1.2% of total employment in Colorado. Employment fell 25.4% in 2016 to 23,200 jobs. While the value of production is expected to increase on slightly higher prices, industry employment is expected to decrease modestly—less than 1%, with year-over-year increases in the second half of the year.

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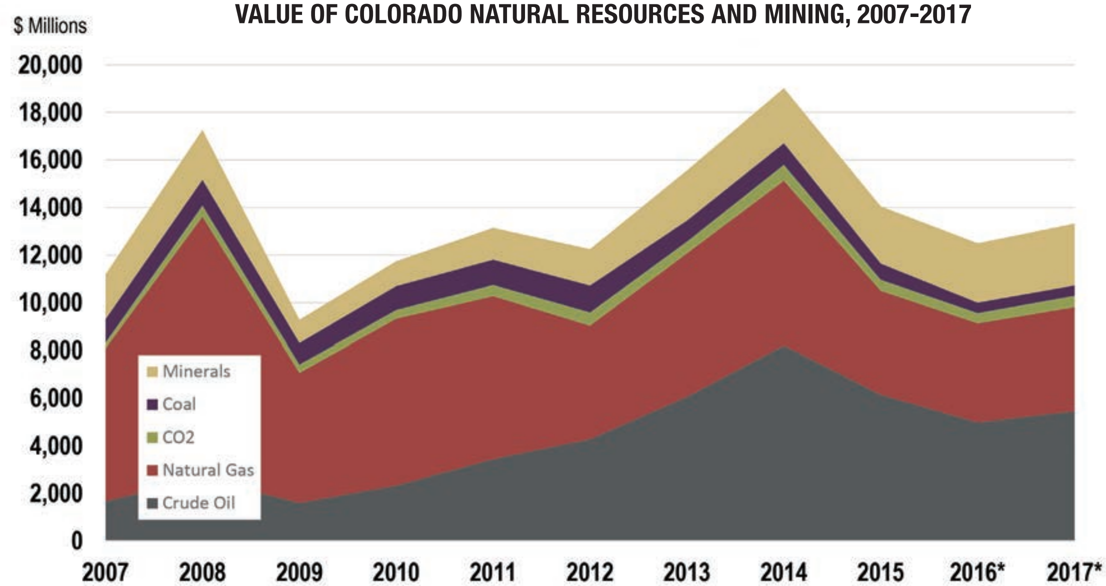
VALUE OF COLORADO NATURAL RESOURCES AND MINING, 2007-2017



*2016 estimate and 2017 forecast.
Sources: Colorado Geological Survey Mineral and Minerals Fuel Activity Reports, Colorado Oil and Gas Conservation Commission, Department of Minerals and Geology, and Colorado Business Economic Outlook Committee.

Natural Resources and Mining

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Oil and Gas

Colorado's total oil production will be valued between $4.9 and $5.0 billion in 2016. The value of state's natural gas production is estimated to be $4.1 billion with continued low natural gas prices. This represents a 13% decline in gross value of oil and gas from 2015, and is in line with the valuation of these commodities in 2012. Assuming energy prices see a modest improvement in 2017, Colorado natural gas and crude oil are expected to have a 7 – 10% increase in valuation in 2017. The Colorado Office of State Planning and Budgeting (OSPB) September 2016 economic outlook estimated severance tax collections for FY2016 (July 1, 2015 – June 30, 2016) at $18.9 million, a 93.3% decrease from the previous fiscal year. This dramatic decrease was due to lower oil and gas prices, combined with the ad valorem tax credit and the impact of the April 2016 Colorado Supreme Court ruling regarding allowable operator tax deductions. OSPB is forecasting severance tax revenue to be around $47.6 million in FY2016–17, and increase to $170 million in FY2017–18.

The rate of development in the Niobrara shale oil play will depend heavily on oil prices in 2017. No doubt, oil prices below $50 per barrel are making it challenging for many operators to continue drilling, especially when assets are in marginally productive areas. Additionally, there are now a number of wells drilled, but not completed. As prices rebound, these will be the first to come online.

The total revised value of Colorado's oil, gas, and carbon dioxide production for 2015 is $11 billion, a 31% decrease from the 2014 peak of $15.8 billion. The value of oil, gas, and carbon dioxide production for 2016 is projected to be about $9.6 billion, a roughly 13% decline from 2015. For 2017, the value of Colorado's production is estimated to increase modestly based on an assumption of increased oil prices in the $40 – $70 per barrel (bbl) range and gas prices remaining in the $2.50 – $3.50 per thousand cubic feet (Mcf) range. The complexities of current market supply and demand, coupled with macroeconomic and geopolitical uncertainties, make predictions of value especially difficult for 2017.

With a new Republican president and a Republican Congress coming into power in 2017, the short-term

VALUE OF COLORADO NATURAL RESOURCES AND MINING, 2008–2017
(In Millions of Dollars)

	Oil and Gas Extraction					Mining				
Year	Crude Oil	Natural Gas	Carbon Dioxide	Subtotal	Percent Change	Coal	Minerals	Subtotal	Percent Change	Total
2008	$2,619	$10,993	$475	$14,087	69.2%	$1,075	$2,100	$3,175	11.0%	$17,262
2009	1,600	5,461	356	7,417	-47.3	887	971	1,858	-41.5	9,275
2010	2,323	6,998	371	9,692	30.7	995	1,050	2,045	10.1	11,737
2011	3,438	6,828	475	10,741	10.8	1,061	1,336	2,397	17.2	13,138
2012	4,278	4,745	560	9,583	-10.8	1,129	1,530	2,659	10.9	12,242
2013	6,057	6,012	500	12,569	31.2	873	2,110	2,983	12.2	15,552
2014	8,209	6,911	678	15,798	25.7	900	2,320	3,220	8.0	19,018
2015	6,144	4,350	467	10,961	-30.6	675	2,410	3,085	-4.2	14,046
2016[a]	4,978	4,143	437	9,558	-12.8	432	2,500	2,932	-5.0	12,490
2017[b]	5,455	4,350	481	10,286	7.6	432	2,600	3,032	3.4	13,318

[a]Estimated. [b]Forecast.

Sources: Colorado Geological Survey Mineral and Minerals Fuel Activity Reports, Colorado Oil and Gas Conservation Commission, Department of Minerals and Geology, and Colorado Business Economic Outlook Committee.

expectation is for little change in the natural resource industry both in Colorado and nationally. For the longer term, the industry may start to see more optimism about new investments. The Trump administration and Congress will likely consider relaxed regulation on federal lands, and the resurrection and approval of contentious projects, such as the Keystone pipeline.

Employment in the Colorado oil and gas industry took a significant hit in 2016, dropping by more the 25% (when combined with losses in the mining sector). Both service companies and operators, especially in Denver and along the Front Range, have reduced staff, sold assets, and/or shifted operations to locations outside Colorado in response to the downturn. With local operators already quite lean, continued depressed prices may still induce further modest workforce reductions in 2017.

Oil

For 2016, the U.S. petroleum benchmark known as West Texas Intermediate (WTI) has fluctuated between $26 and $52 per barrel, with a mean daily spot average of $42 per barrel as of early November. This is a 13% decrease from the 2015 WTI mean daily price of $49 per barrel, and a notable 55% decrease from the 2014 mean daily price. Future energy prices depend on a myriad of factors across multiple scales, including economic and geopolitical situations, technological developments, and new resource discoveries. On November 30, 2016, Saudi Arabia is expected to announce details of a production freeze designed to bolster and stabilize prices a bit higher than they have stood for much of 2016. The effectiveness of this strategy will depend on the compliance of its members and the reaction of non-OPEC producers to higher prices in the expected $40 – $70 range in 2017.

Colorado crude production had a record year in 2015, with 126 million barrels produced. With lower oil prices in 2016, however, the state's output is expected be approximately 9% lower. Development of the prime Niobrara shale assets in the Greater Wattenberg Area will continue, but the rapid decline rates of recently drilled laterals (estimates of 50% to greater than 70% in the first year are not unreasonable) versus the current rate of new wells being drilled means the state's total production will see a further modest 5% decrease in 2017. For the longer term, however, it is worth noting the Niobrara shale resource is estimated to contain between 2 and 3.5 billion

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COLORADO PHYSICAL OUTPUT OF FOSSIL FUELS
2008–2017

Year	Coal Millions of Short Tons	Crude Oil Millions of Barrels	Natural Gas Billions of Cubic Feet	Carbon Dioxide Billions of Cubic Feet	Index (Base Year: 2008 = 100) Coal	Crude Oil	Natural Gas	Carbon Dioxide
2008	32.3	29.9	1,519	369	100.0	100.0	100.0	100.0
2009	28.6	30.0	1,561	406	88.5	100.3	102.8	110.0
2010	25.2	32.6	1,617	268	78.0	109.0	106.5	72.6
2011	27.0	38.8	1,648	469	83.6	129.8	108.5	127.1
2012	28.8	48.7	1,658	439	89.2	162.9	109.2	119.0
2013	24.2	65.1	1,567	268	74.9	217.7	103.2	72.6
2014	22.8	94.7	1,581	355	70.6	316.7	104.1	96.2
2015	18.7	126.0	1,665	409	57.9	421.4	109.0	110.8
2016[a]	12.0	114.8	1,641	325	37.2	383.9	108.0	88.1
2017[b]	12.0	109.1	1,641	358	37.2	364.9	108.0	97.0

[a]Estimated. [b]Forecast.

Sources: Colorado Geological Survey Mineral and Minerals Fuel Activity Reports, Colorado Oil and Gas Conservation Commission, Department of Minerals and Geology, and Colorado Business Economic Outlook Committee.

Natural Resources and Mining

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barrels of oil cumulatively, only a small fraction of which has been exploited.

The International Energy Agency (IEA) is forecasting global oil demand to expand by 1.2 million barrels per day (mb/d) in both 2016 and 2017, from a mean of 96.3 mb/d in 2016 to 97.5 mb/d in 2017. According to the EIA, consumption in the United States is projected to have increased modestly (0.6%) in 2016, by 0.11 mb/d, to 19.64, and will increase again in 2017, to 19.90 mb/d. Modest employment and economic growth, along with lower petroleum product prices, are important factors in the increased consumption. EIA currently estimates that the average WTI will end at $43 per barrel average for calendar year 2016 and $50 per barrel in 2017.

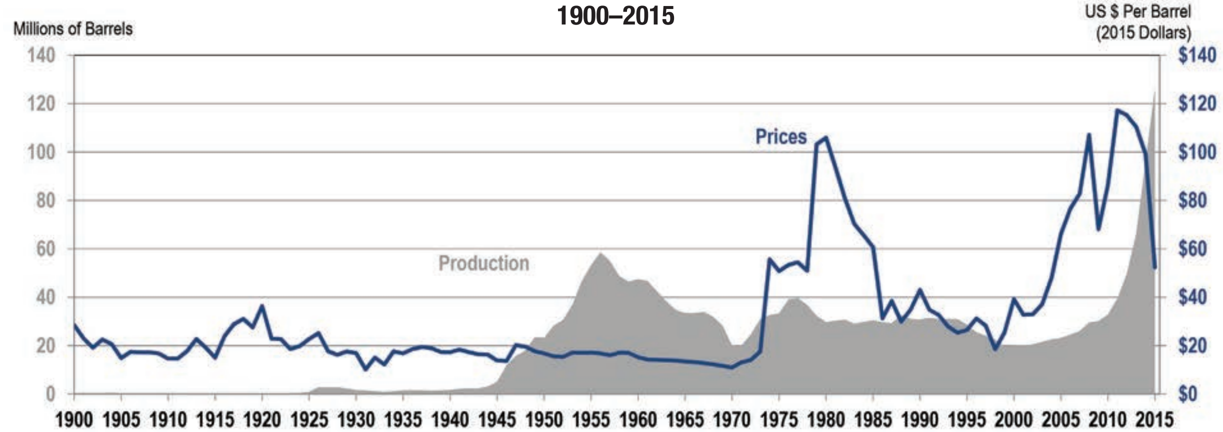
Retail Gasoline

The Colorado average retail price of automotive gasoline at all grades through October 2016 was $2.03, a 33% decline from average prices seen from 2013–2015. For 2016, the EIA expects the national average for regular grade will be $2.13 per gallon. Regional prices for diesel (averaging $2.27 for 2016) have been at a roughly 11% premium compared to the price of unleaded gasoline. Expectations are for Colorado gasoline to remain at a similar or slight higher average price in 2017 (between $2.00 and $2.60 per gallon average for all grades).

Natural Gas

The EIA forecasts suggest that the average U.S. household using natural gas for heating will see a total winter 2016–17 (October through March) price increase of 22% (approximately $116) over 2015–16. About 48% of all households in the United States depend on natural gas as a primary heating fuel; for Colorado, this number climbs to 71%. This projected increase (made in early October) sees higher consumption (10% higher than last year) due to expected colder temperatures nationally, and increases in both the spot price (>40% higher in winter 2016-17 compared to winter 2015-16) and the residential natural gas price (roughly 11% higher). A strong La-Niña effect in coming months, however, may alter this scenario.

ANNUAL COLORADO OIL PRODUCTION AND PRICE
1900–2015



Source: Colorado Geological Survey (based on RMAG, EIA, IHS, & COGCC data). Crude oil prices: 1900-1944 US average; 1945-1983 Arabian Light; 1984-2015 Brent.

The National Oceanic and Atmospheric Administration (NOAA) estimates that the total heating degree days for the entire nation in winter 2016–17 will be 13% more than 2015–16 winter. In the West, however, the forecast is for 2% fewer heating degree days.

Colorado ranked sixth for marketed natural gas production in the United States in 2015. The EIA estimates that conventional and unconventional output from Colorado basins in 2015 accounted for nearly 6.2% of the annual U.S. natural-gas-production. The residential sector is the largest natural gas-consuming sector in the state, accounting for nearly 26% of the total 469,175 million cubic feet consumed in 2015. Other significant end-uses include lease and plant fuel (24%), electric power (20%), industrial consumption (17%), and commercial consumption (12%). As of July 2016, the average residential gas price in Colorado was $14.02 per thousand cubic feet—the 10th-lowest in the country. For 2017, the expectation is that Colorado natural gas will price in the range of $3.00–$4.50 per thousand cubic feet with 80% confidence. The EIA is currently forecasting the Henry Hub spot price average to be $3.22 per thousand cubic feet in 2017, up from a $2.58 average price in 2015.

There are nearly 20,000 active "gas" wells in Colorado that produced (in combination with the associated gas generated from the state's "oil" wells) an estimated 1.66 trillion cubic feet in 2015, and nearly the same in 2016. For 2017, despite the likelihood of gas prices being above $3/Mcf, the expectation is for production volumes to continue to remain flat.

Carbon Dioxide

Colorado's carbon dioxide production is marketed almost exclusively for enhanced oil recovery (EOR) operations. In 2015, more than 400 million cubic feet of CO_2 were produced in three counties (Montezuma, Dolores, and Huerfano), with the total production value grossly estimated at $467 million, a 31% decrease over 2014. For 2016, CO_2 production levels are expected to decline to 325 million cubic feet.

Drilling Permits and Rig Activity

The Colorado Oil & Gas Conservation Commission (COGCC) reports 2,987 drilling permits were approved in 2015, representing a 29% decrease over 2014. For 2016, the commission has approved 1,967 permits as of early October—nearly 14% below the level of permitting for the same period in 2015. More than 61% of 2016's permitted wells are located in Weld County. The COGCC recorded 1,462 well starts in 2014 and only 652 as of October 1, 2016. Considering the economic climate, this slowdown in activity is not unexpected.

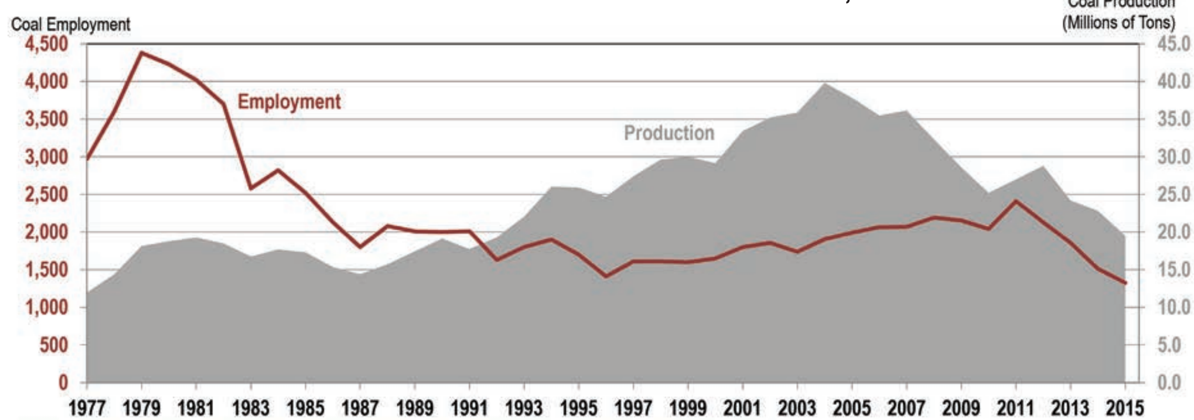
The 2016 active drill rig count in Colorado has averaged 16, a significant decrease from the average of 38 active rigs the previous year. It should be noted that operators have been improving drilling times and increasing average lateral lengths. These optimizations allow for more production per active drilling rig on average, but only to an extent.

Horizontal drilling and hydraulic stimulation continue to be integral to Colorado's oil and gas activity. In 2010, only 5.6% of all Colorado drilling permits issued were for horizontal wells. In 2016, that number is on track to be greater than 70% of all issued permits. Of the horizontal wells permitted in 2016, 91% were located in Weld County. Horizontal well starts totaled 505 through the beginning of October of 2016—78% of the state's total.

Coal

Coal mining in Colorado dates back to 1864. Colorado's clean, high-quality coal reserves help utilities meet the stringent requirements of the Clean Air Act. Production peaked at 40 million tons in 2004. Data provided to the Colorado Mining Association indicate that in 2014 the industry accounted for $900 million in sales. With reduced production and lower prices, sales fell to an estimated $675 million in 2015 and are expected to fall further in 2016 and 2017. According to the National Mining Association's survey Economic Contributions of Mining (2015), the industry contributed $1.9 billion to Colorado's economy. Federal royalties on Colorado coal production in FY2015 totaled more than $40 million, about half of which is returned to Colorado to support public education and other activities. Coal mines also paid property taxes, state royalties, and severance and sales taxes totaling about $20 million in 2015.

ANNUAL COLORADO COAL PRODUCTION AND EMPLOYMENT, 1977–2015



Source: Colorado Division of Reclamation, Mining, and Safety, 2015. Employment totals based on December levels.

Coal is the fastest-growing major source of electricity worldwide, and sales of Colorado coal outside the United States increased to over 20% of total production in 2013 but fell to 9% of total production in 2014 and 14% in 2015. (The increase in 2015 is the result of exports increasing 25% while production fell 20%.) Domestic sales both within Colorado and to other states have also dropped over the past decade. The state's total production rose from 27 million tons in 2011 to 28.8 million tons in 2012 before declining to 22.8 million tons in 2014 and 18.7 million tons in 2015. These are the lowest production levels since the mid-1990s. Colorado coal production is expected to fall to 12 million tons in 2016.

Coal must now compete in an environment where governmental mandates for renewable energy could limit sales in Colorado. The slated, and government-mandated, closure or conversion to natural gas of nearly 1,000 megawatts (MW) of electricity currently generated by coal-fired plants along the Front Range will also cause annual production losses of up to 4 million tons. New Environmental Protection Agency regulations, including the Clean Power Plan, will also significantly curtail future production. Low natural gas prices in 2016 added to the impact of these mandates and other political action leading to the closure of coal-fired power plants across the United States.

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Mines

In 2015, Colorado coal mines produced bituminous and sub-bituminous coal for electricity generation at power plants, and to a lesser extent, cement and coking operations. Coal was produced in seven Colorado counties: Routt, Moffat, Rio Blanco, Delta, Gunnison, Montrose, and La Plata. Routt County had been the leading coal-producing county for years, while Gunnison County ran a close second in 2013 and 2014. In 2015, Routt County fell to third place, with Gunnison County moving to first place and Moffat County moving into second place. Arch Minerals' West Elk mine produced 5.1 million tons in 2014, making it the highest-producing mine in Colorado. In 2013, the Elk Creek mine experienced geologic problems, resulting in a dramatic drop in production; the mine was idled in December 2013. Production at Elk Creek fell from 3 million tons in 2012 to 0.4 million tons in 2013 and no production in 2014 or 2015. Elk Creek was abandoned in February 2016. In 2014, the Bowie Mine #2 in Delta County cut back production and laid off 150 miners due to the cancellation of a contract to supply coal to the Tennessee Valley Authority. In October 2015, Bowie announced that an additional 97 employees were being furloughed as it developed a new longwall panel. After producing 1 million tons in 2015, production was suspended in Q1 2016. As the result of a lawsuit filed by WildEarth Guardians against the U.S. Office of Surface Mining (OSM), OSM was ordered to rework the environmental assessment (EA) of a mine permit issued to the Colowyo Mine in 2007. The OSM was given 120 days to complete the assessment. Colowyo avoided closure when the OSM completed the review finding there was no significant environmental impact on climate change from the mine and validated the permit. As a result of the lawsuit, the Trapper Mine has undergone a new EA and with the same findings as the Colowyo environmental assessment. The Bowie Mine in Colorado, along with mines in other states, have faced similar environmental reassessments.

Production

In 2015, Colorado was the 10th-most productive coal mining state, producing 18.7 million tons of coal. Using the Mine Safety and Health Administration's data for the first three quarters of 2016, along with EIA data and Colorado coal production reports, the state's total coal production by year-end 2016 is expected to fall to 12 million tons.

Value

Production and the price of coal fell 2015. In 2013, the total value of coal sold in Colorado was estimated at $873 million, with an average coal price of $36.06 per ton. EIA data indicate prices increased to $39.38 per ton in 2014 before falling to $36.12 per ton in 2015. The value of Colorado coal sold in 2014 was $900 million, while the estimated value of Colorado coal sold in 2015 fell to $675 million. With declining production, the value is expected to fall to between $425 million and $450 million in 2016 and 2017.

Employment

The Colorado Division of Reclamation, Mining and Safety tracks coal production and the employment of coal miners on a monthly basis. In 2011, employment at Colorado's coal mines was at a 25-year high of 2,411 miners in December. This was due, in part, to the employment of coal miners at the New Elk Coal Mine in Las Animas County. In December 2013, employment slid to 2,047 miners, and declined further due to the Bowie Mine layoffs. According to the Colorado Division of Reclamation, Mining and Safety, the number of persons employed at Colorado coal mines was 1,326 at the end of 2015 and 1,068 at the end of September 2016.

Export Coal

Based on EIA data, in 2010, approximately 54% of the coal produced in Colorado was shipped by rail or truck to power plants in 14 other states, with destinations as far as Florida. In 2015, 40% of the coal produced in Colorado was shipped to 10 other states. In 2015, the only state outside of Colorado that took more than 1 million tons of Colorado coal was Utah, which took 3.2 million tons of coal. Sales to Alabama, Kentucky, and Tennessee, which took almost 6 million tons in 2010, have fallen to almost zero as the Tennessee Valley Authority reduced its take of Colorado coal.

The EIA reports that 6.5 million tons of Colorado coal were exported abroad in 2012. These international exports fell to 3.8 million tons in 2014 and less than 3 million tons in 2015.

VALUE OF COLORADO NONFUEL MINERALS AND URANIUM PRODUCTION 2008–2017 (In Millions of Dollars)

Year	Nonfuel Minerals	Uranium	Total
2008	$2,084	$16.0	$2,100
2009	965	6.0	971
2010	1,050	0.0	1,050
2011	1,336	0.0	1,336
2012	1,530	0.0	1,530
2013	2,110	0.0	2,110
2014	2,320	0.0	2,320
2015	2,410	0.0	2,410
2016[a]	2,500	0.0	2,500
2017[b]	2,600	0.0	2,600

[a]Estimated. [b]Forecast.

Source: U.S. Geological Survey, Mineral Survey Reports.

Consumption and Generation

According to EIA data (Form EIA-923, EIA-860), 50% of the 18.1 million tons of coal delivered to electric utilities in Colorado in 2010 came from Colorado mines, with the remainder from Wyoming. In 2015, 18.3 million tons were delivered while the percentage that came from Colorado mines fell to 41%. According to the EIA Electricity Data Browser, coal-fired power plants in Colorado consumed 17.5 million tons of coal in 2015, supplying the state with 60% of its electricity, down from 68% in 2010. Annual electricity generated at Colorado's 12 coal-fired power plants fell from 34.6 million megawatt hours (MWhs) in 2010 to 31.6 MWhs in 2015. Electricity generated from natural gas increased from 11.1 MWhs to 11.8 MWhs between 2010 and 2015. Wind-generated electricity increased from 3.5 MWhs to 7.4 MWhs.

Minerals and Uranium

Nonfuel mineral resources include metals, industrial minerals, and construction materials (e.g., cement, lime, sand, and gravel). The USGS estimates that the total U.S. 2015 nonfuel mineral production value was $77.6 billion. Colorado ranked 12th in the nation for 2015, as it did in 2014, and produced $2.4 billion, or approximately 3.1% of the estimated total production value. The 2015 estimated value for Colorado was about 3.7% higher than the USGS 2014 total production value estimate of $2.32 billion and more than triple the 2004 value of $762 million. Increased production of crushed stone, cement, and sand and gravel aggregate accounted for most of the increase.

There was no uranium mining in Colorado in 2015. Continued low uranium prices primarily account for the lack of mining in the state. Despite the low prices, however, company consolidations and project development was ongoing in 2015 and continued into early 2016. Western Uranium Co. (Western) completed its takeover of Black Range Minerals in 2015. Through this acquisition, Western acquired the Hansen-Taylor Complex uranium property. The Hansen-Taylor uranium deposit is located in the Tallahassee Creek mining district north of Cañon City in Fremont County.

Metals mined in Colorado include molybdenum, gold, and silver. The Colorado Geological Survey estimates that the 2015 production value of these metals was about $552 million. This is approximately a 34% decrease compared to the 2014 production value of $893 million. The decrease in value was due to the decrease in molybdenum, gold, and silver prices as well as decreases in molybdenum and gold production.

In Colorado, molybdenum is mined at the Climax and Henderson mines by Freeport-McMoRan Inc. (Freeport). Freeport estimates that it had a direct impact of about $252.8 million on Colorado's economy in 2015 that included compensation, business taxes, and vendor purchases. Reportedly, indirect impacts added another $229.7 million to the economy through spending by employees, new tax revenues, pension incomes, and vendor purchases.

In December 2015, the *Denver Post* reported that Freeport may be closing the Henderson Mine in three to five years instead of the 10 years that it had expected. It reported that the mine accounted for 70% of all property taxes collected in Clear Creek County, and about 36% of the county budget. Proven reserves at the Henderson Mine were estimated at 65 million metric tons at the end of 2015.

Colorado was the fourth top producer of gold (197,645 ounces) in the United States, following Nevada, Alaska, and Utah. The average gold price in 2015 was $1,170 per ounce. According to the Colorado Geological Survey, the Cripple Creek and Victor Gold Mining Company (CC&V), located near the town of Victor, Colorado, produced about 197,645 ounces of gold and 113,555 ounces of silver in 2015. This was a decrease in gold production (200,000 ounces) and an increase in silver production (110,373 ounces) from 2014 levels.

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In 2015, Colorado consumed approximately 47 million tons of aggregate. According to the Colorado Stone, Sand & Gravel Association (CSSGA), the production of construction aggregate, including crushed stone, sand and gravel, was slightly up from 2014 levels due to continued construction in primarily the Colorado Front Range. CSSGA currently estimates the industry's value at $670 million annually.

Indications for 2017 suggest a slight increase in production in Colorado, primarily in the central and northern regions. This is due to continued strong construction market in the Denver and Northern Colorado areas, combined with the ongoing slowdown in the oil and gas segment.

Renewables

Colorado's abundance of renewable energy resources includes wind, solar, hydroelectric, geothermal, and biomass resources. These additional electricity resources accounted for 17.2% of Colorado's net generation in 2015, a small increase from the 17.1% generated from these sources in 2014. Most of this generation comes from wind (14.2%) and hydroelectric (2.3%) resources. Colorado's windy plains, high mountains and rivers, active subsurface heat flow, and abundant sunshine give it one of the highest potentials for renewable energy growth in the United States. In terms of overall renewable energy technical potential, the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) ranked Colorado sixth nationally in 2012.

Colorado's Renewable Portfolio Standard (RPS) requires investor-owned electric utilities to provide 30% of their generation from renewable energy resources by 2020, with 3% coming from distributed generation. This is one of the most ambitious renewable portfolio goals in the nation, and the Colorado Public Utilities Commission (PUC) states that the existing wind and solar installations have already achieved this electricity goal, mostly by purchases through Xcel Energy. Notably, in July 2015, the Tenth Circuit Court of Appeals upheld the constitutionality of Colorado's RPS, saying it would not harm interstate commerce as a 2011 federal lawsuit alleged.

As of August 2016, residential electricity rates in Colorado were 12.79 cents per kilowatt hour (kWh), which is a 2.6% increase compared to the prior year. This is just below the national average at 12.90 cents per kWh and is the second highest in the eight-state Mountain West Region, which averages 12.10 cents per kWh. Colorado commercial rates are 10.20 cents per kWh, which is below the national average of 10.70 cents, yet one of the higher rates in the region. Colorado's industrial rate averages 7.37 cents, which tops the national average of 7.23 cents. Averaging across all consumer sectors, Colorado's

COLORADO ELECTRIC POWER INDUSTRY GENERATION BY PRIMARY ENERGY SOURCE
2008–2015
(In Millions of Megawatt Hours)

Year	Coal	Natural Gas	Hydroelectric[a]	Wind	Solar	Biomass	Petroleum	Other[b]	Total
2008	34.8	13.5	2.0	3.2	0.018	0.045	0.019	0.033	53.4
2009	31.6	13.8	1.9	3.2	0.026	0.057	0.013	0.053	50.6
2010	34.6	11.1	1.6	3.5	0.042	0.060	0.017	0.070	50.7
2011	34.0	10.2	2.1	5.2	0.105	0.062	0.022	0.063	51.4
2012	34.5	10.5	1.5	6.0	0.165	0.058	0.011	0.055	52.6
2013	33.7	10.7	1.2	7.2	0.248	0.084	0.010	0.046	52.9
2014	32.5	12.0	1.8	7.4	0.253	0.126	0.010	0.047	53.8
2015	31.6	11.8	1.5	7.4	0.289	0.131	0.011	0.043	52.5

[a]Includes pumped storage.

[b]Includes blast furnace gas, propane gas, other manufactured and waste gases derived from fossil fuels, non-biogenic municipal solid waste, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, tire-derived fuels, and miscellaneous technologies.

Source: U.S. Energy Information Administration.

year-over-year electricity rate increase was just 1% from August 2015 to 2016.

Wind Energy

As of 2015, Colorado ranked 10th nationally for both total MWs currently installed and for overall wind energy potential. The U.S. Department of Energy estimates that installed wind power in Colorado grew by more than 128% from 2010–2015. Cumulative wind power generating capacity has increased by more than a gigawatt during this period, to reach 2,965 MW. Colorado wind farms include 1,879 wind turbines, and in 2015 cumulatively produced more than 7.4 million MWhs of electricity.

Most of Colorado's wind stations operate in rural areas with limited economic development opportunities, providing local jobs to hard-pressed areas. While hard numbers regarding the economic impact of renewable energy sources are difficult to come by, the wind industry adds to local economies through new lease payments to landowners, local income from taxes, wages of wind farm employees, and sales and use taxes arising from spending by these workers.

Colorado also has a significant wind turbine manufacturing presence. According to the U.S. Bureau of Labor Statistics and American Wind Energy Association, Colorado's industry concentration in this manufacturing sector was 2.5 times the national average, with 23 distinct manufacturing facilities located in the state. Denmark-based Vestas Wind Systems, after a round of Colorado layoffs in 2012, added 800 jobs in the state in 2014 and additional 400 jobs in 2015 to meet global demand for wind turbines. Colorado has 137 MW of wind capacity currently under construction.

In September 2016, the Colorado PUC announced support for the $1.1 billion 600 MW Rush Creek wind farm in eastern Colorado, with wind turbines being supplied by Vestas Wind Systems, which has four manufacturing plants in Colorado. Construction for what will be Colorado's largest wind farm is expected to begin in 2017.

Solar Energy

Colorado is a leader in solar energy. In terms of cumulative installed solar electric capacity, Colorado ranks ninth nationally, with 599 MW of installed capacity. Of that power, 146 MW was installed in 2015, a 117% increase over 2014's added capacity. For 2016, the Solar Energy Industries Association (SEIA) estimates the annual installed capacity will increase by another 300 MW. According to the NREL's Open PV Project, Colorado currently has 2,602 individual photovoltaic (PV) installations that generate more than 135 MW of power. The state ranks 19th in the nation in total count of PV installations. More than 382 solar companies currently operate in Colorado, employing around 5,000 people. The 2015 investment in solar installations totaled $305 million according to SEIA—a 44% investment increase over the previous year. SunPower, a developer of solar power plants, completed its utility-scale Hooper Solar Project in the San Luis Valley in 2016. The project has added 50 MW of solar electric capacity.

Like many states, the rooftop solar community in Colorado has been thriving with installation costs dropping

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approximately 66% from 2010. In fact, for 2014, Colorado had some of the lowest installation costs nationally—$3.71 per watt for residential PV systems, according to the *Photovoltaic System Pricing Trends* report from the U.S. Department of Energy in 2015. In August 2016, Xcel energy reached a rate settlement that will institute a pilot program that gives solar power-producing customers a time-of-use pay rate, eliminate a proposed fixed-monthly grid charge, and allow Xcel to offer subscriptions to a new 50 MW solar facility. The Colorado PUC approved the settlement in early November.

Hydroelectric Power

For the past decade, Colorado's hydroelectric plants have been providing between 1.8% and 3.6% of the state's total electricity. Most of these stations are owned by the U.S. Bureau of Reclamation, but some are privately owned or operated by local mountain towns such as Aspen, Nederland, Ouray, and Telluride. This renewable resource provides a constant but seasonably variable source of electricity. The industry employs several hundred individuals for operations and maintenance.

Geothermal Energy

Deep drilling targets have been identified east-southeast of Mount Princeton and north of Poncha Hot Springs in Chaffee County for sites that are likely to have temperatures sufficient to produce electrical power. A deep reservoir is also thought to exist in association with Waunita Hot Springs in eastern Gunnison County, but a drilling site has not yet been located for this potential resource. A widespread, but deeper (approximately 8,000 feet) electricity-grade geothermal resource has been identified and mapped in the Raton Basin, west of Trinidad, in Las Animas County. These projects are waiting private or federal funding to take advantage of the flexibility in financing geothermal and other renewable energy projects provided by House Bill 14-1222, enacted in 2014. Using geothermal resources at the temperatures that are found at or close to the surface of the earth, many enterprises in Colorado use geothermal energy as direct heat for heating, domestic, commercial, greenhouses, and aquaculture, for spas and other bathing, and indirectly for geothermal heat pumps. A new, large, hot springs spa, Iron Mountain Hot Springs, recently opened in Glenwood Springs (Garfield County), catering primarily to family recreation. Planning and construction continue for new community and commercial geothermal greenhouses in and around Pagosa Springs in Archuleta County. ✜

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Construction

Construction activity in 2016 will finish with the busiest year in recent history. A slight surprise may be in store for 2017, however, as apartment construction will pause its upward trajectory and various subsectors within the nonresidential building category will pull back. Single-family housing activity in 2017, with more permits and higher costs, will push up total construction numbers that otherwise would decline. Another infusion of work will come from schools in districts that passed 70% of enormous requests on November's ballot. The construction industry accounts for 5.9% of total employment in Colorado. Employment will continue to increase in 2016 and 2017, by 5% and 5.7%, respectively.

Residential

Single-Family Housing

Year 2016 should finish with 22,500 permits for new single-family detached homes, a 12.4% increase for the year. Continued growth in 2017 will see another 9.8% increase, to 24,700 single-family permits.

Metro Denver and Northern Colorado typically account for about two-thirds of Colorado's new home sales, and the market was strong in these areas in 2016. New home closings increased by about 6% through mid-year 2016, and new home contracts were up by 19% through August. While this pace is robust by recent standards, single-family homebuilding has been as high as 40,000 a year (in 2004–2005). Homebuilding has shown a recovery from the recessionary trough of 2009, when only 7,261 permits were issued. Single-family permits have been rising steadily and will finish 2016 more than triple the number in 2009, although this level will still be only 56% of the 2005 peak.

The demand for housing is driven in large part by net in-migration. The State Demographer expects a net migration of 67,000 in both 2016 and 2017. Those numbers are nearly double the population increases from births over deaths, and if the trend continues, it will mean that the homebuilding industry will face an annual need for 35,000 to 40,000 new single- and multifamily homes over the next several years. Colorado's 17% single-family permit growth for 2015 far exceeded the nation's 9% increase but by comparison, through September 2016 Colorado's 9% increase was very similar to the 8% increase reported for the United States.

Due to a strong economy and increasing home values, Colorado's foreclosure rate remains very low, and the resale housing market has been undersupplied in many Colorado market areas since 2013. In Metro Denver-Boulder, the 5,587 resale home listings as of mid-year 2016 represented just a 1.2-month supply. Housing demand has not exceeded supply to this extent for more than 18 years.

Colorado's housing market improvement cannot be fully attributed to the state's economic recovery. The decline in 30-year mortgage interest rates, from 5.2% to 3.6% from 2010 through mid-2016, helped make housing more affordable and supported increases sales of both new and existing homes. The housing market recovery's reliance on historically low mortgage interest rates is of particular concern as the Federal Reserve moves toward higher interest rates. Home loan underwriting policies also continue to suppress housing demand, with most lenders requiring higher down payments and strong credit.

A regional and national four-year trend of improving consumer confidence stabilized during 2016 at levels well below most of the 1990s but similar to the 2004–2007 period. Healthy consumer confidence was undoubtedly

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VALUE OF CONSTRUCTION IN COLORADO BY TYPE
2008–2017
(In Millions of Dollars)

Year	Residential	Nonresidential	Total Building	Nonbuilding	Total Construction
2008	$4,041.8	$4,116.7	$8,158.4	$2,542.4	$10,700.8
2009	2,501.3	3,126.2	5,627.4	1,648.4	7,275.8
2010	2,903.0	2,967.3	5,870.3	2,214.4	8,084.7
2011	3,363.1	3,932.1	7,295.2	2,289.2	9,584.4
2012	5,368.2	3,675.2	9,043.5	3,329.2	12,372.7
2013	7,089.2	3,609.7	10,698.9	3,679.9	14,378.8
2014	6,479.5	4,239.0	10,718.5	2,319.0	13,037.5
2015[a]	7,489.0	4,620.5	12,109.5	3,150.0	15,259.5
2016[b]	8,628.9	4,900.0	13,528.9	2,800.0	16,328.9
2017[c]	9,682.8	5,400.0	15,082.8	2,800.0	17,882.8

[a]Revised. [b]Estimated. [c]Forecast.

Sources: McGraw-Hill Construction Research and Analytics and the Colorado Business Economic Outlook Committee.

Construction

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RESIDENTIAL BUILDING PERMITS BY TYPE 2008–2017

Year	Single Family	Multifamily	Total Housing Units
2005	40,140	5,751	45,891
2006	30,365	7,978	38,343
2007	20,516	8,938	29,454
2008	11,147	7,851	18,998
2009	7,261	2,094	9,355
2010	8,790	2,801	11,591
2011	8,723	4,779	13,502
2012	12,617	10,684	23,301
2013	15,772	11,745	27,517
2014	17,104	11,594	28,698
2015[a]	20,025	11,846	31,871
2016[b]	22,500	12,700	35,200
2017[c]	24,700	12,000	36,700

[a]Revised. [b]Estimated. [c]Forecast.

Sources: U.S. Census Bureau and the Colorado Business Economic Outlook Committee.

influenced by reports of continued home price increases, including the S&P CoreLogic Case-Shiller Denver Home Price report of an 8.8% increase in Metro Denver for the 12-month period through August 2016.

Rental occupancy rates remain in relative balance for single-family homes despite large supply increases, but some submarkets are experiencing a shortage of rental housing. The strong in-migration is resulting in rental rate increases in some submarkets, making home ownership a more attractive housing option for those who can qualify for a loan.

The earlier decline in housing demand significantly impaired the supply capacity of the housing industry. Although homebuilders are opening new projects and new lot development in the pipeline is adequate to meet current levels of demand, builders continue to report that a shortage of skilled labor is limiting their capacity to meet demand. Most builders have intentionally limited offerings of new homes for presale in some of their projects during 2015 and the first half of 2016.

The average single-family permit value declined by 1% in 2015, then increased 5% through September 2016. These relatively modest increases seem to contradict the labor shortages, increasing materials costs reported by builders, as well as higher home sale prices. The committee attributes this disparity to a shift in consumer demand toward smaller homes and to the fact that single-family permits are typically issued for the base cost of a home, excluding optional features and upgrades selected by the homebuyer and lot premiums charged by builders. The forecast for calendar year 2016 is for a modest 3% increase in permit value, to $309,000 per unit, followed by a 5% increase in 2017, to $324,000.

Multifamily Housing

Multifamily construction activity continued to increase in 2016, with permits at their highest level since 2002. The committee expects 12,700 multifamily units to be permitted by year-end, an increase of 7.2% over 2015. Nearly all of these units are being added in Colorado's central and northern Front Range. Since 2010, an average of 96% of multifamily units permitted in the state has been in the corridor extending from Colorado Springs north to Fort Collins. Apartment construction has been strong post-recession, compensating for low levels of single-family construction, and meeting demand for households unable to qualify financially to purchase a home.

Notably, new multifamily construction consisted overwhelmingly of apartments rather than for-sale condominiums. Apartments accounted for over 95% of multifamily units built since 2010, spurred by strong demand for rental housing and by developers reportedly avoiding building condominiums due to concerns about potential construction defects litigation.

Increased supply during the past year helped to ease apartment market conditions across most of the state. In the combined Denver-Boulder Metro area, the vacancy rate averaged 5.1% during the Q3 2016, similar to the rate a year ago, but well above the 3.9% rate in 2014. Local conditions in other cities along the Front Range cause vacancy rates to vary from Denver's figure. As a result of the more balanced market conditions, rent growth is slowing throughout the state. Following two years of statewide rent growth averaging roughly 10% annually in 2014 and 2015, rent growth slowed to 6% in 2016.

Multifamily construction is expected to decrease in 2017, but to a level that is still considered robust. Construction will consist primarily of apartments; however, if municipalities' attempts to alleviate developer concerns at the

CONSTRUCTION EMPLOYMENT 2008–2017 (In Thousands)

Year	Employment	Percentage Change
2008	161.8	-3.6%
2009	131.3	-18.9
2010	115.1	-12.3
2011	112.5	-2.3
2012	115.8	2.9
2013	127.5	10.1
2014	142.2	11.5
2015[a]	149.5	5.1
2016[b]	157.0	5.0
2017[c]	166.0	5.7

[a]Revised. [b]Estimated. [c]Forecast.

Sources: U.S. Department of Labor, Colorado Department of Labor and Employment, Bureau of Labor Statistics, and Colorado Business Economic Outlook Committee.

local level are successful, construction of condominiums may gradually increase, appealing to first-time homebuyers because of their relative affordability. Demand for home ownership will shift production from multifamily to new single-family homes, which will more than offset the decline in multifamily permits. The committee forecasts 12,000 multifamily units will be permitted in 2017, a decrease of 5.5% from 2016, in response to the more balanced apartment market, increased single-family activity, and construction delays from worker shortages.

The construction cost per unit is expected to increase because of rising labor and materials costs, and increasing planning and tap fees. After costs increased 13% in 2015, the average value per multifamily unit rose 11%, to $132,000, in 2016. The value per unit is expected to rise again in 2017, but at a slower rate, to approximately $140,000. Rising costs have contributed to a trend of smaller units in areas such as Denver, Boulder, Fort Collins, and Greeley. The smaller sizes partially offset the increasing construction costs and reduce pressure of larger increases to rents—the average square footage of new units built since 2014 decreased 3% annually.

Nonresidential Building

This sector tracks new, remodeled, and rehabilitated offices, retail, medical facilities, colleges, churches, schools, and government buildings. Building starts in 2016 are forecast to increase 6%, to $4.9 billion. In many subsectors of this category, starts will peak in 2016, then tail off notably in the ensuing year. The work will be replaced with a surge of new demand that will come from new school projects across the state. The committee's estimate for 2017 is a 10% increase, to $5.4 billion.

New 2016 multiyear projects include a campus project by Google in Boulder, continued projects around Union Station, significant new commercial work along Brighton Boulevard in north Denver, and the Gaylord Hotel project in Aurora. Most of the 1,500-room Gaylord Hotel's construction value of approximately $800 million is captured in the 2016 numbers, but there likely will be another $100 million permitted in 2017. Several major developments wrapped up in 2016, including the Charles Schwab campus for several thousand employees in Lone Tree, the Woodward manufacturing and office campus in Fort Collins, the Denver International Airport Hotel and Transit Center, the University of Colorado Stadium and Athletics Complex, and the first phase of the Panasonic Enterprise Solutions "smart city" at 61st and Peña Boulevard.

Much of 2016's increased activity was driven by increased demand for office space, hospitals, hotels and warehouses. The committee anticipates continued strong estimating and bidding for projects in 2017, with an overall increase in projects, but a decrease in project size owing to fewer mega-projects. The committee expects a modest slowdown in each of these sectors except industrial development.

The committee also notes that there was significant higher education building activity in the 2015 and 2016 numbers, and funding for continued higher education building in 2017 looks to decline from those high levels.

School districts requested $3.7 billion of K–12 school construction bonds on the November ballot as reported by the Colorado School Finance Project. This is one of the largest school construction bond election totals in the country, according to a recent report in Engineering News-Record. Voters approved the bonds for construction in 16 different school districts, including such large requests as $572 million for in Denver Public Schools and $350 million in the Adams 12 School District. A total of $2.6 billion was authorized, although that number includes nonconstruction costs such as design fees and some equipment. The pace that school districts will begin construction will vary from district to district, so only a rough average was applied to conclude that as much as $900 million will start in 2017. A state grant program to help poorer districts fund school construction, "Building Excellent Schools" (BEST), bolstered the

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Construction

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debt-service cap by an additional $10 million a year for the next four years.

Voter approval in 2015 of redevelopment of the National Western Center project is expected to lead to several billion dollars in related construction activity, including significant site and infrastructure improvements, three planned CSU buildings, and other convention type buildings. The start of that work is beyond the time horizon of this forecast, however.

Nonbuilding

Nonbuilding measures new construction in infrastructure projects. This subsector tracks roads and highways, drainage and flood control, water and wastewater facilities, power plants, reservoirs, mass transit, and similar projects.

Statistical data collected about this subsector do not always accurately capture the current level of activity due to the role of multiyear megaprojects. The recorded numbers are expected values reported when a project is started (permitted). As such, a megaproject of over a billion dollars is recorded during year one, but construction of such a project typically continues over several years. Since statistical reporting do not track work put in place, the data have a tendency to overstate activity during the year that a megaproject has been awarded, and then understate activity during the years of actual construction.

Official numbers from the past few years bear this out. The official numbers in 2012 and 2013 spiked to over $3 billion due in large part to the fact that RTD awarded multiple FasTracks rails projects in those years, before dropping back under $3 billion in subsequent years. Although the sector has remained busy throughout this period, projects awarded since 2013 have been comparatively more modest in size, indicating a lull that does not exist. Year 2016 follows that trend, and without a mega-sized project award in 2016 to skew the data upward, the committee's forecast of the final statistics of project awards for 2016 is $2.8 billion. This figure is likely at or below the value of construction actually put in place during 2016 in the nonbuilding subsector, which has continued to be around $2.5 billion to $3 billion per year over the past several years.

A review of year-to-date "Call Before You Dig" statistics illustrates the high level of activity throughout the entire construction sector over the past five years; the data show year-over-year increases of 7 to 11% in the volume of requests for identifying buried utilities each year since 2012. Once again, year 2016 is busier than the previous one, with 2016 volume on pace to be 11 or 12% higher than in 2015. This supports the committee's belief that Colorado has seen steady growth in the nonbuilding subsector.

Looking forward to 2017, the value of nonbuilding is expected to be similar to that of 2016, with Denver's Platte-to-Park Hill flood control project and CDOT's I-25 expansion between Johnstown and Fort Collins to be two of the bigger projects that will be awarded. These high-profile projects are part of a subsector that remains busy with public works projects, including ongoing permanent flood repair projects in northern Colorado, which will continue for at least another year or two. Upgrades to meet new nutrient standards for the state's larger wastewater treatment plants will continue, and Thornton's $75 million water treatment plant replacement project will be awarded in the first half of the year. With a few other $100 million+ projects also likely to be awarded in 2017, the committee's forecast for 2017 is for $2.8 billion in project awards, with a similar estimate for the value of work to be put in place during the year.

CDOT's Central 70 project north of downtown Denver has been widely discussed and studied. It is not expected to show up in the statistics until 2018 and therefore its values lie beyond this forecast. Although the selection of a Public-Private Partnership (P3) team may be announced before the end of 2017, the financial close for the project probably will not occur until 2018. Actual construction is expected to last about five years, with construction costs estimated to be near $1 billion.

Employment

Colorado construction employment has recovered from its post-recession low of 111,200 jobs in June 2011 to about 157,000 positions in 2016, adding 7,500 jobs for the year. Construction employment should continue its upward trend in 2017, ending at about 166,000. The committee observes that migration of workers from oil and gas exploration to the construction industry has lessened the overall construction labor shortage. ✜

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Manufacturing

Manufacturing in Colorado is a $23 billion industry, representing about 7.3% of the state's GDP or the value of all goods and services produced in the state. Colorado was home to nearly 5,770 manufacturing establishments employing roughly 141,530 workers during Q1 2016, which represented 6.7% of the total employment base in the state. Most of these companies were small businesses. Indeed, nearly 79% of the manufacturing companies employed fewer than 20 workers, whereas only 31 companies had 500 employees or more. However, manufacturing companies tend to be larger on average than those in other industries as nearly 90% of companies in Colorado have fewer than 20 workers. Although not reflected in the employment numbers discussed in this report, there were an additional 7,500 "nonemployer" establishments in Colorado in 2014. These primarily sole proprietorships highlight the importance of small business to the sector, producing a broad range of manufactured goods across the state.

At the national level, the Institute for Supply Management's Purchasing Managers Index reached 51.9 in October 2016. The October index indicated expansion in the Manufacturing Sector, as measured by a value greater than 50, for the past two months. Furthermore, October marked 89 consecutive months of growth in the overall economy. Survey respondents reported optimism in several sectors, expecting sales to increase and the cost of some inputs to decline. Total manufacturing employment in the United States increased 1.1% in 2015, marking the fifth consecutive year of growth.

At a regional level, results of the Federal Reserve Bank of Kansas City's October Manufacturing Survey were positive for the second consecutive month—the first time in nearly two years—which indicates rising factory activity. According to recent surveys, regional factory activity may be stabilizing. The index posted increases in production, shipments, new orders, and order backlog.

Swift technological shifts continue to influence the Manufacturing Sector. The rise of automation and robots

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COLORADO MANUFACTURING EMPLOYMENT BY INDUSTRY
2008–2017
(In Thousands)

Industry	2008	2009	2010	2011	2012	2013	2014	2015[a]	2016[b]	2017[c]
Food	18.3	18.4	18.5	19.4	19.3	19.9	20.6	21.6	22.1	22.6
Beverage and Tobacco	5.6	5.2	5.2	5.4	5.6	5.9	6.4	7.0	7.6	8.0
Printing and Related	7.2	6.1	5.6	5.3	5.3	5.3	5.4	5.5	5.6	5.6
Other Nondurables	17.3	15.5	15.0	15.2	15.5	15.7	16.0	16.8	16.9	17.1
Subtotal, Nondurable Goods	48.4	45.2	44.3	45.3	45.7	46.8	48.3	50.9	52.2	53.3
Nonmetallic Minerals	9.2	7.2	6.8	6.8	6.9	7.3	7.7	8.2	8.3	8.4
Fabricated Metals	15.3	13.1	12.5	13.3	14.1	14.8	15.6	15.5	15.2	15.2
Computer and Electronics	23.7	21.8	21.4	22.1	22.4	21.8	21.5	21.6	21.5	21.5
Transportation Equipment	9.5	9.2	8.8	8.9	8.8	8.8	8.9	9.4	10.0	10.5
Other Durables	36.2	31.5	30.4	31.7	33.1	33.3	34.6	35.8	36.5	37.1
Subtotal, Durable Goods	93.9	82.8	79.9	82.8	85.2	86.0	88.3	90.5	91.5	92.7
Total, All Manufacturing	142.3	128.0	124.2	128.1	130.9	132.8	136.6	141.4	143.7	146.0

[a]Revised. [b]Estimated. [c]Forecast.

Note: There was a reclassification of employees from the Computer and Electronics sector in Manufacturing to the Computer Systems and Design Services sector in Professional and Business Services in 2013.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Manufacturing

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in many sectors is leading to an increase in output and productivity, but slower employment growth. While technology is influencing the Manufacturing Sector in Colorado, small manufacturers in the state often are not able to make large technology investments. As a result, the major technological shifts associated with robots, 3D printing, and the like are affecting Colorado manufacturers on a more limited basis. In addition, the following trends are likely to slow the pace of employment growth in the state:

- The strength of the dollar is challenging several manufacturing subsectors.
- There is concern over a sluggish global economy, although the International Monetary Fund forecasts a 3.1% increase in world output in 2016 followed by 3.4% growth in 2017.
- Although the Federal Reserve completed just one small interest rate increase in 2016 as of November, future increases in business financing costs may dampen business activity.
- The contraction in oil and gas is still affecting manufacturing subsectors supporting drilling and exploration activity.
- On the plus side, strong construction activity along the Front Range continues to boost manufacturers involved in housing materials, appliances, equipment, and furniture.

Nondurable Goods

About 36% of manufacturing employment is found in the nondurable goods industries, which include the production of goods that generally last for less than one year. Nondurable goods employment increased by 2.6% in 2016 and is expected to post a 2.1% gain in 2017, averaging about 53,300 workers for the year.

The largest nondurable goods subsector in Colorado is food manufacturing. Colorado food manufacturers produce candies, baked products, tortillas, burritos, coffee, and animal feeds. They also process meat, grains, sugar, milk, cheese, and other dairy products. Beyond the large food manufacturers, Colorado is home to many boutique manufacturers making specialty products. Canada and Mexico are major purchasers of Colorado-produced food products. Colorado food and kindred product exports totaled almost $1.6 billion in 2014 and declined 16.7%, to just over $1.3 billion in 2015. Exports are expected to hold steady in 2016. The strong dollar is hurting exports and is likely to impact future growth in this subsector, but for those who are increasing Colorado Proud products and for the many entrepreneurs with small food startups, the strength of the dollar will not have the same negative impact. Employment is expected to increase by about 500 jobs in 2016 and by another 500 jobs in 2017, reaching total employment of 22,600 workers or over 42% of the nondurable goods subsector employees forecast for 2017.

Firms in the beverage subsector produce soft drinks, ice, bottled water, beer, wine, and liquor. Most of the subsector employment is located along the Front Range, with three large breweries, one large soft drink manufacturer, and numerous microbreweries. According to the Brewers Association, Colorado ranks third in the country for the number of craft breweries, and it is first in the country for output per capita. The state produced nearly 1.8 million barrels of craft brew, the third-highest production in the country in 2015. According to the Colorado Liquor Enforcement Division, as of May 2016 there were 350 manufacturing brewery and brewpub licenses. Exports of beverages and tobacco products in Colorado increased 38.4%, from $81.4 million in 2014 to $112.7 million in 2015, and are expected to remain strong in 2016. Microbreweries, distilleries, and wineries are expected to continue to grow in the coming years, although the number of manufacturing employees added will be few in each new location. Employment in the beverage subsector is expected to increase by about 600 workers in 2016 and another 400 workers in 2017, reaching 8,000 workers.

Colorado employment in the printing and related products subsector has shown minor growth in the last four years. Those in printing are finding ways to expand their services, in part by reaching more targeted audiences. There is growth in printing of labels and t-shirts for new products produced, particularly craft beers. While the Colorado Department of Labor and Employment projects that employment in Colorado's printing industry will decline by 14% from 2015 through 2025, or about 1.5% per year, it is projecting 2% growth in 2016 before an annual average decline of 2.1% through 2018. In 2015, Colorado printing exports totaled $51.9 million.

There are many competitors to print material. Magazines and newspapers can be accessed online instead of printed hard copy. Declining readership affects advertising expenditures for traditional print media as more advertisers switch to digital and social media. Downloaded audio books capture a small share of all book revenues, but they continued to grow in 2015. E-books capture a large share of all book revenues, with 424 million sold in 2015, but e-book sales decreased in 2015 compared to the year prior, by 43.3%. Total sales in 2015 were $2.8 billion. Paperbacks remain the most popular form of books, and the adult coloring-book fad helped boost book sales in 2015. Total revenue from print and digital stayed relatively flat in the United States, at $15.4 billion, according to a report by the Association of American Publishers.

There are positive signs in Colorado that should keep print manufacturing stable. After so many years of decline in this subsector, remaining stable may be considered an improvement. Employment is expected to stay flat, at 5,600, in 2016 and 2017.

The other nondurable goods subsector includes textiles, textile products, clothing, paper, petroleum and coal products, chemicals, and plastics and rubber products. There are about 230 textiles and apparel companies in Colorado. Employment increased by about 100 jobs in 2015 and is expected to increase by another 100 positions in 2016 and hold steady in 2017. Colorado has a number of small niche apparel companies, producing everything from clothing and outdoor apparel to window coverings and automotive fabrics.

Paper manufacturing contracted steadily throughout decade of the 2000s, but has remained relatively stable, at about 1,400 workers, over the past six years. Petroleum and coal products manufacturing in Colorado primarily consists of refinery operations. While refinery activity may slow in response to low oil prices, the production of other products, such as asphalt and roofing materials, may benefit from the lower price. Employment averaged 700 workers between 2013 and 2015, and is expected to remain at about that same level in 2016 and 2017.

Chemical manufacturing is the largest of the other nondurable goods subsectors with 6,100 workers in 2015, and has been increasing by about 100 employees per year since 2012. This trend is expected to continue in 2016 and 2017, bolstered by venture capital flowing into the state's pharmaceuticals and biotechnology companies and some employment gains resulting from cannabis-product manufacturing. Companies manufacturing

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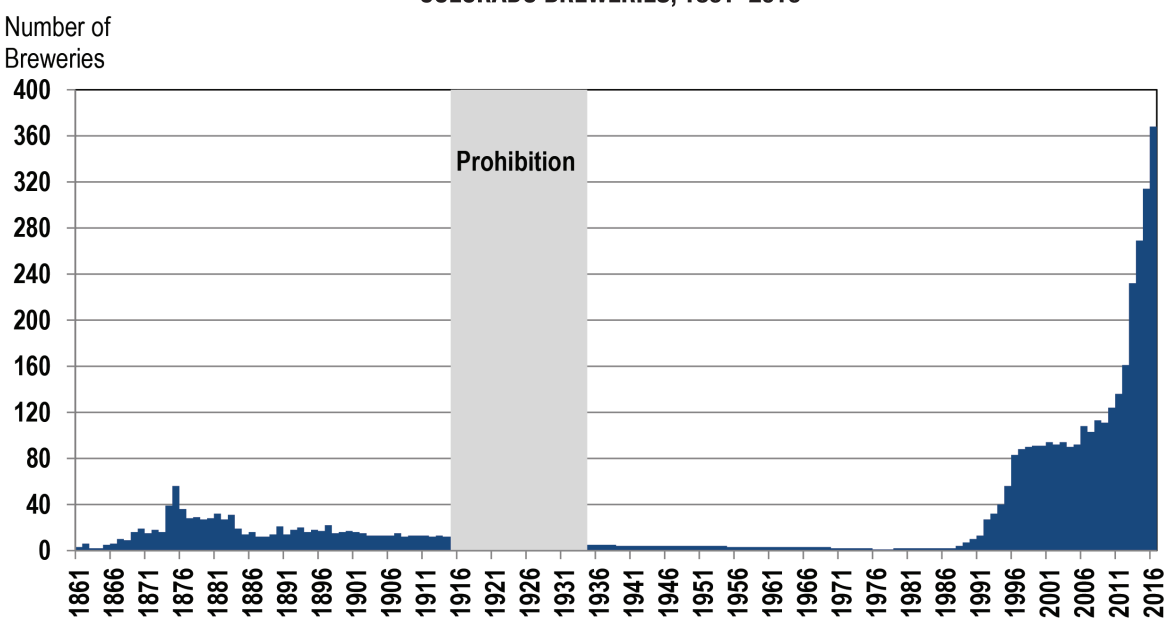
COLORADO BREWERIES, 1861–2016



Sources: Colorado Brewers Guild and the Colorado Liquor Enforcement Division. Total includes brew pub and manufacturing brewery licenses. Total as of November 2016.

Manufacturing

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plastics and rubber products are a diverse mix, ranging from window frames to plastic credit cards. Broad-based demand resulted in an expected increase of 200 workers in 2016 and 100 jobs in 2017, reaching total employment of 6,100.

Other nondurable goods employment should increase to 17,100 by 2017, based on projected gains of 100 jobs in 2016 and 200 jobs in 2017.

Durable Goods

Durable goods industries represent about 64% of the employment in the manufacturing sector. Durable goods manufacturing includes the production of goods lasting longer than one year, such as nonmetallic minerals, fabricated metals, computer and electronics, transportation equipment, and other durable goods. Durable goods employment is expected to increase 1.1% in 2016 and 1.3% in 2017, representing the addition of 2,200 workers over the two years.

The nonmetallic minerals subsector employs approximately 8,300 workers in Colorado. Companies classified in this subsector are engaged in producing a diverse array of products from pottery and ceramics to sophisticated porcelain electrical products. Most of the state's jobs in the industry, however, are producing plumbing fixtures, glass products, and concrete and stone products. Employment in this sector tends to track closely with activity in the construction and building sector. Because such activity is likely to continue to expand, though at a slower rate than recent years, job growth will remain positive. Nonmetallic mineral product manufacturing will average about 8,300 jobs in 2016 and add an additional 100 jobs in 2017, reaching 8,400 positions, reflecting a healthy construction sector.

The fabricated metals subsector is one of the larger manufacturing industries in Colorado in terms of jobs, employing about 15,500 workers in roughly 870 establishments in 2015. The industry transforms metals into intermediate or end products such as metal containers, tools and hardware, pipes and structural components, and other products used in construction and industry. Overall economic growth has supported job gains in this subsector. Demand in this sector continues to be challenged by softening oil and gas activity, and exports are hurt by the sluggish global economy and strong U.S. dollar. Employment in this sector is expected to average 15,200 in 2016, and remain at that same level in 2017.

The computer and electronic products manufacturing subsector includes industries such as communications equipment, audio and visual equipment, semiconductors, navigational equipment, laboratory measuring instruments, and optical media products, among others. Nearly half of the employment in the subsector consists of navigational, measuring, electromedical, and control instruments. The subsector declined by 28% from 2005 to 2015 as global competition and consolidation challenged the state's production. In particular, semiconductor and other electronic component manufacturing has declined for more than 15 years, falling more than 60% from 12,900 employees in 2001 to 5,000 employees in 2015. Similarly, communications equipment manufacturing employment has contracted by 29% since 2005, from 2,460 employees to 1,740 employees in 2015. On the plus side, aerospace and health care have had positive influences on this subsector over the past 10 years.

The subsector in the state will be influenced by positive and negative factors in 2016 and 2017. While computer and electronic products remain Colorado's largest export, exports from the subsector have contracted year-to-date as of June 2016 compared to the same period in 2015. However, there has been growth in venture capital investment at a national level in computers and peripherals and in electronics and instrumentation that may boost the industry in general. Overall, employment in the subsector is expected to hold steady at 21,500 jobs in 2016 and 2017.

Large aerospace companies dominate the transportation equipment subsector, which includes the manufacture of everything from spacecraft, satellites, launch pads, and aircraft parts to electric vehicles and mountain bike frames. While exports are down in 2016 compared with the same time in 2015, continued work on large contracts, such as Dream Chaser, Orion, GPS, and Mars 2020, should bolster employment in the subsector. Also of significance in this industry is the interest in metal additive manufacturing, which will have an enormous impact on aerospace in the coming years. Metal additive manufacturing promises to revolutionize the aerospace industry in the long term, and companies are hiring engineers and machinists to perform research and prototype work in the short term.

The largest number of small to medium companies in this subsector are in motor vehicle parts, trailers, golf-carts, and "other," which in Colorado includes specialty bicycles and bicycle parts. The demand is growing for these parts and products. Many of these businesses are labor intensive, and growth can be slowed by a shortage of workers as seen in many manufacturing subsectors in the state. Although small businesses such as these make up a fraction of the subsector by employee count, aggregated they can add to minor employment gains in Colorado. Overall employment in transportation equipment is forecast to rise from 10,000 employees in 2016 to 10,500 in 2017, a 5% increase.

The other durable goods subsectors include wood products, primary metals, machinery, electrical equipment and appliances, furniture, and miscellaneous manufacturing. Five of the six other durable goods subsectors are expected to expand in 2016 and 2017. The exception is primary metals that is projected to contract, especially as Pueblo's local steel mill took a hit as demand for oil and gas pipes fell and lower commodity prices hurt the railroad industry. Employment is projected to increase by 1,300 workers during the two years, to reach 37,100 workers in 2017.

The wood product and furniture and related product manufacturing subsectors will continue to grow on the back of continued home construction in the state. A strong housing market is expected to continue through 2017, which supports employment growth in both subsectors. Demand for lumber products will continue into 2017, but companies' performance is susceptible to price changes in lumber. Margins fluctuate with the price of lumber, and prices are expected to grow slowly or fall in 2016 and 2017. Overall, the price of lumber, sales growth, and strong housing market should create modest employment gains in both subsectors. The wood products subsector is expected to grow by 100 jobs to average 3,300 employees in 2016 and increase to 3,400 jobs in 2017. Furniture and related products is expected to increase by 200 jobs to average 5,500 employees in 2016. In 2017, growth is projected to slow as employment increases to 5,600.

Colorado's primary metals industry employed about 2,200 workers in 2015. The state has about 60 establishments making various metal products using iron, steel, and aluminum. Much of the industry's sales are to businesses outside of Colorado. Employment in primary metals has remained steady over the past several years, but recent company reclassifications and generally lower demand caused primary metals manufacturing to shed jobs in 2016. Further, increases in output in primary metals can be achieved without adding workers as the industry becomes more automated. Employment is expected to average 2,000 in 2016 and fall slightly, to 1,900, in 2017.

Machinery manufacturing is defined by products that apply mechanical force and includes wind turbines, jet engine turbine controls, compressors, and other manufacturers in the state, and represents nearly 9% of the manufacturing workforce. As would be expected in a state with a large agricultural economy as well as major oil and gas resources, this subsector is dominated, in terms of number of companies, by three industry groups: farm equipment, oil and gas equipment, and food product machinery. Tracking with many manufacturing subsectors in Colorado, most companies are fewer than 100 employees, with many in the 10–50 employee range. The downturn in oil and gas has had a significant impact on these small companies, and has resulted in generally flat to declining employment numbers in some regions (especially northeast and far western Colorado). Those employees have generally found employment in other companies in similar industries, but the drag on overall employment has been significant.

Included in this subsector are wind-energy equipment manufacturers, with the presence of one major international player, Vestas. Vestas continued to grow from 2015 to 2016, which helped to bolster this subsector. Overall employment in machinery manufacturing is forecast to grow, from 12,500 in 2016 to 12,600 in 2017.

Companies in the electrical equipment, appliances, and components subsector manufacture diverse products, including lighting and fixtures, motors and generators, electric power equipment, batteries, wiring, cable, and other communications equipment. The subsector has a relatively small employment base in Colorado, averaging about 2,300 employees in 2015. The subsector had several years of positive employment growth, increasing 47%, from about 1,700 employees in 2009 to 2,300 employees in 2015. However, the pace of growth has slowed recently.

The electrical equipment, appliances, and components subsector is influenced by construction activity, household growth, and consumer spending activity. Household growth in Colorado continues to increase at a robust pace and construction activity in the state remains strong, especially along the Front Range. However, export

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Manufacturing

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activity in the subsector has slowed, declining about 13% year-to-date in 2016 compared with the same period in 2015. The decline in export activity has likely dampened growth in the subsector. In 2016 and 2017, the subsector is expected to remain at 2,300 jobs.

Industries in the miscellaneous manufacturing subsector create a wide range of products not readily classified elsewhere, from medical equipment and office supplies to toys and sporting goods. Total employment in the miscellaneous manufacturing subsector has increased rapidly and is one of the fastest-growing subsectors. Subsector employment is expected to increase by about 400 jobs from 2015, reaching 10,900 in 2016. Employment will continue to grow in 2017, increasing another 400 jobs, to 11,300.

Summary

Many Colorado manufacturers are innovative and use advanced processes to produce their goods. Colorado's Manufacturing Sector is highly productive and boasted an average annual wage of $66,500 in 2015, which was about 23% higher than the average annual wage for all industries.

The expected expansion in the Manufacturing Sector in 2016 and 2017 will count as the sixth and seventh consecutive years of employment growth. Employment is estimated to increase 1.6% in 2016, with the addition of 2,300 jobs. Growth is expected in all subsectors except fabricated metals and computer and electronics. Manufacturing employment is expected to continue expanding in 2017 at roughly the same pace. Another 2,300 jobs will be added, a 1.6% growth rate, consisting of an additional 1,200 durable goods jobs and 1,100 jobs in the nondurable goods subsectors. ✜

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Trade, Transportation, and Utilities

The Trade, Transportation, and Utilities Sector is the largest provider of jobs in Colorado. This industry includes wholesale trade, retail trade, utilities, warehousing, and multiple facets of transportation (air, truck, transit, rail, pipeline, etc.). Nearly one-fifth of Colorado workers are included in this industry. Improving wholesale and retail sales helped increase the number of jobs in the sector by 2.1% in 2016, to a total of 454,700. The sector is expected to grow another 1.6% in 2017, to total 461,800 jobs.

Trade

Wholesale

The wholesale trade industry currently employs more than 100,000 Coloradans with more than 90% working for merchant wholesalers, firms that sell to retail outlets. About 60,000 of these are in firms selling durable goods, particularly computers, peripherals and electronic equipment. Businesses selling groceries and related products account for the largest share of the 35,000 nondurable wholesale jobs. The remaining workers are employed by business-to-business sellers, electronic marketers, and agents and brokers. Wholesale employment growth has slowed markedly in the first eight months of 2016, and this trend should continue. The sector is expected to add 1,400 jobs in 2016 and 400 in 2017 after gains of more than 3,000 the previous two years.

Retail Trade

The retail sector accounts for $85 billion in sales and 270,000 employees. It includes several of the largest employers in the state as well as many mom-and-pop stores. Colorado retailers include grocery stores, auto dealers, department stores, gas stations, and many other kinds of firms that sell to consumers. Many retail employees are part-time and average wages in the sector are relatively low. Colorado voters passed Amendment 70 in November 2016, which will raise Colorado's minimum wage from $8.21 to $9.30 in 2017, and to $12 in 2020. Recent years' employment gains have been slowed by automation and other productivity-enhancing changes such as more self-service. Sales have failed to keep pace with income gains as a growing share of the consumer budget is devoted to items not included in the retail sales figure, such as services and on-line sales. State sales statistics are compiled by the Colorado Revenue Department and do not include most online purchases.

The outlook for Colorado retail spending is favorable. State households are benefiting from solid job and income growth. Consumer debt should not limit willingness to spend as slower growth in mortgages, and low interest rates have brought the burden of debt service to historic lows. Buoyant housing markets in Colorado's Front Range give a further boost to household balance sheets. National surveys report relatively high levels of consumer confidence, including the Conference Boards' Consumer Confidence Index and the University of Michigan's Index of Consumer Sentiment. Strong consumer durable purchases are anticipated as buoyant home sales mean increased purchases of furniture and appliances. The age of the stock of consumer durables promises more replacement purchases. At the same time, some slowing in the state economy should mean slightly slower growth in 2016 and 2017. Rising costs for health care and education and more online purchases limit funds available to be spent at bricks-and-motor retailers. Surging rents are yet another drain on available funds, particularly for younger and lower-income households.

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TRADE, TRANSPORTATION, AND UTILITIES EMPLOYMENT
2008–2017
(In Thousands)

Year	Wholesale Trade	Retail Trade	Total Trade	Transportation and Warehousing	Utilities	Total TTU
2008	100.1	252.6	352.7	68.3	8.2	429.3
2009	93.3	238.3	331.6	63.9	8.4	403.8
2010	90.8	236.9	327.7	61.7	8.2	397.6
2011	91.9	239.9	331.8	61.8	8.1	401.7
2012	94.1	243.7	337.8	63.9	8.0	409.7
2013	96.5	249.1	345.6	66.8	7.9	420.2
2014	99.9	255.3	355.2	69.6	8.1	432.9
2015[a]	102.9	262.6	365.5	71.6	8.2	445.3
2016[b]	104.3	270.2	374.5	72.0	8.2	454.7
2017[c]	104.7	276.8	381.5	72.2	8.1	461.8

[a]Revised. [b]Estimated. [c]Forecast.

Note: Components may not sum to total due to rounding.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Trade, Transportation, and Utilities

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WHOLESALE TRADE EMPLOYMENT
2008–2017
(In Thousands)

Year	Wholesale Trade Durable Goods	Wholesale Trade Nondurable Goods	Other Wholesale	Total
2008	54.8	33.4	11.9	100.1
2009	50.1	31.5	11.7	93.3
2010	48.6	30.7	11.5	90.8
2011	49.4	31.0	11.5	91.9
2012	51.0	31.8	11.3	94.1
2013	53.6	33.0	9.9	96.5
2014	56.7	34.3	8.9	99.9
2015	59.2	35.4	8.3	102.9
2016[a]	59.9	35.8	8.6	104.3
2017[b]	60.2	35.8	8.8	104.7

[a]Revised. [b]Estimated.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Only limited state sales data are available for 2016 but sales tax figures give some indication of spending trends. State sales tax collections were weak in the first half of the year but strengthened thereafter. Some of the first-half weakness can be explained by flat or even falling retail prices due to the strong dollar and falling energy prices, both of which should turn around in the coming months. National statistics suggest that state consumers are likely continuing to spend. They show retail sales growth for the first eight months in 2016 are posting stronger gains than in 2015 despite surveys of shopping malls reporting traffic falling below 2015 levels, a continuation of the trend over the last several years.

The improvement in state consumer spending in recent months should continue into the rest of 2016 and the following year. Holiday sales, which account for much of the yearly total for many retailers, will provide a boost. Most national pundits project holiday sales growth in 2016 to exceed that in the previous year. Spending can be expected to strengthen once the election is settled as patterns in previous presidential election years show sales picking up in November and December.

The retail sales forecast for Colorado total retail store sales calls for a 4% increase in 2016, slower than in 2015 year but stronger than current state data suggest. Continuing state employment and income gains and slightly faster inflation will mean somewhat stronger growth, 4.4%, in 2017. Auto dealers are expected to experience another good year, although gains will fall short of those in the recent past. Replacement demand remains strong. Despite robust sales over the past two years, the average vehicle on the road is still more than 11 years old. Motor vehicle and auto parts sales are projected to growth 6.5% in both 2016 and 2017. Sales by general merchandise stores declined in 2015 but should rebound in 2016 and 2017.

Although sales gains should translate to more jobs, tight labor markets will make it more difficult for retailers to expand their workforces. One nationwide chain reports particular difficulty meeting its workforce needs in Colorado. Tight labor markets will also limit the number of temporary workers hired for the Christmas holidays. According to the National Retail Federation, demand for such workers is strong but the number of temporary employees is not expected to increase much over 2015. Gains in retail jobs in Colorado in 2016 and 2017 will be somewhat less that in 2015. Employment in the sector is forecast to increase 7,600 in 2016 and another 6,600 the following year.

Transportation and Warehousing

The Transportation and Warehousing sector includes air, railroad, and water transportation; trucking; taxi services; urban transit; couriers; warehousing; and pipeline companies. These industries are expected to contribute 72,000 jobs in 2016, and 72,200 in 2017.

Transportation

Air Transportation

National data from the Bureau of Transportation Statistics show that U.S.-based airlines carried nearly 817 million passengers for the 12 months ending August 2016, an increase of 4.4% compared to the same period one year prior. These are the highest figures on record.

RETAIL SALES, 2008–2017
(In Billions of Dollars)

Year	Motor Vehicle and Parts	General Merchandise	Other Retail	Total Retail Trade Sales[a]	Percentage Change
2008	12.1	11.3	43.1	66.5	-1.1%
2009	10.2	11.0	37.1	58.3	-12.3
2010	11.3	11.1	39.9	62.3	6.8
2011	13.0	11.7	42.0	66.7	7.1
2012	14.4	12.2	44.1	70.7	6.0
2013	15.7	12.4	46.1	74.1	4.8
2014	17.4	12.9	49.2	79.5	7.3
2015	19.0	12.3	52.1	83.4	4.9
2016[b]	20.2	12.5	54.0	86.7	4.0
2017[c]	21.5	12.8	56.2	90.5	4.4

[a]Motor Vehicle and Parts and General Merchandise are the two largest Retail Trade categories. The total also includes gas stations, food/beverage, building materials/home improvement, furniture, clothing, electronics, and other retail stores. The total does not include food services.
[b]Estimated. [c]Forecast.
Sources: Colorado Department of Revenue and Colorado Business Economic Outlook Committee.

RETAIL TRADE EMPLOYMENT, 2008–2017
(In Thousands)

Year	Motor Vehicle and Parts Dealers	Food and Beverage Stores	General Merchandise Stores	Other Retail	Total
2008	31.2	45.9	51.6	123.9	252.6
2009	28.1	44.7	50.7	114.8	238.3
2010	27.9	45.0	50.0	114.0	236.9
2011	28.6	45.1	50.7	115.5	239.9
2012	29.8	46.1	50.6	117.2	243.7
2013	31.2	48.0	49.8	120.1	249.1
2014	32.6	49.3	49.6	123.8	255.3
2015	34.4	51.0	50.2	127.0	262.6
2016[a]	35.4	52.4	52.3	130.1	270.2
2017[b]	36.0	53.5	53.5	133.8	276.8

[a]Estimated. [b]Forecast.
Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

The seasonally adjusted systemwide load factor on U.S. airlines decreased in August 2016, to 82.4. The load factor is the ratio of revenue passenger miles to available seat miles. While both increased year-over-year, the decrease in the load factor in 2016 compared to 2015 reflects available seat miles increasing at a faster rate than revenue passenger miles. Five U.S. carriers accounted for nearly two-thirds of domestic passenger traffic (American Airlines, Delta Air Lines, JetBlue Airways, Southwest Airlines, and United Airlines) in 2015.

Airlines depend highly on the health of the economy. Economic activity affects air travel by business and leisure passengers, as well as air freight. Because many costs are fixed, the profitability of individual companies is determined by efficient operations and favorable fuel and labor costs. Small airlines can compete by serving local or regional routes with substantial economic growth.

According to the International Air Transport Association's (IATA) October 2016 Airline Business Confidence Index, airline leadership expect profits to remain

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COLORADO AIRPORT STATISTICS
2008–2015
(In Thousands)

Passengers and Cargo	2008	2009	2010	2011	2012	2013	2014	2015
Passengers (in thousands)[a]								
Denver International Airport (DEN)	51,245.3	50,167.4	51,985.0	52,849.0	53,156.3	52,556.4	53,472.5	54,014.5
Colorado Springs Municipal Airport (COS)	1,993.0	1,864.0	1,738.3	1,621.1	1,639.1	1,299.7	1,250.0	1,179.5
Aspen-Pitkin County Airport (ASE)	426.6	433.7	445.4	442.5	429.8	413.4	435.3	467.0
Grand Junction Regional (GJT)	425.2	457.7	443.7	444.2	439.3	422.2	427.7	428.8
Durango-La Plata County Airport (DRO)	268.7	296.2	327.2	351.3	373.1	385.6	387.5	373.6
Eagle County Regional Airport (EGE)	426.0	363.3	402.2	378.6	335.8	334.3	330.0	313.9
Montrose Regional Airport (MTJ)	171.8	184.4	193.2	174.5	150.6	169.2	181.3	205.5
Yampa Valley Airport (HDN)	273.2	245.0	220.1	213.1	119.9	183.6	184.5	187.8
Gunnison-Crested Butte Regional Airport (GUC)	72.1	84.3	74.6	73.0	62.4	61.6	63.5	68.8
Pueblo Memorial Airport (PUB)	8.7	10.4	23.3	44.9	19.6	13.5	13.6	7.3
Fort Collins-Loveland Municipal Airport (FNL)	62.2	62.2	71.3	90.0	69.6	5.5	4.2	6.9
San Luis Valley Regional/Bergman Field (ALS)	14.3	12.6	13.5	14.2	13.9	14.0	7.8	6.2
Cortez Municipal Airport (CEZ)	16.8	15.4	12.7	14.0	15.1	16.4	7.7	4.6
Telluride Regional Airport (TEX)	26.7	13.5	18.5	22.0	15.7	12.9	7.2	0.1
Total Passengers	55,430.6	54,210.1	55,969.0	56,732.4	56,840.2	55,888.2	56,772.7	57,264.5
Cargo, Freight, and Air Mail (in millions of lbs.)								
DIA Freight and Express	527.1	468.2	517.7	511.8	488.1	470.1	486.6	490.8
DIA Air Mail	26.4	26.6	37.5	35.4	33.7	28.8	32.9	55.0
DIA Total	553.5	494.8	555.2	547.2	521.8	498.9	519.4	545.8
Colorado Springs Total Cargo, Freight, and Air Mail	24.0	23.0	22.3	21.7	23.8	23.0	23.8	24.4

Note: Excludes airports with few passengers.

[a]Passengers include enplanements and deplanements. For airports that do not report passenger traffic, enplanements from the Federal Aviation Administration are doubled to reflect estimated total passenger traffic.

Sources: Denver International Airport, Colorado Springs Municipal Airport, Grand Junction Regional Airport, Eagle County Regional Airport, Aspen-Pitkin County Airport, Durango-La Plata County Airport, and the Federal Aviation Administration.

unchanged over the next 12 months, in a sign that the "industry profitability cycle may have peaked."

Colorado air transportation jobs decreased 2.2% year-over-year based on data from January through September 2016. Passenger traffic continues to increase in Colorado, most notably at Denver International Airport. The Colorado Springs Airport recorded decreased passenger traffic in 2015, but increased year-to-date through August 2016.

Smaller market airports in Colorado exhibit volatility from year to year due to economic conditions, carriers entering and exiting markets, and airport maintenance. The Yampa Valley Regional Airport, for instance, was closed for 70 days in spring 2015 to complete a runway rehab project, which dampened growth in passenger traffic (enplanements still grew from 2014 to 2015). In 2016, the airport added new daily service to and from Dallas, and the airport had daily jet service to Denver and Houston, which all increased passenger traffic for the year. For the 2016-17 ski season, the airport added direct service to and from San Diego on Alaska Airlines, which increased direct flight service to 12 cities.

Denver International Airport

Denver International Airport (DIA) is owned and operated by the City and County of Denver. The city's Department of Aviation employs approximately 1,000 people at the facility.

DIA served just over 54 million passengers in 2015, which led DIA to rank as the sixth-busiest airport in North America and the 19th-busiest in the world. This was the highest number of annual passengers in DIA's history. Passenger traffic increased by 1% in 2015 compared to 2014, primarily driven by growth by Southwest and United Airlines. For the year-to-date period September 2016, DIA's passenger traffic was up 8.2%, and it has recorded 13 consecutive months of growth. Passenger traffic is forecasted to end 2016 with more than 58 million passengers, far surpassing the 2015 record of 54 million passengers.

DIA's largest carrier, United, accounts for 42% of DIA's passengers, and the carrier provides nonstop service to 140 destinations from Denver. Denver ranks as the fourth-largest hub in United's network, behind Houston, Chicago, and Newark. It is important to note that Denver is the second-largest hub in the carrier's network in terms of domestic destinations served, solidifying both Denver's local market strength and competitive advantage as a central point for transcontinental connecting passengers.

Southwest Airlines ranks as Denver's second-largest carrier, accounting for 29% of DIA's passengers. DIA ranks as the fourth-largest station in the Southwest network in terms of capacity, and the airline serves 62 nonstop destinations from Denver. In March 2017, Southwest will initiate once weekly flights to Belize City, Belize. This will be a new international destination for Denver.

Frontier Airlines, an ultra-low-cost carrier, ranks as DIA's third-largest carrier, accounting for 12% of DIA's passengers. Although DIA still remains the largest station in Frontier's network, the carrier has significantly diversified its network over the past years as a part of its transition to a new business model. In 2016, Frontier added flights from Denver to Philadelphia, Charlotte, San Antonio, Columbus, Pittsburgh, and Washington-Dulles, increasing competition to these markets that were already served from DIA by other airlines.

In 2016, DIA welcomed five new airlines to the market: Virgin America to San Francisco in March 2016; Sun Country to Minneapolis in May 2016; Elite Airways to Branson, Missouri, in July 2016; PenAir to various Essential Air Service communities in Kansas in September 2016; and Allegiant Air, scheduled to start service to Montrose in mid-December 2016. Including Branson,

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TRANSPORTATION AND WAREHOUSING EMPLOYMENT
2008–2017
(In Thousands)

Year	Truck Transportation	Couriers and Messengers	Warehousing and Storage	Air Transportation	Other Transportation	Total
2008	18.6	9.5	6.8	14.6	18.8	68.3
2009	17.3	8.7	6.6	13.4	17.9	63.9
2010	17.1	8.5	6.2	12.5	17.4	61.7
2011	17.9	8.5	6.2	12.3	16.9	61.8
2012	18.7	8.6	6.2	13.0	17.4	63.9
2013	19.4	8.9	6.3	14.2	18.0	66.8
2014	20.3	9.4	6.4	14.7	18.8	69.6
2015	20.9	10.3	6.7	14.2	19.5	71.6
2016[a]	21.0	10.6	6.8	13.9	19.7	72.0
2017[b]	21.3	10.9	6.9	14.1	19.0	72.2

[a]Estimated. [b]Forecast.

Note: Due to rounding, the sum of the sectors may not equal the total.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

nine domestic markets have gained new nonstop service to Denver in 2016: Buffalo, New York; Charleston, South Carolina; Moab, Utah; Norfolk, Virginia; Richmond, Virginia; Salina, Kansas; Telluride, Colorado; and Vernal, Utah.

Airlines at DIA operate nonstop service to 20 international destinations in eight countries. In May 2016, Lufthansa started five-times per week service Munich, Germany, initially using Airbus A330 aircraft. The airline had immediate success on the route and brought in larger Airbus A340 aircraft during the summer months. In June 2016, Air Canada initiated service between Denver and Montreal. In December 2016 two carriers—Aeromexico and Volaris—will inaugurate service to Monterrey, Mexico, the third-new international destination for DIA in 2016. British Airways, Frontier, Icelandair, Southwest, and United also offer nonstop international service from DIA. Through September 2016, international passenger traffic at DIA increased 16% compared to the same period in 2015, primarily due to the new flights on Lufthansa and Air Canada. The expansion of nonstop flights to international destinations continues to be a high priority for DIA. Lufthansa has recently announced that it will increase Denver's Munich service to daily starting March 2017. In addition, Icelandair has announced that it will increase service between Denver and Reykjavik from daily to nine flights per week during the peak summer months in 2017, marking the first time in Denver aviation history that a long-haul international destination will have two flights per day.

DIA also finished work in April 2016 on RTD's University of Colorado A Line electric commuter rail. The new rail line is 23 miles long, has six stops, and is takes passengers between downtown Denver and DIA in approximately 37 minutes.

Motor Freight Transportation and Warehousing

In 2016, freight tonnage in Colorado and across the country grew at a rate of 2.5% and additional growth is anticipated in 2017. Colorado recorded modest growth in freight operations across the entire economic spectrum with the exception of oil and gas. With lower energy costs and a reduction in drilling and production operations, motor carriers serving that industry saw reduced business and significantly lower freight rates that led many to cut their operations or close altogether. As energy prices have risen over the last several months and increased activity is occurring in the oil and gas sector, motor carriers are beginning to see more stability and improved rates in that area.

While freight volumes grew in Colorado and nationwide, overall demand was softer than anticipated, which translated into lower rates for many motor carriers. The lower freight rates placed many companies in a further bind as the industry found itself still woefully short on truck drivers and mechanics. As a result of the keen competition for truck drivers, pay for these individuals rose significantly. As evidence of the rising pay scale, the website Glassdoor.com, which is a job-search website, reported that truck drivers' wages grew 7.8% in October 2016 compared to a year earlier while jobs in other sectors grew on average by 2.8%. The average pay for a long haul truck driver working for a truckload carrier now stands at $54,000 per year while drivers with private fleets may earn up to $73,000.

A continuing problem for trucking companies based in Colorado is that it is primarily a freight destination, where significantly more freight comes into the state than is shipped out. The primary reason for this is that Colorado has a limited manufacturing sector and other base industries that produce products for export. This disparity translates into higher costs for goods being shipped to Colorado while businesses and shippers in Colorado may pay less to transport products out of the state. The lower shipping cost is attributed to greater competition for the limited freight for a backhaul (transporting freight to a location back to the company's terminal) for trucking operators bringing freight into the state.

Colorado motor carriers also face some additional challenges versus their counterparts in other states over the past two years. In particular, these challenges relate to the passage of the recreational marijuana initiative. The passage of this measure has further increased difficulties in obtaining and retaining drivers as this industry has a zero tolerance policy regarding drugs and alcohol. Since the passage of the initiative, there have been a greater number of positives on pre-employment tests as well as during random testing. This situation has exacerbated an already difficult problem in meeting the industry's critical needs for drivers and technicians. Since the passage of the marijuana initiative, the state has also witnessed a dramatic increase in the price of warehouse and terminal space. Costs have risen as marijuana dispensaries and grow houses acquire these properties, creating a shortage for these properties for motor carriers seeking to acquire or lease properties for terminals or warehousing purposes.

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COLORADO NATURAL GAS CONSUMPTION
2008–2017
(In Billions of Cubic Feet)

Year	Total Gas Consumption	Percentage Change
2008	504.8	0.0%
2009	523.7	3.7
2010	501.4	-4.3
2011	466.7	-6.9
2012	443.8	-4.9
2013	467.8	5.4
2014	479.0	2.4
2015	469.2	-2.0
2016[a]	481.3	2.6
2017[b]	492.0	2.2

[a]Estimated. [b]Forecast.

Source: Colorado Business Economic Outlook Committee.

COLORADO NATURAL ELECTRIC POWER CONSUMPTION
2008–2017
(In Millions of Kilowatt Hours)

Year	Nonresidential	Residential	Total	Percentage Change
2008	34,422	17,720	52,142	1.6%
2009	33,623	17,412	51,035	-2.1
2010	34,816	18,102	52,918	3.7
2011	35,181	18,277	53,458	1.0
2012	35,465	18,220	53,685	0.4
2013	34,913	18,529	53,442	-0.5
2014	35,304	18,093	53,397	-0.1
2015	35,669	18,542	54,211	1.5
2016[a]	35,415	19,149	54,564	0.7
2017[b]	35,254	18,862	54,116	-0.8

[a]Estimated. [b]Forecast.

Sources: *Edison Electrical Institute Statistical Yearbook,* Xcel Energy, and Colorado Business Economic Outlook Committee.

Trade, Transportation, and Utilities

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The federal government has a large regulatory role over the motor carrier industry. Prior to the election, trucking and other transportation stocks had mostly languished. With the outcome of the November election, motor carrier and other logistics stocks rose sharply. To a large extent, this appears to be due to a perception by many that the new president will freeze many proposed or pending regulations that were anticipated to increase costs for companies and represent a drag on the productivity and profitability for many in the logistics industry. The trucking stocks were also bullish because the new president promised a doubling of funding for the infrastructure. The infusion of funds in the infrastructure will translate into more materials and products being shipped to support the construction or reconstruction of roads and bridges of which the majority of shipments will travel by truck. More importantly, the nation's roadway and bridges have been a major source of concern because operational costs have risen due to roadway congestion and the reliability of freight shipments has suffered. In the Denver Metro area alone, the U.S. Department of Transportation estimates an additional cost of $25,000 per truck associated with lost time and additional fuel costs due to congested highways. The industry hopes that the infrastructure program will relieve congestion and allow companies to improve productivity.

The trucking industry is also seeing rapid changes in technology. In fact, Colorado witnessed the first autonomous truck beer delivery by Otto Transportation, which recently took place on I-25 from Fort Collins to Denver. This development offers significant opportunities to enhance highway safety and possibly address driver shortages in limited cases. Rather than supplanting drivers, these sophisticated systems will, for the most part, be additional tools to assist truck drivers in more safely navigating highways by allowing them to make better decisions based on enhanced information, respond more quickly to emergency situations, and make critical adjustments in the case of difficult and/or changing conditions.

Regarding economic growth and activity for 2017, increased freight volume and growth is anticipated to be similar to 2016, in the range of 2%. For the first half of 2017, a "shipper's market" is expected to continue with low freight rates. By the midyear, freight rates are expected to rise moderately as trucking companies and shippers realign activities related capacity and inventories.

Utilities

Colorado natural gas rates fell with lower wholesale prices in 2016. Natural gas production remained flat despite the low the low prices. Continued economic growth and favorable weather helped push up retail natural gas consumption as compared to 2015.

Electricity rates have risen by about 1% in 2016, with growth in utility infrastructure offsetting lower fuel costs. Residential and commercial growth pushed up electricity demand in 2016, offsetting continued energy efficiency efforts and ongoing adoption of on-site solar systems. In 2017, continued advances in efficient products for home and commercial use and additional rooftop solar installations should more than offset natural growth in demand, dropping electricity usage.

In 2016, Black Hills Corporation filed, and the Colorado Public Utilities Commission (PUC) considered, an application to increase electricity rates to reflect increasing costs of service to be implemented in 2017. A decision is expected in early December 2016. In 2017, Xcel Energy is expected to submit a request to increase electricity rates, subject to CPUC approval, for implementation in 2018.

Colorado utilities have continued with emission controls, retirements of coal generating facilities and fuel switching to meet the mandates of the Clean Air-Clean Jobs Act. The installation of selective catalytic reduction (SCR) equipment on the 446 MW two-unit coal plant in Hayden was completed in 2016. The Valmont coal plant will be closed in 2017 and unit 4 of Cherokee will switch fuel from coal to natural gas.

The PUC approved Xcel Energy's $1.1 billion 600 MW Rush Creek wind generation project. Vestas Americas will supply 300 Colorado manufactured turbines for what will be Colorado's largest wind farm located on approximately 116,000 acres in parts of Arapahoe, Cheyenne, Elbert, Kit Carson, and Lincoln counties. The project is expected to begin construction in 2017, with anticipated commercial operations in 2018. This timing allows Colorado customers to benefit from federal Production Tax Credits incentives. The Rush Creek project will increase Colorado wind capacity to more than 3,500

MW, helping to meet the state mandate of 30% renewable generation by 2020.

The PUC also approved a comprehensive settlement resolving Xcel Energy's rate case, solar subscription program, and renewable energy compliance plan. The settlement allows Xcel Energy to offer subscriptions to a new 50 MW solar facility, develop a trial program for potential full-scale residential time-of-use (TOU) rates, acquire more than 300 MW of on-site and community solar gardens and resolve cost allocations between rate classes. The new TOU rate has the potential to encourage customer behavior change on the magnitude and timing of electricity demand as well as the adoption of smart home-energy appliances to help customers shift electricity consumption from on-peak to off-peak periods. If TOU rates are approved for all residential customers, customers may then have new opportunities to reduce their monthly electricity bills.

Black Hills Corporation completed their purchase of SourceGas in the first quarter of 2016, consolidating the number of utilities operating in Colorado. The purchase increases Black Hills customer count by 55%, to more than 1.2 million natural gas and electric customers in eight states.

Colorado natural gas consumption grew by 2.6% in 2016 to an estimated 481.3 BCF. Electricity consumption also moved up by 0.7% in 2016, to an estimated 54,564 million kWh. Utilities employment was flat in 2016 and is expected to decline slightly in 2017 due to retirements from an older than average workforce.

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Information

Overview

Companies in the Information industry are responsible for the creation, distribution, and transmission of information. In 2015, the Information industry added 400 jobs, with growth in film, broadcasting, and data processing more than offsetting declines in publishing and telecom. The industry is expected to grow by 700 jobs in 2016 and 1,100 jobs in 2017 as losses taper in the publishing industry. Information real GDP increased 1.9% in 2015, and despite the reduction in jobs, industry output records one of the fastest long-term growth rates among the state's industries.

Publishing

The Publishing Sector employed just over 20,000 people in 941 establishments in 2015. The industry includes any firm that issues print or electronic copies of original works for which they own a copyright, excluding Internet firms. Products include software, newspapers, periodicals, books, directories, databases, calendars, and greeting cards. The types of products produced by the publishing industry has diversified to include an increasing amount of electronic and Internet based products, such as audio, downloadable files, digital books, and mobile device applications.

The rise of the Internet and its attendant social media explosion has driven a structural evolution in the publishing industry that began before the turn of the century and has yet to fully play out. Individuals worldwide continuously have more control over the information they consume and over the production and dissemination of that information. As a result, the industry directly employs fewer people in fewer businesses each year even as the value of its output grows with the overall economy. In addition, business innovation and consolidation has blurred the lines not only between traditional publishing sectors, but also between publishing and other forms of media.

Industry nominal GDP increased 38% in Colorado between 2001 and 2014 (the most recent data available). Meanwhile, Colorado's publishing industry lost close to 15,000 jobs and 569 businesses between 2001 and 2015, representing decreases of 43% and 38%, respectively. Most of these lost jobs did not disappear from the economy, but are instead performed by individuals and organizations outside of the traditional publishing industry. The industry's output increased 0.8% in 2015 relative to 2014, while industry employment deceased 0.2%. A 5% increase in software publishing employment will offset decreases in newspaper, periodical, book, and directory publishing employment. These trends are expected to continue in 2016 and 2017.

Newspaper Publishing

According to the Pew Research Center, average weekly newspaper circulation decreased 8% in 2015, with print circulation down 9% and digital up 2%. Meanwhile, the center estimates that print and digital advertising revenue to major newspaper firms decreased 10% and 2%, respectively, in 2015.

Although readership continues to evolve toward digital sources, print remains an important segment of the industry. According to Nielson Scarborough, 51% of newspaper consumers read exclusively in print during 2015. However, the number of traditional newspaper consumers is dwindling. A 2016 Pew Research Center survey concluded that only 20% of U.S. adults often get news from a print newspaper, while 38% of U.S. adults accessed news online. Many online readers do not purchase an online subscription and may visit a particular newspaper's site only rarely. The survey found that 62% of adults regularly access online news via posts on social media sites such as Facebook, Twitter, Reddit, and YouTube.

The Internet has caused the dissemination of information to be increasingly fragmented and democratic. A new generation of bloggers hailing from the traditional journalism industry, private firms, nonprofit organizations, and the general population has harnessed social media to provide diverse, targeted, and sometimes real-time news. Consumers have embraced this explosion of information on social media, demanding instant access to news on rapidly changing communication platforms. Traditional media outlets, including newspapers, televisions, and radio, continue to converge, sharing resources and information both in print and online.

Employment at traditional Colorado newspapers has been declining since 2005. They employed 3,077 people in 140 establishments in 2015, down from 7,080 people in 181 establishments in 2005. Newspaper employment is expected to continue to fall through 2017.

Book Publishing

The Internet has also transformed the book publishing industry from an industry dominated by a handful of large firms to a competitive marketplace. Market power has shifted to authors who now have the tools they need to choose among a continuum of self- and traditional publishing options.

Previously, the U.S. book publishing industry was dominated by a handful of large firms, primarily located on the East Coast, that controlled which books went to print and provided a one-stop set of services, including editing, production, marketing, and distribution. Access to online markets is increasingly chipping away at this model, significantly reducing barriers to entry for author and small publisher niche markets, such as unbundling the services required to publish a book and providing new forums for social interaction among authors, readers, and publishers.

Smashwords, an online e-book publishing platform for independent authors founded in 2008, had published over 400,000 books by April 2016. Crowdfunding sites such as Unbound and Kickstarter have eliminated the need to seek funding from traditional publishing firms altogether. Another crowdfunding site, PubLaunch, allows authors to both seek funding directly from their readers and connect with professionals within the traditional book publishing industry. Meanwhile, Google analytical tools and sites, such as Find My Audience, are allowing authors to identify and connect with their markets. According to Bowker, the number of ISBNs issued for self-published titles increased 21% in 2015 to 727,125, and is up 375% since 2010.

Although the rise of e-books and distributors such as Amazon, Google, and Kobo has altered the way books are published and distributed, the shift in demand from traditional print to e-books appears to, at least for now, be stabilizing. According to the Pew Research Center, the share of Americans who read e-books ticked up only slightly, from 27% in 2014 to 28% in 2015, while the number consuming audio books increased from and 12% to 14%. Successful book publishing firms market both e-books and traditional print books, since the bulk of demand continues to be for traditional print books. According to Neilson, sales of traditional print books increased 3% and e-book sales fell 13% in 2015. Strong sales growth is not expected to reoccur until there is more tablet and smartphone penetration in global markets.

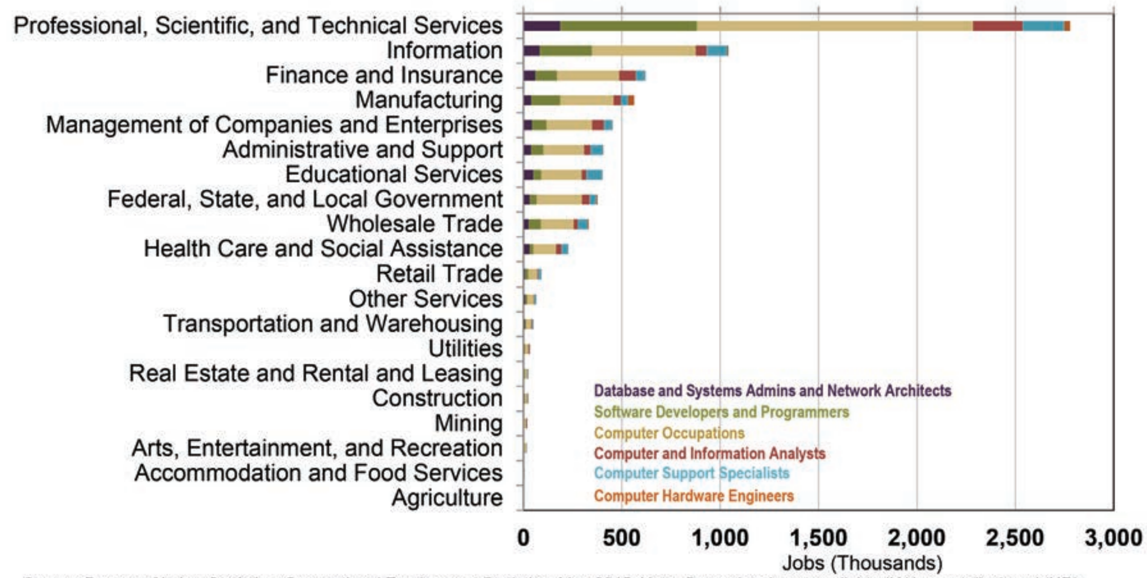
Jobs in traditional publishing firms generally include editors, marketers, production staff, and general administrators. Most authors are freelance workers and are classified in the services industry. Authors who publish their own books may not be captured as employed within any industry. However, both small and large book publishing firms actively collaborate with these authors.

The traditional book publishing industry employed 825 people in 2014, down 5% from 2014 and 43% since 2001. As this evolution of the publishing industry continues, further consolidation and business failures will continue to reduce employment in the traditional book publishing industry in 2016 and 2017.

Directory Publishing

Employment in Colorado's directory publishing industry decreased 10.5% in 2015, to 1,405 jobs. With most consumers now taking for granted online and mobile directory applications, the traditional directory publishing industry has focused on targeted niche products. Employment in this industry is expected to continue to fall in 2016 and 2017.

NATIONAL COMPUTER AND IT JOBS BY OCCUPATION ACROSS INDUSTRIES, 2015



Source: Bureau of Labor Statistics, Occupational Employment Statistics, May 2015. Note: Some data is not available (NA) or not disclosed (ND).

Software Publishing

In 2015, there were 471 software publishing companies with 12,300 employees. These represent a year-over-year increase of 14.6% in total companies and 4.9% increase in jobs.

The software publishing industry includes a wide range of products including business analytics and enterprise software; database, storage, and backup software; design, editing, and rendering software; operating systems and productivity software; smartphone apps; and video games. (Note: the closely related custom computer programming services sector is included in Professional and Business Services.)

Software publishers in Colorado range in size from small startups to major corporations with offices in the state such as Cisco Systems, Google, Hitachi, IBM, and Oracle. While Colorado has a high concentration of employment in the software industry (twice the national average), more than 80% of the state's software publishers have fewer than 25 employees.

Between 2001 and 2015, employment in the software publishing industry in Colorado decreased by 31%, and the number of software publishers fell 42%. More recently, Colorado's software industry has experienced growth fueled by startups, expansions, acquisitions, and company relocations. Employment is expected to continue to increase in 2016 and 2017.

Telecommunications

There were 27,000 people employed in the Telecom Sector in 2015 spread across in 681 establishments throughout Colorado. Just over half of these establishments are located in the Denver Metropolitan Statistical Area; however, since many larger companies are based

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in the metro area it accounts for nearly 70% of all jobs. Broadcasting and telecommunications are combined together for GDP reporting; this combined sector posted nominal GDP growth of 9.3% in 2013 and 6.1% in 2014 (most recent available data). Due to this recent growth, broadcasting and telecom in Colorado accounts for 3.8% of the national output in this sector.

Mergers and acquisitions have been commonplace in this industry over the past few years, dating back to CenturyTel merging with Denver-based Qwest Communications in 2011 to become CenturyLink. In October 2016, AT&T announced that it would acquire Time Warner in a deal valued at $85.4 billion. In 2015, AT&T shelled out $48.5 billion in a merger with DirecTV. With these acquisitions, the line between telecommunications and broadcasting becomes less obvious. The original "Ma Bell" has evolved over the years from a wired telephone company to a wireless phone provider, becoming the largest pay television provider. It could now become a provider of television and movie content.

At the end of October 2016, CenturyLink unveiled plans to buy Broomfield-based Level 3 Communications for $34 billion. While this deal potentially will allow CenturyLink to deploy more rapidly broadband using Level 3's 200,000 miles of fiber optic cable, Colorado stands to lose another corporate headquarters as the company will be based in Monroe, Louisiana. There will likely be some reduction in staffing as the result of this merger, but the extent is currently unknown. A *Denver Post* article from November 1, 2016, talked about the extent of job cuts due to CenturyLink and Qwest merger saying, "CenturyLink still has a large employee base in Colorado, though numbers have dwindled to 5,100 from 7,400."

Employment in the telecom sector declined by a few thousand jobs from 2009 to 2012 (with a considerable portion of this loss due to the aforementioned cuts at CenturyLink); however, this trend reversed in 2013 and 2014 as sector payrolls edged up. Employment trended down 1.5% in 2015, with losses concentrated in the wired (telephone, Internet, and cable) and wireless (cell phones and wireless Internet service providers) components. The smallest industry group, satellite telecom, has grown by 59% from 2011 to 2015 but this totaled just under 200 new jobs.

In 2016, telecom employment is expected to grow 1.9%, but sector employment is likely to be little changed in 2017 due to potential losses from the most recent CenturyLink merger. Developments that could impact employment changes in various components of the telecom industry are outlined in the following paragraphs.

INFORMATION EMPLOYMENT
2008–2017
(In Thousands)

Year	Publishing	Telecommunications	Other	Total[a]
2008	26.6	29.3	20.9	76.8
2009	24.1	30.2	20.4	74.7
2010	22.9	28.5	20.6	72.0
2011	22.5	28.0	20.9	71.4
2012	21.6	27.2	21.0	69.8
2013	20.6	27.4	21.8	69.8
2014	20.2	27.5	22.6	70.3
2015[b]	20.1	27.1	23.5	70.7
2016[b]	20.3	27.6	23.5	71.4
2017[c]	20.6	27.9	24.0	72.5

[a]Due to rounding, the sum of the individual sectors may not equal the total.

[b]Estimated. [c]Forecast.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Broadband

Broadband has emerged as a critical component of economic development. Economic research shows the introduction and improvement of broadband services boosts employment growth, reduces unemployment rates, and helps attract and retain high value-added firms and workers. These impacts are particularly large in rural or isolated areas.

Broadband provisions in Colorado communities located outside the Front Range presents unique challenges. Nearly 84% of the state's population lives in urban areas along the Colorado's Front Range. Rural areas of the state have historically been underserved as mountainous and rugged terrain poses challenges to infrastructure projects, which are reliant on large population bases to offset the high initial investment costs. State legislation, namely Senate Bill 05-152 that was intended to proscribe unfair competition between publically and privately provided broadband, has presented barriers to broadband efforts in many rural parts of the state.

Over the past few years, a number of municipalities and counties have voted to opt out of the restrictions in SB 05-152 that prohibit communities from running their own Internet service. Colorado has 96 communities that have already voted to opt out of the provision of municipal Internet service, including 26 that voted for the measure in November 2016. However, these referendums are costly to hold and do not require the areas to build the networks, but gives them the power to do so. Partnering with a private provider to roll out municipal broadband can be a costly venture, especially in areas with smaller or widely dispersed populations. Larger towns, like Longmont, Loveland, and Centennial, have implemented plans to roll out their fiber networks, but many smaller communities have been slower to engineer and deploy broadband utilities infrastructure.

Additionally, expanding broadband provision is a key focus of Colorado economic development, information technology, and local government capacity-building efforts. Colorado has developed a program through the state Department of Local Affairs (DOLA) that has awarded over $17 million in matching grants for a statewide investment of $34 million to numerous rural communities through the state, including Estes Park, Red Cliff, Park County, and Rio Blanco County, to help with strategic broadband planning and deployment of middle-mile broadband projects. Many small, rural local telephone companies in Colorado could also benefit from the final phase of the Federal Communications Commission's (FCC) $10 billion Connect America Fund designed to subsidize voice and broadband networks in high-cost rural areas. Smaller telecom providers had until November 1, 2016, to indicate their elections on receiving this subsidy. Improved broadband access and capacity was identified by the Office of Economic Development and International Trade (OEDIT) as a key to economic growth during the creation of the Colorado Blueprint. The Office of Information Technology (OIT) is also in the process of developing a broadband map that will focus on broadband infrastructure throughout the state.

Broadband access allows many rural communities the potential to attract remote workers and location neutral businesses that can help to diversify the economic base, but there are many other benefits including public safety and health care. Many rural areas of the state would benefit greatly from telemedicine and remote health care monitoring that have the promise to reduce health care costs while improving outcomes.

Broadband availability to schools and educators across the state, especially in rural areas, is also a critical need that has been addressed over the past decade by the state. To address this issue the governor recently announced the Kids Link Colorado initiative to help local schools take advantage of federal programs to close the connectivity gap. In partnership with EducationSuperHighway and managed through OIT the effort will work with local school districts to identify gaps and find solutions. Additionally, the Broadband Deployment Board awarded its initial round of grant awards for last-mile connectivity throughout the state. The grants, which totaled $2.4 million, were awarded to variety of companies to provide basic broadband service as defined by the FCC to Colorado citizens.

Telephone

Telephone, the legacy business for telecom providers, has been experiencing a protracted decline since the turn of the century. CenturyLink issued a memo to employees in September 2016 stating that shrinking legacy revenue has resulted in a loss of $600 million annually as it lost 198,000 subscribers to its core fixed-line local phone business. In response to substantial decline in its landline phone business, the company announced it would eliminate 8% of its labor force (approximately 3,000 workers) by December 2016, with some of these cuts occurring in Colorado. Improvements in VoIP services have allow Internet and cable TV providers to compete with traditional wireline telephone services. Additionally, many of these legacy providers have lost landline subscribers to wireless and other competitors that offer free or lower cost long-distance calling. The most viable telecom companies have diversified into separate wireless, wireline, Internet, cable TV, and providers of emerging cloud-based technologies.

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Television

Similar to the decline in land telephone subscriptions, pay TV companies have been losing subscribers at an unprecedented rate. An August 2016 report from Leichtman Research revealed that cable, satellite, and telecom pay TV providers lost about 665,000 subscribers in Q2 2016, while SNL Kagan estimated Q2 losses to be greater than 810,000, up from an estimated 560,000 losses reported in Q2 2015. As Internet speeds have become more reliable and faster and increased competition has caused prices to drop in some markets in recent years, customers have been "cord-cutting" and leaving traditional cable and satellite services for new over-the-top content sources such as Netflix, Hulu, Roku, Amazon Prime, Sling TV, and Apple TV. Sling TV, which is now the nation's sixth largest over-the-top video service in the United States is a subsidiary of Dish Network Corp. based in Douglas County. (Over-the-top service refers to the delivery of video content through the Internet.) Telecom companies are trying to stem this decline by using new technologies like high-definition, on-demand, online, mobile, and multicasting. These technologies help develop alternative revenue streams for traditional cable companies; telecoms that provide both cable and Internet might lose a cable subscriber through cord-cutting but can continue to sell Internet services to the same household.

Wireless

Advances in wireless communications have enabled consumers continue to move away from landlines and pay TV providers. As more content is delivered wirelessly and with 5G, or 5th-generation, mobile networks on the horizon, telecoms are fighting to expand their spectrum holding to meet the demands of bandwidth-intensive consumers. According to the Federal Communications Commission (FCC), the number of connected devices exceeds the 325 million people living in the United States, and about 70% of Americans use data-hungry smartphones. To meet this increased demand for spectrum, the FCC launched an incentive auction in two stages during the summer and fall of 2016. This plan, which was authorized by Congress in 2012, will use market forces to align the use of broadcast spectrum with consumer demands for video and broadcast services by enabling broadcast TV stations to generate additional revenue by making "low-band" broadcast TV airwaves available for wireless broadband. This shared spectrum and vacating of unused TV channels will help to ease congestion on wireless networks and lay the groundwork for 5G wireless services, and spur job creation and economic growth.

Film, Television, and Media

In May 2012, the Colorado legislature passed a law providing an incentive that allows for a 20% rebate for films, television, commercials, and video games produced in Colorado. Since the incentive's inception, the increase in inquiries and applications has been palpable; a total of $12.9 million was awarded to productions as of June 30, 2016. The Colorado Office of Film, Television & Media estimates that the productions brought to Colorado under the incentive generated $165.3 million in economic impact to over 40 counties in Colorado and created over 3,900 jobs.

A multiplier effect was used based on the reported actual and predicted expenditures of $86.1 million and 2,376 jobs. The multiplier effect was extrapolated from the University of Colorado's Leeds School of Business 2011 study "Economic and Fiscal Impact Analysis of Actual Film Budget Scenario on Colorado" and "Colorado Film Incentives and Industry Activity" reported in 2015.

Over the last four years, Colorado's film scene has benefitted from high profile new productions from major film studios and reputable independent production companies, such as Universal Studios, The Weinstein Company, and Netflix. A few notable films include Quentin Tarantino's *The Hateful Eight (*Kurt Russell, Samuel L. Jackson), *Furious 7* (Vin Diesel, Paul Walker), *Cop Car* (Kevin Bacon, Cameron Manheim), *Dear Eleanor* (Jessica Alba, Luke Wilson), and *Heaven Sent,* a family friendly Christmas film directed by Michael Landon Jr. A Netflix original film, *Our Souls At Night* (Robert Redford, Jane Fonda), was approved for the incentive for the upcoming FY2017 after filming *Amateur* (Josh Charles, Michael Rainey Jr.) just months earlier. Additionally, Colorado's local film scene has grown, incentivizing three locally written, produced, and directed films in FY2016. Colorado's documentary film scene continued to boom in 2016, increasing the total incentivized documentaries to nine, all of which are helmed by Colorado directors. Several reality shows have been incentivized, including five different shows for Discovery Communications and locally produced reality series airing on the Weather Channel, the Great American County Channel, Trinity Broadcasting Network, and RFD-TV. Colorado continues to be a hub of commercial production and has incentivized big brands such as Coors Brewing Company, UC Health, Hyundai Motors, Toyota, and Kia.

The increase in film, television, and commercial production is supplementing Colorado's already substantial crew base with a new, younger crew population. Gaining experience in Colorado's workforce is essential to a thriving industry. Anecdotally, producers who have worked in the state were so pleased that several have elected to return with new projects.

As of June 30, 2016, the Colorado Office of Film Television & Media was allocated $13.3 million for incentives. This continued funding reflects the success of the program thus far, and confidence is high that the legislature will continue to fund the program. To accommodate the influx of inquiries, more incentive funding is required. As long as the state keeps the incentives flowing, content creation will build to a significant Colorado business within the next few years. ✜

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Financial Activities

The Financial Activities Supersector consists of two sectors that make up 6.3% of statewide employment: (1) Finance and Insurance, and (2) Real Estate and Rental and Leasing. Beginning in 2006, the Financial Activities industry lost 16,500 jobs, or 10.3% over five years before bottoming out in 2011. The industry has recorded consecutive years of jobs growth beginning in 2012. Growth grew at a slower pace in 2016—the industry is expected to end the year with 164,100 jobs, an increase of 2.9%. Employment growth will continue in 2017, increasing 5,300 jobs, to 169,400, on the foundation of an improving overall economy that supports more banking, insurance, and real estate employment.

Approximately 70% of the employees in the Financial Activities industry work in the Finance and Insurance Sector (i.e., banks, credit unions, securities and investment firms, insurance carriers, etc.). About 30% of the workers are employed in the Real Estate and Rental and Leasing Sector, which includes real estate-related payroll jobs and companies that lease anything from real estate to equipment to formal wear.

FINANCIAL ACTIVITIES EMPLOYMENT 2008–2017 (In Thousands)

Year	Finance and Insurance	Real Estate and Rental and Leasing	Total
2008	107.4	48.2	155.6
2009	103.8	44.2	148.0
2010	101.7	42.6	144.3
2011	101.4	42.5	143.9
2012	103.4	43.2	146.7
2013	106.8	44.2	151.0
2014	107.8	46.1	153.9
2015[a]	110.9	48.6	159.5
2016[b]	113.7	50.4	164.1
2017[c]	117.0	52.4	169.4

[a]Revised. [b]Estimated. [c]Forecast.

Note: Due to rounding, the sum of the sectors may not equal the total.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Finance and Insurance

Capital Markets

The capital markets are a microcosm of the world at large. For practitioners in the capital markets, that is one of the appeals. You are on the leading edge of every development, globally and domestically, due to the potential impact to capital flows. As a discounting mechanism, stock and bond prices reflect all known information about the many variables that impact the economy and the fortunes for the entity that issued each stock and bond. One of the critical components in understanding the capital markets is the recognition that ultimately, there is a person on each side of every transaction. Generally speaking, one of the driving motivations for every transaction isn't just to generate profit but the fear of loss—because nobody likes to lose money. By analyzing market behavior, one gains insight into the concerns of the people behind every transaction. At this point in time, there is no shortage of short-term and long-term events impacting the markets and suppressing investment returns. At the time this is being written in early November, the U.S. equity markets are posting year-to-date returns that appear less than robust. The Dow Jones is up around 3% for the year, the S&P 500 is up less than 3% for the year, the NASDAQ is up less than 2% for the year—and one incremental bright spot: the Russell 2000, which is a proxy for smaller companies, is up more than 3% for the year. Albeit, these indices have been steadily declining ahead of the election as each scandal raises the specter of an uncertain outcome. Meanwhile, the 10-year U.S. treasury is yielding in the vicinity of 1.8%. On a risk-adjusted basis, one could easily argue that with such anemic equity returns that owning a U.S. government bond is a reasonable option because you are guaranteed to get your money at maturity, plus interest. However, if you are saving for retirement, then any of these returns might lead you to wonder if you will ever be able to retire. Using the Rule of 72, by dividing 72 by the annual rate of return, investors can get a rough estimate of how many years it will take for their initial investment to double. If we had a long-term average annual return of 3%, it would take 24 years to double one's initial investment. Fortunately, between 2000 and 2015, the average annual return of the S&P 500 has been just under 6%. At that rate, it will take approximately 12 years to double your money. In contrast, from 1985 to 2000 the average annual return was closer to 18% albeit offset by hyperinflation. At that rate, one would double their money in a mere four years. If returns are suppressed, then those saving for retirement must save even more and that reduces available funds for discretionary spending.

To commit capital as a business or to invest in long-term projects either as an equity investor or as a lender, one must have confidence about the future. However, since December 2008 the target federal funds rate was set at an unprecedented 0.0% to 0.25% and remained there until 2015 when the Federal Reserve raised the rate 25 basis points, to a 0.25% to 0.50% target rate. This does not portray a central bank with confidence in the underlying economy. In sharp contrast, between 1990 and 2000 the target federal funds rate ranged between 3.25% and 8%. Or looking at the period between 2000 and 2007, the rate ranged between 1% and 6.5%. For nearly eight years (through November 2016), the rate has been less than half of 1%, and during this period there were multiple rounds of quantitative easing. Since quantitative easing officially ended in October 2014, equity returns have steadily declined. This suggests that liquid asset values were supported and/or distorted by easy monetary policy. U.S. GDP has struggled to hold 2%. On the bright side, inflation has also remained contained, and the October

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Financial Activities

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2016 unemployment rate declined to 4.9%. GDPNow, a predictive GDP forecast produced by the Atlanta branch of the Federal Reserve, suggests that Q4 2016 GDP will accelerate to above 3%. The Federal Reserve is seen as likely to raise the federal funds rate incrementally at its December 2016 meeting, presumably waiting to see how the capital markets react to the outcome of one of the most contentious presidential elections in U.S. history. This act of confidence in the U.S. economy would be welcome, but the economic data must continue to validate that confidence. Uncertainty following the presidential election and the possibility that contention between the two parties does not diminish could temper confidence in the economy.

Globally, the markets have had to contend with the surprise Brexit vote in the United Kingdom in addition to low and volatile energy prices, and armed conflicts. Few thought that the United Kingdom would vote to leave the European Union, and polls suggested that was a safe assumption. Apparently, the dissatisfaction with establishment politics was underestimated as now the United Kingdom and the European Union must navigate untested waters as the multiyear process of leaving the European Union by the United Kingdom is undertaken. This will impact the United Kingdom's relationship with both the United States and Europe. In Italy, a referendum is scheduled for December—one in which Italian Prime Minister Renzi has publicly stated he will resign if the referendum, which would grant the government broad powers, fails. This could put Italy in extreme turmoil. Similar to Brexit, this could feasibly foreshadow an exit of Italy (the third-largest economy in the eurozone) from the European Union. *Forbes* magazine said it could lead to the death of the euro. This turmoil has pushed interest rates in Europe incrementally higher but globally there is still some $10.4 trillion in sovereign debt with negative interest rates at the start of November, down from a June peak of $11.7 trillion.

Speaking of unusually low interest rates, in an October 2016 speech Federal Reserve Vice Chair Stanley Fischer gave a nod to the role of demography for the decline in the equilibrium interest rate in the United States. Few people would have expected U.S. interest rates to be as low as they are this far into the recovery. The equilibrium real rate of interest is that which ensures that savings and investment in the economy are equal in the long run. This acknowledgement of a demographic shift suggests that interest rates may be lower for longer as demographic changes and their societal impact are generational. At the same time that the economy is adjusting to a generation shift, disruptive technologies loom on the horizon. Recently, Uber-owned company Otto demonstrated its autonomous driving system by successfully piloting a semi-tractor pulling a trailer loaded with 50,000 cans of beer. The truck drove from the Budweiser brewery in Fort Collins to its destination in Colorado Springs, more than 100 miles away. Imagine the disruptive impact of this technology on the 3.5 million truck drivers in the United States. Finally, regardless of the outcome of the U.S. presidential election, there is apt to be changes to the health care system, tax policy, and infrastructure spending. When investing for the long term, investors prefer predictability. Absent that, expect cautious market behavior.

With investment services playing a larger role in the Colorado economy, the Colorado Investment Services Coalition was founded in 2015. The coalition is made up of seven firms: Charles Schwab, Fidelity Investments, Oppenheimer, TIAA, T. Rowe Price, Janus, and Empower Retirement. Colorado is now one of the few areas outside of the northeastern United States with a substantial investment services industry. The reasons that all of these firms have established a meaningful presence in Colorado is the reason Colorado has been a national bright spot economically. In the case of investment services, core employment is seen as stable; further growth is sensitive to what is happening within the capital markets. For 2017, the expectation is for limited employment growth in capital markets.

Commercial Banking

The current makeup of banks operating in Colorado consists of roughly 55% of deposits residing in the four largest banks. In this context, deposits can serve as a rough proxy for loans, too. Conversely, community banks with less than $100 million face a situation where those 56 banks (39.7% of all banks doing business in Colorado) collectively hold $3.2 billion in deposits (2.5% of the industry total). Again, deposits can serve as a rough proxy for loans.

Capital and Earnings

The year 2016 saw continued improvements in banks' capital structures. In October, JPMorgan Chase, Wells Fargo, and Citigroup reported third-quarter profit that beat analyst expectations but was slightly lower compared with Q3 2015. Loan portfolios continued to improve as nonperforming loans declined, but intense competition continued to limit interest income. Banks boosted lending to small businesses and further reduced their dependency on brokered deposits.

However, banks continue with capital challenges. Loan reserves have rebounded and are stable but industry consolidation often requires new outside capital, which is expensive to raise for community banks.

Bank regulators continue to increase capital requirements, and noncompliance with these "best practices" results in regulatory consequences. Concern has grown that capital requirements that are too high increase risk in a bank as management strives to produce the return on investment demanded by shareholders. A common source of earnings is higher risk lending.

Loan Demand

As in 2015, many Colorado bankers say that loan demand is solid, especially among the most creditworthy borrowers with equity to fund new ventures. While bank lenders to small business are busy, it is often a race among several banks to the lowest rate and that results in very little net new business. Often banks are trading business among themselves, frequently resulting in unprofitable loan pricing for the successful bank and great rates for the borrower. Fee income is pressured greatly due to competition and price fixing by the federal government in the formerly profitable line of debit and credit card interchange fees. Fee income from various sources will continue to be pressured.

Many bankers in Colorado are concerned about the potential of backlash related to using cross-selling as a revenue generator. Regulators have already warned banks to expect increased scrutiny over selling practices, particularly cross- or up-selling, as well as compliance, risk management, and oversight.

Industry advocates are prepared to battle objectionable legislative proposals likely to be sparked by the cross-selling controversy that arose in summer 2016 and will work to maintain banks' ability to appropriately use cross-selling.

Bank consolidation in 2016 continues to lag last year's pace, although the average deal value is considerably larger. The banking industry announced 117 whole-bank transactions through June 30, per data from Keefe, Bruyette & Woods and S&P Global Market Intelligence. Banks had announced 136 mergers through mid-2015.

The average deal through the first half of 2016 was valued at $184 million, representing a 47% increase from mid-2015. Reasons cited for consolidation slowdown include concerns over management and ownership successions, Bank Secrecy Act compliance, and potential sellers' concerns for rising interest rates. However, warnings about heavy commercial real estate (CRE) concentrations may also play a role, industry observers have said.

What's more, the average merger or acquisition deal takes three weeks longer to complete than it did six years ago because of various regulatory and business reasons, making the process more tenuous and expensive.

Regulation

Banks continue to grapple with ever-changing and ever-growing regulations that increase the pressure to raise capital. Regulatory burdens have escalated compliance costs. Those greater costs must be spread over a larger asset base to achieve the needed return on investment to attract capital. That needed larger asset size and the cost, difficulty, and even inability to raise capital are fueling consolidation among community banks nationwide and in Colorado. When faced with the need for greater size and challenges in raising capital, the only viable option for some community banks is to sell. This trend is expected to continue past 2016. Banks interested in selling in Colorado have around $200 million in assets and are in rural areas.

Overall, the number of banks in the country has declined by about 30% since 2000. That year, there were 9,904 FDIC-insured institutions in the United States; today, there are 6,270. In Colorado, state-domiciled banks totaled 129 in June 2000 and 91 in June 2015—also a 30% decline. However, 50 out-of-state banks of all sizes

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FINANCIAL MARKETS: STOCKS
2007–2016 YTD
(Year-End Close)

	Index				Annual Percent Change			
Year[a]	S&P 500	Dow Jones	NASDAQ	Russell 2000	S&P 500	Dow Jones	NASDAQ	Russell 2000
2007	1,468.4	13,264.8	2,652.3	766.03	3.5	6.4	9.8	-2.7
2008	903.3	8,776.4	1,577.0	499.45	-38.5	-33.8	-40.5	-34.8
2009	1,115.1	10,428.1	2,269.2	625.39	23.5	18.8	43.9	25.2
2010	1,257.6	11,577.5	2,652.9	783.65	12.8	11.0	16.9	25.3
2011	1,257.6	12,217.6	2,605.2	740.92	0.0	5.5	-1.8	-5.5
2012	1,426.2	13,104.1	3,019.5	849.35	13.4	7.3	15.9	14.6
2013	1,848.4	16,576.7	4,176.6	1,163.6	29.6	26.5	38.3	37.0
2014	2,058.9	17,823.1	4,736.0	1,204.7	11.4	7.5	13.4	3.5
2015	2,043.9	17,425.0	5,007.4	1,135.9	-0.7	-2.2	5.7	-5.7
2016[a]	2,180.4	18,923.1	5,275.6	1,302.1	6.7	8.6	5.4	14.6

[a]Indices represent year-end values, except 2016, which is the value at market close on November 15, 2016.

Source: Bloomberg.

Financial Activities

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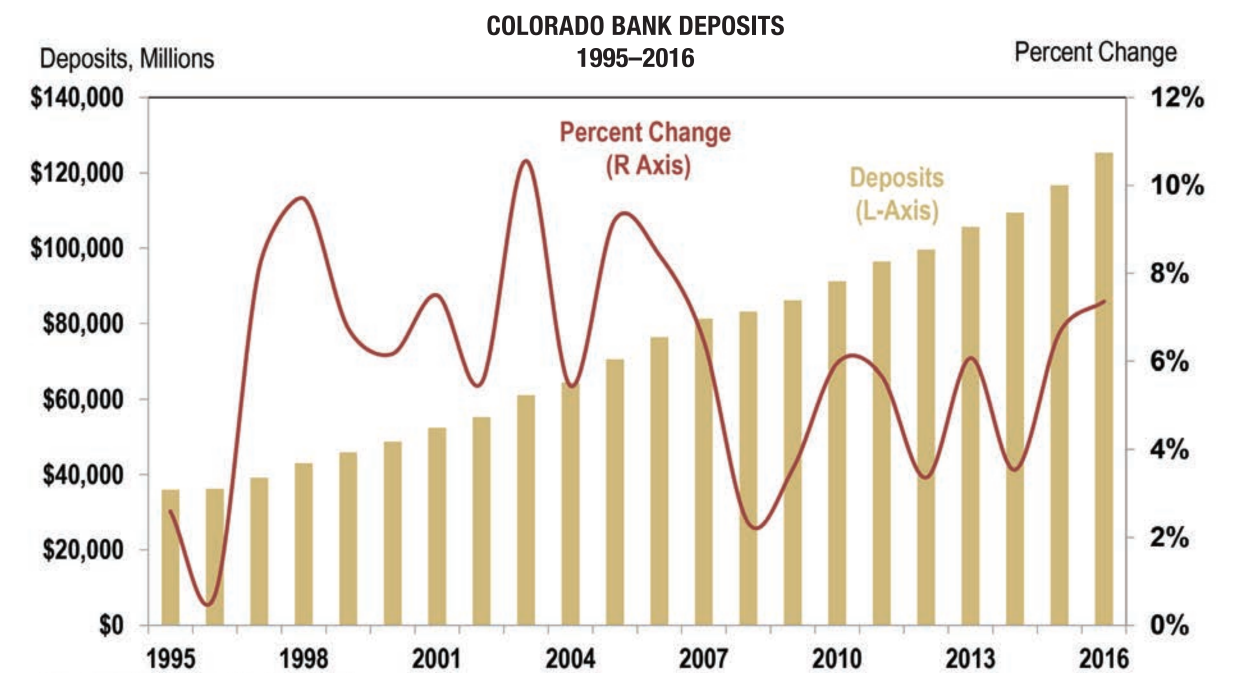
operate here, so the total number of banks was 179 in 2000 and is 141 today.

Last—and most important—the Dodd-Frank Act (DFA) has left banks in an environment full of uncertainty as rulemaking by the Consumer Financial Protection Bureau (CFPB) is incomplete and ongoing. Customers are "protected" to the point of losing access to credit since the cost and complexity of regulation incents the bank to either discontinue that type of lending or tighten underwriting to the point marginal customers are excluded from credit or priced out of it. As detailed below in Qualified Mortgages, some customers often lose access to credit.

Under the new rules, it is harder for certain customer groups to find loans they need. For example, 6,000 pages of new mortgage rules were put into effect by the CFPB in January 2014. A full 4,000 pages were effective then, and 1,900 pages of Truth in Lending Act and Real Estate Settlement Procedures Act (TILA-RESPA) real estate disclosures went into effect in August 2015. The scope and complexity requires expensive personnel and procedures to comply with the requirements and that precludes smaller banks that can spread that cost only over a small book of loans. Thus, it is unprofitable, and the bank often decides to discontinue mortgage lending—not due to credit risk but due to regulatory compliance risk.

Smaller community banks often are forced to buy others to grow larger to get the necessary scale or exit the business by selling to another institution. The consolidation of banks in Colorado demonstrates that fact. In 2016, the number of banks in the state dropped.



Note: Includes Inside of Market deposits.
Source: FDIC, Deposit Market Share Report.

Lenders facing uncertain rules (e.g., High Volatility Commercial Real Estate, which impacts some nonvolatile real estate) are cautious and restrict lending until rules and resulting risks are clear, hurting customers. Similar negative impacts could occur in community development lending, including financing of affordable housing (loans, bonds).

Dodd-Frank 2016 Update

Passage of the 2,300-page DFA in 2010 created the CFPB and required creation of 398 separate new rules, some of them enormously complex. As of October 2016, the DFA rulemaking had these results:

- 398 rules required
- 274 have been finalized
- 80 have not yet been proposed
- Rules adopted to date account for approximately 20,000 new pages

There is concern about the pace and complexity of potentially conflicting rules under the DFA. For example, seven separate rules with substantial impact have been adopted or proposed covering real estate lending:

- Qualified Mortgages (QM) and Ability to Repay (ATR)
- Qualified Residential Mortgages (QRM)
- TILA-RESPA Reform
- Servicing
- Mortgage Loan Origination Compensation
- Appraisals
- HOEPA Standards for High Cost Loans

Qualified Mortgages

The TILA-RESPA Integrated Disclosure Rule (TRID)—also known as the "know before you owe rule"—took effect October 3, 2015. The rule, intended to help borrowers understand the terms of home buying transactions, poses significant compliance and litigation risks unique to each financial institution. The new five-page closing disclosure document brought with it nearly 2,000 pages of new rules.

Just days later, the U.S. House passed H.R. 3192, to provide a safe harbor from enforcement actions and private civil actions for lenders making good-faith efforts to implement the new TILA-RESPA integrated disclosures.

In August 2016, the CFPB proposed certain changes to the TILA-RESPA integrated disclosures, including some advocated by the Colorado Bankers Association (CBA) to improve the ability of lenders to comply with TRID and avoid unnecessary constrictions of mortgage credit.

The compliance challenges associated with TRID are not new. Since 2012, banks have grappled with acquiring and implementing software design, changes in internal policies and procedures, legal and compliance review, and staff training due to QM and other real estate rules stemming from the DFA.

Those changes are costly in both time and money. That, coupled with a burdensome regulatory environment, has caused some banks to opt out of making mortgage loans after the implementation date. Adding to that, the litigation risks imposed by new standards in the DFA have added a new, larger area of risk analysis that plays into whether some smaller banks will continue in mortgage lending.

When banks exit the mortgage business and their customers find an alternative lender at a larger institution, often all the customer's business flows to the new lender—increasing pressure on smaller institutions.

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INTEREST RATES
2000–2016

Source: Federal Reserve.

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However, when this happens in a rural community, those potential borrowers may not have an alternative lending option.

CBA, working with an alliance of other state banking associations and the American Bankers Association, continues to seek resolution to address the problem of mortgage loan access via legislative proposals.

Banks have 100% of the repayment risk for loans held in portfolio, and the secondary market has no risk since the loans are never sold by the originator. Portfolio loans are, by their very nature, loans that can be repaid; the bank with 100% of the risk should not make them otherwise, and prudential regulators require solid repayment ability for bank safety and soundness reasons. Critically, this change greatly helps customers hurt by existing restrictions. Banks report daily on the inability to make loans to creditworthy customers who do not meet ATR and/or QM requirements.

These include low-income individuals who do not meet debt-to-income requirements and small business owners and small professional firms with fluctuating income who have great difficulty (and delay, frustration, and expense) in meeting the requirement for income verification by a third party. It also includes rural residents for whom there are few or no alternative lenders if a local community bank no longer makes mortgage loans due to compliance and risk management issues. H.R. 1210, which was headed to the House floor for consideration in mid-November 2015, is a solution to fine-tune the DFA that will help these customer groups without imposing additional challenges for borrowers and lenders in the lending process. The bill has broad support in the U.S. House and among the Colorado members of Congress.

Regulatory Relief

The hope bankers saw in 2015 with the introduction of the TAILOR Act by U.S. Rep. Scott Tipton, a Republican from Colorado, is on hold, despite the bill's progress in Congress, passing out of the House Financial Services Committee. The bill, which amassed more than 110 sponsors in 2016, would require financial regulators to appropriately tailor regulations to fit a bank or credit union's business model and risk profile.

It was accompanied in 2016 by HFSC Chairman Jeb Hensarling's Financial CHOICE Act H.R. 5983, which the House Financial Services Committee passed.

Many long-advocated provisions are contained in the bill, including:

- The repeal of the Durbin interchange amendment,
- The TAILOR Act,
- The QM safe harbor provision for mortgages held in a lender's portfolio, and
- Provisions that would eliminate unnecessary compliance problems and costs as well as a number of other items.

The Financial Choice Act is not expected to be passed by Congress in 2016. However, it may serve as a template for regulatory relief legislation in the new Congress.

FDIC Vice Chairman Thomas Hoenig continues to shop his regulatory relief proposal related to capital levels. The concept was put into a discussion draft by Colorado Rep Ed Perlmutter in 2015, but has not been officially introduced. Also in late 2015, Perlmutter agreed to cosponsor the TAILOR Act.

Capital Requirements

Under Perlmutter's draft proposal, to be eligible for regulatory relief, a bank would have to:

- Maintain a simple leverage ratio at no less than 10%,
- Hold effectively zero trading assets or liabilities,
- Hold no derivative positions other than interest rate and foreign exchange derivatives, and
- Have less than $3 billion in notional derivatives exposures, including cleared and uncleared derivatives.

Institutions that meet the above criteria would be eligible for relief from:

- Stress testing requirements under Section 165(i)(2) of the Dodd-Frank Act
- Certain aspects of Basel capital standards and risk-weighted asset calculations
- An increased examination cycle from 12 months to 18-months

Trickle Down

Banks and credit unions are currently regulated under a "one-size-fits-all" approach, regardless of size or risk profile. This often means that regulations designed and intended for big banks are also applied to small community and independent banks or credit unions as "best practices," imposing compliance regimens and costs that many of them find unbearable.

Highly Capitalized Banks

Another proposal that regulators are considering is an exemption from extensive, expensive, and tedious capital calculations for those banks that are very highly capitalized. Using a 14% risk-based capital level, the proposal says any bank that meets or exceeds that level does not have to spend the time and money to do the extensive capital calculations. There are just under 7,000 banks in the United States, and more than 4,000 of them meet this definition of 14%. This demonstrates the solid capital condition of U.S. banks.

Marijuana Banking in Colorado

While marijuana businesses are legal in Colorado, federal rules continue to preclude banks from serving these businesses. Guidance issued by the Department of Justice and Financial Crimes Enforcement Network (FinCEN) in February 2014 makes it clear banks can be prosecuted for serving marijuana businesses, imposes new Bank Secrecy Act reporting requirements on banks, and requires banks to perform extensive due diligence.

It is the CBA's understanding that bank regulators are permitting financial institutions to service the marijuana industry if the financial institution follows and complies with the Financial Crimes Enforcement Network (FinCEN) guidance and complies with a number of other provisions. Out of the 141 banks operating in Colorado, CBA estimates a dozen small banks are doing so. Others find the risk unacceptable.

Any institution serving the industry would be doing so at its own risk. Even if bank regulators are permitting the activity, the federal law has not changed and could be enforced, meaning prosecuted, at any time. The Controlled Substances Act outlaws possession or use of illegal drugs like marijuana or the proceeds therefrom. Anti-money laundering laws define money laundering as making the proceeds of an illegal activity appear legal. Most banks believe accepting marijuana-related deposits does that, resulting in a risk of prosecution.

An act of Congress is the only true and lasting solution to the issue of conflicting state and federal laws. House members on the Rules Committee in June 2016 blocked an amendment addressing the marijuana banking crisis as part of the FY2017 Financial Services and General Government Appropriations Act (H.R. 5485).

The bipartisan amendment, filed June 20, 2016, by U.S. Reps. Denny Heck (WA) and Ed Perlmutter (CO), would have banned federal regulators from penalizing banks, credit unions, and other depository institutions for providing banking services to legal and licensed marijuana businesses. The move came after the Senate Appropriations Committee adopted a similar amendment to the FY2017 Financial Services and General Government Appropriations Act in a 16–14 vote on June 16.

The amendment would have allowed legitimate marijuana-related businesses operating according to state laws to access the banking system in an effort to reduce the risks and public safety concern of operating as a cash-only business. While the amendment does not go as far as the Marijuana Businesses Access to Banking Act of 2015, introduced by Perlmutter and Heck in April 2015, it would have represented a step forward in helping to get cash off the streets and into the banking system, the lawmakers said.

Since the passage of Amendment 64, legalizing recreational marijuana use in Colorado, CBA has been in favor of a carve-out under federal law for banks operating in states where marijuana has been legalized, and there is an appropriate regulatory plan in place. It is important that this issue be resolved because things have already begun to go wrong for these cash-heavy businesses. In June, a security guard was shot and killed during a robbery.

These businesses and their customers deserve to conduct themselves like another legal business. Finally, Colorado cannot effectively tax or regulate an industry for which it cannot follow the money. In 2016, the industry's financial service-related challenges have not eased.

Headwinds

Colorado banks will continue to face the following headwinds:

- Continued tight interest margins resulting from intense competition will continue to limit earnings. While larger non-Colorado domiciled banks have other diversified revenue streams to help, most local community banks do not.
- Both Colorado and non-Colorado domiciled banks continue to hire and devote resources dedicated to the increased regulatory and compliance burdens, and to greater IT and cybersecurity needs. This will be a problem for community banks as these new compliance burdens cannot be spread over a large asset base. Thus, industry consolidation is significantly being driven by government policy (extremely detailed regulation) and not only by market forces.
- Finally, for many of the state's community banks that came through the crisis but must face these headwinds, they may need to choose between years of slow growth, being acquired by a better capitalized bank (often larger) with the compliance and IT resources to address today's burden, or raising their own capital to enable purchases of other banks to attain the needed mass to compete effectively.

Small Business Administration

U.S. Small Business Administration (SBA) guaranteed loans make up a tiny fraction of all small business lending in Colorado. Because they are made to the most marginal small business borrowers, they are a bellwether for economic growth in general. SBA provides partial guarantees to lenders to encourage them to make loans that would otherwise be too risky. Borrowers pay an SBA guarantee fee that acts as an insurance premium, offsetting the potential loss resulting from default.

A variety of factors go into the decision to use an SBA loan rather than some other mode of financing, including the availability of conventional credit products, perceived risk, and the specific terms available under the various SBA programs. Therefore, a rise or fall in SBA loans is not a perfect indicator of economic activity, but it is one piece of the puzzle. The average loan amount in FY2015 for loans made under the 7(a) general business loan program was $371,628.

Comparing the 12-month period ended September 30, 2016, to the prior period, the dollar value of loans made under the 7(a) general business loan program in Colorado was up. Dollar volume increased from $581 million to $682 million.

SBA guaranteed lending was up again in Colorado in 2016 (October 1, 2015–September 30, 2016) with a 17.9% increase in total dollars and a 13.8% increase in new originations. This large increase compares favorably with nationwide numbers that were up, but by much less. SBA lending is an imprecise gage of the vitality of the small business economy because many factors contribute to the decision to seek an SBA guaranteed loan, including availability of credit elsewhere and lender risk tolerance.

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It should be noted that a substantial increase in the owner-occupied commercial real estate program, 504, is partially due to a program change that allows for the refinancing of existing debt. The increasing 504 dollar amounts are also driven by rising commercial real estate prices.

A more general measure of the small business economy is business births and deaths, or the number of net new firms. Births and deaths data mirror the SBA loan data, giving a picture of a Colorado small business economy that is outperforming the nation at large. According to the Colorado Secretary of State the number of business in Colorado is increasing about 5% a year as reported in the *Quarterly Business & Economic Indicators*. National business birth/death data are lagging. Latest numbers from 2014 show a growth rate of new firms at less than 1%. Given recent GDP data, there is no reason to think that this number was significantly different than more recent years. It stands to reason that some of Colorado's higher growth in SBA lending relative to the national picture is attributable to Colorado's increasing business population and perhaps some relocations.

In Colorado, the general small business lending program, 7(a), experienced an increase in average loan size to $376,039 with total approvals of 1,814 and $682 million. The SBA's most flexible lending program, 7(a) loans can be used for term lending or as lines of credit with a maximum loan amount of up to $5 million. Use of proceeds for 7(a) loans varies widely and includes equipment finance, lease hold improvements, lines of credit, business purchase, and real estate purchases for commercial use. SBA's commercial real estate program, the 504 program, was up in Colorado 7.7% in FY2016 with 182 new loans for a total of $1.4 million, an increase of 20.2% in dollar terms. Commercial real estate that is occupied by the owner is the only permissible use of funds under the 504 program.

If current small business lending and demographic trends continue, 2017 will be another active lending year.

Colorado Credit Unions

Colorado credit unions continue to post impressive results despite a slow-growth economic environment. As a group, the state's not-for-profit financial cooperatives report strong membership growth, double-digit loan growth, high asset quality, and healthy earnings in 2016. Overall, credit unions also maintained an aggregate capital ratio that remained near record highs throughout the period.

Total credit union memberships in Colorado increased by 63,100 in the year ending June 2016, finishing at a total of 1.7 million—equal to 31.7% of the state's population. In percentage terms, the year-over-year increase was a strong 3.8% overall advance. That comes on the heels of a 5% increase in calendar year 2015 and 3.8% in both 2014 and 2013. These results compare to state population growth of 1.9% in 2015 according to the U.S. Census Bureau.

Aggregate credit union assets in the state's 84 credit unions increased to $21 billion at mid-year 2016—a 7.4% year-over-year advance. Credit union loan portfolios also expanded by 14.1% in the same period. That was a bit slower than the 16.4% calendar year 2015 increase but it matched the 14.1% increase in 2014. Should full-year 2016 loan growth remain at a double-digit pace through year-end it will be the fourth consecutive year the state's credit unions recorded double-digit growth—a streak unmatched since 1994–1997.

All seven broad loan portfolio segments tracked by credit union regulators reflect strong increases in the year. Colorado credit union new auto loans led the way with a 24.2% 12-month increase, though home equity lines of credit/second mortgages followed closely, growing 22.3% in the year. Member business loans were up 14.6% and used auto loans increased 14%. Credit union first mortgage balances followed closely, growing 9.9%, while unsecured personal loans and credit card balances expanded by 5.2% and 2.8%, respectively.

Because loan growth has been outpacing savings growth recently, Colorado credit unions experienced tighter liquidity, reflected in a loan-to-savings ratio that grew from 79.2% at mid-year 2015 to 81.8% at year-end 2015 and 85.1% by mid-year 2016. Strong loan growth also helped keep loan quality metrics quite high. Overall delinquency rates declined a bit—from 0.5% at the start of the year to 0.4% by mid-year 2016. Net charge-off rates declined from 0.42% in Q1 2016 to 0.33% in Q2. For context, over the past 20 years the Colorado increased marginally (from 0.3% in 2015 at the end of March to 0.75% at mid-year) the net charge-off rate declined in the quarter. The annualized net charge-off rate inched down to an annualized 0.5% in the second quarter from 0.52% in the first quarter. Both the delinquency and net charge-off rates have been declining

SBA LENDING COLORADO V. TOTAL UNITED STATES FY 2016
PERCENT INCREASE FROM PREVIOUS YEAR

Type	Colorado	United States
General business loans 7(a) – Dollars	17.4%	2.3%
General business loans 7(a) – Number of new loans	14.5	1.0
Commercial real estate – Dollars	20.2	10.3
Commercial real estate – Number of new loans	7.7	2.6

Source: Small Business Administration.

dramatically since 2010, and the current readings are well below the 25-year averages of 0.87% and 0.59%, respectively.

Strong loan growth helped to buoy credit union earnings results. Credit unions reported annualized return on assets (net income as a percentage of average assets) totaling 0.87% in the first half of 2016. This nearly matched the 0.92% full-year 2015 result and is in line with the long-term (25-year) average earnings rate of 0.9% among credit unions in the state. Over the past decade the earnings rate among U.S. credit unions averaged 0.63%.

Strong first-half earnings helped to nudge Colorado credit union capital ratios up near record highs during the period. The credit union aggregate capital-to-asset ratio stood at 11.5% at mid-year, up from 11.2% at the beginning of the second quarter and essentially equaling the all-time high of 11.6% reported in June 2015. The national aggregate credit union capital ratio stood at 10.9% at mid-year. The state's aggregate capital cushion is well above the 7% threshold level at which federal regulators deem credit unions "well capitalized."

Looking forward, strong credit union operating results are likely to continue through 2017. Robust domestic demand in the household and business sectors will continue to spur economic growth over the period. Pressures of the rising U.S. dollar on manufacturing and exports are easing, boosting overall economic activity. The United States remains resilient given its limited exposure to weaker aggregate demand from the rest of world. Tame inflation and a cautious Federal Reserve will combine with further labor market improvement and rising household incomes to boost consumer spending and increase borrowing at the state's credit unions. Consumers are likely to continue to release pent-up demand for autos, furniture, and appliances for the remainder of 2016, and auto loans, credit card loans, and purchase money mortgage loans will likely remain strong growth areas into 2017. Credit union market share of deposits has historically remained steady both nationally and in Colorado. Colorado deposit market share declined slightly in 2015, by 0.1%, and no material change is expected in 2017.

Since 2012, employment in Colorado's credit unions has increased at an average annual rate of 2.4% following three consecutive years of decline in the number of full-time equivalent (FTE) employees during 2009 to 2011. Since 2011, the number of credit union FTE workers has grown from 3,808 to 4,228 at mid-year 2016. Staffing increases in 2015 saw their greatest increases in a decade with the number of FTEs increasing 5.2% from 2014 to 2015. The annualized growth in FTE employees through June 30, 2016, was 2.6%. While employment growth will continue in 2017, the rate of increase is expected to slow to 1.5% – 2% with staffing levels now above their pre-recession high in 2008.

Insurance

The year 2017 is being estimated to be more of the same for the property-casualty (P-C) market. Auto and property coverage have led the insurance sector in premium increases. Both personal and commercial auto continue to be the loss leaders for most insurance companies but competition in this market remains very high. According to Alex Pederson, president of Day Larsen Pederson Insurance, industry sources have divulged that "Personal auto rates in Colorado have increased an average of 15% in 2016 as compared to 2015." He went on to explain that property coverage continues to see premium and deductible increases, specifically for wind and hail related claims, and that premiums increases are largely due to increases in construction costs. According to Pederson, "We are making a point to review the replacement values we have on our customer's policies because, what was adequate five years ago, may no longer cover the true cost to rebuild."

An area that has not seen an increase in premiums is in the casualty insurance market. This is true in most sectors of business, including construction. Construction is an area in which insurance companies are looking to take on more exposure, including projects that have potential

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FHFA HOME PRICE INDEX, Q2 2016

	Compound Annual Growth Rate			
Colorado MSA	1 Year	3 Year	5 Year	10 Year
Boulder, CO	14.7%	11.3%	7.6%	4.5%
Colorado Springs, CO	8.2	5.7	3.2	2.1
Denver-Aurora-Lakewood, CO	12.2	11.8	8.3	4.0
Fort Collins, CO	11.7	10.1	7.1	3.6
Grand Junction, CO	6.3	4.6	-1.0	2.4
Greeley, CO	12.4	11.7	7.7	2.7
Pueblo, CO	5.7	5.2	2.1	1.0
Colorado	11.4	10.4	7.7	3.0

Data Source: Federal Housing Finance Agency, All Transactions Index (NSA), through Q2 2016.

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for construction defect, such as new residential, condos, and townhomes.

The problem that had been anticipated for the personal auto insurance industry caused by a multitude of Uber and Lyft drivers has never really come to fruition. Most insurers have made it possible to amend a personal auto policy to cover this commercial exposure.

The direct writers, including Allstate, State Farm, American Family, Nationwide, and Farmers, continue to dominate the personal lines marketplace and are opening new agencies and policy service centers in Colorado on a continuous basis. They are constantly recruiting locally and nationally for agents and service/support positions to be based in Colorado.

The world in which we live has created new insurable exposures, including the purchase of additional commercial policies and increased limits to cover cybercrimes, employee practices liability, kidnap and ransom, and violence in the workplace. These factors, coupled with hail, wind, fire, and flood claims, generate increasing premium volumes for the foreseeable future.

It is expected that employment in the entire P-C segment, barring a large service center moving out of state, is on the upswing as the growth in insurable individuals and businesses is creating additional insurable risks and new exposures. Economic growth and growth in insurable values is creating an increase in the number of policies that will need to be serviced by insurers and agents causing hiring in all customer service and administrative roles.

After six years of the Patient Protection and Affordable Care Act (PPACA), it appears to be headed to significant change. In 2018, employers will need to prepare for the Cadillac tax as it is "not a matter of if, but when" large employers will hit the threshold for this tax.

Large health insurance premium increases are again projected in 2017 for both group and individual health plans, especially for those policies sold to consumers through the Colorado exchange, Connect for Health Colorado. Legislated changes in underwriting, rating, mandated coverage, and increased utilization are now fully realized after two full years of claims, which are causing these increases. Several insurance companies have opted out of the federal exchange, and many states have already lost their health co-op due to financial insolvency due to the challenges of profitability while operating within the exchanges.

The insurance industry is facing the potential of significant job loss on the carrier side of the industry, with two major mergers up for approval in 2017. If approved, the Aetna-Humana and Anthem-CIGNA mergers will most likely cause layoffs and job loss at these large Colorado employers. KeyBanc Capital Markets, Inc., shared in its monthly newsletter that Bloomberg had recently reported "letters and emails that Anthem Inc. and Cigna Corp. sent to each other in connection with their proposed merger may become evidence in a lawsuit filed by the U.S. Department of Justice to block the deal."

Overall, the health and benefit segment of the insurance sector will be flat as competition and the implementation of technology replace many administrative functions. An explosion of insurance agency mergers and acquisitions occurred again in 2016. These actions usually lead to lower employment. Regardless of size, all agencies have had to refocus or reinvent themselves in order to continue to deliver a high level of service to their clients. Most job creation and hiring within insurance agencies has been limited to noninsurance value-added service areas such as human resources consulting and payroll services.

Look for the Colorado-based insurance industry to have rising premiums, increased revenues, but flat employment in 2017.

Real Estate and Rental and Leasing

Real Estate

Commercial Real Estate

Denver

Strong population and job growth further strengthened market fundamentals in 2016 across major property markets in metro Denver to record levels in some cases. Office and industrial lease rates reached record highs in 2016 while vacancy remained well-below the historic average across the board. With the exception of the retail sector, which faces headwinds from several store closings and the rise of e-commerce, 2016 was a banner year for commercial real estate in Denver.

CBRE data show 4.6 million square feet of mostly speculative office space is underway as of Q3 2016. On balance, the development pipeline is divided evenly between downtown Denver and suburban projects. The depressed oil and gas sector is contributing to weaker absorption of mainly downtown Class B office space and bolstering space available for sublease. On a positive note, growing technology, health care, and financial services companies are absorbing space at a strong clip. Asking lease rates average $26.52 per square feet gross, to nearly $50 per square feet, in Denver's LoDo market.

Availability in the industrial sector is extremely tight overall but particularly in centrally located infill submarkets that are highly sought-after "last-mile" locations for e-commerce and third-party logistics businesses. Over 6.5 million square feet of Class A industrial space delivered or was under construction as of late 2016, which is generally helping alleviate tight market conditions and pulling up asking lease rates. Lease rates for warehouse/

distribution space range from $4.50 to $8.50 per square feet triple net depending on the location.

Despite impressive demographic trends, retail fundamentals have been weighed down by the closings of nine Sports Authority stores, and a handful of grocery and big box stores in 2016. Demand for well-located quality sites is strong though, driven by restaurants, niche grocery, and fitness concepts. The new construction pipeline is growing but remains modest compared to previous expansion cycles. Asking lease rates average $17.04 per square foot triple net across the Denver metro market to $75.00 per square foot in Cherry Creek.

The outlook for Colorado's commercial real estate markets is positive; however, given the industry's highly cyclical nature and significant amount of new supply in the pipeline, modest softening across property sectors is likely by late 2017 or early 2018. Real estate market trends are directly tied to job growth and with *Forbes* giving Denver top honors as the "Best Place for Business and Careers" in 2016, it is safe to say demand for commercial real estate in Denver will continue.

Northern Colorado

Office market real estate trends in Northern Colorado (Larimer and Weld counties) are rosy. Vacancy is at an all-time low and rent levels are rising amid steady and healthy leasing activity. Construction levels are modest but responsive to demand. While record low fundamentals can create inflexibility within the region, new construction is expected to serve as an outlet for growth into 2017. The positive economic climate in Northern Colorado will provide balance amid the depressed oil and gas industry, as additional drivers such as the technology sector keep the region on track for long-term growth. The industry sectors driving current market activity include research and development, technology, government, and health care.

Industry and retail property markets also appear to be minimally impacted overall by the slowdown in oil and gas production. Industrial lease rates are at the highest point since the recession and minimal retail availability is encouraging new construction.

Southern Colorado

Downtown revitalization, cyber security industry growth, and medical facility development contributed to an overall improvement in Colorado Springs' commercial real estate market fundamentals. The tenant base in Colorado Springs continued to diversify as more small and medium-sized companies in various industries were active in the first half of 2016. Michael Palmer of Quantum Commercial Group reports that Colorado Springs is one of the Metropolitan Statistical Areas (MSAs) with the highest job growth in the state, and the area is forecasting an upward economic trend. Job growth is expected most in the health, professional services, and technology industries. Existing companies are growing, too, which are then absorbing available space and helping to keep rents static to slightly increasing. According to CBRE data through the first half of 2016, the office vacancy rate declined to 12.2%, although average lease rates have slipped slightly, to $16.80 per square feet gross, with the lack of premium space on the market. Industrial sector vacancy was steady in 2016 while lease rates ticked up to $6.11 per square triple net. Retail trends were mixed but new construction activity is generally meeting demand. Activity and interest in new space is picking up. The Springs' economy is expected to outpace the rest of the country, and therefore, the commercial real estate market will benefit from this activity in 2017.

Western Slope

The oil and gas industry continues to be a concern on the Western Slope, but despite this industry's slowdown, the commercial real estate market has meted out a generally good year. Commercial and residential sales and leases were up in most markets and vacancies were trending

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lower, which has helped fuel apartment and retail activity as reported by John Renfrow, president of Rocky Mountain Commercial Brokers. Heritage Title Company reports that total real estate sales transactions in Mesa County jumped 15% higher year-to-date third quarter 2016 than one year ago, and the overall dollar volume was up 9%. Demand for new homes has increased, and the median sales price as of August 2016 was $204,000, 6.8% higher than the average for 2015. With support from Governor Hickenlooper, the state created a new program called Rural Jump-Start Zone Tax Credit Program. Rural Jump-Start is a joint effort between counties, municipalities, higher education institutions, and business communities in the state of Colorado to grow jobs in industries such as advanced manufacturing, aviation, food processing, biotech, and other technologies. It requires businesses to create a minimum of five net new jobs in the county where they locate in exchange for relief from state income, and sales and use taxes; county and municipal personal property taxes; and state income taxes for their employees for up to eight years. Mesa County, the cities of Grand Junction and Fruita, and the town of Palisade passed resolutions to join the program. The ability of the Western Slope to diversify its economy away from a traditional reliance on the oil and gas industry will pay dividends long into the future. Commercial real estate will continue to make small but positive strides in reducing vacancy and increasing rents through 2017.

Residential Real Estate

Overall

The residential real estate market in Colorado remained robust in 2016 and is forecast to continue an upward trend throughout 2017, albeit at a slower pace. Much of the past and predicted future growth is clearly the result of strong employment numbers, effective corporate relocation to Denver, and overall quality of life, creating a consistent draw to Colorado resulting in significant population in-migration.

Denver

Residential real estate in the Denver MSA continues to be robust and has outpaced most of the Nation's top markets with strong price appreciation and low supply levels. With a diverse and continually expanding economic base, stronger-than-average income growth, and an impactful live/work balance afforded by Denver's climate and close proximity to the mountains, these trends are forecast to continue.

When analyzing the numbers and countless reports pertaining to both national and state-specific statistics, it is often impossible to read about residential real estate without hearing about the success of Colorado and specifically Denver. Throughout 2016, publications such as the *Wall Street Journal* and *Bloomberg,* have rated the Denver real estate market to remain in the top three metropolitan areas nationwide in terms of price appreciation. Depending on the publication, these numbers are predicted to be in the 7-9% range for 2017 and according to an October 2016 pull of Metrolist statistics, the median price of homes in the Denver area increased by 12.1% year-over-year since 2015.

Inventory has remained a proverbial thorn in the side of Denver's real estate market in so far as low supply has created a challenging market for buyers. However, the opposite has been the case for sellers; low supply helped create the environment for strong price appreciation, especially in homes priced up to $2 million. As of Q4 of 2016, average days on market in the Denver Metrolist stood at around one month, and depending on the source, supply levels were between one and three months. It is, however, important to point out that this number is across all price ranges; when more specifically analyzing the numbers, monthly supply levels (defined as inventory divided by monthly sales) are less for homes up to $1 million and substantially more for homes over $3 million, especially in suburban submarkets. Inventory levels in 2017 are forecast to increase to a more stable level (approximately a four to six-month level), and in the high-end, with an increased sales activity in several submarkets in 2016, the "on-market" inventory will likely further stabilize.

Beyond cursory inventory numbers, it is important to point out the fact that Denver's inventory numbers stand at about 60% of the high seen in 2006 with approximately 8,000 active listings on the market as of Q4 2016; this is according to an October search of Metrolist. While the market (pricing and inventory) is forecast to stabilize in 2017 (i.e., balance further in terms of average number of months' supply), the number of active listings will not likely match the level seen in the 2005-2006 years anytime in the near future.

Colorado Springs and Fort Collins

Employment growth in Colorado Springs and Fort Collins has remained strong coming from 2015 and into 2016. In fact, of all of the Front Range markets, GDP in the Fort Collins MSA grew the fastest in 2015, and its growth numbers remained as bullish throughout 2016, coming in at nearly 4%. Furthermore, employment growth during 2016 remained strong, at 2.4%. This robust GDP and employment growth has continued to spur along the residential real estate market. In 2016, initial median price numbers for Colorado Springs and Fort Collins are sitting at increases of 9.1% and 10.6%, respectively. While these numbers are forecast to slow a bit in 2016 (between 5 and 7.5% depending on the source), these markets will continue to outpace most cities nationwide in 2017.

Continued job growth is forecast for health care, professional services, and technology industries, which will continue to increase real estate values and create additional opportunity for developers and builders in these areas.

Mountain Markets

As Front Range population continues to grow, the easily accessible mountain markets have and will continue to strengthen. The majority of mountain traffic accesses many of these communities via highway. This will bode well for the communities along I-70 with "easy" Front Range accessibility. Over the past three years, this trend has well served communities such as Breckenridge, Silverthorne, and Vail.

Markets that have historically benefited from strong demand due to proximity to a reputable commercial or general aviation airport have also recovered nicely from the low-point in the market. However, many of these markets draw buyers from out-of-state or even from international markets, and with weak oil prices and a strong dollar, some of these mountain markets have struggled throughout 2016.

The year 2017 should see continued residential real estate price appreciation from "suburban" mountain markets (defined as those with close driving proximity to Denver coupled with areas that benefit from strong amenities). Those markets that draw buyers from outside of Colorado and international markets will likely remain flat throughout 2017, especially in the above $3 million price range, due to decreased demand in discretionary spending. However, declining prices in all of these communities is not forecast in any price range.

New Home Sales

MetroStudy conducts quarterly research on new home starts, which includes the inventory of finished lots. In the Denver-Boulder MSAs, there were more than 10,000 annual starts reported in Q3 2016. This represents the highest number of new home starts since the high in Q4 2006. Based on these figures and current absorption, there is an 18-month supply of new home starts. Given the gestation period of these builds, that supply level represents a healthy market and is down from the high in 2009 at a supply level of 108.9 months.

Based on the aforementioned new home sale data, current supply is falling short of the pace of current demand, thereby fueling significant price appreciation, but equilibrium is slowly being reached. Compared to 8,000 new starts in 2015, the 20%+ growth in starts is catching up with market demand and will slow price growth.

Residential Real Estate Conclusions

Colorado has and will continue to boast one of the strongest residential real estate markets in the nation. With double-digit growth seen over the past few years and strong, albeit slightly slower, growth forecast for 2017, the market will likely reach what some will consider to be more of a state of equilibrium in pricing, representing a welcome respite for buyers trying to compete in this competitive market.

The millennial segment of the population tends to be older when they enter home ownership, but they are entering the buying pool nonetheless. Significant population growth will continue to fuel the demand-side of the market. However, the supply levels should begin to balance with the increase in for-rent inventory, new home starts, and the change in the generation that is demanding housing.

Continued challenges in 2017 include interest rate exposure and the perceived "unaffordability" of real estate in Denver. With the 2007 condo defect legislation still being felt in the market, a lack of density in new product has and will continue to affect pricing, helping to drive up the cost of residential real estate. Condominium development in 2016 represented approximately 3.5% of the new product to be built compared to almost 25% in

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2006. While many have forecast that this problem will be solved moving forward, density is a clear "must-have" in any city experiencing population growth to the degree experienced by Denver and other Front Range cities in recent years.

Considering all of the preceding statistics from 2016, Colorado will continue to be recognized as being one of the top states for quality of life, the robust nature of its job market, and the corresponding strength of its real estate market in 2017. ✜

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Professional and Business Services

Professional and Business Services (PBS) aggregates a wide variety of sectors that include Professional, Scientific, and Technical Services; Management of Companies and Enterprises; and Administrative Support, Waste Management and Remediation Services. Across Colorado, these sectors represented an estimated 406,000 jobs in 2016 or nearly 16% of Colorado employment.

As a whole, PBS generally has higher compensation levels than other sectors because employees typically leverage unique and/or deep subject matter expertise that takes years to accumulate and apply in the marketplace. PBS also has had generally stronger employment growth than other supersectors in Colorado, in part due to a clustering effect that has taken hold along the Front Range. Supporting the expanding business and consumer markets, Colorado's educated workforce and strong job growth were cited in support of Colorado's No. 3 ranking of Best States for Business in 2016 by CNBC. This overall #3 ranking included a #1 ranking for workforce and #2 ranking for economy, which have proven significant incentives for employers moving to, or expanding in, Colorado. Optimism, however, should be tempered by Colorado's #32 ranking in cost of living and #29 ranking in infrastructure.

Colorado is increasingly known for attracting highly educated PBS talent, and remains the second-most college educated state in the country. According to the U.S. Census Bureau, American Community Survey, 39.2% of Colorado residents hold a bachelor's degree or higher compared to 30.6% nationally in 2015. Additionally, 55.3% of Colorado's 2013 high school graduating class went on to enroll in a postsecondary institution immediately after graduation according to the Colorado Department of Higher Education's 2015 *Legislative Report on the Postsecondary Progress and Success of High School Graduates.*

In addition to the great quality of life, outdoor recreation, and other benefits of living in Colorado that are driving net in migration, many initiatives are underway to further develop the PBS skills in the workforce that will be required in the future. The educational technology conferences held in 2016 examined talent development and sharing STEM teaching strategies, while other advanced industry programs are helping to ensure the state continues to develop the human talent to support Colorado businesses and their professional needs in the future.

Specific to PBS, job growth rates in the state have been steadily moderating over the last four years, from 4.5% in 2012 to 2.9% in 2015. In total, PBS added about 11,300 jobs in 2015. After accounting for revisions projected by the Colorado Department of Labor and Employment, the industry is expected to record slightly lower growth of 2.1% in 2016. Looking ahead, the PBS Committee projects industry growth of 9,200 jobs, or 2.3%, in 2017.

PBS Employment

Professional and Business Services Concentration by County

The more populated counties along the Front Range corridor have higher levels of PBS employment compared to counties outside of the Front Range. In addition, the counties along the Front Range corridor also have the largest concentrations of PBS employment. The map illustrates the PBS industry's proportion of total county employment in 2015. The county with the highest concentration of PBS employment is Broomfield, with 28% of the workforce working in the industry. Arapahoe, Denver, and Boulder counties also have high concentrations of PBS employment—21%, 20%, and 20%, respectively—illustrating the clustering effect of PBS employment.

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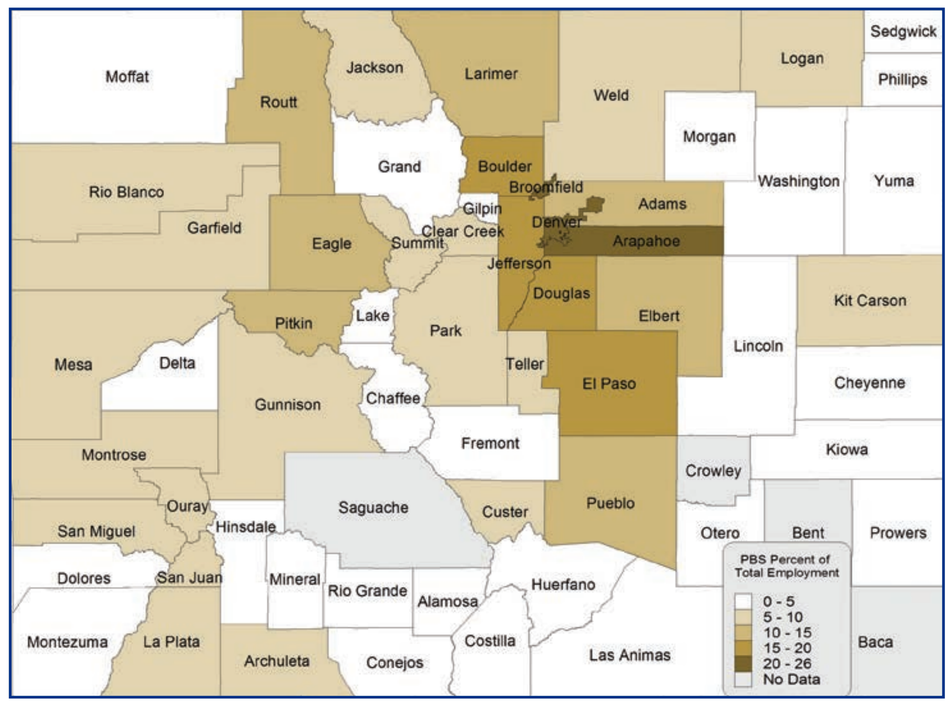
PROFESSIONAL AND BUSINESS SERVICES EMPLOYMENT AS A PROPORTION OF TOTAL COUNTY EMPLOYMENT, 2015



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

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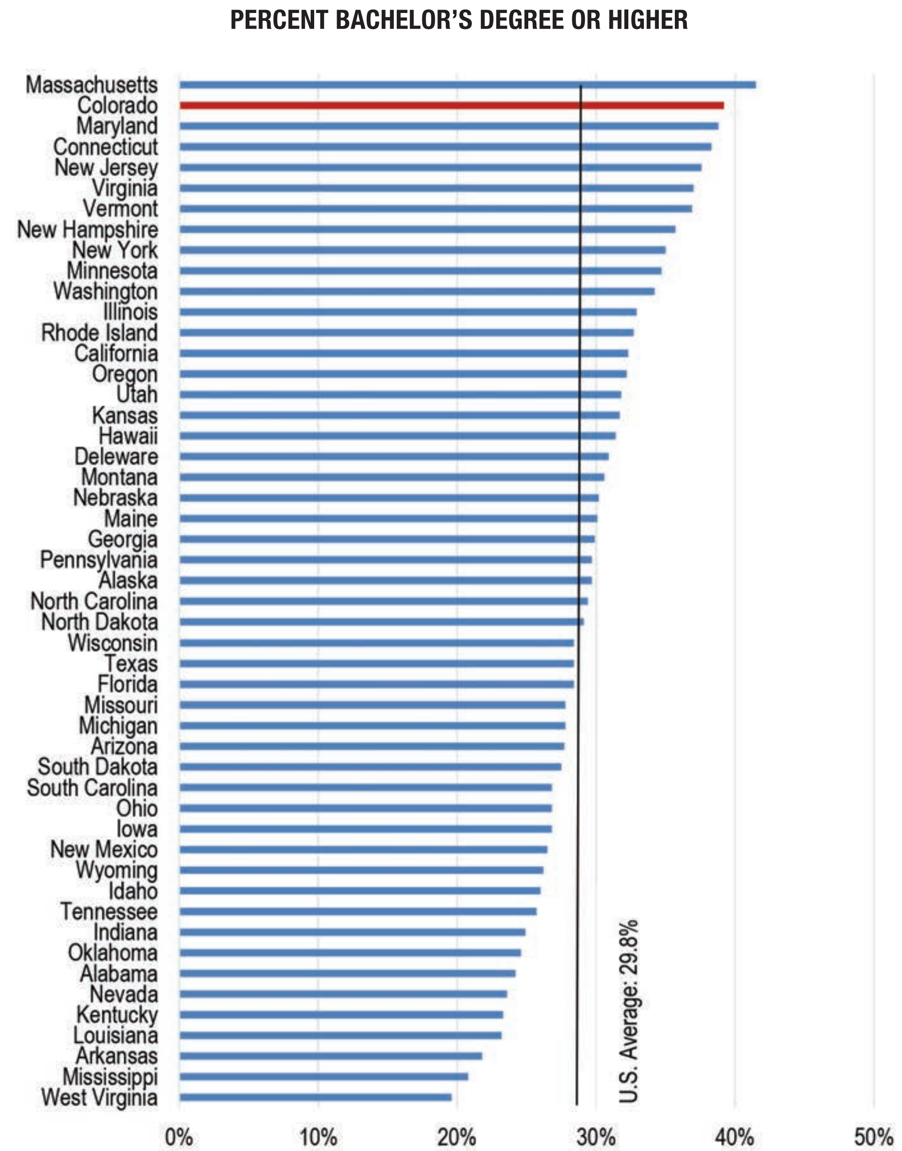

Source: U.S. Census Bureau, Educational Attainment, 2015 ACS.

Professional, Scientific, and Technical Services

The Professional, Scientific, and Technical Services (PST) Sector comprises establishments that provide services that require high levels of expertise and training, including legal advice, engineering, computer and design services, and advertising services. This sector accounted for an estimated 208,000 jobs in 2016. After increasing 3.7% in 2016, the committee expects the PST Sector will increase employment by 2.9%, or 6,000 jobs, in 2017.

Legal Services

Legal Services employment remained unchanged, at approximately 19,200 jobs, throughout 2015 and is expected to increase only slightly, by 0.5% in 2016, to about 19,300. The committee expects this moderate pace to remain in 2017, with 1.6% growth, adding roughly 300 new positions in the subsector.

The Legal Services profession continues to evolve as globalization, outsourcing, and technology play an increasingly larger role in legal analysis, operations, and organizations. Demand for legal services is increasing in some areas but is also shifting due technology and outsourcing. A June 2016 Deloitte global research survey, Future Trends for Corporate Legal Services, highlighted several key trends, emphasizing a moving and growing market, changing purchasing patterns, evolving expectations for legal services, and demand for broader professional services.

Hampering the sustainable employment of this subsector is the inability of firms to retain women as their careers advance. A May 29, 2016, *Denver Post* article reported that the number of male practicing attorneys remains constant until retirement age compared with the number of women, which declines sharply from decade to decade. Some of the reasons women leave the legal field are they experience one of the highest wage gaps in the country, there is a lack of advancement opportunities, there is a disparity in how their skill sets are valued, and they have fewer opportunities to become partners in a firm.

Hiring in corporate legal practices will favor strong candidates with technical expertise and those with experience and training in diverse areas. Hiring for partner-level candidates with established relationships is also in demand.

Architectural, Engineering, and Related Services

Employment in the Architectural, Engineering and Related Services Sector showed steady growth of about 3% over the last five years, but moderated to 1.6% in 2015, resulting in 44,100 jobs across the state.The committee expects growth to hold steady at 2%, or an additional 900 jobs, in 2016 and 2017. Economic growth continues to increase appropriations for infrastructure renewal for public services, such as roads, bridges, water, wastewater, and drainage, and for private-sector growth in warehouses, office buildings, single- and multifamily housing, health facilities, and other commercial activities.

Engineering services are credited with the majority of this subsector's employment increase as architecture employment has been hampered by a lack of mid-level practitioners. During the last recession, many young architects were laid off, and many graduates were not offered jobs upon graduation. Now there is a gap, and industry organizations estimate an architect shortage of between 13 and 15% according to Molly Armbrister (*Denver Business Journal*, April 22-28, 2016).

With low interest rates and unabated demand, the construction of single- and multifamily housing and commercial office buildings continues at a brisk pace, with only the high-end housing showing meager signs of softening. Demand for "affordable" housing of all types is still present. Existing pricing of housing of all types is still on an upward trend with total average sales pricing of about $240,000; however, the average price of new homes is just over $400,000. The need for design of residential and commercial buildings is expected to remain steady from 2016 to 2017.

Rebuilding after the flood of 2013 continues in several Front Range areas and is expected to continue at a steady but decreasing level for the next few years as projects are designed and constructed. Most of the areas have been evaluated, and future rebuilding has been placed on state, municipal, and county budgets for the next 5 to 10 years. Emergency monies are finally showing up, along with many paperwork requirements to justify the use of these funds.

Congress passed the Fixing America's Surface Transportation Act (FAST Act), which is a five-year appropriation to improve the nation's surface transportation programs and encourages innovation to make the transportation systems safer and more efficient. The FAST Act focuses on the need to establish a new program for highway freight projects, address large-scale projects of national or regional importance, streamline the environmental review and permitting of projects, improve flexibility of project financing, and increase safety and use of passenger and freight rail carriers. The most significant aspect of this act is its length—five years—that will allow for the type of long-term appropriations for the design and construction of large infrastructure projects. Projects in Colorado include the I-70 Corridor to the east of I-25, north I-25 expansion toward Loveland and Fort Collins, and the C-470 expansion from I-25 to Wadsworth.

Statewide funding for infrastructure projects has not kept up with the pace of population growth and the resulting deterioration of roads and bridges in the state. The FASTER funding, passed by the legislature several years ago, is still dealing with the state's highest priority projects. It also provides additional but minimal funding to municipalities and counties for safety and infrastructure improvements. In the 2016 legislative session, a late bill was floated that would set up a new bond program for transportation projects statewide. In summer 2016, it was reconfigured as a $3.5 billion transportation-bonding program that would be placed on the 2017 ballot for a vote to fund capital projects all over the state for the next 20 years. It would fill in and extend out the congested sections of interstate and state highways with additional capacity statewide. It would also allocate small portions of the state sales tax revenue to the state, municipalities, and counties for sustained funding for maintenance and other operational improvements. A draft version of this bill was passed out of the 2016 Transportation Legislative Review Committee on August 31, 2016, for consideration

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TOTAL PROFESSIONAL AND BUSINESS SERVICES SUPERSECTOR EMPLOYMENT 2008–2017 (In Thousands)

Year	Professional, Scientific, and Technical Services	Management of Companies and Enterprises	Administrative and Support and Waste Management and Remediation Services	Total[a]
2008	178.9	28.9	145.9	353.7
2009	171.7	28.5	131.5	331.8
2010	169.0	29.0	132.8	330.8
2011	173.7	30.2	137.5	341.5
2012	180.2	32.3	144.4	356.9
2013	189.2	34.6	148.8	372.6
2014	196.8	35.5	154.2	386.5
2015	204.0	36.7	157.2	397.9
2016[b]	208.0	36.5	159.5	404.0
2017[c]	214.0	36.0	163.2	413.2

[a]Due to rounding, the sum of the individual items may not equal the total. [b]Estimated. [c]Forecast.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Professional and Business Services

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**PROFESSIONAL, SCIENTIFIC, AND TECHNICAL SERVICES SECTOR EMPLOYMENT
2008–2017
(In Thousands)**

Year	Legal Services	Architectural and Engineering Services	Computer Systems Design Services	Management, Scientific, and Technical Consulting Services	Other	Total[a]
2007	17.9	43.3	41.1	16.9	51.1	165.2
2008	18.1	44.8	43.1	17.9	55.0	178.9
2009	17.8	41.5	41.7	17.3	53.4	171.7
2010	17.8	39.0	41.3	18.0	52.9	169.0
2011	18.3	39.2	43.0	19.4	53.8	173.7
2012	18.8	40.4	45.3	20.6	55.1	180.2
2013	19.5	42.0	47.9	22.5	57.2	189.2
2014	19.2	43.4	50.6	23.9	59.4	196.8
2015	19.2	44.1	53.4	25.7	58.1	204.0
2016[b]	19.3	45.0	55.2	26.4	62.1	208.0
2017[c]	19.6	45.9	56.6	26.8	62.8	214.0

[a]Due to rounding, the sum of the individual items may not equal the total. [b]Estimated. [c]Forecast.

Note: There was a reclassification of employees from the Computer and Electronics sector in Manufacturing to the Computer Systems and Design Services sector in Professional and Business Services in 2013.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

by the legislature in the 2017 session as a Referendum to be placed on the November 2017 ballot for citizen vote.

The Regional Transportation District (RTD) University of Colorado A Line from Union Station to Denver International Airport (DIA) opened in spring 2016. The remainder of this project, called the Gold Line, will reach Wheat Ridge and Westminster and is expected to open in 2017. Design and construction of the North Line is underway; the new line will head north from Union Station to the west of Brighton at State Highway 7.

DIA will be looking for design services and the related construction of additional capacity for Peña Boulevard and existing concourses. Development continues along Tower Road and from 40th Avenue to 56th Avenue, with additional hotels, housing, and restaurants. Denver is also adding capacity to those roads due to the increased commercial and residential growth. This growth is expected to continue for several years. The Gaylord Hotel, southwest of DIA, is currently under construction and will add to the capacity for conferences and lodging in the area.

Computer Systems Design and Related Services

The Computer Systems Design (CSD) subsector continues to see increased investments in information security, social networks, and mobile and cloud computing. Businesses within this subsector create software, design computer systems, integrate technologies, and manage computer systems. CSD employment grew 5.5% in 2015 but will likely moderate, to 3.4%, in 2016, resulting in 55,200 jobs. Growth is expected to continue in 2017, at about 2.5% or a net 1,400 additional jobs.

The steady growth in Colorado's tech sector is occurring in part because Colorado, and especially the Front Range, is seen as a more affordable and livable alternative to the expensive tech hubs on either coast. The state's well-educated workforce, lower housing prices, and entrepreneurial culture make it attractive to both cost-conscious entrepreneurs and established tech companies looking to expand.

Two drivers of growth in this sector are the cybersecurity and cloud computing fields. According to an October 2016 article in the *Denver Business Journal,* the cybersecurity industry forms a core component of the Colorado tech sector, with more than 60 cyber enterprises in the Colorado Springs region and over 30 in metro Denver. It is also a fast-growing industry, with up to 12,000 cybersecurity jobs in Colorado currently going unfilled (*Denver Post,* August 26, 2016). To address this shortfall, several schools in the state have begun offering degree programs in cybersecurity that are approved by the National Security Agency, the Department of Homeland Security, and Centers for Academic Excellence.

As reported in a January 2016 article in *The Gazette,* the establishment of the National Cybersecurity Center in Colorado Springs will further strengthen the industry network and directly create up to 100 jobs. LogRhythm, a cybersecurity firm based in Boulder, has hired hundreds of workers over the last two years and raised $50 million in investment in Q3 2016 to speed up its global expansion.

This strong technology network puts Colorado in a position to benefit from the national growth in this industry. According to CyberSecurity Ventures, a researcher and publisher of reports covering the global cybersecurity industry, experts expect cybersecurity firms to face a shortfall of up to 1.5 million workers by 2019.

Cloud computing is another field that is driving growth in this sector. Colorado's tech sector has historically benefited from its advantages in database management and processing power. As these services move to the cloud, Colorado companies have adapted and are now leading this movement. Oracle and HP Enterprise, two of Colorado's largest tech firms, are both investing heavily in cloud computing services and seeing growth as a result. Colorado's cloud computing capabilities are sufficiently well established to motivate firms to relocate from other regions as seen in Amazon's announcement that it will open an office in Broomfield to support its Amazon Web Services cloud computing division (*Denver Business Journal,* September 9, 2016).

Other tech fields are also growing in Colorado as evidenced by Google's plans to continue its expansion in Boulder. According to a February 2016 article in the *Daily Camera,* the company's development plans will allow it to grow from its current staff of about 340 up to 1,000 in 2017, with further expansion of 500 workers in subsequent years. Colorado's software development industries may also be benefiting from a recent slowing in the growth of offshore software development as the cost of offshore development rises and companies become more concerned with quality and security.

According to the 2016 Harvey Nash/KPMG CIO Survey, the proportion of IT leaders reporting a technology skills shortage has risen to the highest level since the Great Recession almost a decade ago. Nearly two-thirds (65%) believe a lack of talent will prevent their organization from keeping up with the pace of change, up 10% in 12 months. The survey found that the most in-demand skill set for the second-year running is data analytics followed by project management. Security and resilience, technical architects, IT strategy, and digital skills are also in high demand. The proportion of IT leaders who plan to add headcount in 2017 remains at 2016 levels, with 44% planning to increase hiring and 17% planning to decrease staff sizes. A survey of 900 IT professionals by Spiceworks, a provider of IT management software, confirms that spending in 2017 will be flat, reporting that a majority of organizations will keep their IT staffs at 2016 levels, 64% are expecting to no change, and 30% are anticipating increases. The 2016 Harvey Nash/KPMG survey indicates a small but steady growth in the number of IT leaders using flexible contingent labor for more than half of their technology team (12%, up from 11% in 2015). This contingent-oriented community of IT leadership has grown 33% since 2011 and reflects the growing need to use outsourcing as a way of accessing skills and capability, rather than the more traditional view of outsourcing to save costs. A total of 50% of CIOs will increase investment in outsourcing in 2016, up 9% from 2015, and 65% report a skills shortage is holding them back (up from 59% in 2015).

ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEMENT AND REMEDIATION SERVICES SECTOR EMPLOYMENT 2008–2017 (In Thousands)

Year	Employment Services	Services to Buildings and Dwellings	Business Support Services	Other	Total[a]
2008	40.1	40.6	24.9	40.3	145.9
2009	30.0	38.0	25.2	38.3	131.5
2010	33.7	36.8	25.0	37.3	132.8
2011	37.0	37.0	24.9	38.6	137.5
2012	40.7	37.8	26.7	39.2	144.4
2013	43.0	38.9	28.5	38.4	148.8
2014	46.8	40.9	27.0	39.5	154.2
2015	47.4	42.3	25.8	41.7	157.2
2016[b]	48.1	43.0	26.1	42.4	159.5
2017[c]	49.7	44.3	26.9	42.4	163.2

[a]Due to rounding, the sum of the individual items may not equal the total. [b]Estimated. [c]Forecast.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Management, Scientific, and Technical Consulting Services

Management, Scientific, and Technical (MST) Consulting Services averaged 7 – 8% growth over the last six years, including 7.5% growth in 2015 to total 25,700 jobs. However, the committee expects this pace to slow sharply, to 2.1% in 2016 and 1.5% in 2017.

The wide variety of organizations across Colorado that rely on the expertise of management, scientific, and technical consultants continues to grow. These individuals include executives, planners, developers, managers, and many others. Whether public or private sector, startups or established aerospace organizations, the deep expertise required continues to draw in additional MST consulting talent in Colorado. "Management consulting has seen continued growth across the Front Range," according to Greg Bellomo, Managing Partner of Government Performance Solutions, Inc., a Denver-based management consultancy focused on improving organizational performance. "The growing number of small and medium-sized businesses and the continued business focus on profitability continues to support a steady expansion of consulting practices. However, the influx of millennial

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professionals from around the country is increasing the talent supply and that has prevented across-the-board rate increases. This is particularly true for generalist roles typically filled by less-experienced project and program managers."

As a percentage of the state's payroll, Colorado's space and defense industry ranks fifth nationally according to the Computer Technology Industry Association. Jobs in the state range from protection and exploration to innovation. The space industry in Colorado continues to be a significant source of job growth, but not all Colorado companies in this sector are growing.

One of the key players in Colorado is United Launch Alliance (ULA), which is a partnership of Lockheed Martin Corp (LMT.N) and Boeing Co (BA.N). According to an article published in *Reuters* on April 14, 2016, by Irene Klotz, ULA plans to cut up to 875 jobs, or about one-quarter of its workforce, before the end of 2017 to better compete against rivals bankrolled by billionaire entrepreneurs including Elon Musk and Jeff Bezos, ULA's chief executive said.

ULA expects a first round of 375 job cuts to be accomplished in 2016, mostly through voluntary layoffs. In an interview with Reuters, ULA CEO Tory Bruno indicated another 400 to 500 employees would be cut by the end of 2017. "We're in the process of transforming our company," Bruno said.

With the high investment level, the strong academic resources, and the robust pipeline, Colorado job growth in the space industry is expected to grow at around 3% in 2017.

The industry enjoyed great success in 2016 and expects continued job growth in 2017. The amazing achievements in 2016 include the Alice spectrometer on the Rosetta comet mission and the NASA selection of United Launch Alliance for the next Mars rover. The innovations in the aerospace industry benefit many areas of the Colorado economy.

The industry has always understood the importance of engaging young students through STEM programs, engineering days, and school partnerships. In 2016, businesses donated funds and countless hours volunteering to teach students the wonders of science and the excitement of engineering. The Space Foundation Discovery Center in Colorado Springs has become a destination for young and old alike.

Released in early 2016, a *US Aerospace & Defense Labor Market Study* indicated that in 2014 there were over 20,000 jobs in Colorado, with 32.6% in large businesses and 64.4% in small businesses. The study indicated the wages grew 13.1% between 2010 and 2014.

As aerospace looks to private industry for rockets, rocket engines, satellites, and space vehicles, the job possibilities in Colorado will continue to grow. Most of the top companies have facilities in the state, including Ball Aerospace, Lockheed Martin, Northrop-Grumman, and Boeing. All of these companies support small business within the state. The Dream Chaser built by Sierra Nevada is one of the most futuristic projects. This reusable spacecraft will supply the Space Station and perform low-earth orbit missions at a lower cost than conventional missions. In addition, the craft has a runway landing that gives the flexibility to land anywhere in the world.

Recognized academic programs, including the University of Colorado Boulder, Colorado State University, and the Colorado School of Mines, received major grant funding in 2016, and this is expected to continue in 2017. CU Boulder received a $24 million grant from the National Science Foundation for STROBE (Science and Technology Center on Real-Time Functional Imaging). The Colorado School of Mines won a grant to obtain an environmental X-ray photoelectric spectroscopy instrument that will look at material behavior on reactive surfaces. It is not science fiction; it is Golden's cafeteria conversation. CSU has a portable thermophoretic air sampler going to the Space Station as part of NASA's Advanced Exploration Life Support Systems Project. Air quality is as important in space as it is in Fort Collins.

In addition to aerospace, startups continue to play an outsized role in the state's demand for MST talent. The state consistently ranks as one of the top locations for startups and is regularly in the top 10 states for venture capital as a percent of state GDP. According to the Q3 2016 *PricewaterhouseCoopers MoneyTree* report, Colorado recorded 49 deals worth over $268 million in the first three quarters of 2016. Most venture capital investment activity is in software, consumer products and services, and medical devices and equipment businesses.

Colorado is a hot venture market, typically ranking third in the most venture capital invested per capita. In the Kauffman Foundation's ranking of top metro areas for startup activity, the Denver-Aurora-Broomfield Metropolitan Statistical Area ranked #9 in 2016.

In addition to private venture capital, the Colorado Office of Economic Development and International Trade (OEDIT) plays a pivotal role in funding new ventures. According to the Advanced Industry Accelerator (AIA) website, accelerator programs promote growth and sustainability in Colorado's advanced industries by driving innovation, accelerating commercialization, encouraging public-private partnerships, increasing access to early-stage capital, and creating a strong infrastructure that increases the state's capacity to be globally competitive. AIA encompasses three distinct grant programs: Proof of Concept, Early-Stage Capital and Retention, and Commercialization Infrastructure.

Management of Companies and Enterprises

One of the most diverse PBS sectors is Management of Companies and Enterprises, which includes a very broad cross-section of company headquarters and regional offices for businesses. Many of these businesses are company headquarters. The sector, which continues to represent less than 2% of Colorado's economy, has generally produced modest job growth over the last few years. Companies in this sector include Vail Resorts, DaVita HealthCare Partners, Comcast, MDC Holdings, and DISH Network.

Job growth in this sector is driven by national and international economic conditions as well as corporate headquarter relocations. Colorado has seen a number of corporate headquarters either relocate or announce relocations to the Front Range over the past couple of years. While companies are increasingly choosing to locate in Colorado due to the highly educated workforce and appealing quality of life, the increasing cost of living is becoming an emerging liability and may be discouraging some companies from considering a move to Colorado.

Conversely, this sector was impacted by mergers and closures in 2016 that will also affect 2017 growth. The bankruptcy and closure of Sports Authority led to the loss of more than 700 corporate headquarters jobs in Englewood (*Denver Post,* May 25, 2016). Level 3's merger with CenturyLink may also impact industry employment.

While the sector enjoyed an increase of 3.4% in 2015, sector employment is expected to shrink by 700 jobs in 2016 and 200 jobs in 2017.

Administrative and Support and Waste Management and Remediation Services

This sector comprises establishments meant to perform routine support activities for the day-to-day operations of other organizations. It includes office administration, hiring and placing personnel, cleaning, document preparation and clerical services, and waste disposal, among others. This sector is anticipated to grow 1.5% in 2016, with growth picking up to about 2.3% the following year.

Employment Services

Employment Services is related to hiring and placing personnel. Given employment trends highlighted below, the PBS Committee expects the subsector to grow 1.4%, to 48,100, in 2016. As these trends continue to make a greater impact on hiring decisions, growth is expected to accelerate, to 3.5%, in 2017, which would result in 49,700 jobs across Colorado.

In September 2016, Staffing Industry Analysts (SIA) revised its 2016 and 2017 projections for U.S. staffing market growth in response to decelerating revenue in the second quarter. SIA reported in April that an "improving economic backdrop since February" would grow U.S. staffing revenue to 6% in 2016 and 2017; however, in September the firm lowered its estimates to 4% (for 2016 and 2017). Expectations for 2017 U.S. staffing market revenue were reduced by $5 billion, to $145 billion, reflecting tepid first and second quarter U.S. GDP growth of 0.8% and 1.1%, respectively.

According to the Conference Board's Help Wanted OnLine data series, online ads to fill jobs fell in September 2016, to 120,300, ending two months of gains, and in Denver online ads in September decreased by 1,700, to 71,000. The September 2016 supply/demand ratio—the number of unemployed persons divided by the number of total ads—was 0.87 in Colorado and 0.69 in Denver. Colorado's supply/demand ratio in 2014 was 1.1.

In 2015, the National Labor Relations Board (NLRB), citing a "dramatic growth in contingent employment relationships," made it easier for contract workers and other temporary workers to unionize by revising its joint-employer standard. Fallout from this landmark decision is already being seen as the Equal Opportunity Employment Commission (EEOC) approved an updated Strategic Enforcement Plan in October 2016 for fiscal years 2017 to 2021, intended to ratchet up scrutiny of employers' fair employment practices in the "gig economy." The NLRB's ruling is also a factor that is boosting wage and hour claims according to the *Insurance Journal.* "New federal labor regulations, the fight for a minimum wage hikes and an intense focus on independent contractor classification and joint employer status create a perfect storm for new lawsuits," said Richard Alfred, chair of Seyfarth Shaw LLP's Wage & Hour Litigation practice. Nationally, wage and hour claims have increased from 1,935 in 2000 to 8,781 in 2015 as employers continue to misclassify workers as "exempt" from overtime pay. Federal records show oil and gas companies are among the top violators of wage laws—particularly in not paying overtime.

Colorado's Wage and Protection Act of 2014 adds protections for workers by establishing a procedure for the Colorado Division of Labor to adjudicate complaints for unpaid wages or compensation of $7,500 or less, increases fines that can be imposed on employers, and provides for attorneys' fees for employees paid less than the applicable minimum wage. However, it falls short of California's Labor Code as a remedy for nonmanagerial/nonengineer back office personnel because it follows the guidance of the Fair Labor Standard Act (FLSA) with regard to "administrative employees"— the group tech companies, and others categorize unfairly as "exempt" from being paid overtime.

According to the FLSA, an administrative employee is a salaried individual who directly serves the executive, regularly performs duties important to the decision-making process of the executive, and is earning in excess of the equivalent of the minimum wage for all hours worked in a workweek. The employee regularly exercises independent judgment and discretion in matters of significance and their primary duty is nonmanual in nature and directly related to management policies or general business operations.

The IT staffing market in the United States will decelerate slightly, from 7% growth year-over-year in 2015 to 6% in 2016, and hold at 6% in 2017 according to Staffing Industry Analysts. The moderate growth for the IT staffing market is based on the protracted length of the recovery and expectations for GDP growth in the United States to hover in the 2% range for 2016 and 2017. Firms are reporting order volumes that could drive higher growth but the lack of qualified candidates is causing fill rates to fall. The rising tide in the IT staffing industry over the next two years could benefit companies that have positioned themselves well in this constantly evolving landscape.

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Services to Buildings and Dwellings

The Services to Buildings and Dwellings subsector has more than fully recovered from the previous recessionary period. It grew 3.4% in 2015, to 42,300 jobs, across Colorado. The days of high vacancy rates that led to subsector employment consolidation and layoffs have long since passed. Occupancy rates across metro Denver have far surpassed pre-recession levels, justifying new development of office buildings, retail centers, and warehouses in desirable markets. RISE Commercial Property Services is a full-service management company overseeing buildings from Commerce City to Colorado Springs. T.J. Tarbell, president of RISE, suggests the strong market fundamentals have resulted in increased hiring for quality managers and trade workers. However, he expects this trend to moderate over the coming years as new construction and large amounts of sublease space will put upward pressure on vacancy rates. For 2017, the demand for maintenance for these buildings continues to stimulate increased job growth in this subsector.

Control Solutions Inc. (CSI) is a leading Colorado-based building services company specializing in building automation and temperature controls. According to Gary Bales, with CSI, for both his firm and others in the commercial and residential trade profession in Colorado the demand is very high for skilled experienced trade workers. This ongoing dynamic is putting upward pressure on subsector employment costs and is serving as a considerable constraint to business growth in this sector.

Reported by Molly Armbrister of the *Denver Business Journal* in the May 27–June 2, 2016, issue, low oil and gas prices are affecting the commercial real estate market of Denver's central business district as two large leases were vacated by Newfield Energy and WPX Energy, totaling 240,000 square feet. Additionally, the closure of the Sports Authority main office and retail locations in the Denver Metro area affected the market negatively in 2016.

Based on these dynamics, the PBS Committee expects Services to Buildings and Dwellings to gain 1,400 jobs, or 1.6%, for a total of 43,000 jobs in 2016. A return to stronger growth rates, 3%, is projected in this subsector in 2017, resulting in 1,300 new positions.

Support Services

Support Services includes a broad variety of advisory, security, payroll, logistics, and other professional office functions. This sector suffered an unexpected contraction of 4.4% in 2015 due to a variety of contributing factors. However, given recent employment growth across the subsector, the PBS Committee expects the Support Services to hold steady, with no growth in 2016. Given broader trends in the industry and GDP growth, a return to more historical performance trends is expected in 2017, with growth of 2.9%. This would result in an additional 800 jobs across the subsector.

Waste Management and Remediation Services

In the waste handling services industry, waste collection accounts for about 61% of industry revenue; treatment and disposal, including landfills, 23%; transport and processing account for 11%; and waste to energy represent about 5% according to RecyclingBin.com. Data from Hoovers indicate that small companies typically operate in only one of these segments while larger companies often have vertically integrated operations that include all of these components.

Waste management volumes generally trail demographic trends, and the related housing and commercial growth. This includes demolition, aggregate societal activity, mixed with consumer spending (meaning waste material generation and to a certain extent recyclable material). Despite a general sense that local ordinances that enable or require recycling and composting creates jobs, there is scant data on which to base that premise. Rather, the real-world market forces, especially the highly variable demand for recycled material, have not been a factor in sustained employment growth.

Alpine Waste is locally owned and the largest independent waste and recycling company in Colorado. The company is completely vertically integrated with a fleet of almost 100 collection vehicles, the Altogether Recycling Facility, Alpine's compost processing plant, and the East Regional Landfill, the only landfill owned by a private company in the state. Alpine is a large employer in Colorado, with more than 200 employees. According to John Griffith of Alpine, the outlook for 2017 is one of optimism for continued volume growth and commodity value stability. However, the unemployment rate in Colorado reflects a market that is hard to find employees for the sector.

In Colorado, Waste Management and Remediation Services will likely see a sixth-straight year of employment gains as these services are a trailing indicator of overall population growth and, to a certain extent, of new and replacement (infill) commercial development. The committee expects this subsector to provide for job growth of 3.3% in 2016, then slow to 2% the following year. Industry consolidation among major players has slowed, and regional haulers are adding slightly more staff as recycling, composting, and more sophisticated customer-service protocols are evolving.

PBS Sector Summary

PBS will continue to be a driver of employment growth for Colorado in 2017. The overall strength in the economy, demographic trends, and the business environment, in particular, will support continued but moderating growth in jobs across the sectors. ✤

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Education and Health Services

The Education and Health Services Supersector includes private-sector education, as well as four health care and social assistance sectors, including ambulatory care, hospitals, residential and nursing facilities, and social assistance. This industry represents almost one of every eight jobs in the state of Colorado. Nearly 88% of industry employment is made up of Health Care and Social Assistance, while slightly more than 12% is related to private education. Education and Health Care is on track to add about 12,100 jobs in 2016, a growth rate of 3.9%. In 2017, jobs are projected to grow by 10,600, a growth rate of 3.3%.

Educational Services (Private)

Private-sector educational services can be classified as private not-for-profit, private for-profit, religious exempt, and private occupational, as well as private companies delivering training and development and other ancillary and support services. Public elementary and secondary educators are in local government; public higher education is in state government. Employment numbers for the private education sector for 2015 showed marginal growth of 1,100 jobs over 2014, totaling 38,200 for the year. The sector is projected to see marginal growth in 2016 and 2017, adding only approximately 800 additional jobs each year.

COLORADO EDUCATION AND HEALTH SERVICES EMPLOYMENT 2008–2017 (In Thousands)

Year	Educational Services	Health Care and Social Assistance	Total
2008	30.6	219.9	250.5
2009	31.3	226.0	257.2
2010	32.3	232.4	264.7
2011	33.7	239.9	273.7
2012	35.4	247.2	282.6
2013	36.1	250.7	286.7
2014	37.1	261.8	298.9
2015[a]	38.2	274.7	312.9
2016[b]	39.0	286.0	325.0
2017[c]	39.8	295.8	335.6

[a]Revised. [b]Estimated. [c]Forecast.

Note: Due to rounding, the sum of the individual sectors may not e

Sources: Colorado Department of Labor and Employment and Co Business Economic Outlook Committee.

The education sector is typically countercyclical relative to the economy; the growth in this sector during the last two economic downturns supports this theory. As such, as the economy continues to improve, for-profit education revenues are expected to increase at a slower rate, and overall employment growth in this sector will continue to be flat or modest at best. Private nonprofits and other related businesses will be slightly stronger and provide the counterbalance needed to attain slight growth.

Also part of the private education sector are the career schools and colleges that provide training in the trades and crafts, helping to meet a growing national demand. According to the Career Education Colleges and Universities (CECU, formerly the Association of Private Sector Colleges and Universities):

- "In the past five years, the sector has produced almost 2 million occupation-based academic awards and increased certificates by 63%.
- Employer demand for occupation-focused credentials will more than double over the next decade.
- The sector's skill in serving adult learners will only increase:
  - o By 2022, 42% of all postsecondary students will be 25 or older,
  - o Representing a 20% increase in students age 25–34 and a 23% increase in students 35 and older.
- The sector's service to part-time students will only increase,
  - o [Representing] a 16% increase in part-time students by 2022."

Concerns that May Limit Employment Growth

Driving the cautious optimism are several hurdles, including the following:

- Reported enrollments were down across the private-for-profit college sector, with reported declines of as much as 55% between 2011 and 2015. There are no signs of a rebound in 2016.
- Closures related to legal difficulties will also limit growth.
  - o Pressure from the U.S. Department of Education have led to past closures in Colorado of three Everest College campuses. Similar pressure forced the closure of ITT Technical Institute in September 2016.
  - o Heritage College closed 10 schools (one in Colorado) at the beginning of November due to cash flow concerns.

While revenue growth in parts of this sector, mainly in the private, non-profit schools and the supporting services side, is expected to continue modestly, for-profit colleges will continue to face increasing cost challenges due to the economy and legislative pressures. Business can be expected to increasingly rely on technologies that provide efficiencies to keep costs and employment to a minimum. Overall, employment will be up only modestly in 2016.

Description of the Private Education Sector

Contributions to Colorado's employment come from many schools with the state's private postsecondary institutions, accounting for approximately one-third of all postsecondary enrollments. The largest employers in the private education services subsector come from private postsecondary education. Among Colorado's more prominent private nonprofit schools are the University of Denver, Regis College, and Colorado College. Private for-profit accredited colleges include Arizona-based

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University of Phoenix, which has three locations in Colorado after closing three locations in 2015. A total of 89 private accredited colleges are listed on the Colorado Department of Higher Education website; 68 of those are nonprofit and 21 are for-profit.

A total of 332 in-state occupational schools and 24 out-of-state occupational schools (approved to market in Colorado) are registered with the Colorado Department of Private Occupational Schools. Among Colorado-based private accredited colleges is Alta Colleges, a privately held for-profit education company based in Denver. Private occupational schools include Denver-based Bel-Rea Institute and IBMC College, with four locations. NASCAR Technical Institute (UTI) and WyoTech are out-of-state schools that are approved to operate in Colorado.

Employment in the private education sector is driven by both business demand for continuing education programs and consumer demand for training that improves employment prospects or general quality of life. In the corporate and business sector, skill development of employees through learning curricula continues to play a critical role in developing competitive competencies of businesses, especially in the high-tech and consulting arenas. Corporations consider reinvestment in their employees a required business development function. Furthermore, certification within specific industries drives both corporate and consumer consumption of learning to remain competitive.

Colorado is also home to paraeducation organizations, for example Pearson Learning Technologies Group (LTG). The group, which has offices in Colorado, has experienced several years of modest growth. Increases are expected to continue into 2017 in online higher education services, including the higher education, preK–12 education, and professional education markets. Other software businesses in the learning and education delivery sector in Colorado include Knowledge Factor. As education companies such as these continue to create more content, learning technologies, and educational analytics opportunities, Colorado has the potential to be a strong player in eLearning.

Education is in the midst of significant transformation and reform, including an increase in adoption of online high school classes. This heavy reliance on technology both requires more strategic thought specific to pedagogy, as well as instructional design, but also provides tremendous opportunities for data-driven education. When this "big data" can provide at-risk reports on behaviors, such as dropped classes within a week of course starts, an understanding of how students learn best, and the development of courses that are tailored to student needs in real-time, personalized learning is very close to becoming reality.

Health Services

The private Health Care and Social Assistance Sector provides employment to more than 275,000 workers in 15,000 establishments. Workers who make up this sector are diverse and range from nurses, personal care aides, and technicians to administrative personnel. About two-thirds of total health care workers are employed in ambulatory care facilities (medical offices) and hospitals. Colorado has a greater percentage of employees in the ambulatory care and hospitals subsectors and a lower percentage in the residential and nursing facilities and social assistance subsectors compared to the nation.

The average annual wage for employees in the private health care sector was about $48,166 in 2015, or 11% below the overall annual average wage of $54,182 in Colorado. The top three counties with the highest average wages are Pitkin, Eagle, and Garfield. Annual wages in the ambulatory care and hospitals subsectors averaged $59,201 while the remaining employees in nursing and residential facilities and social assistance averaged $27,334.

Health Care and Social Assistance employment continues to grow each year, expanding at an average annual rate of 3.2% since 2000, and increasing 4.4% and 4.9% in 2014 and 2015. Employment increased an estimated 11,300 jobs (4.1%) in 2016, and is projected to increase by 9,800 in 2017 (3.4%).

The Health Care Landscape

Demand for health care services and workers is expected to increase primarily from:

- A growing and aging population
- Chronic conditions such as asthma, heart disease or diabetes
- Residents' behavior and lifestyle choices (e.g., smoking and alcohol abuse)
- Expansion in the number of persons eligible to receive health insurance coverage

At the same time, the supply of care providers, especially physicians and nurses, is anticipated to lag compared to demand. Forty percent of physicians and advanced practicing registered nurses are over 55 and 26% are over 60. These practitioners will soon transition from providing care to consuming health care. In some counties, especially rural counties, this retirement exposure will be extreme. People who live in those counties may have difficulty finding replacements for their health care provider. Workforce expansion may prove difficult as supply levels are impacted by expected annual retirement rates among current practitioners, limited professional interest in primary care, and restricted capacity to train new health care professionals.

Demand for health care services and the structure and supply of the health care workforce are factors influencing the total cost of care. Other selected drivers that increase cost include current payment systems that emphasize volume over value, administrative inefficiencies, and advances in medical research and technology. The Colorado Commission on Affordable Health Care's *2015 Report to the Colorado General Assembly and Colorado Governor* outlined the dramatic increase of health care spending in the last two decades that is projected to continue. Personal health care expenditures, which account for 80% of total health care costs by Coloradans, reached an estimated $36.3 billion in 2013, more than double the $16.3 billion in 2000. This is a 327% increase compared to the cumulative inflation over this time period of 33.3%. This significant increase is more than what was experienced nationally, where personal health care expenditures rose 216%.

It is not surprising that the call for health care affordability dominates the health care services industry. Purchasers of health care, including employers, government entities, and individuals, recognize that without comprehensive change to the overall health system the ability to afford health care coverage and services may soon be out of reach for many.

The complexity in the industry offers opportunities for new entrants and innovative service and care methods. It also creates challenges for organizations and policymakers on how best to ensure the right care and service at the right time, in the right setting, by the right type of provider is available, delivered, and affordable.

The following trends will impact the size and characteristics of the workforce.

Aging

As of 2016, Colorado has about 5.5 million people of which about 13%, or 750,000, are 65 or older. Colorado's State Demography Office reports that between 2010 and 2015, the overall population growth was 8%, ranking the fourth highest in the nation, while its senior population grew by 28%, the third-fastest rate overall. By 2030, it is estimated that the senior population will grow to about 1.3 million (18%) of Colorado's estimated 6.9 million people. Life expectancy has increased from 77.2 years to 80.4 years since 1990, the third-highest growth rate in the nation.

The amount and intensity of health services are highly dependent on individuals' economic situation and how older Coloradans can age in healthy ways to maintain their independence and quality of life, and live a longer life. Health care spending increases with age. Nearly one-third ($12 billion) of all health care spending was posted by the 45- to 64-year age group in 2013; next was the 65- to 84-year old group, at nearly $8 billion. The 2016 Colorado Health Report Card, in its 10th year, ranks Colorado seniors among the nation's healthiest. However, with the expected 1 million workers aging out of the workforce over the next 20 years, Colorado must prepare its health care infrastructure for this demographic shift.

Select Populations and Health Status

Factors that determine overall good health are 70% controllable by individuals, their friends and families, and the larger community. Influencing behaviors, policy, and the management of physical and medical environments can significantly impact the health of citizens.

Even though Colorado has one of the lowest overweight or obese rates in the nation, policymakers must not remain complacent. Nearly 60% of adults and one in four children are obese or overweight. This trend has doubled the last 20 years. These rates vary widely by race, ethnicity, and location throughout Colorado.

Health risks associated with obesity, especially in children, include high blood pressure and high cholesterol, insulin resistance and type 2 diabetes, breathing problems, and social and psychological problems. The costs attributed to overweight and obesity are a significant burden on the health care system and economic output.

Another concern is the growing need for mental health care services. About 442,000 Coloradans in 2015 did not get the mental health care they require. An increasing number of residents find it difficult to get mental health appointments, indicating a need for more mental health providers. Due to a trend in the number of Coloradans unable to find mental health services or are too embarrassed to seek services, innovative programs are emerging such as integrating mental health into primary care settings. Insurance plans are now required to cover more mental health services.

Coloradans lifestyle choices impact health care demand. The annual *National Survey on Drug Use and Health* ranks each state based on the proportion their age 12 and older population uses opioid painkillers for non-medical reasons or consumes any marijuana, alcohol, or cocaine. A top 10 list is created for all four substances. Unfortunately, Colorado is the only state to rank as the top consumer for all four substances. The heavy use of marijuana was expected but Coloradans consumption of intoxicants other than marijuana also led the nation.

Tobacco use is the leading cause of preventable death in the nation. For Colorado, use is estimated at 15.5% of adults (655,000), slightly higher than the national average of 15.1%, and 8.6% of high school students compared to the national average of 10.8%.

Coloradans purchased 194.4 million packs of cigarettes, an increase of 1.1 million packs over 2014 sales. This is due to population growth; the rate of adult smokers has decreased. Research has shown that increases in the cigarette tax reduce smoking, especially among the youth. The last tax increase was in 2004; however, studies show that while the tax initially encourages smokers to quit or not start, the tax loses its effectiveness after seven years. Amendment 72, on the 2016 election ballot, would have raised the cigarette tax from $0.84 per pack to $2.59 while also taxing other tobacco products. The revenue would have gone to a multitude of programs, including medical research, prevention, health clinics in underserved areas, and veteran services. The measure failed 56% to 44%.

Annual tobacco-related direct health care costs in Colorado are estimated at $1.9 billion. In addition, businesses suffer higher insurance costs and productivity losses. Nearly 100,000 children under 18 alive today will ultimately die from their own smoking.

Currently, Colorado attracts businesses seeking to hire a healthy, therefore more productive, workforce. States with a healthy workforce, all else being equal, provide companies with an economic advantage over those states with a less healthy workforce. With the leanest adult population of any state and low incidences of death

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from cancer, diabetes, and heart disease, Colorado is well positioned to continue to attract and retain businesses. However, public and private organizations must continue to advance initiatives to improve the health of the state's workers. As Coloradans begin to age in healthy ways, the expected outcome is less use of intensive resources devoted to health care. This result will influence the makeup of our health care workforce.

Health Insurance Coverage

Employer Sponsored

The expansion of the insured population in Colorado creates the need for more available health providers and infrastructure support. About 50% of Coloradans, or 2.2 million people, have insurance through their employers. Colorado has seen nearly a nine-point drop in employer-sponsored insurance from 2009, mirroring national trends. Employer-sponsored insurance is driven by job growth, employers offering coverage and defining eligibility requirements, and employees choosing to purchase the insurance offering and deciding on single or family coverage.

In 2016, approximately 98% of all businesses in Colorado have fewer than 100 employees, employing 63% of the state's private workforce. Small businesses continue to erode its offering of health insurance coverage, citing the cost of premiums as a significant barrier.

According to the *Medical Expenditure Panel Survey* (2015), roughly half of workers in Colorado's small businesses are offered health coverage, with 69% of those firms over 25 employees having the opportunity to purchase health insurance. Only 25% of businesses with 24 or fewer employees offer health insurance coverage. The Marketplace (Connect for Colorado Public Exchange) provides coverage to more than 3,000 small businesses while the remainder buy privately. Small group employers have experienced a relatively stable market and expect modest premium increases, averaging around 2% in 2017.

Colorado employers have ranked the increasing cost of health care as their top concern for nearly 12 years according to Lockton's *2016 Colorado Employer Benefits Survey Report.* Employers state that their average increase before plan design changes averaged 8%. However, their final rate increase averaged 4.4% after plan design changes and increases in employee contribution. It is anticipated that in 2017, employer premiums, especially large employers, will increase about the same as in 2016, with employees continuing to bear the brunt of higher insurance coverage costs.

In an effort to mitigate rising costs, plan changes include increasing employee's premium costs, deductibles, and out-of-pocket limits, or reducing benefits or moving to a lower cost carrier. Colorado has averaged 9% annual increases (before plan design changes) since 2012 compared to annual rate increases averaging 14% from 2004–2011.

As employers and their employees are increasingly bearing the burden for the rise in health care costs, there are rallying cries for pricing transparency for premiums and services; fast, online transactions; and convenient access, including retail clinics, improved patient experience, and affordable pricing.

Individual and Family Coverage

The market size for individual and family purchasers is about 450,000 of which 44% (196,000) buy medical coverage through the Marketplace according to the September 2016 *Marketplace Dashboard;* the remainder buy coverage privately. Connect for Health Colorado estimates about 102,000 (52%) receive a federal subsidy. This is lower than other state and federal exchanges, which average 75% or more. A recent study by U.S. Department of Health and Human Services found that 52,000 Coloradans could have qualified for thousands of dollars in tax credits had they purchased their health insurance through the Marketplace.

HEALTH CARE SERVICES EMPLOYMENT, 2008–2017
(In Thousands)

Year	Ambulatory Care	Hospitals	Nursing Care	Social Assistance	Total[a]
2008	90.5	53.7	37.7	38.0	219.9
2009	93.3	54.9	39.1	38.7	226.0
2010	96.8	55.7	39.3	40.5	232.4
2011	101.1	56.5	40.3	42.1	239.9
2012	104.6	57.9	40.8	44.0	247.2
2013	106.8	55.9	41.1	46.8	250.7
2014	112.7	57.7	41.7	49.7	261.8
2015	119.2	60.3	42.6	52.7	274.7
2016[b]	125.2	63.5	43.6	53.7	286.0
2017[c]	130.4	66.4	44.5	54.5	295.8

[a]Due to rounding, the sum of the individual items may not equal the total.

[b]Estimated. [c]Forecast.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Colorado purchasers will pay premiums that are on average 20% higher in 2017, with some rural areas seeing 40% increases. Nationally, the individual and family market is also expected to see average increases of 22% or more. Tax credits (federal subsidies) will mitigate these large increases for some purchasers as credits also increase. Subsidies are only available for those who buy coverage through the Exchange. In October, the Colorado Division of Insurance indicated that consumers who qualify for the tax credits and get their plans through the Marketplace could see an average decrease of close to 11% if they are able to keep their current plan.

Several insurance carriers are readjusting their market presence in Colorado. About 92,000 purchasers will have to seek coverage with other carriers as United Healthcare and Humana will exit the market while Anthem Blue Cross Blue Shield will no longer sell preferred provider organization (PPO) plans, and Rocky Mountain Health Plans will limit its offerings to Mesa County. The loss and limitations of these carriers, especially in western Colorado, will reduce the selection to only one carrier on the Marketplace. As some companies readjust, a new entrant into the Colorado market, Bright Health Plans, will sell individual and family plans both on and off the Marketplace.

The sharp rise in the cost of insurance coverage and health services, the additional Patient Protection and Affordable Care Act (PPACA) coverage regulations rolling out in the next few years, continuing political uncertainty around health care reform in general, and the stability of insurance coverage continues to undermine market forces and affordability of both insurance coverage and health care services.

Medicaid and Uninsured

Colorado opted to increase eligibility for the newly named Colorado Medicaid Program called Health First Colorado as part of PPACA. Nearly 450,000 new beneficiaries are covered since 2013, bringing the total to 1.3 million. The expansion population is expected to exceed 360,000 by 2017.

The Colorado Health Institute's analysis of Health First Colorado expansion found that it was more extensive and costlier than anticipated. It is estimated that Colorado will spend $222 million annually by 2020, which is a 10% share for newly eligible Health First Colorado clients, plus 50% share for those who were already Medicaid eligible but did not enroll until the expansion began. It is expected that the hospital provider fee will be able to fund most of these costs.

Studies have indicated that the expansion of Health First Colorado provides indirect benefits, including improvement of economic well-being and reduced spending on uninsured programs. It also lessens the burden on hospitals and clinics for uncompensated care.

Health First Colorado's goal is to improve the health of its clients. The Accountable Care Collaborative (ACC) was launched in 2011 not only to provide Medicaid benefits but also to ensure that members get the right care, at the right time, in the right place. In addition, it expanded health care to include wellness and nonmedical needs to help overcome obstacles to improve overall health—ideally, to improve health outcomes and quality of care by linking enrollees to a primary care physician or team. The ACC began with one practice and roughly 500 people and has grown to nearly 530 practices across Colorado with enrollment of about 900,000 members.

To continue to improve health and streamline costs, Colorado was awarded a State Innovation Model (SIM) grant in 2015, resulting in federal funding for health delivery system transformation to better coordinate physical and behavioral health. The state will improve health by:

- Providing access to integrated primary care and behavioral health services in coordinated community systems,
- Applying value-based payment structures,
- Expanding information technology efforts, and
- Finalizing a statewide plan to improve population health.

With the advent of PPACA and Health First Colorado expansion, the uninsured rate is estimated between 6.7% and 9%—a drop from 14% in 2013. A higher percentage of the uninsured population live on the Western Slope. The uninsured rate for Colorado children has reached a record low according to data from the *2015 Colorado Health Access Survey*. The survey found that 2.5% of Colorado children under 19 (approximately 33,000 children) were uninsured in 2015, down from 7% only two years earlier. More than 60,000 Colorado children have gained health coverage since 2013.

With the sharp increases in the individual market premiums, the uninsured rate may rise as consumers opt out of mandatory coverage and pay the PPACA penalty. For example, in 2016 a family of four with two children who have an adjusted gross income of $60,000 and did not have insurance coverage will pay a flat penalty rate of $2,085. Those consumers with much higher adjusted gross income could be penalized up to 2.5% of their adjusted gross income.

Colorado's public insurance recipients, underinsured, uninsured, and undocumented residents are frequent users of community safety net centers. Some communities have one or two centers while others have several. Despite the endemic challenges in serving these populations, most safety net centers are implementing medical practice transformation. These enhancements include electronic medical records to monitor patients' health; systems to allow patients to pay bills online, see their health records and schedule appointments; experience team-based care; and an integration of services. Safety net clinics continue to be front-line providers for patients who have trouble finding care.

The health environment offers a myriad of opportunities and challenges as job-based coverage is eroding and one in three Coloradans have public insurance (e.g., Medicare, Medicaid, and Child Health Plan Plus). Coupled with a growing and aging population and increasing

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obesity and chronic diseases, policymakers and industry experts are working diligently to respond to the health care workforce predicament.

The Health Care Workforce

Workforce Environment

Health policy conversations in Colorado have shifted from insurance coverage to access to health care.

A record 4.9 million Coloradans, 93.3% of the state population, now have health insurance according to the 2015 Colorado Health Access Survey (CHAS.) Two years earlier, that figure was 85.7%.

This historic change is primarily a result of expanded eligibility for Medicaid under PPACA.

The question now is how to ensure that all Coloradans have access to affordable and high-quality health care services when they need them and where they need them.

The health care workforce is an essential piece of the access-to-care puzzle. Does Colorado have enough health care providers and are they located where they are most needed?

The 2016 legislative session had two notable wins for Colorado's health care workforce. Senate Bill 16-69 allows the state to license and regulate community paramedics—certified emergency medical providers who work outside of hospitals. Rules for these professionals must be adopted by the Colorado Medical Board by January 1, 2018.

House Bill 16-1047 allows the governor to enter into an interstate compact to enable doctors licensed in other states to obtain expedited licenses to practice medicine in Colorado or other member states.

Physicians

Colorado is below the national average for the number of physicians relative to the state population. The state has 15,000 active, licensed physicians across all specialties in 2016, which translates to 270.8 physicians for every 100,000 residents. The national average is 287 physicians for every 100,000 people.

Primary Care Physicians

Colorado has an above-average rate of primary care physicians—those in family medicine, internal medicine, pediatrics or general practitioners. The state has a panel size of 1,873 patients for each full-time primary care physician, which is near the ratio deemed reasonable by experts—1,900 patients per primary care physician.

Still, the distribution of primary care physicians is not even. In 2014, Cheyenne, Elbert, and Kit Carson counties, located on the Eastern Plains, needed three times their current number of primary care physicians to reach the 1,900 residents-to-primary care physician benchmark. More urban and populous regions — including Denver, Boulder, and Broomfield counties — tend to have relatively high primary care capacity.

While Colorado ranks fairly well overall in primary care capacity, demand for services in the state and nationally is on the rise. Experts cite several reasons, including an aging population, the increasing prevalence of chronic conditions, reduced financial barriers to care due to health reforms, and system-induced demand, which is generated by practitioners referring patients for further tests, procedures, and follow-up visits.

Greater demand is creating competition for talent. Many of today's primary care physicians are heading into retirement, but their ranks are not being filled by enough recent graduates, who increasingly opt for more lucrative specialties. This creates a challenge to recruit and retain primary care physicians, particularly in rural and underserved areas of the state.

Nurse Practitioners

Nurse practitioners (NPs), one type of advanced practice registered nurses (APRNs), continue to represent the fastest-growing segment of the health care workforce, both in Colorado and nationwide.

The number of APRNs licensed in Colorado has doubled in recent years, from just over 2,500 in 2000 to 5,031 in 2016. Looking specifically at NPs, the number has increased 47.8% in the past eight years, from 2,433 in 2008 to 3,596 in 2016. Between 2015 and 2016, 337 new NPs obtained a license to practice in Colorado.

In addition to the general requirements to become a registered nurse, NPs complete advanced coursework and clinical education, which qualifies them to provide more direct patient care, including diagnosing symptoms, ordering treatments, and making referrals.

Going one step further, NPs can obtain a prescriptive authority license depending on the laws and requirements of the state in which they practice. Prescriptive authority enables APRNs to prescribe drugs and medical devices and services without collaborating with a physician.

Nearly 65% of APRNs in Colorado—3,230—hold a prescriptive authority license. This number increased by nearly 400 following the passage of 2015 legislation easing the requirements. The new law permits APRNs to prescribe medication after completing 1,000 hours of training under a physician or another APRN who has prescriptive authority and at least three years of clinical experience. Prior to the new law, the time requirement had been 3,600 hours, and mentors had to be physicians.

An expanded APRN workforce with the ability to prescribe medication, make referrals, and diagnose ailments has the potential to alleviate both Colorado's primary care shortages in underserved communities and regional disparities in access to care.

Physician Assistants

While physician assistants (PAs) account for a smaller portion of the health care workforce, their numbers are growing. Nearly 40% of PAs practice in a primary care setting.

Colorado has 2,710 licensed PAs in 2016, an increase of 9.6% from 2,473 in 2015. PAs provide some of the same services as physicians, but are supervised by physicians and paid less, which can result in lower costs for some health services.

A law (Senate Bill 16-158) passed in 2016 expands the tasks that a PA is allowed to perform with permission from a supervising doctor. The allowed tasks include approving advance medical directives, confirming medical exemptions, and writing prescriptions for noncontrolled drugs without direct oversight from a doctor.

Registered Nurses

Colorado has 59,293 licensed registered nurses (RNs), which translates to 1,071 RNs for every 100,000 residents. The Colorado Department of Labor and Employment predicts that employment of RNs will grow nearly 40% by 2025, which is faster than the average growth rate for all occupations.

However, despite a 35.4% increase in licensed RNs since 2006, a nursing shortage could be on the horizon. About 20% of Colorado's RNs are older than 55, approaching their retirement years at a time when demand for nurses continues to increase.

Long-Term Services and Supports (LTSS) Workforce

Colorado's population is aging rapidly. In fact, in the past five years Colorado had the third fastest-growing senior population in the country. The number of residents age 65 and older is projected to increase by nearly 50% between 2015 and 2025—from 712,200 to 1.1 million—with continued growth in the decades to follow.

In 2025, as many as 70% of these older residents—or 760,000 Coloradans—will require LTSS care at some point. These trends are driving demand for more direct care providers, including home health aides, personal care aides, and nursing and medical assistants. Nearly 90% of older adults say they prefer to age in place, so many will be seeking community-based services.

Colorado's direct care LTSS workforce comprises more than 55,000 people who are employed in home, community-based, or residential care settings, according to the Paraprofessional Health Care Institute. This includes 12,664 home health aides, 19,635 nursing assistants, and 22,955 personal care aides.

However, nearly 27,000 additional direct care workers will be needed by 2025 to meet LTSS demand. This level of growth would constitute a 49% increase in direct care worker jobs in just 10 years—an additional 7,184 home health aides, 6,737 nursing assistants, and 13,045 personal care aides.

While there is increasing demand for direct care workers, these jobs are difficult to fill and workers are hard to retain. Cost-of-living increases and inflation are outpacing income growth for many low-wage direct-care workers serving older adults in Colorado. The high physical and emotional demands of providing direct service for high-need older adult populations also contribute to the high turnover rates. Nursing assistants, medical assistants, and personal care aides often earn just a few dollars above the state minimum wage in Colorado. These are relatively low-skill jobs that are open to those without advanced training who are interested in working in health care.

More competitive wages and benefits, comprehensive training, career advancement opportunities and culture are some key retention factors to consider. A U.S. Department of Health and Human Services study of certified nursing assistants showed that extrinsic rewards, such as higher wages and paid time off, were more closely linked to job tenure than office culture and other intrinsic factors.

Oral Health

Colorado is working to expand the capacity of its oral health workforce. This includes more dentists, dental hygienists, and dental assistants, as well as primary care providers who have received special training to perform certain oral health preventive services.

Colorado has 3,828 licensed dentists in 2016, up from 3,747 in 2015. In 2014, the Colorado Department of Public Health and Environment estimated that Colorado needed an additional 87 dentists to meet the need for dental care in underserved areas of the state. While Colorado has added 81 new licensed dentists over the past year, they did not all go to practice in underserved areas. Therefore, the state still needs more dentists in underserved areas.

Colorado's 3,740 licensed dental hygienists can provide many services without the supervision of a dentist, including routine checkups and cleanings, and the application of dental sealants and topical fluorides. This ability to practice independently can increase access to preventive oral health care.

Colorado is also working to expand the scope of dental hygienists. In the 2015 legislative session, the Colorado General Assembly passed House Bill 15-1309, which allows qualified dental hygienists to place a temporary filling on a tooth under supervision through a "teledentistry" model.

There is little data about how many dental assistants work in Colorado because they are not licensed separately. The duties and responsibilities of dental assistants, which are outlined in the state's Dental Practice Act, include gathering information about a patient's history, conducting oral inspections, and providing preventive care such as applying fluoride or other topical agents. Dental assistants can only perform these and other tasks under the indirect supervision of a licensed dentist.

Outside of the traditional oral health workforce, some primary care physicians are able to provide preventive services to children after receiving special training. Health First Colorado (Medicaid) reimburses for such services as fluoride varnishes and screenings.

Behavioral Health

The behavioral health workforce—psychologists, social workers, marriage and family therapists, professional counselors, addiction counselors, and others—continues to grow.

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The number of licensed psychologists in Colorado remained fairly stable between 2015 and 2016, at 2,423. Colorado added 338 actively licensed clinical social workers to reach 4,304 during that time. The number of marriage and family therapists increased, from 692 in 2015 to 719 in 2016, and the number of licensed professional counselors also grew, from 5,265 to 5,442. The number of certified and licensed addiction counselors dropped slightly, from 3,474 to 3,393, over that same time period.

Still, there is unmet demand for behavioral health care and a shortage of providers, particularly in Colorado's rural communities and among children, minorities, and non-English speakers.

As Colorado moves toward new integrated care models that incorporate physical and behavioral health, demand for behavioral health practitioners will continue to grow.

With support from the SIM grant, Colorado is working to provide access to integrated primary and behavioral health care for at least 80% of the state's residents by 2019. Achieving this goal will require reconsidering how and where behavioral health services can be provided, along with the roles that various providers serve on integrated care teams.

Telehealth

There have been several notable developments in telehealth over the past couple of years, and many of them are beginning to take effect. House Bill 15-1029 was passed during the 2015 legislative session and goes into effect January 1, 2017. This bill removes the population eligibility limit for reimbursement of telehealth services that was previously limited to counties with fewer than 150,000 residents. It also removes the provision that providers must demonstrate that patients face barriers to receiving in-person care to qualify for telehealth reimbursement.

Colorado's $65 million SIM grant includes a push for expanded telehealth services as part of the overall integration of physical and behavioral health. Executive Order B 2015-008 created the Office of eHealth Innovation and the associated eHealth Commission in part to support SIM's efforts to expand telehealth.

Outside of legislation, the Colorado Medical Board most recently adopted more flexible guidelines for telehealth in August 2015. Under these new guidelines patients are not required to meet in-person with a doctor before using telehealth services nor be in a specific facility to participate in a telehealth visit. Specific technology is also not required for the telehealth connection.

Health Connectors

Health connectors are an emerging area of the health care workforce that aims to connect community members to health services through various means. Regional health connectors are locally based individuals whose full-time job is improving the coordination of local services to advance health and to address the social determinants of health. They focus on connections between clinical care, community organizations, and public health and human services.

The Colorado Department of Public Health and Environment is leading an effort to establish a competency-based credentialing program and registry for the state's rapidly growing patient navigator workforce. A patient navigator is a part of a health care team that helps an individual overcome barriers to quality care, including access, literacy, transportation, and more.

Hospitals

Colorado hospitals are significant contributors to the state's economy, employing thousands of people in communities throughout the state each year. A March 2015 report from the American Hospital Association (AHA) found that Colorado hospitals employ more than 75,000 individuals. As employers, Colorado hospitals also provided $5.3 billion in payroll and benefits that year. The report also found that spending by both hospitals and their employees helped support an additional 177,357 nonhospital jobs in the state.

Additional hospital economic contributions that are often overlooked include the following:

- Colorado hospitals contributed $21.6 billion to the Colorado economy in 2013, which includes calculations for compensation, facilities, spin-off jobs, and other parameters.
- During the recent recession, Colorado's hospitals did not experience the depth of job losses that affected many other industries.
- Average annual employee compensation at Colorado hospitals is fair and competitive.
- Hospitals provide a variety of stable job opportunities to workers regardless of education level—from physicians with graduate degrees and advanced training to service and maintenance workers with high school diplomas.

In rural parts of Colorado, hospitals are often the largest employers in communities. They face unique challenges as many are the single source of care in their communities. They continually struggle to attract and retain medical staff, especially physicians. Patients in rural areas tend to be sicker and older, and have a lower income than their counterparts in urban areas. Rural hospitals that have fewer resources do not always have the opportunity to participate in arrangements that tie hospital payments to the quality of the care delivered.

PPACA introduced several cost-sharing measures, including the Hospital Readmissions Reduction Program, which adjusts payments to hospitals based on their 30-day readmission rates for targeted conditions. New data released by the Centers for Medicare and Medicaid Services reveal that every state, with the exception of Vermont, has reduced its avoidable hospital readmission rates since 2010. This rate reduction translates into approximately 100,000 hospital readmissions avoided for Medicare beneficiaries nationally, in 2015 alone. Colorado saw a decrease of 9.2% in the number of avoidable readmissions from 2010 to 2015, ranking it 14th among the states and representing 1,099 fewer readmissions in 2015 compared with 2010 data.

In the PPACA environment, many assumed hospitals would have difficulty navigating these new waters of expanded coverage where financial incentives and increase regulations drive usage to alternative venues. However, for the third consecutive year, Denver area hospital systems have continued to increase their profit margins according to the *Colorado Health Market Review* (2015), despite a decline of occupancy rates, from 69.2% in 2008 to 63.5% in 2014. Early indications suggest 2016 operating margins will be similar.

Joining the metropolitan Denver hospital systems in January 2018 will be the new Veterans Affairs Medical Center in Aurora. A final contract was awarded to finish this controversial replacement hospital that will serve more than 400,000 veterans in Colorado and neighboring states. The new 184-bed hospital is a collection of a dozen buildings located on the Anschutz Medical Campus. Health care facility construction continues to positively impact local economies. Examples include UCHealth Greeley Hospital, Pagosa Springs Medical Center, St. Thomas More Hospital (Canon City) footprint expansion, the recently announced new UCHealth Sports-Medicine Center in Englewood, and about $1 billion in hospital expansion and medical building projects in the Colorado Springs area.

Colorado Rural Health Clinics

Over 73% of Colorado's geographic area is rural or frontier, and almost one-sixth of the state's population lives in this area. Of Colorado's 64 counties, 24 are considered rural and 23 are considered frontier (a rural county having six or fewer people per square mile). These counties tend to typically have:

- Lower income populations
- Higher poverty
- Higher percentage of elderly
- Shortage of health care providers
- Decreased access to health care services
- Fewer insurance carriers
- Increased insurance costs

Colorado has 49 federally certified Rural Health Clinics (RHCs) and another 50 rural clinics that do not have federally certified RHC designation but provide vital access to health care services in their communities. RHC are required by federal regulation to accept Medicare and Medicaid patients. Additionally, RHC care for the uninsured and underserved populations in their communities. Many clinics accept managed care and private pay patients; however, these payer types comprise a small percentage of the patient population in rural Colorado.

Rural health care providers, similar to rural hospitals, are in an especially precarious situation as health care economics of high fixed costs and reimbursement pressures make it difficult to achieve financial stability. Staffing and recruitment of rural health workers plus the national effort incorporating health information technology including electronic medical records is especially daunting due to the lack of access to a technical workforce, and financial resources. In addition, rural health care communities often suggest their voice is unheard since urban providers greatly outnumber rural providers.

Other Trends

Health Care and the Election

On November 8, residents had the opportunity to change how Coloradans receive health care. Amendment 69 would have created universal health care, ColoradoCare, funded by Colorado taxpayers. However, $25 billion was required to launch and support the program. In order to pay for the program, Colorado would have introduced a 10% payroll tax and increase investment income taxes. Operating revenue was projected to be larger than the state of Colorado's current annual budget. The ballot initiative failed; 79% voted against the measure.

It has been six years since President Obama signed PPACA into law, and it has certainly influenced the health care landscape. It remains a divisive and partisan issue with perspectives ranging from stay the course with revisions to all-out repeal. The new administration is likely to at least modify the current law, with suggestions that the law may be repealed and replaced.

Consolidation and Competition

On July 3, 2015, Aetna announced its plan to purchase Humana for $37 billion. The combined companies will cover 33 million people nationally. Shortly after this announcement Anthem agreed to acquire Cigna for $54 billion, covering 53 million people and will create the nation's largest health insurer. In Colorado, Anthem and Cigna combined have about 926,000 enrollees while Humana and Aetna have 335,000.

In July 2016, United Healthcare announced its plans to acquire Rocky Mountain Health Plans. United Healthcare, which currently has more than 1 million enrollees, will now have access to 250,000 residents who primarily reside in rural and western Colorado, and a presence in the Medicaid market.

The Colorado Medical Society warned that the proposed mergers may result in higher insurance premiums, less patient time with physicians, and lower provider reimbursement leading to reductions in staff. Other potential consequences of these mergers are physicians leaving community-based practices, retiring early, or moving out of Colorado.

The insurance companies say the mergers will make health care more accessible and affordable. The Department of Justice, joined by 16 states, is suing both Anthem/Cigna and Humana/Aetna, seeking to prevent the mergers under federal antitrust laws.

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If approved by the Department of Justice, United Healthcare, Anthem/Cigna, Kaiser Permanente, and Humana/Aetna will cover 85% of insurance enrollees, or nearly 2.3 million Colorado residents.

Hospital mergers and consolidations have also increased over the years. For example, just announced Catholic Health Initiates (CHI) based in Englewood, Colorado, and Dignity Health are exploring a joint venture that would create one of the largest nonprofit hospital systems by revenue according to the *Wall Street Journal.* CHI operates in 18 states with 103 hospitals, whereas Dignity Health has 400 care centers, including 39 hospitals in 22 states. Dignity Health has a presence in Arizona, California, and Nevada where CHI does not. This alignment is to enable both systems to leverage their strengths to transform care delivery and gain cost efficiencies, including reduction in excess capacity, expanded delivery network, lower cost of capital, and the introduction of new products and services. However, a broad consensus in the literature suggest that hospital competition benefits consumers through lower prices and generally improved quality.

In addition, hospital systems and health care companies are accelerating their acquisition of physician practices. For example, in Colorado Springs, Davita acquired Mountain View Medical Group and Colorado Springs Health Partners, which together employ 140 physicians, and more than 900 employees in 25 locations serving about 200,000 patients. Often cited as reasons medical practices are attracted to consolidation are the challenges they face with recruiting physicians, new risk payment arrangements, network exclusion, technology investments, and younger physician lifestyle choices. However, for the public at large, hospital ownership of medical practices may lead in some instances to higher prices and a lower number of potential competitors to enable reformed payment models. It may also disrupt steering patients to high-value providers.

Pharmacy

According to the Department of Health and Human Services, in 2015 prescription drug spending in the United States was about $457 billion or 16.7% of overall personal health care services. Seventy-two percent ($328 billion) was for retail drugs and the remainder, 28% ($128 billion), was for nonretail drugs. Colorado spends over $3.5 billion annually on prescription medications. Expenditures are rising and are projected to continue to increase faster than overall health spending, thereby increasing prescriptions' share of health care expenditures.

Factors underlying the rise in prescription drug spending from 2010 to 2014 can be roughly allocated as follows:

- 10% due to population growth
- 30% increase in prescriptions per person
- 30% to overall, economy-wide inflation
- 30% shift toward the use of higher priced drugs

The projected specialty drug/biotechnology trend rate for 2017 is high, at 19%. Typically, less than 1% of all medications are specialty drugs; however, those drugs now account for 35% of total projected prescription drug cost trends for 2017—a 10 percentage-point increase from two years prior.

Prescription drug growth rates declined from 2000 to 2013 due to patent expirations and a decrease in generic prices. However, in 2014 and 2015 rates increased by 11.4% and 6.8%, respectively. About one in four people have a difficult time affording their medicine.

According to the American Society of Health-System Pharmacists, there are four emerging trends in the pharmaceutical market.

- Generic Drug Pricing: These prices continue to increase at the rate of nearly 5% per year due to a variety of factors: generic industry consolidation, raw material shortages, and manufacturing issues.
- Enforced Product Tracing: The Drug Supply Chain Security Act became enforceable in 2016. The purpose is to prohibit counterfeit drugs from entering the U.S. supply chain. It is expected that health systems will need additional resources to comply with this law.
- Limited Drug Distribution Channels: These limited drug distribution channels are used to limit drug diversion, better monitor follow-up care, and ensure revenue flows appropriately. Many forecasters believe that high-cost medications will only be available through limited distribution networks by 2020. The concern is that access may be limited to these drugs.
- Specialty Drug Spending: Specialty drugs are a recent designation of pharmaceuticals that are classified as high cost, high complexity, and/or high touch. Specialty drugs are often biologics (drugs derived from living cells). They are used to treat complex or rare chronic conditions, such as cancer, rheumatoid arthritis, hemophilia, HIV, psoriasis, inflammatory bowel disease, and Hepatitis C. In 1990, there were 10 specialty drugs on the market; in the mid-1990s, there were fewer than 30; by 2008, there were 200; and by 2015, there were 300. Drugs are also identified as specialty when there is a special handling requirement or the drug is only available via a limited distributions network. By 2015 "specialty medications accounted for one-third of all spending on drugs in the United States, up from 19 percent in 2004 and heading toward 50 percent in the next 10 years," according to IMS Health, which tracks prescriptions.

Several factors are driving up specialty drug costs, including an aging population and increased prevalence of chronic disease. For example, cancer has a large impact because cancer patients are among the biggest users of specialty drugs; oncology drugs are some of the most expensive treatments available. As the population ages, demand for oncology therapies will continue to rise.

About three million Americans have Hepatitis C, a contagious viral infection that attacks the liver, leading to cirrhosis and cancer. Recent drug advancements have transformed this condition to a disease that now can be cured for most people. However, a course of treatment can cost upward of $100,000—that is, $1,000 per pill for a treatment course of one pill per day for 12 to 24 weeks. Once identified, the high treatment cost is a barrier for many patients as coverage by private insurers and government entities is still debated. Among nonspecialty therapy classes, diabetes is the most expensive, with an overall increase in spending of 14%.

Given the high number of pharmaceutical products available for conditions that use specialty medications, care providers and health plans are implementing strategies to manage patients who use these drugs to control costs. Strategies include utilization-management controls, formulary or preferred step-therapy, tiered copayment structures, split fill, and network management, including aggressive drug contracting terms that maximize client and patient value.

Adding to the pharmaceutical cost dialogue is the recent press around significant drug costs for life-saving treatment. Mylan N.V.'s price hikes on EpiPens two-packs, the lifesaving allergy shot, increased from $100 in 2009 to more than $600 in 2016—significant considering the treatment has not really changed in many years. In Congressional hearings, the company's CEO reportedly stated that they make a profit of $100 or (17%) per two-pack. Consumers, employers, and insurers are paying more, including government entities funded by taxpayers. These price hikes on EpiPens have added millions to Department of Defense spending since 2008 as the agency covered more prescriptions for the lifesaving allergy shot at near-retail prices. Pentagon spending rose to $57 million over the past year, from $9 million in 2008—an increase driven both by volume and by price hikes.

The role of pharmacists is changing. More unmet demand for primary care providers, along with advances in diagnostic technology, have led to a changing role for pharmacists. Pharmacists are accessible, engaged, and willing to take on the challenge of frontline health service. Their scope of practice is expanding as it is for NPs and PAs.

Conclusion

Nationally, health care spending is projected to grow 1.3% faster than GDP per year between 2015 and 2025. As a result, the health care share of GDP is expected to rise, from 17.5% in 2014 to 20.1% by 2025.

Controlling health care costs and delivering value is the anthem in the 21st century for health care purchasers, consumers, and policymakers. Affordability of health care premiums and cost sharing are problematic for many Coloradans. Fundamentally, affordability is a cost problem. Health care costs have risen substantially in Colorado the last 20 years and are expected to continue, in part fueled by the state's growing aging population, despite progress made in coverage, access, and quality.

Recognizing the complexity of the industry, Colorado is on the forefront in tackling health care spending as well as enhancing the care experience (quality and satisfaction) to improve the health of Coloradans. To reach that end, many health care organizations have received the Centers for Medicare and Medicaid Services, Health Innovation awards. Recipients include Denver Health and Hospital Authority, Southeast Mental Health Services, Upper San Juan Health Service District, and the Accountable Care Collaborative.

Innovative partnerships between private enterprise, government, academic, and nonprofit organizations such as Catalyst Health-Tech Innovations, opening in 2018, is also redefining how best to solve complex health care problems. Through a cooperative health environment, located in Denver's River North neighborhood, digital health start-ups, and established organizations, including the University of Colorado Anschutz Medical Campus, Terumo BCT, the American Diabetes Association, Prime Health, Revolar, Medical Group Management Associations, Kaiser Permanente Colorado, and others, research how best to provide greater integration of health care and technology, as well as provide increased access to retail-based health centers.

To remain economically competitive, the state's health system must continually evolve to support the growing number of individuals with insurance coverage, the aging population, and healthy behaviors and lifestyle choices so that Coloradans continue to lead full and productive lives

Having health insurance does not always guarantee that an individual will have access to needed health care. Recruitment and retention of the right composition of health care professionals is key in building an efficient and effective health care delivery system. Workforce recruitment will need to address personnel shortages in sectors defined by practice type as well as by geography in order to ensure adequate coverage. Steering new health care workers into high-need positions presents a special challenge. Potential shortages will require continually reassessing what level of health professional is best suited for particular tasks. It continues to be important to understand the proper and appropriate roles for the full spectrum of health care workers. The health care sector is expected to continue adding workers to meet demand.

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Leisure and Hospitality

Overview

This report reviews trends in key sectors that are the primary economic drivers for Colorado's tourism industry: conventions and meetings, hotels, restaurants, gaming, skiing, and outdoor recreation. The analysis reviews the infrastructure, events, and marketing activities that shaped the industry in 2016 and looks ahead to the challenges and opportunities that will steer future growth. The Leisure and Hospitality Supersector includes performing arts, entertainment, sports, recreation, accommodations, and food services used by Colorado residents, tourists, and business travelers.

The Leisure and Hospitality industry accounts for more than one in eight jobs in Colorado. The industry was one of the first to add jobs following the recession and 2016 marks seven years of consecutive employment growth. Leisure and Hospitality employment grew by an estimated 10,800 jobs (3.4%) in 2016, and is projected to increase by 12,000 jobs, or 3.7%, in 2017.

National Trends in the Tourism Industry

At the Travel and Tourism Association's annual Travel Outlook Forum held in Fort Lauderdale, Florida, in October 2016, Adam Sacks, president of Tourism Economics, reported that the global economy is on shaky ground, especially in emerging markets. The U.S. economy, however, is solid and growth will come from domestic travel. Two percent growth in travel is expected in 2017 due to an increase in net wealth, a decline in household debt, an upbeat labor market, rising wages, and positive consumers. Domestic travel growth is outpacing GDP growth, and this is expected to continue in 2017. The strong U.S. dollar is making travel to the United States much more expensive in many countries, causing a decline. Business travel is lagging so growth will come from the domestic leisure market.

Other forum highlights include:

- An executive roundtable focused on current and potential opportunities and challenges faced by travel marketers. A strong dollar will encourage U.S. travel and discourage international visitors. China continues to be a growth market, providing more visitors. Vacation home ownership is seeing lots of activity. Europe visits will be down in 2017. While the U.S. travel market will have ups and downs, it will grow in 2017.
- In 2016, year-to-date U.S. international arrivals are off 2%, strongly influenced by a 14% decline from Canada. The number of overseas visitors is up 2%, and Mexico is up 4%. Mexico will surpass Canada in 2016 as the number one origin market, and it is expected to increase its lead in 2017. The forecast of 100 million arrivals by 2021 was on track through 2015, but is expected to fall 6 million short by the end of 2021 based on current National Travel and Tourism Office (NTTO) forecasts. Reaching the 100 million visitor forecast will depend on growth from Mexico, China, Canada, and India. The United States is one of the fastest-growing outbound destinations for the Indian market, with an average annual increase of 10.3%.
- The outlook for the attractions industry is bright; an increase of 2.9% is expected in 2016 and continued growth of 1.9% anticipated in 2017.
- STR's forecast for the U.S. lodging industry reports flat occupancy at 65.5%, a rise in average daily rate (ADR) to $124.12, and an increase in revenue per available room (RevPar) to $81.26 for 2016. The STR forecast for 2017 calls for supply to increase 2%, demand to rise 1.6%, occupancy to decline 0.3%, ADR to climb 3.1%, and RevPar to gain 2.8%. Considering that the lodging industry has had record-breaking performance for the last several years, 2017 will be another strong performance.

LEISURE AND HOSPITALITY EMPLOYMENT
2008–2017
(In Thousands)

Year	Arts, Entertainment, and Recreation	Accommodation	Food Services	Total Accommodation and Food Services[a]	Total Leisure and Hospitality[a]
2008	45.7	42.3	184.9	227.3	272.9
2009	44.6	39.9	178.0	217.9	262.4
2010	44.7	39.5	178.8	218.3	263.0
2011	45.6	41.0	184.8	225.8	271.4
2012	46.5	41.8	191.4	233.2	279.7
2013	47.3	42.8	199.3	242.1	289.4
2014	49.0	43.6	207.8	251.4	300.4
2015	50.8	45.0	217.5	262.5	313.3
2016[b]	52.9	46.3	224.9	271.2	324.1
2017[c]	55.0	47.8	233.3	281.1	336.1

[a]Due to rounding, the sum of the individual items may not equal the total. [b]Estimated. [c]Forecast.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Tourism in Colorado

There are two basic tenets in marketing destinations at the state level. First, it is really difficult to get people to visit places they do not want to go. And second, you can be guaranteed one thing: if you do not invite people, they are not coming.

Regarding the first, Colorado is in the enviable position of being one of the top "aspirational destinations" in the nation, with nearly one in four Americans (21%) indicating they were interested in visiting the state in 2015. Colorado is truly a destination that people want to visit. As reported in the Portrait of American Travelers (MMGY Global/Harrison Group 2015), people ranked Colorado high among all 50 states, behind only California (39%), Florida (39%), Hawaii (31%), and New York (28%) when asked, "Where do you want to visit?"

A key driver in the effort to attract visitors to Colorado is the Colorado Tourism Office (CTO) and its partners. CTO's mission is to promote and develop experiences to drive traveler spending, which in turn supports job creation, business success, generation of travel-related state and local tax revenues, and an enhanced lifestyle for Colorado residents. During FY2016, the CTO continued expanding the national reach of the highly successful "Come to Life" marketing campaign, generating its highest-ever return on investment and record-setting economic impact for Colorado.

Colorado Tourism Highlights

- According to a report by Dean Runyan Associates prepared for the Colorado Tourism Office, total direct travel spending in Colorado in 2015 reached $19.1 billion. This record-spending figure represents an increase of 3% over 2014. Since 1996, visitor-generated spending has increased at an average annual rate of 3.6%, earnings by 3.4%, and local and state tax revenues by 5.2% and 3%, respectively.
- Colorado welcomed a record 77.7 million visitors in 2015. The number of visitors coming to Colorado on marketable leisure trips totaled an all-time high of 17.1 million, a 6% increase over 2014. Marketable leisure trips are those trips influenced by marketing and exclude those traveling for business or visiting friends and relatives. Overnight trips reached a record 36 million trips, an increase of 7% over 2014.
- Underscoring the importance of tourism to Colorado, the local tourism industry generated $1.1 billion in local and state tax revenues in 2015, a 7.8% increase from 2014.
- The tourism industry directly supported 160,000 jobs in 2015, a 3.3% increase over 2014, with earnings of more than $5.5 billion in 2015, an 8.1% increase over 2014.
- Based on the number of visitors directly influenced by a CTO ad, the "Come to Life" campaign generated $3.5 billion in additional travel between April 2015 and March 2016. The campaign created an outstanding return on investment, with $478 in travel spending for every $1 invested in paid media—up from $361 the prior year.

International Travel to Colorado

The CTO's international promotions team deployed tactics to attract 925,000 international travelers in 2015, a 28% increase in the last five years. While their numbers are relatively small, international travelers significantly outspend domestic travelers. In 2015, the average international traveler spent between $4,072 and $7,486 per trip to Colorado. New research from Tourism Economics showed that while the United Kingdom remains Colorado's top overseas market, with 71,000 travelers in 2015, Australia has been the state's second-most important overseas market since 2011, with 46,000 travelers in 2015. Other top markets in 2015 were Germany, France, China, and Japan. The CTO provided funding incentives to support Denver International Airport's (DIA's) effort to restore a direct Lufthansa flight between Munich and Denver; five weekly flights began in May 2016.

Tourism and Conventions in Denver 2015–16

For the 10th consecutive year in 2015, Denver had its best tourism year ever, and trends show that 2016 is on pace to be another strong year for both conventions and leisure tourism.

Research firm Longwoods International indicated that in 2015 (the latest figures available) Denver welcomed a record 16.4 million overnight visitors, an increase of 6% from 2014 and more than the national growth of 2%. Travel spending grew 9%, to a record $5 billion. For the 12th straight year, the number of marketable visitors also grew, setting a new record of 6.1 million.

Denver set a record for lodging tax collections in 2015, with $82.4 million generated, up 9% from 2014. Through the end of July 2016, lodger's tax collections in Denver were up 8.2%. Since 2005, when Denver voters approved an increase in the lodger's tax to go toward tourism marketing, Denver has seen a 52% increase in leisure visitors. Over the same time period, the rest of the nation has recorded only a 20% increase in tourism.

Denver also had a very strong year in 2015 for both conventions held and future bookings. The number of people coming to Denver for conventions and business travel in 2015 was 2.6 million, up 9% over 2014 versus flat national business travel, according to Longwoods International. All future bookings are worth more than $2.4 billion. Denver and the Colorado Convention Center (CCC) are both ranked among the top five cities and centers by meeting planners in the latest Watkins study of meeting planners.

Helped by a strong convention calendar, great snow in the mountains, a number of national and international events and cultural exhibitions, and a summer free of fires and floods, the first three quarters of 2016 were very strong in Denver. According to research firm STR, from 2015 to 2016, hotel occupancy remained strong, at more

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Leisure and Hospitality

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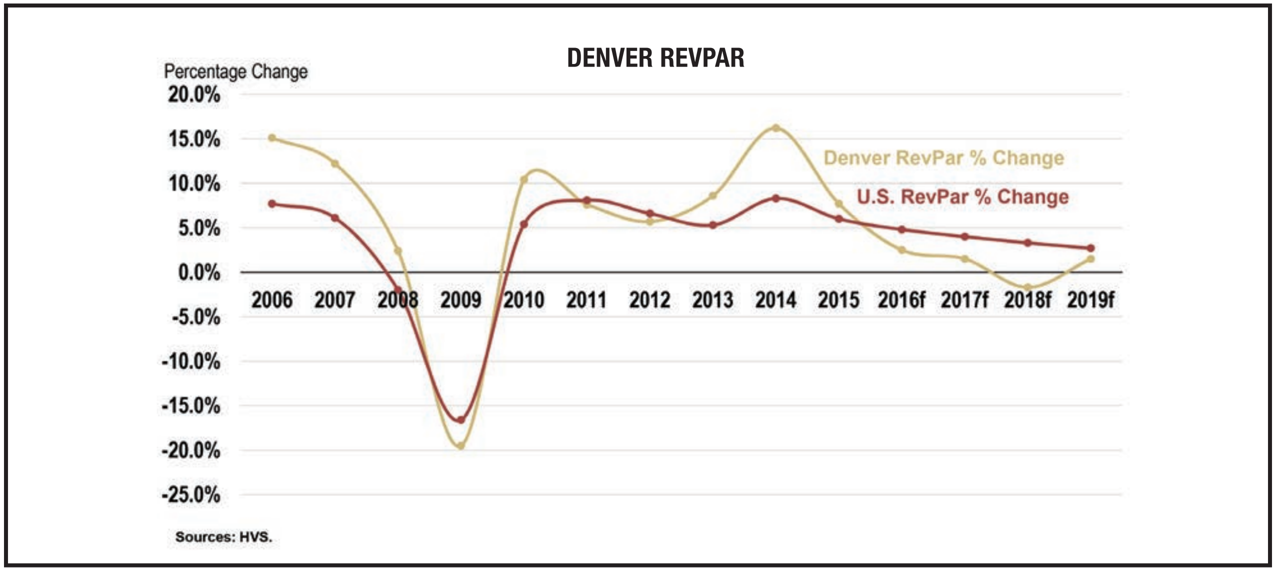
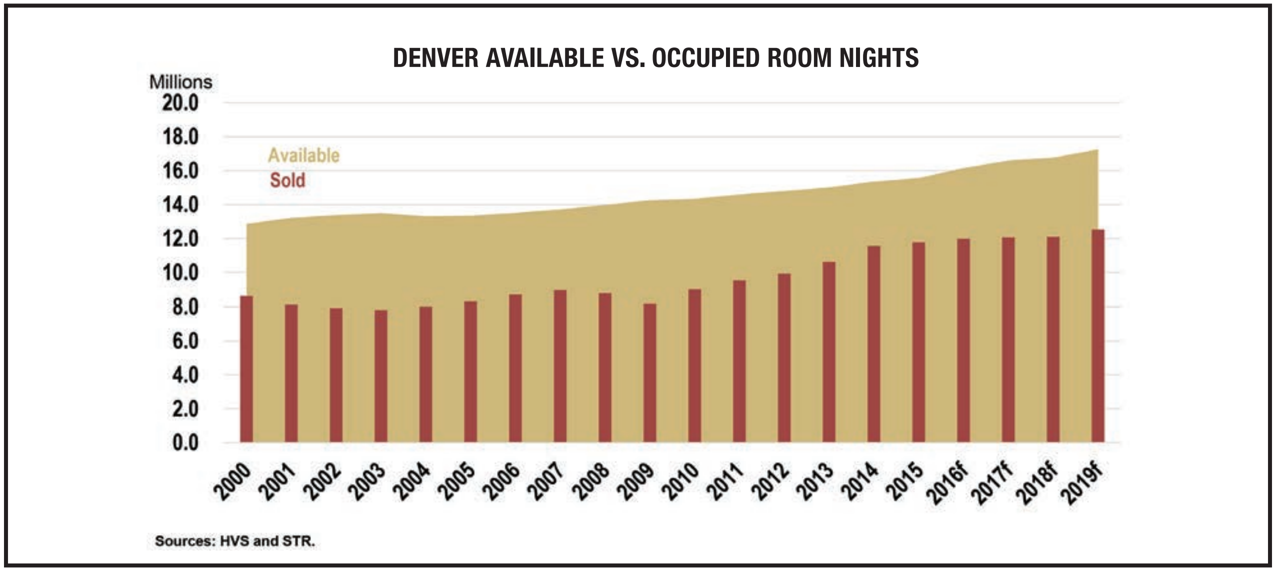
than 77%, the average room rate climbed from $139.17to $147.59, and RevPar rose from $110.86 to $113.86. As of August 2016, Denver's central business district recorded the fourth-highest percentage growth in new room supply over 2015. Like much of the world's travel industry, Denver is subject to increased competition and a fluctuating world economy that could impact the industry's performance at any time. Other unknown factors, such as a government shutdown, volatile oil prices, terrorism, and corrections in the stock market, can also have an unexpected impact. However, Denver is experiencing an unprecedented period of tourism growth.

2015–16 Tourism Highlights

Top Denver convention and tourism industry stories from 2015–16 include:

- In November 2015, Denver voters approved ballot measure 2C by a margin of 66% to 34%. The measure extends an existing tax of 1.75% each on hotel stays and car rentals to finance upgrades and expansion at the Colorado Convention Center (CCC), as well as to redevelop the National Western Center into a year-round event, equestrian, and educational facility that will also be home to the National Western Stock Show. The CCC expansion will include a rooftop conference center that will offer dramatic views of the Rocky Mountains and downtown as well as new high-tech capabilities and new meeting spaces that project a Denver and Colorado image.
- The Denver Center for Performing Arts, which has become a primary stop for touring Broadway shows, consistently outperforms markets of similar size in terms of attendance. In 2015, tourists spent a record $367 million at local cultural institutions. In 2016, The Next Stage vision plan was completed, which reimagines the Denver Performing Arts Complex for the future with new and updated venues, public space, and programming to reach wider audiences.
- Exhibitions such as *Chocolate: The Exhibition at Denver Museum of Nature & Science; Samurai: Armor from the Ann and Gabriel Barbier-Mueller Collection* at the Denver Art Museum; Robot Revolution at the Denver Museum of Nature & Science; *Stories in Sculpture: Selections from the Walker Art Center Collection* at Denver Botanic Gardens; and, Dance! at the Denver Art Museum helped increase tourist visits. This momentum will continue with exhibitions that open in late 2016, including *Star Wars and*





the Power of Costume at the Denver Art Museum and Washed Ashore at Denver Zoo.

- The year 2016 marked the 75th anniversary celebration for Red Rocks Park & Amphitheatre and a strong summer concert series with more than 130 shows.
- The Denver Broncos are more than just Super Bowl Champions—they are also an economic engine that generated millions of dollars of spending in Denver and a television audience of 112 million. The Broncos' Super Bowl victory parade, the largest event in Denver's history, attracted an estimated one million people.
- Also in sports, Denver hosted several successful major events, including the NHL Coors Lite Stadium Series Outdoor Hockey Game, the NCAA Division I Men's Basketball rounds I and II, the AT&T Major League Soccer All-Star Game, the NCAA Division II Spring Sports Championships, and the FISE action sports festival.
- A tourist information desk at Denver Union Station was established to greet arriving transit passengers.
- Marketing efforts have been revamped and increased. In 2015, for the first time, a winter tourism ad campaign was conducted to drive winter leisure travel to the Mile High City. In addition, the $5 million 2016 spring/summer ad campaign was the largest in Denver's marketing history, with TV, radio, magazine and newspaper ads, billboards, web promotions, and direct mail. San Diego was added as a full-fledged target market.

Upcoming enhancements to Denver's tourism infrastructure and appeal in 2017 and beyond include:

- The Kirkland Museum of Fine & Decorative Art will relocate to a new facility adjacent to the Denver Art Museum in 2017.

- Both *Hamilton* and the pre-Broadway production of *Frozen* will perform at the Denver Performing Arts Complex in 2017.
- Denver is preparing to host the U.S. Travel Association's IPW in 2018, a prestigious international trade show with several thousand international travel planners and media, generating hundreds of millions of economic impact for host cities.

Challenges to Denver's Tourism Industry

At the same time Denver is enjoying these successes, competition for tourism and convention business is increasing. To protect the tourism industry, the Denver Tourism Roadmap is assessing the industry to determine how Denver compares to similar destinations. The roadmap will help guide Denver's tourism industry to smart growth and prosperity for the next 10 years in six goal areas: Expand Meetings and Convention Business and Infrastructure; Create Visitor Driven Events; Promote World-Class Attractions and Services; Enhance Connectivity and Mobility; Improve Downtown Visitor Experiences; and Strengthen Destination Branding. The study will be complete in late 2016. Current challenges to Denver's future tourism growth include:

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- Denver continues to add small, luxury boutique hotels downtown that increase the number of rooms and bring character to the hotel package but do not necessarily add room blocks for citywide conventions. This was a principal observation of the Strategic Advisory Group's study, which suggested that future hotel, large convention development be considered and located as close to the Colorado Convention Center as possible.
- The 16th Street Mall continues to present challenges for residents and visitors alike. While the mall ranks as the number one visitor attraction, it also ranks number one on the complaint list from meeting planners for homelessness and panhandling. In addition to the perception of safety, the physical condition of the mall is deteriorating, with huge gaps in the grouting, chipped pavers and inadequate lighting. Public consumption of marijuana on the mall is also a concern to visitors and meeting planners. A security action plan has been developed that includes the recent hiring of a private security team. Gehl Architects is studying the infrastructure and activation of the mall.

Denver Hotel Supply

New hotels add to Denver's lodging package for leisure and convention visitors. According to the Rocky Mountain Lodger's Report, the Denver Metro Area will add over 1,500 new hotel rooms in 2016, and projections indicate an additional 4,100 rooms will be added for 2017.

- The 519-room Westin Denver International Airport opened in November 2015, offering 37,000 square feet of meeting space with direct pedestrian access into the airport terminal and easy access to the new commuter rail line.
- The Halcyon Hotel, with 154 guest rooms, opened in August 2016 in Cherry Creek North. The property features 6,500 square feet of meeting and event space, including a rooftop deck.

The following properties are under construction:

- Opening in January 2017, Hotel Indigo will be a 180-room hotel that is part of the Union Tower West mixed-use development project near Denver Union Station.
- A dual-branded AC Hotels/Le Meridien, with a combined 491 rooms, will open in downtown Denver in summer 2017.
- The Source Hotel, the first hotel in the River North (RiNo) neighborhood, will open in Q1 2017, with 100 rooms adjacent to the revitalized artisan food market, The Source.

Denver Transportation

Denver International Airport

Denver International Airport (DIA) is the 6th-busiest airport in the United States and 19th-busiest in the world, with 1,500 daily flights to more than 170 nonstop worldwide destinations, including 19 international destinations in seven countries. It serves the third-most domestic destinations of any U.S. airport. Air traffic at DEN set a record in 2015, serving 54 million passengers and making it the busiest year for passenger traffic in Denver's aviation history. It was also the eighth consecutive year with more than 50 million passengers. The number of passengers traveling on international flights also continues to grow, experiencing 32% growth since 2012. The first half of 2016 was the busiest six months in history at DEN, servicing 27.5 million passengers, a 6.8% growth compared to the first half of 2015.

DEN's international airline routes remain strong in 2016, with a new nonstop flight to Munich being added in addition to current nonstop service to Canada and Mexico/Central America, as well as daily flights to London, Frankfurt, and Tokyo and seasonal daily flights to Reykjavik, Iceland.

DEN received significant accolades in 2016. It was named the ninth-best large airport in the world by Skytrax, the only U.S. airport to make the Top 10.

Regional Transportation District

FasTracks is a multibillion dollar transit plan to build 122 miles of new commuter rail and light rail, 18 miles of bus rapid transit, and 21,000 new parking spaces at light rail and bus stations. Downtown Denver's Union Station is a hub for rail lines that will branch out to all parts of the metro region. Currently, RTD has 105 miles of rail and bus rapid transit completed or under construction and has invested $4.7 billion in the region.

Current progress includes:

- Direct commuter rail service from DEN to Union Station began in April 2016 with trains leaving as often as every 15 minutes for a 37-minute trip to the heart of downtown. This service addressed one of the chief complaints from meeting planners about Denver's meeting package.
- Commuter rail to Westminster on the new B Line began in July 2016. New rail lines will open to Wheat Ridge (G Line) in fall 2016 and Aurora via I-225 (R Line) in winter 2016. A new North Line to Thornton will open in 2018.
- Commuter bus service from Denver to Boulder on dedicated lanes was also added in 2016.

Skiing Industry

According to the National Ski Areas Association (NSAA), the United States recorded 52.8 million downhill skier and snowboarder visits during the 2015–16 season, down from 53.6 million visits during the 2014–15 season, primarily because of a lack of snow in the Northeast, Southeast and Midwest.

By contrast, Colorado's 30 ski areas saw a third consecutive record of 13.1 million skier/snowboarder visits in the 2015–16 winter season. Visits were up 3.7% from the 2014–15 season. Despite only average snowfall, Colorado resorts benefited from well-timed storms that provided consistent snow conditions, as well as a steadily improving state and national economy and robust travel sector generally. Strong season pass sales; a now well-established reputation for reliable, consistent snow conditions relative to other parts of North America; resort investments in the on-mountain experience; increased seats into some mountain airports; and improvements along the I-70 corridor, among other factors, contributed to the sizeable uptick. Visits were up among both in-state visitors and among the economically important out-of-state/international visitor segment, which is a testament to Colorado's reputation for reliable snow conditions.

Colorado continued to maintain its dominance as the leading skiing destination in the nation in 2015–16, capturing 24.9% of total U.S. resort skier visits—far ahead of the next closest states (California at a 12.2% share and Utah at an 8.3% share). Colorado is home to 7 of the country's 10 most visited ski resorts in 2015–16 and has 12 of the 20 top-rated ski resorts in western North America (as ranked by the 2017 *SKI Magazine Resort Guide).*

The Colorado ski industry, like the North American resort industry generally, has been characterized by relatively flat to modest visitation growth over the past several seasons, with snow conditions and the economy having an important influence on visits and revenues year-to-year. While Colorado maintains a preeminent position within the skiing industry, evolving generational preferences, vigorous competition from ski resorts in other states and from other vacation and leisure options, climate change, concerns about the impact of congestion and travel delays along the I-70 corridor, and the strong U.S. dollar remain top of mind for Colorado resorts.

With record visitation in 2015–16, Colorado resorts have strong momentum going into the 2016–17 ski season. Additionally, resorts are likely to benefit from a relatively strong, improving macroeconomic environment (an important influence on visitation, visitor mix, and spend per visitor). Early indicators of business volumes are favorable, including announcements of strong preseason pass sales from leading ski resort companies and new flights adding capacity to mountain airports from key domestic destinations. Resort town lodging bookings for the 2016–17 season as reported by DestiMetrics are pacing strongly ahead of the previous season. A late Easter in 2017 (April 16) may reduce spring break visitation from some international markets, as will the strong U.S. dollar. Weather remains uncertain as the National Oceanic and Atmospheric Administration's October 20, 2016, climate outlook anticipates that the La Niña climate phenomenon is likely to develop in late fall or early winter, although if it does materialize it is expected to be weak and potentially short lived. La Niña favors drier, warmer winters in the southern United States and wetter, cooler conditions in the northern part of the country. Located between these northern and southern regions, Colorado and its snow and weather advantage relative to other western ski regions is unknown.

While Colorado's downhill snow sports visits climbed 3.7% in 2015–16 from the prior season, the revenue impacts were slightly greater as reflected in the sales tax collections of ski towns. Taxable sales rose 4.4% in winter 2015-16 (i.e., November through April) from winter 2014-15 across a selection of nine ski communities, fueled by more visitors and higher average spend per visitor.

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The importance of skiing to the economies of ski resort communities is evident in the seasonality of retail sales. Across the same sample of nine ski communities, the six-month November–April period accounted for 61% of annual taxable sales in the most recently reported 12-month period, with skiing the dominant reason for the winter sales peak. Sales in tourism-impacted sectors exhibit a particularly pronounced winter peak, including lodging, food services and drinking places, retail trade and real estate, rentals, and leasing services (e.g., condominium rentals).

The summer period (May–October) is also important to ski resort communities, accounting for a lower, secondary peak in ski towns. The lower summer sales volumes are typically due to a combination of lower spend per visitor and lower volumes of key visitor segments (particularly paid lodging guests as lodging occupancies are typically lower in summer than winter). However, summer sales activity has also been growing strongly, increasing 8% across the selected communities in the May–August 2016 period after climbing 7% in summer 2015 year-over-year and by 12% in summer 2014. Ski resort communities are increasingly looking at summer as a growth opportunity by leveraging a wide variety of activities and offerings and pursuing new types activities as enabled by the 2011 Ski Area Recreational Opportunity Enhancement Act, which allows for more recreational uses on public land.

Parks and Outdoor Recreation

Millions of people each year, both residents and out-of-state visitors, take advantage of Colorado's extraordinary outdoor recreational opportunities. Colorado offers outdoor enthusiasts a variety of recreational pursuits, including hiking, fishing, birding, camping, climbing, hunting, mountain biking, motorized trails, boating, and skiing to name a few. Outdoor recreation remains a significant contributor to the Colorado economy.

Public Lands

Public land constitutes more than 45% of Colorado and accounts for the majority of outdoor recreation. The Colorado Division of Parks and Wildlife (CPW) manage 42 state parks throughout the state. State parks are on track to set a new visitation record by surpassing 13.8 million visitors in 2016, an increase of 4%.

In Colorado, the national park system manages four premier national parks, five national monuments, a national historic site, and a national recreation area. In 2016, the National Park Service (NPS) celebrated its centennial. Significant effort was spent in promoting national parks across the nation that resulted in record visitation. In Colorado, national park lands will record about 7.5 million visitors in 2016, an increase of 5%. Additionally, the Bureau of Land Management lands will have 7.8 million visitors and U.S. Forest Service lands record more than 25 million visitors per year (skiing accounts for 8.5 million visits), with the White River National Forest accounting for nearly half of all national forest visits in Colorado.

Wildlife-Related Recreation

Wildlife-related recreation continues to be an important part of the state's economy, especially in rural communities, contributing more than $5.1 billion in total economic impact and supporting more than 46,000 jobs. Angling remains a popular pastime and is often seen as a gateway to other outdoor activities, such as boating, hiking, and hunting (*The 2014 Colorado Statewide Comprehensive Outdoor Recreation Plan [SCORP] 2014)*. The number of people who fish has been increasing over the last several years, and the growth should continue. In 2015, CPW sold 1.1 million licenses and stamps.

Resident and nonresident big game hunters each contribute about $300 million to Colorado's economy yearly. Hunting in Colorado has been slowly declining for many years. Although this decline follows national trends, the reasons for Colorado's decline are complex. As big game populations reach population objectives, CPW issues fewer licenses. However, the numbers of hunters applying for big game hunting licenses in the annual draw/lottery are increasing slightly, indicating that the demand to hunt in Colorado is greater than the supply. In 2015, Colorado Parks and Wildlife issued 531,000 hunting licenses.

Bicycling

Bicycle tourism in Colorado is on a "roll" to say the least, with out-of-state visitors who participate in cycling activities contributing an estimated $448 million to Colorado's economy. Bike tour outfitters offering in-town cruises, mountain bike rides, and multiday packages of all types and levels are popping up all over the state, especially along Colorado's Front Range. In fact, one Boulder-based operator noted that before it launched in 2008, there was not a single bike tour company in the county. In contrast, there are now more than a dozen. Many of the Front Range companies have reported healthy growth in 2015, staggering growth in 2016, and even higher expectations for 2017, particularly in the number of clients served but also in number of distinct tours offered.

A plethora of large-scale improvements is planned for Colorado's bike paths, information resources, and promotional efforts, which should benefit individual bike tour operators as well as entire towns. Playing a central role in this myriad of improvements is the $100 million Colorado Pedals Project. This is a bold, four-year initiative to make Colorado the best state in the nation to ride a bike. As part of the Colorado Pedals Project, Great Outdoors Colorado (GOCO) also pledged to spend $30 million over the next five years to improve the connectivity of Colorado's off-road trails and paths across the state. In 2016 alone, the Connect Initiative has aided in the completion of 16 trails in Eagle County and much of the Denver Metro area. These community connector trails will provide residents and visitors with free access to safe, nonmotorized trails connecting them to destinations and a variety of outdoor activities across the state.

Outdoor Recreation Opportunities

In 2015, Governor Hickenlooper announced Colorado would build the most comprehensive outdoor recreation map ever created in the state, including all trails, open spaces, parks, and protected lands, with publication planned in 2016. The vision is to have every Coloradan live within a 10-minute walk to a trail, park, or open space. The effort will position Colorado to continue to be an outdoor recreation leader and an important destination for adventure travel tourism.

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COLORADO PUBLIC LAND VISITS
2008–2017
(In Thousands)

	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[b]
Colorado State Parks[c]	11,800.0	12,000.0	12,300.0	12,300.0	12,200.0	11,500.0	11,900.0	13,200.0	13,883.3	14,056.7
National Parks and Sites										
Bent's Old Fort NHS	25.0	28.1	29.1	26.8	25.8	23.3	24.6	23.2	28.1	26.4
Sand Creek Massacre NHS[d]			4.1	3.9	4.4	4.8	7.4	5.9	5.8	6.8
Black Canyon of the Gunnison NP	160.2	171.5	176.3	168.3	192.6	175.9	183.0	209.2	221.6	223.9
Colorado NM	391.0	400.3	433.6	435.5	454.5	409.4	419.9	588.0	622.3	653.1
Curecanti NRA	1,007.4	953.2	969.5	924.5	862.6	814.2	931.4	944.7	955.3	996.4
Dinosaur NM[e]	149.3	150.9	146.4	158.0	224.1	203.1	185.4	215.9	222.6	213.2
Florissant Fossil Beds NM	57.0	64.3	65.4	61.3	62.6	58.0	63.3	69.1	68.5	71.1
Great Sand Dunes NP	273.9	290.0	283.3	280.1	254.7	242.8	271.8	299.5	361.8	367.4
Hovenweep NM[e]	11.2	12.3	12.1	11.4	11.7	11.0	11.8	15.4	17.6	18.4
Mesa Verde NP	551.4	550.4	559.7	572.3	488.9	460.2	501.6	547.3	572.2	590.2
Rocky Mountain NP	2,757.4	2,822.3	2,955.8	3,176.9	3,229.6	2,991.1	3,434.8	4,155.9	4,461.0	4,742.8
Total Visitors to Parks and Sites	5,383.8	5,443.3	5,635.3	5,819.0	5,811.5	5,393.8	6,035.0	7,074.2	7,536.8	7,909.6
Bureau of Land Management	6,000.0	5,576.0	6,448.0	6,844.0	7,310.0	6,963.0	7,536.0	7,694.0	7,847.2	8,011.7
National Forest[f]	24,000.0	24,000.0	27,000.0	27,000.0	27,000.0	27,000.0	27,000.0	27,000.0	27,000.0	27,000.0
Total Public Land Visitation[g]	47,183.8	47,019.3	51,383.3	51,963.0	52,321.5	50,856.8	52,471.0	54,968.2	56,267.4	56,977.9

[a]Estimated. [b]Forecast. [c]42 state parks managed by Colorado Parks and Wildlife. [d]Sand Creek Massacre NHS was dedicated as an official park unit in April 2007.

[e]Dinosaur NM and Hovenweep NM cross into Utah, but the number of visitors reported in this table is only for the Colorado portion of the parks.

[f]Yearly visitor numbers were not available; reported numbers based on limited data.

[g]Due to rounding, the sum of the individual items may not equal the total.

Note: Yucca House National Monument does not report visitations, therefore it is not included.

Definition: NHS = national historic site, NP = national park, NM = national monument, and NRA = national recreation area.

Sources: National Park Service Visitor Use Statistics and Colorado Business Economic Outlook Committee.

Additionally, the momentum from the NPS centennial celebration is likely to continue into 2017. Although growth may not be as steep, indications suggest that visitation to both state parks and national parks will increase in 2017.

Casinos

Colorado's casino and gaming industry celebrates its 25th anniversary of casino openings in 2016. The industry continued to enjoy upward growth in 2015 and 2016 now that the residual effects of the recession have diminished and Colorado is experiencing record tourism visitation. New ownership of properties and ongoing capital construction projects in Central City and Black Hawk have increased the market to some extent, and Colorado's gaming towns (Black Hawk, Central City, and Cripple Creek) are exploring nongaming amenities to increase visitation. The City of Black Hawk has broken ground on an extensive nongaming retail project on the section of Gregory Street that connects Black Hawk and Central City, and is adding extensive hiking and biking trails to attract more visitors to the area. Several casinos in Cripple Creek have plans to add or expand existing hotel rooms to provide more lodging for leisure travelers. Over the last few years, the industry, through legislation and local ordinance changes, has been able to expand its liquor service to coincide with casino operating hours, which has provided an enhanced experience for guests.

Since the industry is taxed on gross revenues rather than net revenues, the industry continues to honor its commitment to the recipients of gaming tax revenues, such as the state's historic preservation program and the community college network that continue to receive significant revenues. These gaming tax revenues help bolster their budgets and maintain their commitments to preserving Colorado landmarks, as well as assuring students a quality higher education. The gaming tax also continues to fund a significant percentage of the tourism promotion budget for the CTO.

For the fiscal year ending in June 2016, Colorado casino adjusted gross proceeds (AGP), which is defined as the amount wagered by bettors less payout from the casinos, were $802.7 million, and gaming taxes paid to the state were $116.2 million. This reflects an increase of 5% in AGP over FY2015 AGP of $766.2 million and a 6% increase in gaming taxes over the FY2015 taxes of $110.1 million.

Black Hawk continues to dominate the Colorado casino sector with 17 casinos, approximately 8,000 gaming devices, and about 75% of the industry's AGP. Cripple Creek has 12 casinos, roughly 3,700 gaming devices, and 17% of AGP; Central City has 6 casinos, 1,900 devices, and about 8% of AGP.

The gaming industry is experiencing a long-awaited upward trend in revenues. While gaming activity is isolated in three cities in Colorado, there are continued attempts to expand gaming to the Front Range, either by authorizing video lottery terminals and keno machines, or instant racing machines at racetracks and other locations. A ballot initiative in November 2014 to allow slot machines at Arapahoe Racetrack lost 71% to 29%. The industry's annual polling on these types of gaming expansion continues to reflect that 75% of state voters oppose casinos located outside the historic towns of Black Hawk, Central City, and Cripple Creek. However, the Colorado gaming industry continues to work with regulators to update existing rules to maximize revenues to the state and its gaming recipients. The Colorado casinos also stay abreast of the rapid advances in technology in gaming equipment, which will allow the industry to attract a younger generation of players to its casinos and remain an exciting and attractive entertainment experience for Coloradans.

Restaurant Industry

Colorado's restaurant industry remains on a positive trajectory with seven consecutive years of sales growth. Fueled by steady job growth and elevated pent-up demand among consumers, Colorado's restaurant industry is once again projected to register sales of more than $11 billion in 2016. According to Colorado Department of Revenue data, 2015 saw $11.6 billion in restaurant sales in Colorado, a 7.6% increase over 2014, and 38% growth since 2010. Colorado boasts 11,247 eating and drinking establishments and nearly 280,000 employees that account for more than 10% of Colorado's workforce.

Thanks to the resilient American consumer, the overall restaurant industry is growing for now. This can be attributed to several factors.

1. Labor Market Remains Healthy. The number-one driver of restaurant sales is a healthy labor market. When people are employed, they have both the income to support spending as well as the daily need for the convenient food and beverage options that the restaurant industry provides.

While the current economic expansion has generally lacked explosiveness nationally, Colorado continues to outperform national economic growth, and the state has seen employment gains of at least 3% each year for the past three years. Job growth is on pace for positive, but slower growth in 2016. The restaurant industry has never contracted without a corresponding decline in the labor market.

2. Wage Growth is Picking Up. Although nationally wage growth has been noticeably stagnant during the current expansion, there are signs that it is finally starting to pick up. According to the Bureau of Labor Statistics, average

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hourly earnings for all private-sector employees were up 2.6% between the third quarters of 2015 and 2016 nationally. This represented the strongest four-quarter growth since mid-2009, though it was still below the mid-3% gains posted before the recession. The good news for Colorado is that it continues to post faster economic growth than the nation. If wages continue to rise and inflation remains modest as expected, consumers will have more disposable income to support additional discretionary spending.

3. Households Have Some Breathing Room. Household debt is rising steadily. Total revolving credit balances are more than three-quarters of a trillion for the first time since 2008, according to data from the Federal Reserve. However, a key difference between now and eight years ago is the fact that households are much more equipped to handle this level of debt. The Federal Reserve's Financial Obligations Ratio, which is the ratio of total required household debt payments (plus rent on primary residences, auto lease payments, insurance, and property tax payments) to total disposable income, is nearly three points below 2008 levels and hovering near an all-time record low.

Households are also building up a financial cushion, with savings rates in recent months roughly double what they were just prior to the Great Recession. Consumers also continue to benefit from relatively low gas prices, as well as grocery store prices that are on pace to decline for the first time since 1967. These all put additional disposable income in the pockets of consumers.

4. Pent-up Demand Remains Elevated. Although overall sales are trending higher, consumers have yet to get their fill of restaurants. According to a national survey conducted in September 2016 by ORC International for the National Restaurant Association, 45% of adults say they are not eating on the premises of restaurants as frequently as they would like. Similarly, 48% of consumers say they are not purchasing take-out or delivery as often as they would like. As households with income above $100,000 are responsible for $4 of $10 spent in restaurants, any degree of unfulfilled demand is an encouraging sign for the industry in the months ahead.

While there is always some degree of unfulfilled demand for restaurants, the current levels are well above historical norms. In the mid-2000s, only about one in four adults said they were not eating at restaurants as often as they would like—or just over half of the level that exists today.

5. Consumers Crave Experiences. In the aftermath of the Great Recession, consumers became very selective in their spending habits, which resulted in some sectors doing much better than others. One of the reasons the restaurant industry held up relatively well during a challenging economic environment was the shift in consumers' spending habits toward experiences.

When given the choice of how they would spend an additional $100 if they had it, more than 4 in 10 adults said they would spend it on an experience such as a restaurant or other activity. Fifty-eight percent say they would be more likely to purchase an item from a store. Among consumers in households with income above $75,000, one-half said they would be more likely to spend the extra $100 on an experience.

Other Trends Occurring in the Restaurant Industry

Restaurant operators are facing a number of challenges in the business environment from legislative and regulatory pressures, to labor cost increases and cybersecurity. Both new and old issues will challenge already thin profit margins and muddle operating procedures. Recruitment and retention of employees will reemerge as a top challenge for restaurant operators as a tight labor market means greater competition with other industries for employees. The long-term trend of quick-service sales growth outpacing table-service sales growth will maintain its momentum, along with strong growth of snack and nonalcoholic beverage bars. The availability of technology options is starting to move from novelty to expectation among many consumers. Mobile payment is gaining acceptance, and this technology is advancing faster than other areas. Security and convenience are converging on mobile payment systems, and more consumers are using, or would use, that option if available. Today's typical restaurant guest has higher expectations of their dining experience and pays more attention to everything from diet-specific food, to sustainability, to food sourcing and production. ✤

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Other Services

The Other Services Supersector comprises establishments that provide services not specifically categorized elsewhere in the classification system. As a result, the three sectors under this category are highly fragmented and diverse. Car washes, beauty salons, religious organizations, funeral homes, grantmaking foundations, and labor unions are some examples of the type of industries in the Other Services Supersector. In 2015, more than 14,000 businesses were classified in the Other Services Supersector. Industry growth is influenced by the demographics of the population, disposable income, and strong consumer confidence. In 2015, Colorado total employment for this supersector was approximately 103,000, up 2.3% from the previous year. The supersector is expected to end 2016 with just over 105,000 jobs and add another 2,400 in 2017, a 2.1% gain. The improvement continues to be attributable to the increase in jobs from the repair and maintenance subsector.

Religious, Grantmaking, Civic, Professional and Similar Organizations

Industries in the Religious, Grantmaking, Civic, Professional and Similar Organizations subsector group are establishments that organize, support, and/or promote various professional, social, and political causes. It is the largest industry in the Other Services Supersector, employing more than 50% of the workforce. Establishments in this subsector include various labor unions, nonprofits such as the Denver Dumb Friends League and the Boy and Girl Scouts organizations. The sector also contains social advocacy and political organizations. As a result, employment in this sector increases in election years as political groups hire more workers. In 2015, job growth in this subsector was relatively flat compared to the previous year. However, it is expected to grow 1.2% in 2016 primarily from jobs added for the elections. The sector is anticipated to continue to add jobs in 2017, but at a slower pace from the previous year.

Denver's International Business Cluster

Colorado is emerging as a hotbed of international business and innovation. The quality of life, presence of a major international airport, attractive business environment, and progressive worldview of many residents makes Colorado a natural destination for international work. For example, there are over 200 organizations in Colorado actively confronting the most pressing problems faced by humanity around the world—economic growth, infrastructure development, education, food security, reliable energy, public health, and more. Numerous networks and business organizations have emerged to support these burgeoning international connections.

One of these networks, the Posner Center for International Development, opened the doors of its renovated horse barn in 2013 to provide a home to Colorado's international development industry. Today, the Posner Center is at capacity with 60 tenant organizations and businesses and engages a network of an additional 100+ members around the state. Tenants access shared resources, including meeting and conference space, video conferencing technology, and other amenities that support international communication and collaboration. The building operates sustainably with income generated from rent, and the Posner Center raises funds to offer capacity-building programs. These include trainings for employees, facilitated networking and knowledge-sharing events, and a small grants program that funds collaborative partnerships between Colorado-based international organizations.

When surveyed at the end of 2015, 79% of tenants said that the Posner Center helped them form stronger networks, 79% said they learned from other tenants, 75% said their organizational visibility was increased, 74% said they collaborated more, and 73% said staff morale was improved. Collaboration, measured by an increase in "collaboration partnerships" before and after moving into the Posner Center, also increased, by 288%.

In addition to convening the existing network of international development players in Colorado, the Posner Center draws employees of international organizations who have the flexibility to work remotely and a desire to live in Colorado. The Posner Center offers them the space to effectively do their work and tap in to a vibrant community of potential partners. As a one-of-a-kind model, the Posner Center is attracting the attention of government agencies, corporate partners, and large international organizations, as well as networks of international organizations in other states looking to advance their own international development industries. The Posner Center has the potential to use its Colorado-grown model to influence the international development industry around the world.

Repair and Maintenance

The Repair and Maintenance Sector encompasses businesses that provide repair and maintenance services for automotive, commercial machinery, electronic equipment, and household goods. This subsector has been the fastest-growing area in the supersector over the last two years. Longer vehicle ownership has increased demand for services in this sector. It is expected to end 2016 with 25,300 total jobs, up 2.4% from the previous year. Job growth is expected to continue to improve in 2017.

Personal and Laundry Services

Industries in the Personal and Laundry Services Sector are vastly diverse. They include firms that provide services such as hair, nail, and skin care; death care (i.e., funeral homes and cemeteries); dry cleaning (including coin-operated); pet care (except veterinary); photofinishing; and parking lots. Industry growth in this sector is based on changes in population, income, and consumer confidence. The sector grew 4.3% in 2015 and is expected to end 2016 with 27,200 total jobs, a 3.6% increase from the previous year. The improvement is from demand for personal services, such as pet amenities and salons. In addition, an aging population provides an expanding customer base for many of these services. ✤

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OTHER SERVICES EMPLOYMENT, 2008–2017
(In Thousands)

Year	Repair and Maintenance Services	Personal and Laundry Services	Religious, Grantmaking, Civic, Professional, and Similar Organizations	Total
2008	22.7	23.6	48.6	94.8
2009	21.5	22.6	49.6	93.7
2010	21.4	22.2	48.9	92.4
2011	21.6	22.6	49.4	93.7
2012	22.0	23.2	50.8	96.0
2013	22.5	24.1	51.1	97.7
2014	23.4	25.2	52.1	100.7
2015	24.7	26.3	52.1	103.0
2016[a]	25.3	27.2	52.7	105.2
2017[b]	26.0	28.4	53.2	107.6

[a]Estimated. [b]Forecast.

Note: Due to rounding, the sum of the individual items may not equal the total.

Sources: Colorado Department of Labor and Employment, and Colorado Business Economic Outlook Committee.

Government

The Government Supersector includes federal, state, and local workers and is the second-largest provider of jobs in Colorado, representing roughly one in six jobs. Government activities include a variety of services ranging from space research and technology to public safety, program administration, and education.

In 2015, Government employment in Colorado increased 2%, to 416,700, representing 60% local government (including K–12 education), 27% state government (including higher education), and 13% federal government. Government employment is expected to increase 1.7%, to 423,700, in 2016, then rise 1.1%, to 428,400, in 2017.

Government employment is impacted by a variety of factors. The biggest influence on federal government employment has been the federal budget that has impacted the budgets of federal agencies, national laboratories, and the military. The federal budget is expected to continue to restrain federal government employment growth over the next couple of years. Growth in state government employment will be affected by a tight state budget environment. The natural resource sector of the economy has slowed revenues from severance, corporate income, individual income, and use taxes. Local government employment has largely recovered from the Great Recession and is expected to grow at about the same rate as the state population. Higher property values will relieve some of the pressure on school district budgets, allowing them to continue adding staff over the next couple years.

Federal Government

The U.S. Government Accountability Office's Federal Fiscal Outlook Report and the Congressional Budget Office's (CBO's) 2016 Long-Term Fiscal Outlook provide similar conclusions that there is a continued need to inform near-term budget decisions with the projections that the United States will face unsustainable federal debt levels by 2040. Under current law federal debt will reach 100% of GDP in 25 years, and "would have significant negative consequences for the economy in the long-term and would impose significant constraints on future budget policy." As the CBO states, "the sooner significant deficit reduction was implemented, the smaller the government's accumulated debt would be; the smaller the policy changes would need to be to achieve the chosen goal; and the less uncertainty there would be about what policies might be adopted."

According to the CBO, government spending is expected to be 21.1% of GDP in 2016 and average 27.2% of GDP between 2037 and 2046. The two main drivers of this imbalance are the retirement of baby boomers who will increasingly live longer and will continue to rely on federal programs, such as Social Security, Medicare, and Medicaid, and the increased costs of major health care programs. During this period, the number of people age

GOVERNMENT EMPLOYMENT IN COLORADO
2008–2017
(In Thousands)

Government Sector	2008	2009	2010	2011	2012	2013	2014	2015[a]	2016[b]	2017[c]
Federal	52.4	53.5	56.2	54.9	54.6	53.6	52.7	53.4	54.1	54.1
State	87.8	90.7	93.0	95.4	97.6	107.8	109.6	112.3	114.5	116.1
State General	32.4	32.6	32.7	33.2	34.0	42.7	43.2	43.9	44.6	45.1
State Education	55.4	58.1	60.3	62.2	63.6	65.1	66.4	68.4	69.9	71.0
Local	244.0	246.3	244.7	242.6	242.6	242.3	246.3	251.0	255.0	258.1
Local General	118.9	119.2	117.9	116.5	117.2	115.1	116.4	117.7	120.1	121.0
Local Education	125.1	127.1	126.8	126.1	125.4	127.2	129.9	133.3	134.9	137.1
Government	384.1	390.5	393.8	392.9	394.8	403.7	408.5	416.7	423.7	428.4

[a]Revised. [b]Estimated. [c]Forecast.

Note: Due to rounding, the sum of the individual components of government may not equal the total.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

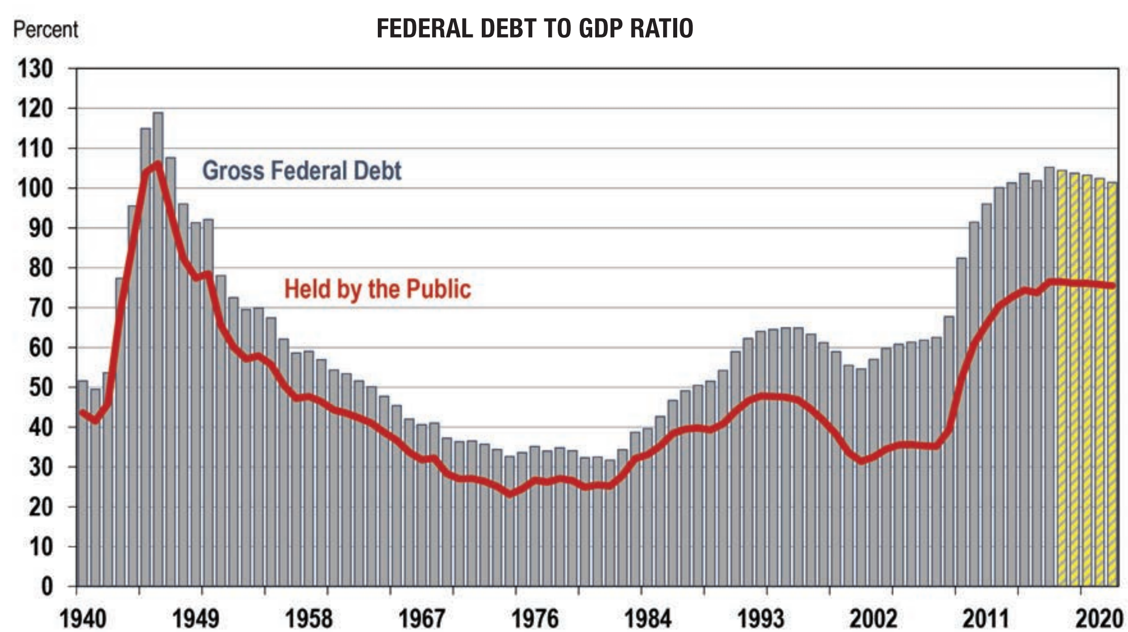
Government

65 and older is projected to increase from 46 million in 2014 to 82 million in 2040.

In order for publicly held debt to stabilize at 75% of GDP in 2046 (its current level), spending will either need to decrease, or revenue will need to increase, or a combination of the two, by 1.7% of GDP per year starting in 2017. In 2017, 1.7% of GDP is equal to about $1,000 per person, and would be equal to an 8% reduction in total government spending. If debt is stabilized solely through revenue, taxes would need to increase 9% from their current levels. If the federal government waits 10 years to enact changes to spending and revenue until 2027, the reduction would need to equal 2.7% of GDP per year so that debt is 75% of GDP in 2046.

The federal government remains one of Colorado's largest employers. More than 52,000 civilian employees work at over 250 federal field offices and a diverse mix of Department of Defense (DOD) military installations employ more than 74,000 active duty military personnel plus military contractors.

The 2011 Budget Control Act (BCA) and the subsequent Bipartisan Budget Act of 2013 will continue to hold federal employment relatively flat in 2016, while reducing funding levels in Colorado for research institutions and laboratories and limiting many public service programs. As a result, federal employment is projected to increase modestly in 2016 and remain flat in 2017. Nationwide, federal employment should also remain relatively stable but generational workforce shifts may begin to bring an increase in overall federal employment as higher-paid baby boomers retire and are replaced with lower-wage millennials. As this generational shift in the federal workforce begins, it will test the ability of federal agencies to successfully implement succession policy plans that address this generational transition in order to attract and retain highly qualified federal workers in Colorado and around the nation as the baby boomer generation continues to move into retirement.



Sources: Office of Management and Budget, Federal Debt at End of Year (Table 7.1).

As of October 1, 2013, the 2011 Budget Control Act (BCA) required the federal government to reduce spending by $109.3 billion in FY2014—half from defense programs and half from nondefense spending. In December 2013, the Bipartisan Budget Act of 2013 made additional changes to the mandated sequestration. It set new caps that keep defense and nondefense discretionary levels basically flat from FY2014 through FY2016. The act also extended the mandatory sequester for two years, through FY2023. In 2016, the BCA caps for defense will rise from $521 billion to $523 billion, a continuation of the nominal freeze for the base budget. While unlikely, under BCA there is the possibility for sequester to be triggered.

Due to sequestration, the DOD—the largest federal agency in Colorado—is anticipating a 15% reduction in the military and civilian workforce over the next decade. Although it is trying to absorb the cuts through retirements and attrition, the DOD may have to resort to reductions in the workforce and buyouts. Similar to the DOD, the U.S. Postal Service continues to face significant financial challenges, including shrinking revenues due to declining mail volume. The agency's financial difficulties are partially the product of reduced demand; it has experienced a nearly 22% drop in mail volume during the past decade. As a result of tighter budgets, federal agencies are responding by eliminating some services, hiring fewer new employees, and reducing staff hours.

Although not immune to sequestration, federally funded science and research centers located in the state continue to generate significant employment and economic impacts. Colorado has 30 federal laboratories—one of the highest concentrations of federally funded science

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and research centers in the nation. These laboratories employ nearly 7,970 direct workers who earn a total of $787.2 million in wages and benefits and generate more than $2.3 billion annual economic impact to Colorado. The labs also contribute greatly to the state's high-tech industries, stimulating significant tech-transfer opportunities for higher education and area companies in critical areas such as renewable energy, space science, and natural resource management.

State Government

State government employment growth in Colorado has followed very stable trends over the past decade, slowing substantially only during the Great Recession as falling tax revenue sharply limited state resources. Although revenue growth following the recession has allowed state employment to steadily increase, constitutional spending restraint will put pressure on the state budget in the next few years.

Although growing state revenues have supported hiring growth since 2011, specific elements of Colorado law restrict the amount of revenue the state can retain and thus will limit the rate of state government hiring in coming years. A unique provision of the Colorado constitution, referred to as the Taxpayer Bill of Rights (TABOR), specifies a limit on the amount of revenue that can be collected and retained by Colorado governments. The cap on revenue collections is allowed to grow each year by no more than the sum of the rates of Colorado's population growth and inflation. A little over $210 million will be transferred from the state general fund to transportation and capital construction projects in FY2016–17, which limits the amount of revenue available for other state services. In addition, there will be pressure on the general assembly to find more state money for education contributing to tight budget conditions for the next several years.

State government employment, excluding higher education, is expected to increase 1.6% to 44,600 jobs in 2016. State government employment is anticipated to average 45,100 per month in 2017, a growth rate of 1.1%.

Higher Education

Employment in Colorado's higher education accounts for slightly more than 60% of total state government employment. These workers include both part-time and full-time faculty and nonfaculty staff. Employment in the state's higher education increased 2.7% in 2015, showing modest growth from the prior year. State higher education employment is anticipated to rise 2.5% in 2016 and 1.7% in 2017.

Higher education enrollment is countercyclical, meaning more students attend school when it is difficult for them to find jobs. During the recession, enrollment at public higher education institutions grew 9.1% in the 2009–10 school year and higher education employment increased 4.9%. The growth rate for higher education enrollment has backed off those highs, and has decreased for the past three school years. Enrollment at the state's two largest universities, the University of Colorado and Colorado State University, continues to increase, while enrollment at smaller colleges and universities fell in 2015.

Colorado's higher education system includes 31 public institutions of higher education, 354 private occupational schools, and 103 degree-granting private colleges and religious training institutions. The 60,354 degrees or certificates awarded by these institutions during the 2015–16 academic year represented a 3.9% increase over the prior year. Of the degrees earned, 43.9% were bachelor's, 22.4% were certificates, 16.3% were associate's, and 17.3% were graduate or professional degrees.

Local Government

General

Local governments generally derive their revenues from property taxes, sales and use taxes, fees, and intergovernmental sources. More than 3,000 local governments in Colorado provide a variety of services through counties, school districts, special districts, cities, and towns. Their powers and duties are defined by state law and range in authority from overseeing K–12 education, maintaining park programs, providing public safety, serving judicial functions, and regulating land use. State and federal governments transfer various revenues to local governments, such as state-collected highway revenues derived from gas tax and motor vehicle registration fees that are transferred to counties and municipalities. A state-run lottery returns net proceeds back to parks and recreation districts for open space and recreation improvements. The most significant state-funded program, the School Finance Act, annually appropriates state revenues to public school districts. The majority of revenue available to local governments is collected locally in Colorado through property and sales and use taxes. Although the availability of federal and state grant funding continues to decline, local governments in Colorado apply for grants if the program's purpose and conditions fit local government needs and priorities.

The most significant source of local revenue for cities and counties is sales and use taxes. Sales tax collections continue to improve since the great recession, which has helped local governments improve their fiscal health. Despite growth in recent years, the sales tax base has been eroding because households spend a larger portion of their income on services that are not taxable. Contributing further to the erosion is the fact that catalog and internet purchases made from companies that have no nexus with Colorado local governments that have a sales tax do not have to collect or remit sales taxes.

Property tax collections are a primary source of revenue for counties and many special districts in Colorado. Changes to the assessed valuation of property can increase or decrease the revenues raised from each jurisdiction's property taxes. Based on recent home price appreciation, statewide property tax revenue will increase over the next couple of years. However, the recovery in market values has varied significantly among taxing jurisdictions across the state. Appreciation in residential values in the Front Range and mountain regions in the state have seen double-digit growth while the western and southern regions of the state have not seen as much appreciation. In the northern part of the state, appreciation in the value of residential property will buffer declining value of oil and gas property.

Local government employment increased 1.6% between 2014 and 2015. In 2016, local government employment is expected to increase by 1.2% as staffing requirements begin to stabilize. This slower growth rate is projected to continue in 2017 with a growth rate of 1% expected.

Education

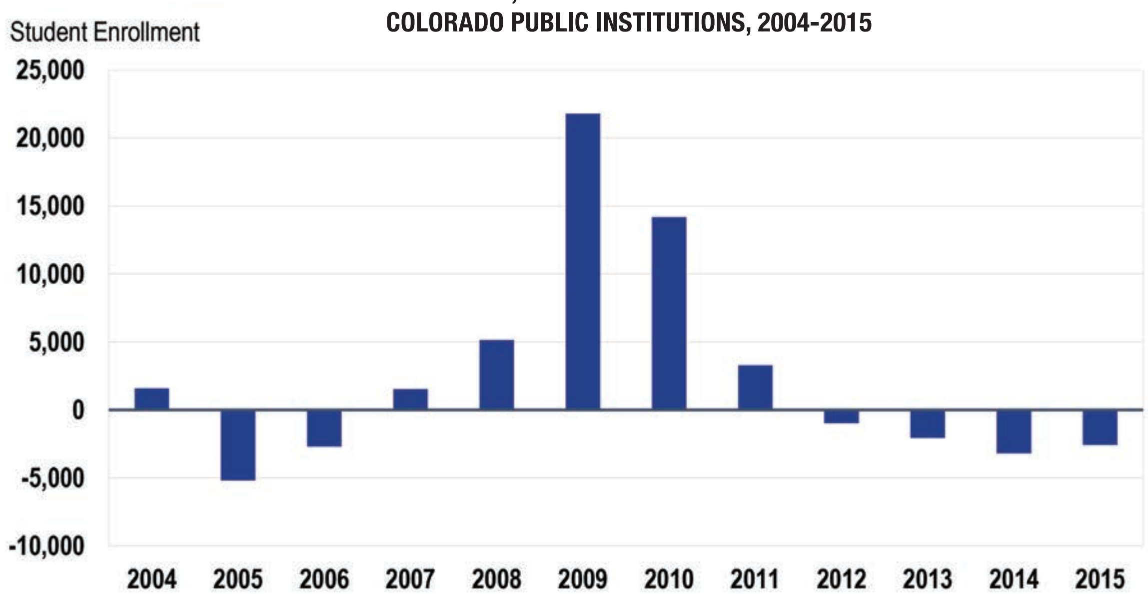
More than half of local government employees in Colorado are teachers or staff in public K–12 education. Two factors that impact K–12 employment are the number of students and the amount of funding.

The number of K–12 students increased 1.1% between the 2014–15 and the 2015–16 school years, to 898,845 students. These students include those at both traditional K–12 and charter schools. Charter schools are semi-autonomous public schools operated by a group of parents, teachers, and/or community members that operate under a contract with the local school board. In the past 10 years, charter school enrollment has increased 129% while total public school enrollment has increased 20.9%.

Another factor in determining local government employment growth is the level of funding that is available. In Colorado, the two large components of school funding are property taxes and the state general fund. In 2015, the Colorado State Supreme Court upheld the state's use of the negative factor in the school funding formula. Passed in 2000, Amendment 23 requires that per pupil funding for education increase at the rate of inflation each year. The funding consists of two components, base and factor. Base funding is applied evenly to all pupils while factors adjust per pupil funding by variables such as district size and cost of living. Positive factors would increase per pupil funding while negative factors would decrease per pupil funding. During the recession, the General Assembly introduced the negative factor as a way to balance the budget and interpreted Amendment 23 to only require "base" per pupil funding to increase by the rate of inflation each year. As a result, overall per pupil funding is lower in FY2016–17 than FY2009–10. The negative factor reduces money available to schools but gives the General Assembly more flexibility in providing other services. The school funding formula requires that each school district have a minimum number of mills, but school boards can ask voters to override this minimum number of mills and pass mill levy overrides. A majority of school districts in Colorado (117 out of 178) have mill levy overrides.

Property values are growing as the housing market recovers from the Great Recession, which is reflected in the assessed value of residential property. However, the Colorado constitution limits the growth in residential property values by requiring the share of residential and nonresidential property is constant each year. This is achieved by adjusting the residential assessment rate every two years. The residential assessment rate is expected to decline for the first time since 2003, which will dampen the growth in property taxes paid by residential property owners. In addition, weakness in the oil and gas sector will have a large impact the local property taxes paid in several school districts.

HIGHER EDUCATION, CHANGE IN ENROLLMENT LEVELS IN ALL COLORADO PUBLIC INSTITUTIONS, 2004-2015



Source: Colorado Department of Higher Education.

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Government

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10 years, charter school enrollment has increased 129% while total public school enrollment has increased 20.9%.

The state general fund is facing other demands to fund health care, corrections, transportation, and other state government services. While the state's share of education funding is the largest appropriation in the state budget, there is limited room to increase state spending on K–12 education because of other needs in the budget.

The number of public and charter school students is expected to continue increasing, which means the demand will increase for school faculty and staff. An improving revenue outlook will provide school districts with the finances to make those hires. As a result of these trends, local government education employment will grow 2.1% in 2016 and 1.8% in 2017. ✤

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International Trade

Overview

Colorado has averaged 0.5% of the total U.S. exports for the last five years, and 2016 will be no different. The average growth over the last five years is negligible, with the overall revenue in 2016 projected to be $7.2 billion. This is down 1.3% from 2011, and represents an 8.9% decrease in export revenue from the prior year. In comparison, the United States as a whole has seen a 5.6% decline in export revenue. The numbers indicate that there was a slight uptick in exports over the summer months, but there is no evidence that this trend will continue.

The strength of the dollar, coupled with the decline of many global economies, has had a negative impact on U.S. and Colorado exports. This, combined with uncertainty, has resulted in a decline in overall investment and purchases. The United Nations has warned that the negative government sentiment toward globalization, decreased investment, and slowing demand has led to a decrease in investment. The World Trade Organization (WTO) has also stated that trade growth is at its lowest level since the financial crisis. Simply put, businesses are not spending.

The dollar continued its record surge coming out of 2015 and has remained strong in 2016; however, it weakened slightly against some currencies in Q2 2016. A spike occurred in Q3, which was followed by a decline as Brexit and global conflicts came into focus.

The strong dollar is not only an indication of how well the U.S. economy is doing, but also a reflection of the struggles experienced on a global scale. Russian sanctions continue to impact the European Union. The result of the Brexit vote has led to fear and economic uncertainty impacting overseas wealth, currency values, and investment. The value of the euro continues to sit at historic lows. Oil prices have not recovered as expected, hampering investment from the Middle East, Russia, Central and South America, and other oil-producing regions and countries. Some pressure may be alleviated, however, in late 2016 and early 2017.

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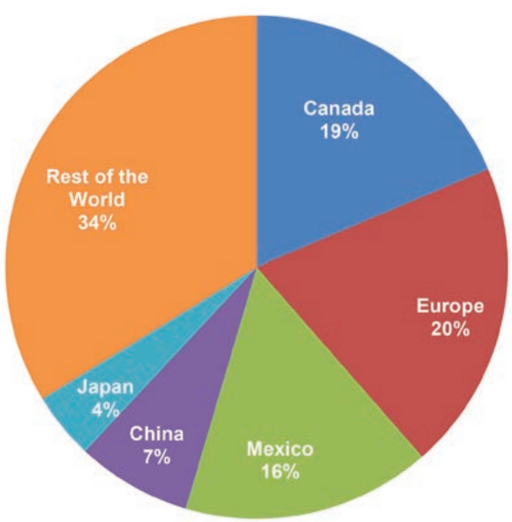
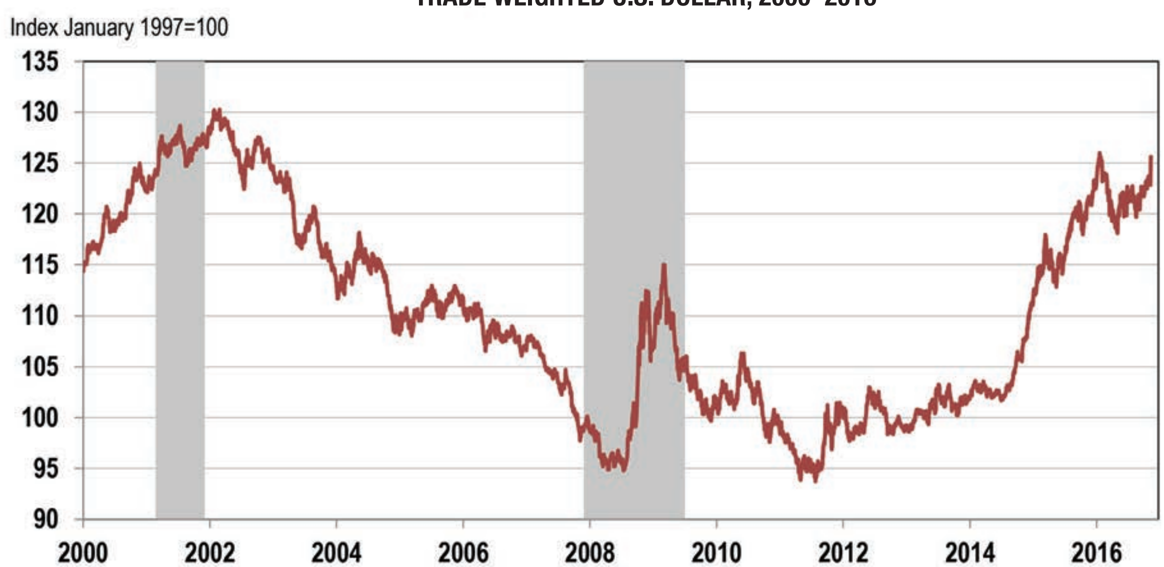
COLORADO EXPORT MARKETS SEPTEMBER 2016 YTD



Source: World Institute for Strategic Economic Research (WISERTrade).

TRADE WEIGHTED U.S. DOLLAR, 2000–2016



Sources: Board of Governors of the Federal Reserve System, Broad Dollar Index, and National Bureau of Economic Research. Data through November 10, 2016.

International Trade

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Oil prices are expected to experience a slight increase in early 2017 due to global conflicts, reduction in inventories, and OPEC production cuts. Exporters may also get a reprieve from the strong dollar starting in Q2 2017. Based on the Purchasing Managers Index (PMI), trade statistics, and U.S. economic growth figures it seems as though the global crisis may be finally impacting the United States. This could be expected to weaken the dollar against global currencies. It is not believed, however, that it will return to pre-2015 levels as the strength of global economies have not improved enough to justify a full retreat.

This should ultimately lead to an uptick for exports heading into the fourth quarter of 2017 due to sales and production cycles. This may not happen, however, if global unrest continues to add to fear. If companies are wary, they will continue to focus internally causing further stress on global markets.

A few external factors could impact Colorado's exports. The implementation of new trade agreements will not have an immediate impact, but if approved they would benefit exports long term. Global factors that may weigh on exports in 2017 include a weakening of the dollar, the pace of the global economic recovery, the status of Russian-imposed sanctions, the state of Middle East conflicts, and the reverberating impacts related to Brexit.

After increasing 3.9% in 2014, the value of U.S. imports decreased by 4.6% in 2015 and is expected to continue to decrease as investment declines and the value of imported goods decreases. Companies have continued to invest, but at a much slower pace.

The price of oil has driven down the import totals for fuels, but the difference has been offset in large part by increases in machinery, equipment, vehicles, optics, small electronics, and pharmaceuticals imports.

TOP 20 COLORADO EXPORTS
2013–2016 YTD
(In Millions of Dollars)

Description	2013	2014	2015	Aug 2016 YTD
Optic, Photo Etc, Medic Or Surgical Instrments Etc	$1,491	$1,329	$1,279	$830
Electric Machinery Etc; Sound Equip; Tv Equip; Pts	1,123	1,138	1,159	771
Industrial Machinery, Including Computers	1,480	1,208	1,207	695
Meat And Edible Meat Offal	914	1,012	852	634
Photographic Or Cinematographic Goods	310	326	312	199
Aircraft, Spacecraft, And Parts Thereof	291	271	196	131
Raw Hides And Skins (No Furskins) And Leather	247	278	215	119
Plastics And Articles Thereof	171	193	172	106
Articles Of Iron Or Steel	198	179	137	101
Miscellaneous Chemical Products	83	85	122	89
Vehicles, Except Railway Or Tramway, And Parts Etc	141	196	161	81
Miscellaneous Articles Of Base Metal	19	29	43	67
Pharmaceutical Products	95	110	149	65
Beverages, Spirits And Vinegar	31	81	112	64
Aluminum And Articles Thereof	114	94	150	64
Leather Art; Saddlery Etc; Handbags Etc; Gut Art	73	83	94	63
Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	68	80	98	61
Organic Chemicals	182	159	152	58
Mineral Fuel, Oil Etc.; Bitumin Subst; Mineral Wax	280	143	60	51
Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	64	98	84	47
Total Top 20 Commodities	7,377	7,092	6,753	4,296
All Others	1,168	1,270	1,202	670
Total All Commodities	$8,545	$8,363	$7,955	$4,966

Source: World Institute for Strategic Economic Research (WISERTrade).

Colorado Export Performance

Colorado's largest exports remain optical components, electrical machinery, industrial machinery, and meat and offal, but nearly all categories are down (other than meat) and are projected to remain down for the balance of 2016. These top four categories make up 60% of the state's $8 billion of total exports for 2015. In terms of trade partners, Colorado's top export destinations include Canada, Mexico, China, Japan, and South Korea. Exports to these five countries represent approximately 50% of Colorado's total exports.

Industrial machinery has experienced the steepest decline of the top 10 categories with a year-over-year decrease of 15.7%. This is due, for the most part, to the slowdown in international investment and strength of the dollar. The slowdown has erased all gains made over the last five years. Exports in 2016 are expected to hit their lowest mark since 2011; they are down 1.3% from 2011 and 8.9% from 2015.

MAJOR DESTINATIONS FOR COLORADO EXPORTS OF MANUFACTURED GOODS, MINERALS, AND AGRICULTURAL PRODUCTS 2011–2015 (In Millions of Dollars)

Country	2011	2012	2013	2014	2015	Percentage of Total
Canada	$1,540.6	$2,000.3	$2,062.9	$1,645.2	$1,408.7	17.7%
Mexico	755.0	849.1	917.3	1,069.1	1,077.4	13.5
China	636.8	675.9	658.6	653.5	662.0	8.3
Japan	393.3	426.5	441.0	508.8	466.4	5.9
Korea, Republic Of	225.8	266.2	340.5	334.9	332.9	4.2
Malaysia	208.6	223.7	274.3	337.1	356.0	4.5
Germany	315.0	281.8	239.9	253.6	261.7	3.3
Switzerland	241.5	245.4	329.0	234.4	250.0	3.1
United Kingdom	247.6	204.7	211.1	222.3	261.4	3.3
Netherlands	316.5	279.7	304.5	341.1	290.1	3.6
Taiwan	180.7	144.2	182.9	191.8	205.9	2.6
Hong Kong	174.3	233.0	250.3	258.6	237.9	3.0
France	142.0	155.5	150.8	145.8	133.3	1.7
Australia	179.3	171.6	181.2	167.4	156.6	2.0
Philippines	222.4	191.4	195.7	200.0	162.3	2.0
Belgium	131.4	136.9	171.1	207.8	161.9	2.0
Brazil	105.7	172.2	185.1	167.4	98.4	1.2
India	119.1	119.0	111.7	88.5	92.5	1.2
Singapore	104.9	91.9	88.1	83.9	71.0	0.9
Thailand	112.4	70.2	70.8	63.3	62.8	0.8
Total Top 20 Countries	6,352.8	6,939.3	7,366.7	7,174.5	6,749.1	84.8
All Other Countries	985.4	1,230.8	1,178.3	1,188.1	1,205.5	15.2
Total All Countries	$7,338.2	$8,170.1	$8,545.0	$8,362.6	$7,954.6	100.0%

Source: World Institute for Strategic Economic Research (WISERTrade).

Aircraft/space craft parts, meat, metals and steel, alcoholic beverages, chemicals (non-organic), and leather goods are all showing increases. In fact, those categories have outpaced the rest of the United States and have demonstrated staying power as they have increased at a higher rate than the national five-year average.

Mineral fuel exports are continuing to weigh on the Colorado economy. After realizing a 49% decrease in 2014 and an additional 58% decrease in 2015, the category has continued to drop and is looking at a near 9% decrease in 2016. This equates to more than $100 million in lost export revenue since 2011. Mineral fuels has dropped from the 10th-largest export in the state in 2011 to 19th largest. In fact, 2016 exports are projected to be up 0.2% over 2011 if mineral fuels are removed from consideration.

Other than the export of mineral fuels (replaced by chemicals on the list), the top 10 export categories have changed very little over the last five years. Five years ago the top 10 export categories made up 75.9% of total Colorado exports; year-to-date they make up 74% of the total export revenue.

Colorado Agricultural Exports

According to the USDA, U.S. agricultural exports are forecasted at $124.5 billion for 2016. That is a $15.2 billion, or a 12.2% decrease, from 2015. The state of Colorado has fared a bit better. Despite 2015 and 2016 being down years, agricultural goods still represent about 20% of the state's total exports. After posting a 13.8% increase in 2014, the following year saw a decrease of 13.2%. This was due in large part to the drop in meat and meat product exports. In 2016, exports stabilized. The yearly total is expected to come in slightly under $1 billion, representing a 0.3% decrease from the previous year, largely because of the recovery in the meat industry.

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International Trade

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Meat exports have recovered nicely from 2015 when there was considerable drop-off due to the drought. During the drought herd size was substantially diminished by the selling off or culling of herds. The situation could have been much worse, but the industry made up for the shortfall, in part, by increasing the slaughter weight of cattle by some 200 pounds per head. The recovery was delayed until April 2016, when exports returned to 2014 levels. There is tempered optimism for beef exports looking ahead. With the price of beef at a low, this will make U.S beef prices more competitive on a global footing. If the Trans-Pacific Partnership passes with the next administration, U.S. beef tariffs to Japan will be lowered to match that of Australia and will keep falling in subsequent years.

These lower tariffs will be somewhat counterbalanced by the fact that Australia will now have access to the Mexico market for their beef and thus compete with the United States. Recently, China agreed to lift the 13-year ban on U.S. beef exports, but before that comes into effect a work plan must be approved and implemented. Beef exports should improve for the remainder of 2016 and into 2017. The only potential issue may be the lack of inventory to meet the increased demand. Exports to Canada have been on the rise as Colorado inventory levels have returned and drought has decimated Canadian cattle. The need for beef and the changes made to country of origin labeling (to appease the U.S.'s NAFTA partners) has led to a 60% increase year-to-date. The United States nor Colorado has been able to recapture market share in Mexico, where imports from Chile, Brazil, Australia, and other Central and South American countries have already filled the gap. Colorado exports are up by 1.6% year-to-date to Mexico, and U.S. exports are down overall by 6.1% year-to-date. The biggest obstacle to trade with Mexico is the value of the U.S. dollar, which hit 20 pesos in October 2016.

Meat byproducts, such as leather or rawhide, have struggled to recover from the sharp decline in the number of cattle in the state. Although the recovery has lagged behind, Canada's loss of cattle due to drought should aid in the recovery heading into 2017. The impact should be realized late Q1 or Q2. A return to previous levels could add $100 – $115 million in additional agricultural exports in 2017. Again, this will depend on the ability of Colorado companies to recapture market share and the strength of the dollar.

Dairy exports continue to be impacted by the historically low prices and high international inventory levels due to the Russian-imposed sanctions and regulatory changes in the EU. Exports dropped a projected 25% in 2016 after declining 19% in 2015. Due to the low prices, consolidation is gripping the industry. Large farms continue to get larger, and smaller farms are going out of business or being absorbed. This trend will continue into 2017 as inventory and overseas production continues to outpace demand, especially in the European Union.

Import Performance

Colorado's imports increased by 11.2% in 2014, to a total of $14.2 billion, which is higher than the rest of the country. This is due to increased capital investment by many companies that are purchasing larger pieces of equipment. The increase was amplified by heavy investment in the third and fourth quarters. In 2015, the investment slowed and imports declined 5.3%, to $13.5 billion. The rest of the nation is down by 4.6%. Another factor for both U.S. and Colorado imports being down is the depressed price of mineral fuels. For instance, the United States imported the same amount of coal in 2015 as it did in 2014. Despite this, the imported totals were down 45% and 38%, respectively. When mineral fuels are removed, U.S. imports increased by 2.4%, and Colorado imports increased by 3%. The major contributors to this increase are both optics and aircraft components. Investment in industrial equipment was flat, and remained at the same level as 2014, which saw a 25.8% gain.

Another large contributor to imports is the meat industry. Meat imports more than doubled in 2015 in order to combat shortages caused by disease. As expected, the meat imports were strong heading into 2015, but still ended down 3.5% on the year as U.S. inventory levels recovered. A steep drop off in imports should occur in 2016 and into 2017 as Colorado's meat production has rebounded nicely. The only caveat is the possible need to import to meet domestic demand as drought has impacted Canadian production. Exports from the state are projected to increase heading into 2017.

Other categories seeing large increases are aircraft components, apparel, alcoholic beverages, furniture, leather goods, and footwear. The increase in aircraft/spacecraft parts imports and exports suggests that Colorado manufacturers are bringing in parts, adding value, and then re-exporting the finished goods.

Colorado's top import partners include Canada, China, Mexico, Germany, and Switzerland. Imports from these five countries represent approximately 68% of total imports in 2015.

International Students in Colorado

Colorado saw an increase in the number of international students enrolling in the state's colleges and universities. In the 2015–16 academic year, institutions of higher education reported 11,346 international students, a 5.1% increase from the previous year, according to the Colorado Department of Higher Education and data provided by the Institute of International Education's annual Open Doors Report on International Educational Exchange. The leading countries of origin for students coming to Colorado are China (30%), India (13%), Saudi Arabia (12%), South Korea (3%), and Kuwait (3%). For the United States as a whole, the top countries of origin are China, India, Saudi Arabia, South Korea, and Canada.

International student expenditures in Colorado totaled an estimated $378 million for 2015–16 according to an economic impact analysis conducted annually by the organization NAFSA: Association of International Educators. This figure takes into account tuition, fees, and living expenses and subtracts U.S. support provided to students. The largest number of international students was reported by the University of Colorado Boulder (with 2,951 students), Colorado State University, the University of Denver, the University of Colorado Denver, and the Colorado School of Mines.

Many of Colorado's public and private institutions of higher education and English language schools are working together under the state's StudyColorado initiative to market Colorado as a higher education destination. That effort, together with the institutions' individual recruiting efforts and an overall increase in student mobility, are expected to lead to continued increases in international students enrolling in higher education in Colorado.

The number of Colorado students studying abroad remained steady, at about 5,350 in 2014–15 (data for students studying abroad lag other data by a year). Colorado students who choose to study abroad cite preparation for the increasingly globalized economy as a key benefit.

INTERNATIONAL STUDENT ENROLLMENT AT SELECT COLORADO INSTITUTIONS

Institution	2010-11	2011-12	2012-13	2013-14	2014-15	2015-2016	Percentage Change
University of Colorado Boulder	1,553	1,681	1,910	2,163	2,614	2,951	12.9%
Colorado State University	1,216	1,352	1,598	1,793	2,148	2,305	7.3%
University of Denver	1,250	1,430	1,590	1,617	1,690	1,688	-0.1%
University of Colorado Denver	940	1,116	1,348	1,457	1,463	1,446	-1.2%
Colorado School of Mines	570	652	660	767	823	875	6.3%

Sources: Institute of International Education, annual Open Doors report.

Projections

The International Trade Committee anticipates a weaker dollar in 2017. A weaker dollar in 2017 would give U.S. and Colorado exporters the ability to recapture export market share. Of greater concern will be the contraction of global economies and the continued reduction in global investment. The WTO shares this sentiment as it believes that international trade will increase slightly but still remain below the average yearly growth rate (WTO press release, April 7, 2016). Uncertainty will play a big part in this, and right now there is uncertainty across the globe. Turmoil, drought, sanctions, Brexit, pending trade agreements, and the reduction of wealth will have many would-be investors sitting on the sidelines waiting for a clearer picture. That said, even the increase of oil prices in late 2016 and 2017 may not be enough to generate large investments as countries and companies impacted by oil may need a few years to realize true recovery. According to the World Bank, oil prices are expected to reach an average of $55 per barrel in 2017, up from $43 in 2016.

If new trade agreements are signed, they will have little to no impact on 2017 exports as it will take time for implementation to occur.

Overall, Colorado exports are expected to remain slightly lower than the national figures going forward, and should continue to decline in early 2017. Exports could stabilize, and even increase slightly heading into the second half of 2017. The increase should not be enough, however, to show a positive gain for the year.

Imports for the state should be flat or slightly down as well. This will be due, in large part, to the decline of investment and money being sidelined waiting for global stability to return.

Decisions made by the central banks of the United States, Japan, and the European Union may also be a factor in trade growth over the next few years.

While central bank balances have not increased since 2014 in the United States, they have almost doubled in Japan in the past two years. The European Central Bank, after tightening from 2013–2015, have recently reversed course and increased their balance sheets by about 40% in the past year. That monetary expansion may well increase economic activity and with it, exports to these regions.

The PMI for the European Union is currently about 53, indicating a somewhat positive outlook and a lower chance of a recession. The October 2016 Consensus Forecasts report projects faster GDP growth for the United States in 2017 (2.2%), while the pace of growth slows slightly in the eurozone (1.3%) and Asia Pacific (4.6%) regions. Mexico and Canada, which are major trading partners of the United States, are projected to record an acceleration in growth in 2017, to 2.4% and 2%, respectively. ✤

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Summary

Colorado added 76,300 jobs in 2015, growing by 3.1% and resulting in the second-best year of employment growth since 2000. Job growth continued in 2016, at a slower rate, adding 54,900 total jobs for a 2.2% increase. In 2017, Colorado's employment growth is anticipated to occur at a slightly faster pace from the previous year, increasing by 2.4% statewide and adding 63,400 new jobs.

Colorado is expected to add far more services-producing jobs than goods-producing jobs, continuing a long-term trend. From 2006–2016, the state has added 329,200 services-producing jobs, while the total goods-producing employment has fallen by 12,200 jobs across the same period.

Job growth throughout the state has exemplified Colorado's recovery from the Great Recession. Since 2012, statewide job growth has reached levels not seen since the tech boom of the late 1990s.

Each services-producing sector is expected to add jobs during 2017, while two out of three goods-producing sectors are anticipated to post positive employment growth during the year. Only Natural Resources and Mining is projected to record modest job losses in 2017.

ESTIMATED NET JOBS CREATED IN NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT SECTORS 2006–2017 (In Thousands)

Sector	2006-2016[a]	2015[a]	2016[b]	2017[c]
Natural Resources and Mining	2.1	-3.0	-7.9	-0.2
Construction	-10.8	7.3	7.5	9.0
Manufacturing	-3.5	4.8	2.3	2.3
Total Goods Producing	*-12.2*	*9.1*	*1.9*	*11.1*
Trade, Transportation, and Utilities	35.4	12.4	9.4	7.1
Information	-4.0	0.4	0.7	1.1
Financial Activities	3.7	5.6	4.6	5.3
Professional and Business Services	70.2	11.4	6.1	9.2
Education and Health Services	93.8	14.0	12.1	10.6
Leisure and Hospitality	59.2	12.9	10.8	12.1
Other Services	14.4	2.3	2.2	2.4
Government	56.5	8.2	7.0	4.7
Total Services Producing	*329.2*	*67.2*	*52.9*	*52.4*
Total Jobs Created[c]	317.0	76.3	54.9	63.4

[a]Revised. [b]Estimated. [c]Forecast. Note: May not sum to total due to rounding.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committees.

Agriculture—The Agriculture Sector will post lower net income for the second consecutive year in 2017 due to low cattle and grain prices. Following a decrease in net income of $850 million from $1.3 billion in 2015 to $444 million in 2016, profits are expected to fall again to $392 million in 2017. The industry has been negatively affected by the increase in the value of the dollar as exports have declined.

Construction—The demand for housing units in 2016 is expected to exceed supply by the greatest amount in over 18 years, due to increased migration into the state. While multifamily construction is expected to fall slightly in 2017, strong growth in single-family homes is forecasted to make up for any decline, with single-family permit growth exceeding the national average by 8 percentage points. Along with growth in both nonresidential and nonbuilding construction, industry employment is expected to reach 166,000 jobs in 2017.

Manufacturing—Following 10 years of decline, the Manufacturing Sector is expected to grow for the seventh consecutive year in 2017, growing by 1.6% in 2017. The growth is equally weighted between the durable goods and nondurable goods subsectors, adding 1,200 jobs and 1,100 jobs, respectively. Every subsector is expected to post modest employment increases except fabricated metals and computer and electronics. The use of robotics and automation is increasing the productivity in the Manufacturing Sector but at the cost of lower employment growth.

Natural Resources and Mining—Compared to the rest of the nation, Colorado ranks 7th in oil and gas reserves, 10th in coal production, 4th in gold production, and 1st in molybdenum production. Colorado is also a leading producer of renewable energy, including wind, solar, biomass, and hydroelectric energy sources. The total value of Colorado's Natural Resources and Mining production in 2016 is forecast to decline due to low oil and natural gas prices, 34% lower than its peak value in 2014. Industry employment is also expected to continue to post a decrease in 2017 of less than 1%.

Professional and Business Services—Professional and Business Services (PBS) Sector employment growth continues to increase, but at a slower rate. The sector is expected to post employment growth of 1.5% in 2016, down from 2.9% in 2015. Growth is projected to rebound to 2.3%, or 9,200 jobs. One of the main drivers of growth will be the come from the Professional, Scientific, and Technical Services sector.

Trade, Transportation, and Utilities—TTU employment is anticipated to increase by 1.6% to total 461,800 jobs in 2017, with retail trade contributing the majority of industry growth. Retail sales forecast for Colorado calls for a 2.9% increase in 2016, slower than in year 2015, but stronger than current data suggest. Employment in this sector is forecast to increase by 6,600 jobs in 2017.

Education and Health Services—Private education and health care services are expected to continue their modest growth, adding 12,100 and 10,600 jobs in 2016 and 2017, respectively. The majority of sector employment is made up of health care professionals, and the growing demand for health care is driven primarily by growth in the population and the expansion of health-care coverage.

Leisure and Hospitality—Tourism-related employment is expected to grow by 10,800 jobs in 2016, marking the seventh consecutive year of growth. Colorado recorded a record number of visitors in 2015 thanks to a strong convention calendar and new lodging options in Denver, national park visits, and ski traffic that outperformed the rest of the nation. Momentum in Colorado's tourism industry is anticipated to continue into 2017, with a forecasted increase of 12,100 jobs.

Government—Government employment within Colorado is expected to post a gain of 1.1% in 2017, driven by state and local government. Local government accounts for 60% of government employment in the state, the majority of which are teachers or staff in K–12 schools, and is expected to grow by 1% in 2017, roughly the same rate as Colorado's population. Local government benefits from higher home values and increased consumer expenditures as revenues come from property taxes and sales and use taxes. State tax revenues in Colorado are capped at a TABOR limit, and any excess revenues are refunded to taxpayers.

Financial Activities—The Financial Activities Sector is expected to continue to grow in Colorado in 2017, adding 5,300 jobs to reach total employment of 169,400. The forecasted increase in growth is driven by expectations of a stronger overall economy that provides more job opportunities within banking, insurance, and real estate. Financial Activities employment has recorded positive growth each year since 2012, illustrating a strong recovery from the recession.

Information—The Information Sector will record modest but broad growth across all subsectors. The Information industry is expected to add 700 jobs in 2016 and grow by 1,100 jobs in 2017. Even as employment growth in the industry has fallen in recent years, the Information Sector continues to provide a substantial contribution to Colorado's GDP and ranks as one of the state's fastest-growing industries in terms of long-term output growth.

The following observations summarize the thoughts of committee members for 2017:

National and International

- Weak commodity prices will continue to negatively affect the agricultural and natural resources sectors, but will benefit consumers.
- Slowdown in the global economy and a strong U.S. dollar pose risks for Colorado's exports.
- U.S. GDP growth will likely remain in the 2 – 3% range in 2017.
- Changes in Fed policy will put upward pressure on interest rates.
- Inflation will remain in check for another year while interest rates remain comparatively low.

Colorado

- Employment growth will place Colorado in the top 10 states in 2017.
- Drought and weather fluctuations will cause volatility for agricultural producers.
- Strong in-migration will cause the demand for housing to outpace supply, resulting in higher home prices.
- In terms of population, Colorado is the second-fastest growing state in percentage terms. The state will continue to attract people from outside Colorado, contributing to an anticipated population increase of 100,000 people between 2016 and 2017.
- Colorado will sustain a sub-4% unemployment rate.

With Colorado's skilled workforce; high-tech, diversified economy; relatively low cost of doing business; global economic access; and exceptional quality of life, the state remains poised for long-term economic growth.

Around the Region

The western region of the United States is made up of Colorado and its neighboring states of Arizona, Kansas, Montana, Nebraska, New Mexico, Utah, and Wyoming. This section compares economic activity in 2015 in these states and their top metropolitan statistical areas (MSAs) as measured by total employment, employment growth, unemployment rate, average annual pay, and GDP.

Wyoming and New Mexico were the only states in the region that did not show 10-year growth. Utah and Colorado have recorded the highest 10-year growth rates, 1.6% and 1.4%, respectively. In September 2016, Utah, Colorado, and Arizona recorded the largest year-over-year employment growth, 3.0%, 2.7%, and 2.2%, respectively. Nebraska (1.0%) and Montana (0.2%) lagged behind, the leaders of the region while New Mexico (-0.3%), Kansas (-0.4%), and Wyoming (-3.5%) lost jobs year-over-year. Regarding MSAs, Denver-Aurora-Lakewood, Salt Lake City, and Phoenix-Mesa-Scottsdale led the region with year-over-year growth of 3.1%, 2.9%, and 2.6%, respectively, in September 2016. Wichita, Lincoln, Kansas City, and Albuquerque followed with growth of 1.2%, 1.0%, 0.9%, and 0.6%, respectively. Cheyenne was the only MSA that recorded negative employment growth, declining 2.6% year-over-year.

REGIONAL STATES

September 2016 Total Employees (In Thousands)	2,708.4 Arizona	2,620.8 Colorado	1,429.1 Utah	1,395.8 Kansas	1,017.9 Nebraska	823.4 New Mexico	462.2 Montana	279.0 Wyoming
Employment CAGR September 2006 - September 2016	1.6% Utah	1.4% Colorado	0.7% Nebraska	0.6% Montana	0.2% Kansas	0.2% Arizona	0.0% Wyoming	-0.2% New Mexico
Employment Percentage Change September 2015 - September 2016	3.0% Utah	2.7% Colorado	2.2% Arizona	1.0% Nebraska	0.2% Montana	-0.3% New Mexico	-0.4% Kansas	-3.5% Wyoming
September 2015 Unemployment Rate*	6.7% New Mexico	5.5% Arizona	5.4% Wyoming	4.4% Kansas	4.3% Montana	3.6% Colorado	3.4% Utah	3.2% Nebraska
2015 Average Annual Pay	$54,182 Colorado	$47,933 Arizona	$46,306 Wyoming	$44,318 Utah	$43,878 Kansas	$42,854 Nebraska	$42,555 New Mexico	$40,056 Montana
2015 GDP (Millions of Current Dollars)	$314,878 Colorado	$290,578 Arizona	$147,765 Kansas	$147,108 Utah	$113,998 Nebraska	$92,231 New Mexico	$45,933 Montana	$38,624 Wyoming
Real GDP Percentage Change 2014- 2015	3.6% Colorado	3.5% Montana	3.3% Utah	2.1% Nebraska	0.9% Arizona	0.7% New Mexico	0.4% Wyoming	0.2% Kansas

Sources: Bureau of Economic Analysis, Colorado Department of Labor and Employment, and Bureau of Labor Statistics (CES, QCEW, and LAUS data). [a]Not seasonally adjusted. Unless noted, all data is seasonally adjusted. Based on preliminary data.

Every state enjoyed positive GDP growth from 2014 to 2015. Colorado led the region with 3.6% change in real GDP, and Montana, Utah, and Nebraska followed close behind with 3.5%, 3.3%, and 2.1%, respectively. Arizona (0.9%), New Mexico (0.7%), Wyoming (0.4%), and Kansas (0.2%) lagged behind the rest of the region, recording less than 1% growth.

Denver led all MSAs in the region with a 4% increase in real GDP, followed closely by Salt Lake City, growing 3.1%. Phoenix-Mesa-Scottsdale, Lincoln, Kansas City, and Wichita all followed with 1.8%, 1.6%, 1.5%, and 1.3%, respectively. The lowest growth in the region was in Albuquerque and Cheyenne, 0.4% and 0.3%, respectively.

In 2015, Colorado's $54,182 average annual earnings exceeded all states in the region, including Arizona, with $47,933. Boulder and Denver-Aurora-Lakewood led Colorado with above-average annual pay levels exceeding $59,000. This far surpasses other MSAs in the region, which fall within the $39,000–$48,000 range.

REGIONAL METROPOLITAN STATISTICAL AREAS (MSAs)								
September 2016 Total Employees (In Thousands)	1,977.6 Phoenix-Mesa-Scottsdale	1,448.2 Denver-Aurora-Lakewood	1,056.6 Kansas City	702.2 Salt Lake City	383.7 Albuquerque	299.9 Wichita	187.6 Lincoln	45.7 Cheyenne
Employment CAGR September 2006 - September 2016	1.7% Denver-Aurora-Lakewood	1.6% Salt Lake City	0.9% Lincoln	0.6% Cheyenne	0.6% Kansas City	0.4% Phoenix-Mesa-Scottsdale	0.0% Wichita	-0.3% Albuquerque
Employment Percentage Change September 2015 - September 2016	3.1% Denver-Aurora-Lakewood	2.9% Salt Lake City	2.6% Phoenix-Mesa-Scottsdale	1.2% Wichita	1.0% Lincoln	0.9% Kansas City	0.6% Albuquerque	-2.6% Cheyenne
September 2015 Unemployment Rate*	6.2% Albuquerque	4.8% Phoenix-Mesa-Scottsdale	4.6% Wichita	4.4% Kansas City	3.7% Cheyenne	2.9% Denver-Aurora-Lakewood	2.9% Lincoln	2.8% Salt Lake City
2015 Average Annual Pay	$59,870 Denver-Aurora-Lakewood	$50,783 Kansas City	$50,108 Phoenix-Mesa-Scottsdale	$49,892 Salt Lake City	$44,534 Wichita	$43,760 Cheyenne	$43,678 Albuquerque	$41,753 Lincoln
2015 GDP (Millions of Current Dollars)	$219,968 Phoenix-Mesa-Scottsdale	$193,172 Denver-Aurora-Lakewood	$125,618 Kansas City	$78,950 Salt Lake City	$42,673 Albuquerque	$31,473 Wichita	$18,773 Lincoln	$5,584 Cheyenne
Real GDP Percentage Change 2014- 2015	4.0% Denver-Aurora-Lakewood	3.1% Salt Lake City	1.8% Phoenix-Mesa-Scottsdale	1.6% Lincoln	1.5% Kansas City	1.3% Wichita	0.4% Albuquerque	0.3% Cheyenne

Sources: Bureau of Economic Analysis, Colorado Department of Labor and Employment, and Bureau of Labor Statistics (CES, QCEW, and LAUS data). [a]Not seasonally adjusted. Unless noted, all data is seasonally adjusted. Based on preliminary data.

Around the State

COLORADO METROPOLITAN STATISTICAL AREAS (MSA)

September 2016 Total Employees (In Thousands)

1,448.2	278.5	186.5	160.8	103.1	62.2	62.2
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Fort Collins	Greeley	Grand Junction	Pueblo

Employment CAGR September 2006 - September 2016

2.6%	1.9%	1.7%	1.3%	0.9%	0.8%	0.4%
Greeley	Fort Collins	Denver-Aurora-Lakewood	Boulder	Pueblo	Colorado Springs	Grand Junction

Employment Percentage Change September 2015 - September 2016

3.3%	3.1%	2.8%	2.7%	2.1%	1.5%	1.0%
Greeley	Denver-Aurora-Lakewood	Fort Collins	Boulder	Pueblo	Colorado Springs	Grand Junction

September 2015 Unemployment Rate*

4.7%	4.5%	3.5%	3.0%	2.9%	2.5%	2.4%
Grand Junction	Pueblo	Colorado Springs	Greeley	Denver-Aurora-Lakewood	Fort Collins	Boulder

2015 Average Annual Pay

$61,856	$59,870	$47,202	$46,613	$46,329	$41,378	$39,840
Boulder	Denver-Aurora-Lakewood	Fort Collins	Greeley	Colorado Springs	Grand Junction	Pueblo

2015 GDP (Millions of Current Dollars)

$193,172	$29,850	$23,414	$15,482	$10,472	$5,429	$4,824
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Fort Collins	Greeley	Grand Junction	Pueblo

Real GDP Percentage Change 2014- 2015

5.5%	5.3%	4.0%	3.6%	2.5%	1.1%	-0.4%
Fort Collins	Greeley	Denver-Aurora-Lakewood	Boulder	Colorado Springs	Pueblo	Grand Junction

Sources: Bureau of Economic Analysis, Colorado Department of Labor and Employment, and Bureau of Labor Statistics (CES, QCEW, and LAUS data). [a]Not seasonally adjusted. Unless noted, all data is seasonally adjusted. Based on preliminary data.

Boulder County

Boulder County's dynamic economy is fueled by competitive concentrations of businesses and employees in a diverse mix of industries. A highly educated workforce, visionary entrepreneurs, global industry leaders, a desirable quality of life, and a world-class research university, are equally critical to Boulder County's economic vitality. The area has continued to outperform state and national economies in many areas, such as job growth, educational attainment, capital investment, and commercial real estate absorption, among others.

Employment and Wages

Boulder County has experienced above-average employment growth and some of the lowest unemployment rates in Colorado over the past several years. Data from the Bureau of Labor Statistics show employment in Boulder County increased 3.1% between September 2015 and 2016, creating an additional 5,600 jobs, compared to a 2.7% increase in Colorado during that period. In September 2016, the Boulder County unemployment rate was 2.4% (not seasonally adjusted) compared to state unemployment of 3% and a national rate of 4.8% (not seasonally adjusted). The area's large concentration of jobs in sectors with higher-than-average wages contributes to above-average incomes for area residents. The median household income for Boulder County residents was $72,009 in 2015 compared to $63,909 for Colorado residents, according to data from the U.S. Census Bureau.

Real Estate

Commercial and industrial real estate absorption in Boulder County has produced low vacancy rates and accelerating demand for new construction. The office vacancy rate for the region rose over the past year to 7.1% through Q2 2016 from 4.7% the year prior, according to data from Newmark Grubb Knight Frank research. The industrial/flex vacancy rate in the county rose to 13.5%, and the retail vacancy rate to 6.8%.

Residential construction continues to be a strong component of Boulder County's economy, with residential sales and average home values steadily increasing in communities throughout the area. According to the Boulder Area Realtor Association, the number of single-family homes sold in Boulder County through September 2016 fell 10.9%, to just over 3,385 homes compared to the same period in 2015. The Federal Housing Finance Agency All-Transactions house price index for Boulder County increased 14.7% from midyear 2015 to 2016. During the same period, the house price index for Colorado increased 11.4%.

Financial Services and Venture Capital Investment

Boulder County represents a significant and growing share of the state's financial institution deposits and venture capital investment.

As of June 30, 2016, Boulder County had 34 FDIC-insured financial institutions with 112 offices and $9.3 billion in deposits, representing 7.4% of the state total—an increase in market share from 2015.

From midyear 2015 to midyear 2016, deposits in Boulder County institutions rose $790.1 million or 9.3% compared to an increase of 7.4% during the same period for deposits held in Colorado institutions. Deposit growth from 2015 to 2016 was lower than from midyear 2014 to 2015, when deposits in Boulder County institutions increased by $825.2 million or 10.8%. However, deposit growth in Colorado institutions was higher in 2016 than 2015, when deposits increased 6.6%.

The high concentration of advanced technology and entrepreneurial activity in Boulder County continues to fuel continued venture capital investment in early-stage Boulder County companies. According to the PricewaterhouseCooper/Venture Economics/NVCA MoneyTree Report, $51.5 million in venture capital funding was received by Boulder County companies in the first three quarters of 2016, representing 19.2% of the state total.

Leading Industries

The Boulder County economy continues to benefit from high concentrations of companies and employment in key industry clusters, such as aerospace, biotechnology, cleantech, information technology, natural and organic products, outdoor recreation, and tourism. In addition to the presence of well-established Fortune 500 companies, many startup and early stage companies in these industries are based in Boulder County.

Aerospace—Numerous aerospace companies including Ball Aerospace, DigitalGlobe, EnerSys, Lockheed Martin, Northrop Grumman, and Sierra Nevada Space Corporation do business in Boulder County. The University of Colorado Boulder, a member of the Universities Space Research Program, offers nationally recognized aerospace academic programs and receives major funding from NASA. Several federally funded labs in the area conduct research in space, including the Laboratory for Atmospheric and Space Physics (LASP), the National Oceanic and Atmospheric Administration (NOAA), and the University Corporation for Atmospheric Research (UCAR).

Biotechnology—Boulder County is a well-established location for companies in the pharmaceuticals and medical devices industries. Major employers include Array BioPharma, AstraZeneca, KBI BioPharma, Avista Pharma, Medtronic, Mountainside Medical, and GHX. The University of Colorado Boulder has a distinguished record in biotechnology research that has attracted major research funding and generated numerous startups. The university is home to the BioFrontiers Institute, a program headed by Nobel laureate Tom Cech, designed to facilitate interdisciplinary research and expand Colorado's leadership in biotechnology.

Cleantech—Renewable energy, energy efficiency, and energy research companies continue to diversify in Boulder County. The industry is well-supported by university programs, such as the University of Colorado Boulder's Renewable and Sustainable Energy Initiative (RASEI) and the National Renewable Energy Laboratory (NREL), the federally funded research lab in Golden. Boulder County businesses in the industry include AlsoEnergy, Boulder Wind Power, Envision Energy, GE Oil & Gas, juwi, Sundrop Fuels, RGS Energy, Siemens Energy, and Xcel Energy.

Information Technology—Boulder County has a long history as a center of information technology, data storage, software development, and Internet services. Major employers include CA Technologies, Epsilon, Google, HP, IBM, West Safety Services Division, Microsoft, NetApp, Qualcomm, Seagate, Twitter, and Uber among hundreds of other established and early-stage companies. Boulder was ranked first in the nation for its concentration of high-tech startups by the Ewing Marion Kauffman Foundation. The area is home of the successful mentorship and seed-funding program TechStars and TinkerMill, the largest makerspace/hackerspace in Colorado.

Natural and Organic Products—Many leaders in the natural and organic products industry cluster got their start in Boulder, and the area remains an international hub of the industry. Area companies include Aurora Organic Dairy, Bhakti Chai, Boulder Brands, Boulder Organic Foods, Celestial Seasonings, Chocolove, Fresca Foods, Good Belly, Hain Celestial Seasonings, Haystack Mountain Goat Dairy, and Justin's Nut Butter. Naturally Boulder, a Boulder-based industry association, supports these and hundreds of other natural products companies through networking, educational sessions for early-stage companies, and other programming.

Outdoor Products and Recreation—Widely recognized as a center for the outdoor recreation industry, Boulder is home to the Outdoor Industry Association and the International Mountain Bicycling Association. Boulder County has a high concentration of manufacturers, distributors, retailers, marketing and media companies, and other service providers focused on the industry. Local companies include Active Interest Media, Bergans USA, Brunton, Dynafit, Exxel Outdoors, Fjallraven, K2 Sports, La Sportiva, Newton Running, Pearl Izumi, Salewa, Sea to Summit, and Spyder Active Sports, among many others.

Tourism—The Boulder County area is a popular destination that receives national media attention for its recreational and cultural amenities, and impressive array of shopping and dining choices. Boulder was recently recognized by NationalGeographic.com (one of America's Top Adventure Towns), Bon Appetit (America's Foodiest Town), Outdoor magazine (#1 Sports Town), Gallup-Healthways (Nation's Happiest and Healthiest City), and Bicycling magazine (one of the Best Bike Cities). Longmont was recognized by Livability (#23 of 100 Best Places to Live) and Westword (#3 Most Family-Friendly Communities in Colorado).

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The business and economic outlook is very positive for Boulder County. The region's robust economy built on diverse high-tech and lifestyle industries, the University of Colorado flagship campus, a highly educated workforce, thriving entrepreneurial culture, and highly desirable quality of life inspires optimism heading into 2017. ✤

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Kit Carson County

A dramatic drop in commodity prices for products produced by farmers has basically put the economy of Kit Carson County and most of Eastern Colorado in a weaker position than it has been for many years.

The financial condition of farmers is stable but considerably weaker than a year ago. Commodity prices have been falling since 2014. Yields have been above average the past several years, which enabled farmers to keep their fiscal house in order. The year 2016 saw another dramatic drop in commodity prices, leaving farmers in a position of hopefully breaking even.

Yields in 2016 are, once again, above average. Without exceptional yields, farmers would be operating at a loss.

According to several financial institutions, the balance sheet for farmers is going to be marginal. The forecast for commodity prices for the next several years indicates that the next two to three years will be difficult.

As always, agriculture continues to rely on adequate moisture and good commodity prices. In 2014, commodity prices were off dramatically, with corn down a minimum of 50% and wheat down 20%. The following year prices were off an additional 5 to 10%. Market prices in 2016 were down a minimum of 30% from the previous year.

Cattle numbers are lower compared to 2015, and this market is also in a downward spiral; however, producers are still making a small profit even with prices dropping as much as $500 to $750 for an animal weighing 1,000 pounds.

With farmers now in a financial squeeze, the prices they are paying for seed, fertilizer, and machinery are lower than the previous year. Farm machinery dealers have seen a huge drop in sales.

Farmland values are less for the second year in a row. Land value has not experienced a dramatic drop; however, local realtors expect the price of both irrigated and dryland to continue in a downward trend.

For the fourth consecutive year, dryland wheat that has been planted has had more than enough moisture to establish a very strong winter wheat crop to be harvested in summer 2017.

Burlington, the county seat of Kit Carson County, recently took a huge economic hit with the closure of the Kit Carson Correctional Center. This was a private prison operated by Corrections Corporation of America (CCA). At the time of the closure at the end of July, the facility had 142 employees.

The loss of the payroll, coupled with taxes being paid of $1.2 million by CCA, resulted in a dramatic setback for not only Burlington but also the entire area.

Tourism continues to be an important part of the Burlington economy. The welcome center had near-record numbers, and the city's lodging tax was up for the fourth year in a row, by 1.9%.

Burlington has 545 motel rooms to accommodate the tourist traffic.

In 2016, total average nonfarm employment in Kit Carson Country was 2,985 according to the Quarterly Census of Employment and Wages. The average weekly wage was $630. Based on the four quarters ending in Q1 2016, the annual average wage was $32,760 in Kit Carson County compared to $54,964 for the state.

The civilian labor force in Kit Carson County in September 2016 was 4,722. The number employed was 4,635, resulting in onlyHold on one second I will three weird weird 87 unemployed. The Kit Carson County unemployment rate was 1.8%, much lower than the state and national rates.

Farm and sole proprietor employment represents significant employment in the county, accounting for approximately 32% of total employment not in the nonfarm wage and salary tally.

Major industry employment in Kit Carson County includes:

- Construction: 22 establishments, 90 employees
- Wholesale Trade: 28 establishments, 351 employees
- Education Services: 6 establishments, 317 employees
- Agriculture, Forestry, Fishing and Hunting: 34 establishments, 339 employees
- Health Care and Social Assistance: 24 establishments, 290 employees
- Public Administration: 22 establishments, 288 employees
- Retail Trade: 36 establishments, 289 employees
- Manufacturing: 9 establishments, 117 employees
- Finance and Insurance: 23 establishments, 126 employees

Real estate prices have stabilized over the past year. Prices have remained static to good over the past 15 years.

Even with the closure of the private prison, affordable housing continues to be a serious problem. A waiting list for rental housing continues, and rents are high. This makes for a good housing market; however, many simply cannot afford to purchase homes with the low wage scale. ✤

Contributor: *Rol Hudler, City of Burlington*

La Plata County

The Office of Business and Economic Research (OBER) at the School of Business at Fort Lewis College measures and reports on economic activity in La Plata County. The La Plata County economy is highly seasonal, related to tourism's impact on the local economy and construction. Although there is significant winter tourism associated with winter sports, most La Plata County tourism occurs during the summer. This summer concentration of tourism causes a third quarter seasonal upswing in economic indicators such as retail sales and employment each year.

The presence of Fort Lewis College, Walmart, Mercury Systems, and Mercy Medical Center, as well as natural gas and oil extraction in La Plata County provides some stability to the local economy, particularly in labor markets. Employment has steadily become less volatile over the past 20 years. Declines in natural resource prices over the past 18 months will be a challenge for regional county governments for some time to come. There was concern that the Gold King Mine spill would affect local visits, but while the impacts have been felt more acutely up and down stream, the La Plata County economy escaped with relatively little impact.

However, the impact of the student population has deteriorated since 2002 when the student body peaked at 4,347 students—2016 undergraduate enrollment is 3,789, including Fort Lewis' first graduate students, down from the previous year.

Over the past 10 years or so, there has been a push to attract new and dynamic private companies, "growth companies," to regions, which has attracted higher skilled jobs to the area, including Ska Brewery, Mercury Payment Systems, Tailwind Nutrition, Serious Texas BBQ, and Think Network Technologies. Two local business assistance programs, the SouthWest Colorado Accelerator Program for Entrepreneurs (SCAPE) and the Southwest Colorado Small Business Development Center provide advice and training for new small businesses. The Region 9 Economic Development District offers advice, loans to small businesses, and data analysis to the region's government and businesses.

Employment and Unemployment—The La Plata County unemployment rate has changed little from last year (2.6% in October 2016 versus 2.7% in October 2015, not seasonally adjusted), and remains below the state unemployment rate. Through October 2016, the La Plata County labor force averaged 30,541, or about 1.7% higher than same 10 months in 2015. Since 2011, the labor force has grown 0.7% per year and remains about 3.1% below its peak in 2008. It is worth noting that since 2000, social security receipts per capita, a proxy for retirees, have been rising on average 5% per year.

Income—Per capita income in La Plata County has improved over the last few years, both absolutely and relative to Colorado per capita personal income. Personal per capita income in 2015 was $51,475 in La Plata County—the highest of the Region 9 counties. La Plata County's total wages grew 2.1% year-over-year for the four quarters ending in Q1 2016, and while average wages decreased modestly (0.1%).

In 2015, with respect to countywide private employee shares, services account for about 78% of total income in La Plata County, up one percentage point from 2014. The largest industry share for private firms was for Transportation and Utilities, accounting for about 12% of total income. As a share of total employees, Construction, Mining, and Agriculture have dropped slightly since 2015, with Construction employment losing the largest share of employment since 2007. Major construction at Fort Lewis College, several new hotels, and an increase in residential housing should increase the sector's share of employees in 2016.

The reduction in oil and natural gas prices will likely not have a large impact on employment in mineral extraction. Since 2011, the number of wells in La Plata county has fallen by 1.5% per year. Given that wells are relatively capital intensive, there is little reason to expect extraction employment to fall much.

With respect to services employment, Leisure and Hospitality's share has fallen slightly while Health and Education Services has expanded. The Service Sector remains the largest share of all employees, roughly 45%. Professional and Business Services employment is the smallest share, roughly 5.3%.

Federal, state, and local government income as a share of total private and public county income has remained nearly constant, at 20%, between 2015 and 2016. Local and federal employment in La Plata is unchanged, and state employment is down 0.1%. Private employment rose 0.1%, to 79% of total county employment.

Tourism—Though the economy has become diversified, tourism continues to play a large role in La Plata County. Leisure and Hospitality account for about 16% of local employment and 6.6% of wage and salary income. The OBER Tourism Index is up sharply from 2015, about 25%, after two years of relatively low performance. Indeed, 2016 looks to be the second-best year, after 2013. Retail tax revenues have grown on average 4.8% per year since 2007 and are now 58% higher than in the pre-recession period.

Data through summer 2016 reveal the impact the Great Recession has had on the regional economy. However, the two primary regional tourist attractions, Mesa Verde and the Durango to Silverton Narrow Gauge Railroad, seem to have stabilized. The 12-month moving average of visits to each attraction have remained relatively constant since the beginning of 2012. Although Mesa Verde National Park is in Montezuma County, many tourists who visit the park stay in La Plata County during their time in the area. More airlines using La Plata County Airport have driven consistent growth in the number of

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enplanements between 2003 and 2014. However, since 2014, enplanements have gradually declined, likely due, in part, to La Plata County airport no longer being serviced by Frontier Airlines.

Real Estate, Banking, and Business—Like many Colorado resort communities, La Plata County's economy is closely tied to real estate. Using the second quarter as representative of the overall housing market, the median inflation adjusted (2010Q1=100) home price in La Plata County Combined (which includes residences in the whole county) stabilized at about $343,900 in Q2 2016, about 0.3% higher than the same time in 2015. Since 2011, the year real estate in La Plata began to recover, the number of houses sold has risen an average of 21% per year, and the number of days on the market has fallen an average of 4.7% per year.

OBER tracks bank deposits at four local and regional banks. Between 2009 and 2011 bank assets, defined as net loans and leases, experienced negative growth, then in 2012 and 2013 liabilities recorded strong growth. Currently, bank liabilities are about 14% higher than in 2007 but assets are about 4% higher, which signals the continued slow growth of loans and leases in the region, even as deposits and income rise.

Recently, the OBER constructed the Region 9 Business Index (R9BI). The index shows strong economic activity from 2002 to 2012, with growth averaging about 2.4% per year. However, since 2012 it has fallen an average of 1.1% per year. This is due to flattening kilowatt hour use, slowing growth of the labor force, and less mineral extraction, which have been components of the index since 2012.

Recent and Future Trends—The past couple of years have had seen relatively minor external shocks, including the Gold King Mine spill. Tourism appears to have stabilized at about 9% above recession levels. However, the local economy is diversifying and becoming less dependent on seasonal economic drivers, such as tourism. The labor market is continuing to experience positive trends, and OBER expects to see continued economic improvements.

Anecdotally, the spirits of most local business are improving, and optimism is continuing to build on the environment of the past two years or so. Rising demand for construction and in real estate will slowly provide a foundation for relatively good growth. Continued levels of underemployment is also anticipated, which is not unlike other resort communities that rely on seasonal construction jobs and low value-added service jobs.

With oil and gas prices remaining muted over the foreseeable future (five-year oil futures are about $55 per barrel), oil and gas-related revenue and associated tax revenues will continue to be a concern for the region. This will be countered, somewhat, by the recovering real estate market. Other concerns are the declines in Fort Lewis College enrollment and the inflow of retired workers who will put increasing pressure on services.

An additional challenge will be paying for relatively unskilled workers. While many local business already pay their workers greater than the state mandated minimum wage of $8.31 per hour, the calculated living wage for a family of two La Plata County is $24 per hour. Given the large number of low-skilled service-oriented jobs in the region, there is little chance that many workers can earn sufficient income and may continue to commute from outlying areas to Durango. ✜

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Mesa County

The Grand Valley sits at the confluence of the Colorado and Gunnison Rivers, with wide-open plains surrounded by the majestic Colorado National Monument, Book-cliffs, and Grand Mesa. Most residents live in Grand Junction, the largest city between Denver and Salt Lake City, Utah, and is equidistance between the two. Grand Junction is the county seat in Mesa County, which also encompasses the City of Fruita and the smaller, picturesque towns of Palisade, Collbran, DeBeque, Gateway, Mack, and Mesa.

Population, Employment, and Wages —Mesa County has experienced slow but steady population and employment growth over the past year, as well as a decrease in unemployment.

Between 2010 and 2015, the county's population increased by 1.8%, totaling 149,249, compared to the state population increase of 8.1%. Year-to-year total nonfarm employment increased 0.8% between October 2015 and October 2016. The unemployment rate (not seasonally adjusted) in Mesa County decreased from 4.6% in October 2015 to 4.5% in October 2016. This is higher than Colorado's unemployment rate of 3.1% (not seasonally adjusted) and also higher than the nation's rate of 4.7%. The Mesa County Workforce Center recorded 1,484 new job orders in Q3 2016, an 8% increase from Q3 2015.

The total civilian preliminary labor force (not seasonally adjusted) for Mesa County in October 2016 was 73,416, of which 70,085 were employed and 3,331 were unemployed. The average annual wage in Mesa County for the first quarter of 2016 increased from the previous year, to $40,946.

Real Estate—A total of 3,519 transactions totaling $807 million were reported in Mesa County through the first eight months of 2016. Compared to the same period in 2015, transactions are up 22.8%, and the dollar volume is up 17.9%.

Regional Hub—Mesa County continues to be a regional hub for health care, education, energy and tourism. The area is a regional medical and health center serving a population of approximately 500,000 in western Colorado and eastern Utah.

Health Care—The level of medical and health services in Mesa County is uncommon in the variety of services offered to a community of this size. St. Mary's Hospital is the largest hospital in the Grand Valley and the only Level II trauma center in western Colorado and eastern Utah. An AIRLIFE Emergency Medical/Critical Care Transport Service and a Level II neonatology center are also available.

Community Hospital has completed a $50 million expansion that has extended services to include labor and delivery and a variety of outpatient surgeries. Mesa County serves as a commercial and medical center for citizens in this region and as a medical referral center for neighboring towns such as Moab in Utah and Montrose, Delta, Rifle, Eagle, Aspen, Glenwood Springs, Craig, Meeker, Rangely, Gunnison, Ouray, and Telluride in Colorado.

Education—Colorado Mesa University (CMU) ranks in the top 10 largest employers in the region, with 1,996 full- and part-time employees in 2014 and a total yearly net payroll of more than $25.1 million that is spent locally. Its expenditures for goods and services in the 14-county region totaled $33.6 million in FY 2013–14, while an additional $32.2 million was spent on construction and technology. CMU's estimated economic impact of $417.5 million in FY 2013–14 is a 189.5% increase over FY 2003–04. Furthermore, an estimated 2,794 regional jobs are due to CMU's spending.

Mesa County School District 51 currently employs more than 2,600 teachers, administrators, and support staff.

Retail—Retail sales in Mesa County decreased slightly in 2016. The Mesa County sales and use tax revenues decreased 4.5% from September 2015 to September 2016, with the county collecting $23.1 million compared to $24.2 million in 2015.

Airport—The Grand Junction Regional Airport (GJT) is classified by the Federal Aviation Administration as a Class I airport. GJT is the premiere facility serving western Colorado and eastern Utah. In addition to both private and public passengers, FedEx operates out of the facility. GJT reported 146,219 passenger enplanements as of August 2016, a 1.4% increase compared to August 2015.

Leading Industries—Originally steeped in energy and agriculture, the Mesa County economy has diversified significantly in the last 25 years.

Medical and Health Care—Health Care and Social Assistance make up 16% of Mesa County's total employment. As of September 2016, Mesa County had 9,648 jobs in the Health Care and Social Assistance industry, and this number is expected to increase 3.3% in 2017. St. Mary's Hospital has completed its buildout of a new patient tower that will support 120 local construction jobs and open 92 net new positions. New services include a bone marrow transplant program, an expansion of its rehab and surgical units, and a new rehabilitation unit, which will have an estimated economic impact of $40 million to the local economy. Community Hospital recently finished construction of a four-story, 140,000-square-foot facility that is licensed for 78 beds. This new facility offers inpatient and outpatient surgery and emergency care as well as state-of-the-art ultrasound, digital mammography, and cardiac testing. The Grand Junction VA Medical Center is another health care facility providing patient care to more than 37,000 veterans residing on the Western Slope.

Aviation and Aerospace—The aviation and aerospace industries employ more than 400 employees in Mesa County, and 424 people in the county are employed in aviation and parts manufacturing, which is a 3% increase from 2015. Lewis Engineering, Twin Otter International, Armstrong Consultants, Wren Industries, and West Star Aviation, Inc. are the leading employers in the aviation and aerospace industry.

Outdoor Products and Services—Businesses are attracted to Mesa County because of the natural environment for product testing and the wide array of outdoor recreation options that are attractive to the outdoor workforce. In 2016, Mesa County had 1,415 outdoor industry jobs, and this number is expected to rise 2.8% in 2017. Businesses currently based in Mesa County include DT Swiss, Loki, Mountain Racing Products, Honey Skateboards, Savvy Cycles, Leitner-Poma of America, Mountain Khakis, Wiggy's Inc., Bonsai Design, as well as Powderhorn Mountain Resort. The area is home to more than 14 bike shops, 5 ski shops, and 2 mountaineering/climbing shops.

Energy—The energy industry makes up 2.9% of Mesa County's total employment. Mesa County had a 44% decrease in the total number of energy-related jobs from 2015 to 2016. However, the renewable and cleantech industries are budding in Mesa County. Major employers include Chevron, Exxon Mobil, and Halliburton. Thanks to the Jump-Start tax credit program that launched in Mesa County in 2016, energy-focused startups like ProStar Geocorp, GSI Energy, and Qmast LLC are able to accelerate their business growth by locating in the region.

IT and Professional Services —The Professional, Scientific, and Technical Services industry makes up 3.6% of Mesa County's total employment and is projected to increase of 2.4% in 2017. This industry includes employment in IT solutions, data storage, web design and marketing, and web-based services. Local companies include Networks Unlimited; ProStar Geocorp, Inc.; The Kaart Group; STARTEK; Cranium 360; Ryan Sawyer Marketing; EWS Group; and ProVelocity.

Agriculture—In 2015, the Agriculture Sector accounted for $28 million of GDP in the Grand Junction Metropolitan Statistical Area (MSA), according to data from the

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Bureau of Economic Analysis. Beef (cattle and calves) is the largest agricultural export for Mesa County. Livestock sales make up 52% of the market value of agricultural products sold in the county.

Tourism—In 2015, Mesa County reported 1 million visitors to local lodging properties, totaling $269 million in direct travel spending and $8 million in local taxes annually. Mesa County is home to Colorado National Monument, which attracts more than 500,000 visitors annually. Visitation in 2015 skyrocketed up 29.1% from 2014, totaling 588,006. The Town of Palisade is a sought-after destination with its rich history of Palisade peaches. The town is also the home of Colorado Wine Country. Palisade boasts 17 wineries and 22 orchards, and hosts many festivals, including the Bluegrass and Roosts Festival, the Lavender Festival, the Palisade Peach Festival, and the Colorado Mountain Winefest.

Fruita, Grand Junction, and Palisade attract visitors from all over the world who come to ride world-class single-track mountain bike trails. These trails have spawned the Grand Junction Off-Road, an endurance mountain bike event that has gained global attention, drawing racers from around the world. In 2017, Mesa County will host the USA Cycling Para-Cycling Road National Championships and the USA Cycling Collegiate National Road Championships. Other cycling races within Mesa County include the Maverick Classic, Icon LASIK Tour of the Moon, Tour of the Valley, Rumble at 18 Road, Palisade Brews and Cruise Festival, and the popular Fruita Fat Tire Festival.

Powderhorn Mountain Resort is located on the northern edge of the Grand Mesa with an average of over 250 inches of snow each season. A new downhill mountain bike trail system was developed in early 2016. The trails are served by a new high-speed, detachable quad chairlift that was operational in the 2015–16 ski season. This downhill mountain bike trail system has been a big hit for locals, and there are plans to expand with more trails being built for the spring of 2017. All of these improvements are allowing Powderhorn Mountain Resort to operate year-round, generating new jobs and increasing adventure-seeking visitors.

Rural Jump-Start Mesa County—In 2016, the State of Colorado started the Rural Jump-Start tax credit program that is a joint effort between the State of Colorado, counties, municipalities, public colleges, and businesses to help spur job growth and the economies of Colorado's rural regions. It offers a tax holiday to businesses in exchange for bringing new jobs into the Jump-Start Zones. Mesa County was the first county to be accepted as a Rural Jump-Start Zone, which, in turn, has assisted in the startup of seven new companies that are expected to create 543 new jobs by 2020. These jobs will contribute an estimated annual total of $22.3 million into the local economy.

Summary—The business and economic outlook is continuing to trend positive for Mesa County. Further diversification of business industries; new incentive programs, such as Jump Start Colorado that is designed for the rural regions of Colorado; and an ever-improving high quality of life will help to position Mesa County for growth in 2017. ✜

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Northern Colorado

The Northern Colorado region is a region of innovation, education, and opportunity that encompasses Weld and Larimer counties. It is located directly north of Metro Denver, with the Rocky Mountains to the west and Wyoming to the north. The area is one of the fastest-growing regions in the country. The U.S. Census Bureau ranked Fort Collins and Greeley as the 10th and 6th fastest-growing cities, respectively, in the nation in 2015. The area places an emphasis on innovation and entrepreneurship, and maintaining its diverse and highly educated population. One attraction for companies coming to the region is a base of prominent universities and community colleges. The well-educated workforce and diverse employment base make Northern Colorado a prime area for business and industry growth. Northern Colorado's top industry clusters include agriculture, energy, bio/life sciences, business services, and manufacturing. Northern Colorado is also rich with cultural opportunities and outdoor recreation. Both Larimer and Weld counties are experiencing high growth in many areas, including primary industry sectors, population, labor force, and real estate.

Based on information provided by the Colorado Department of Labor and Employment, the leading industries in Weld County have remained consistent; the top five are agriculture, manufacturing, energy production, health and wellness, and business services. Larimer County's leading industries are government services, tourism, manufacturing, agriculture, and mining. Employment is decreasing in the mining industry (which includes oil and gas) and slightly in government-related jobs, and show growth in all other industry sectors.

Ninety percent of all oil production in Colorado is concentrated in Weld County, and the county became the largest producer of natural gas in the state in 2015. While Weld is showing a projected loss of jobs in the oil and gas industry for 2016, industry reports show an expected improvement for 2017. Additional contraction and an increase in capital investment is anticipated to provide incremental growth and stabilization to the industry. With natural gas prices remaining at historic lows, it is expected that the majority of growth in this sector will be focused on oil field operations.

Weld County continues to take the leading role in agriculture production exports for the state for beef, sugar beets, grain, cattle, and dairy. The value of agricultural products exported in Weld County during 2014 was estimated at $13.2 billion; $1.7 billion were foreign exports and the remaining $11.5 billion included domestic sales according to data from IMPLAN. Commodity prices remain low but expansion continues from food processing companies such as Leprino, which has spurred additional investment into the agriculture supply chain.

According to the Census, the estimated population growth in Weld and Larimer counties totaled 9,680 and 10,115 in 2016, respectively, and growth is projected at about the same pace in 2017. Most of the growth has been attributable to net migration.

After recording 9% growth in employment in 2014, Weld County is seeing more modest employment growth given the contraction in the oil and gas industry. Job loss has been absorbed through a diversification of industries in the county; this absorption allowed the unemployment rate to remain low throughout 2016. The seasonally unadjusted unemployment rate was 2.6% in Larimer County, and 3% in Weld County in October 2016. The average annual salary in for the four quarters ending in Q1 2016 was $46,119 in Weld County and $47,079 in Larimer County. Larimer County was estimated at $46,644.

Due to population growth, the Northern Colorado housing market has tightened, and it is evident in real estate prices and the associated cost of living. According to the Colorado Division of Housing, vacancy rates by market area have increased by about 1.9% in Weld County and 0.8% in Larimer County, which is partially due to the increases in cost of living. According to the Colorado Legislative Council's study of the cost of living by school district, Weld County had an average increase of 7.9%, while Larimer County had an increase of 5.8% in 2015. Northern Colorado continues to have strong home sales and home value increases but at a slower growth rate. Although people are still moving to these regions, growth has been slower due to a reduction in certain industry sectors.

Notable rankings in 2016 according to Area Development, which ranks communities for companies making location decisions, the 2016 Leading Locations ranked Fort Collins number 11 in the nation for the overall ranking. Also in 2016, Greeley placed in the top 10 for five-year employment growth rate. In Forbes' 2016 Best Places for Business and Careers, the Fort Collins Metropolitan Statistical Area (MSA) placed in the top 20 of 100 communities and the Greeley MSA placed 51st.

In 2016, Northern Colorado showed continued growth in population and industry sectors with the exception of a few industries. With an exceptional supply of an educated workforce and educational institutions, the two counties are more attractive than ever for companies seeking an attractive location. ✜

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Southern Colorado

Employment—The unemployment rate in El Paso County stood at 3.5% on a nonseasonally adjusted basis at the end of September 2016. This compares to an unemployment rate of 3.8% in September 2015. The labor force increased from 309,420 to 313,778 from September 2015 to September 2016, a change of 4,358. Over the same period, employment increased from 297,815 to 302,852 for a change of 5,037. Since 2010, the size of the labor force has been relatively stagnant, on average growing only 0.4%. By contrast, the population has increased approximately 1.9% per year since the early 2000s. However, more recently, the labor force has experienced more growth: 1.3% in 2016 through September. Another positive indicator is that the number of new jobs has also been higher more recently than it was immediately after the recession. There were approximately 5,000 new jobs in 2013 and another 5,000 new jobs in 2014, whereas there were over 7,500 new jobs in 2015 and 8,283 new jobs from Q1 2015 to Q1 2016.

Specific Sectors—Sixteen of the 21 Quarterly Census of Employment and Wages (QCEW) industry sectors in El Paso County saw job gains in 2015. The most significant gains were in Health Care and Social Assistance, Accommodation and Food Services, Professional and Technical Services, Retail Trade, Construction, Administrative and Waste Services, and Other Service. Health Care and Social Assistance, combined with Accommodation and

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Food Services, represented 43.6% of total job gains in the county. Job losses occurred in five sectors, with the most notable losses in Information and Manufacturing.

QCEW average annual pay across all categories increased in El Paso County, from $45,500 in 2014 to $46,592 in 2015. This 2.4% wage increase is close to the national average. However, the average wage in El Paso County remains low compared to Colorado as a whole and is 14% below the 2015 state average.

Nineteen sectors in El Paso County saw increases in their average wage. Average wage growth was strong in Management of Companies and Enterprises (up $15,600, to $125,528); Agriculture, Forestry, Fishing and Hunting (up $4,836, to $27,612); Real Estate, Rental and Leasing (up $2,808, to $40,456); and Arts, Entertainment and Recreation (up $1,456, to $21,372). Average wages declined most significantly in Mining (down $3,276, to $69,056) and Manufacturing (down $572, to $59,176).

Per Capita Personal Income—Nominal per capita personal income in 2015 in El Paso County is 15% below the Colorado average and 10% below the U.S. average. Per capita personal income increased 2.4%, to $43,385, in 2015 over the 2014 level of $42,360.

Residential Real Estate—The residential real estate market in the Pikes Peak region has been very strong in the past year. From October 2015 through September 2016, a total of 3,466 single-family permits were issued in El Paso County. This is an increase of 559 permits (19.2%) issued compared to the number issued from October 2014 through September 2015. The UCCS Economic Forum expects approximately 3,200 permits to be issued in El Paso County in 2016. The forum has estimated that for the population size and the demographic composition of the county, approximately 4,500 permits for single-family homes is appropriate. The multifamily market has also seen an increase in 2016. Through September 2016, permits for 26 projects and 752 units were pulled. Multifamily permits are expected to end 2016 with 770 units and a forecast for another 720 units in 2017. As of Q2 2016, average monthly rents for apartments are $991 per month in the Colorado Springs Metropolitan Statistical Area (MSA).

Home sales were strong in 2015. Buyers are taking advantage of historically low mortgage rates and attractive prices. The average sales price of a home is expected to increase to $284,800 in the Pikes Peak region in 2016, a 6% gain over 2015. The median price of a single-family home is anticipated to rise to $251,350 in 2016 compared to $238,700 in 2015. Sales are expected to reach 15,228 homes in 2016 and 17,055 homes in 2017.

Foreclosures decreased 19.5% in 2015, to 1,470. This is the sixth-consecutive year foreclosures declined in El Paso County. Through August 2016, foreclosures totaled 927 compared to 958 in August 2015. The UCCS Economic Forum projects a total of 1,476 foreclosures in 2016 and 1,460 foreclosures in 2017.

Commercial Real Estate—Commercial office vacancy rates dropped to 11.7% at the end of 2015 compared to 13% at the end of 2014. By September 2016, the vacancy rate increased to 12.5%. At the same time, triple net lease rates increased from $10.42 per square foot at the end of 2014 to $10.58 per square foot at the end of 2015. They climbed to $10.85 per square foot in September 2016.

The industrial vacancy rate decreased to 7.4% at the end of 2015 from 7.7% at the end of 2014. As of September 2016, the rate had dropped to 6.9%. Average rents increased from $6.65 per square foot in 2014 to $7.16 per square foot by the end of 2015. This rate increased again, to $7.25 per square foot, as of September 2016.

Shopping center vacancy rates had edged up from 10.2% at the end of 2014 to 10.3% at the end of 2015. Then they dropped to 9.3% in September 2016. Average rents increased about $0.31 per square foot, from $13.08 at the end of 2014 to $13.39 at the end of 2015. They increased to $14.20 per square foot as of September 2016. Anchored shopping centers have average vacancy rates of 6.4%, a rate much lower than the nonanchored shopping centers' average rate of 14%.

Medical office vacancy rates improved slightly in 2015, decreasing from 10.6% at the end of 2014 to 10.4% at the end of 2015. But by September 2016, they had increased to at 11.2%. Average rents rose in this property type, going from $11.64 at the end of 2014 to $12.23 at the end of 2015. As of September 2016, they had edged down slightly, to $12.11. The UCCS Economic Forum uses Turner Commercial Real Estate reports for its data, although various community contacts have advised that no single commercial real estate report is 100% inclusive or accurate.

Wholesale and Retail Trade—With the increase in GDP and employment levels, and the improvements in consumer confidence, it is not surprising there has been a rise in all of the retail sales categories: building materials, nonstore retailers, food and beverages, motor vehicles and parts, clothing, accessories, health and personal care, hobby, books, music, electronic appliances, furniture, and home furnishings. Employment in the Retail Trade Sector increased by 872 jobs, up 2.8%. Average wages increased $780, to $28,756 (2.8%).

Wholesale sales in El Paso County decreased 7.2%, to $3.7 billion in 2013, then increased 8.6%, up to $4 billion in 2014. Sales increased another 5.1%, up to $4.2 billion, in 2015. Wholesale Trade employment in El Paso County rose by only 151 jobs, to 5,155, in 2015. Average wages for employees in Wholesale Trade, however, grew 4%, or $2,496, to $64,636 in 2015.

Sales and Use Tax—The City of Colorado Springs benefits from strong, growing taxable retail sales because more than 50% of the city's budget dollars come from these collections. City sales and use tax collections increased 4.6%, or $6.6 million, to $148.7 million in 2015. Sales and use tax collections are expected to increase 5.6% in 2016 and another 3.5% the following year in nominal terms. However, adjusting sales taxes for both consumer price inflation and population increases, the real value of sales and use tax collections will increase by just 2.8% in 2016 and 0.3% in 2017.

Colorado Springs voters approved a measure at the end of 2015 to increase sales and use tax rates by 6.2 cents on every $10.00 in order to fund five years of road improvements estimated at approximately $250 million.

Education—The higher educational attainment of a region's population is important because well-trained individuals are necessary for business growth, and therefore, overall economic growth. The American College Test (ACT) is used to help determine how well students will do in their first year of college. The overall unweighted average in El Paso County ACT scores for juniors in high school was 20.5 in 2015 while the Colorado average was 20.1 for all juniors. Colorado is one of 13 states that require all high school students to take the ACT. This brings down the average composite score so one should exercise caution when comparing Colorado ACT scores to those in most other states or to the U.S. average of 21.0 in 2015.

The El Paso County high school graduation rate improved to 81.7% in 2013, then declined to 77.8% in 2014 and 75.7% in 2015. Part of this decline is due to the addition of a group of students in online schools who take longer than four years to graduate and are not counted in these graduation rates. In 2015, Colorado's graduation rate of 77.3% was higher than the overall rate for El Paso County; however, 12 out of 15 school districts had a higher rate than the state.

For ages 25 and older in 2015, 34.5% of the City of Colorado Springs' population had some college or an associate's degree, which is higher than the state (30.2%) and the United States (28.9%). In addition, 38.3% of this population in Colorado Springs had attained a bachelor's degree or higher, which is comparable to the state (39.3%) and significantly higher than the nation (30.6%), according to U.S. Census Bureau data on educational attainment. It is forecast that by 2020, 74% of all jobs in the state will require some level of postsecondary education or training. Southern Colorado will have an advantage, with its relatively well-educated workforce.

Where Is the Economy Heading?

The Colorado Springs MSA, which encompasses El Paso and Teller counties, is likely to continue its positive trajectory with respect to economic recovery and growth. Projections include a continued decrease in the unemployment rate, from 4.6% in 2015 to 4% and 4.2% for 2016 and 2017, respectively. With improvements in employment, what has long been an employer's market is now becoming more of an employee's market. This will push up average wages, which is desirable given the low civilian participation rate. More workers need to be lured back into the workforce in order to improve the civilian participation rate and increase productivity. Likewise, it is likely that gross metropolitan product (GMP) will have an increase of 2% in 2016 and 2.7% in 2017.

Consumer confidence is high and back to pre-recessionary levels. This is fueling economic activity as a whole, but especially the purchase of large ticket items, such as cars and homes. The University of Michigan consumer sentiment survey has formulated strong forecasts for personal consumption expenditures throughout the rest of 2016 and into 2017. Given the low local unemployment rate, the high number of new jobs, and the growth of many higher-paying sectors, it appears likely that consumerism will likewise be strong in the Colorado Springs MSA for the foreseeable future.

According to the National Association of Realtors, Colorado Springs saw increases in home prices of 5.9% in Q2 2016 year-over-year, which is higher than the U.S. average increase of 4.9%. The average home price in the Pikes Peak region in 2015 was $268,688 and for 2015 and 2016, the projected average prices are $284,810 and $303,320, respectively. Total home sales were 13,252 in 2015, and for 2016 and 2017, home sales in the Pikes Peak region are projected to be 15,228 and 17,055, respectively.

Last, the State Demography Office projects large increases in population for El Paso County. The county is one of four projected to have a population increase of at least 300,000 over the next 30 years. This has tremendous implications for businesses, individuals, families, and government. The relatively lower cost of living in the region, with a 2015 housing affordability index of 166, is likely one of the reasons for the projected population growth. By way of comparison, Denver's housing affordability index was 129 and Boulder's was 118 in 2015. A higher index means homes are more affordable.

Overall, the Colorado Springs region is well positioned for growth, particularly if it can foster a stronger business climate. Similarly, the region will significantly benefit from instilling effective strategies for attracting or internally building a skilled workforce.

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