FIFTY-SEVENTH ANNUAL

COLORADO

BUSINESS ECONOMIC OUTLOOK

2022

Leeds School of Business
UNIVERSITY OF COLORADO BOULDER

Additional copies may be ordered from:

Business Research Division
University of Colorado Boulder
420 UCB
Boulder, CO 80309-0420
colorado.edu/business/brd

978-0-89478-900-7

Printed on recycled paper.

Leeds School of Business Corporate Partners

Angel

DANIELS FUND

KeyBank

THE W.W. Reynolds COMPANIES

ARROW

Principal

Western Digital.

EY

Lead

CRESTONE

Program

b:side capital

THE INFINITE MONKEY THEOREM URBAN WINERY

Office for Outreach and Engagement
UNIVERSITY OF COLORADO **BOULDER**

SANITAS BREWING CO.

Table of Contents

Leeds School of Business

Dear Colleagues in Business,

I'm delighted to welcome you to the 57th annual Colorado Business Economic Outlook, and to what I hope is a return to an almost-normal time at your business, in our state and in the country.

The pandemic's impact created ripple effects that are still causing economic disruption, from tangled supply chains to lackluster labor markets, but I am optimistic about what the future holds, and grateful that the economic uncertainty created by COVID-19—difficult as it was—is easing up.

There are signs of recovery all over our campus, which came to life this fall when our students, faculty and staff returned to Boulder en masse. That's meant an even better educational experience for our students—we learned from our COVID experiences about how to use technology in new and innovative ways—but also a more collaborative environment for our faculty researchers, whose insights we count on in driving business forward through this time of uncertainty. During the pandemic, our faculty have explored issues such as the future of work, supply chain reconfigurations, entrepreneurship rates, financial markets' behavior, globalization, and consumer behavior and technology. They have also found creative ways to share these insights, such as virtual events, podcasts and workshops.

And the value of a Leeds education has never been greater. In *U.S. News & World Report's* 2022 ranking of the Best Undergraduate Business Schools, Leeds was included in the top 20 public schools. We also started new graduate programs, including our executive and hybrid MBA degrees for working professionals. Both have been met with enthusiasm by those seeking new skills for a changing environment, as well as by employers who see these programs as a valuable way to develop and retain their highest potential talent.

Our success is so closely tied to the success of our business community. We are fortunate to be part of a thriving business community full of true partners: From those who recruit our students or speak in our classrooms, to those who work with us on research or co-develop specialized programs, your success is our success. We also greatly value your engagement with our initiatives to attract more interest from women and students from diverse backgrounds in a business education, and to bring together the worlds of business and technology through our partnership with our College of Engineering and Applied Science. With you, we are inspiring and educating the leaders of tomorrow.

I hope you find this year's forecast helpful as you navigate what the future holds. Thank you for your support of Leeds, our faculty, our research and, most importantly, our students.

Sincerely,

Sharon Matusik, Ph.D.
Dean, Leeds School of Business

#1

#1 Business School
in Colorado

#27

#27 in Entrepreneurship
Full-Time MBA Program
Bloomberg Businessweek
(2021-22)

#20

#20 Best Public Undergraduate
Business Program

U.S. News & World Report (2022)

Top 50

#45 in the world
Leeds' faculty per-capita
research ranking

Class of
2025

Our freshman class:
30.64 ACT average
43.7% women
30.1% students of color

75%

75% 4-year graduation
rate (undergraduate)

Welcomed the first cohort
to the new Executive
MBA program (2021)

MBA & MS

11 MBA and specialized
MS programs for working
professionals

Introduction

The Business Research Division (BRD) in the Leeds School of Business is proud to present the 57th annual Colorado Business Economic Outlook. This 2022 consensus forecast is a product of partnerships with individuals spanning numerous universities, businesses, nonprofits, and government entities. These individuals generously gift their time, sharing their unique expertise and perspectives about people, industry, and policy relating 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 57th 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 140 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. The BRD simultaneously generates an econometric forecast by industry, which is given to each industry committee. 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 July, 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 important 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 have worked hard at preparing, presenting, and promoting this project. My sincerest thanks go to Brian Lewandowski, executive director; Jacob Dubbert, research economist; Shannon Furniss, project editor; Cindy DiPersio, guest editor; Kristin Weber, graphic designer; Denise Munn, senior print production manager; and Lucas Ericson, Trevor Hall, Max Olson, Jessie Ryce, and Vianne Schein, student research assistants, for their help in assembling and presenting the 2022 Colorado Business Economic Outlook Forum. The assistance provided by Leeds School staff member Laurel Harman, assistant director of Advancement Event Experiences; and Trisha McKean, assistant dean of advancement, is greatly appreciated. The Leeds Marketing and Communications team—executive director Amber Hickory and team members Justin Forbis, Anneli Gray, Joe Arney, Liz Draper, Honey Hargrave, Brad Haynes, Erik Jeffries, and Jennifer Schuman—contributed marketing and promotion assistance. I also appreciate the help provided by Nicole Mueksch with CU Boulder Strategic Media Relations.

Colorado Economic Forecast for 2022

The sections that follow provide a summary of 2021, a forecast for 2022, 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

Richard L. Wobbekind, Ph.D.
Associate Dean Business and Government Relations
Faculty Director, Business Research Division
Leeds School of Business
www.colorado.edu/business/brd

Colorado Then and Now

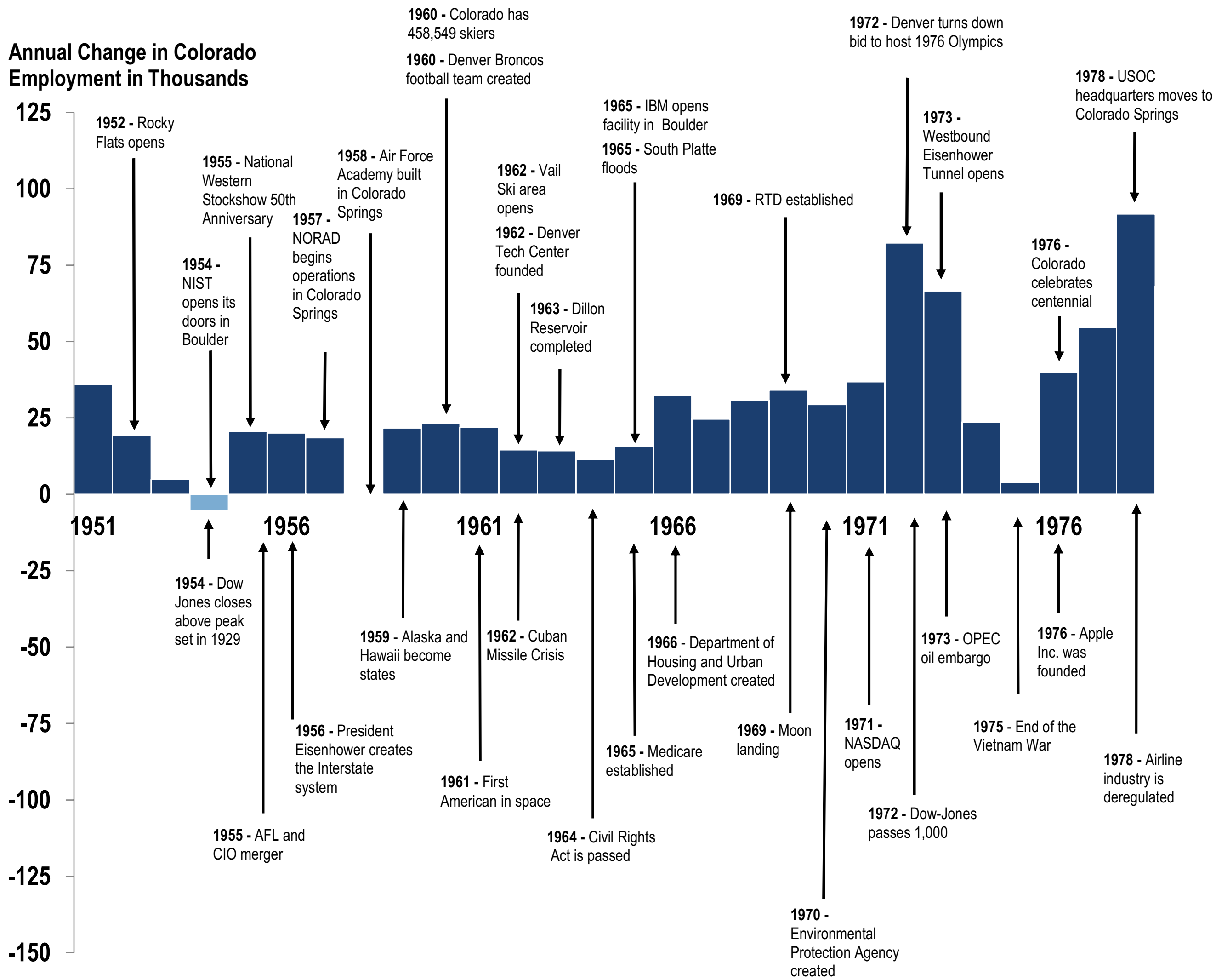
The timeline to the right provides a glimpse into the past, showing the annual change in state employment. Changes in employment have been accompanied by numerous social, economic, educational, and political changes. Colorado events are listed above the line; national events are noted below.

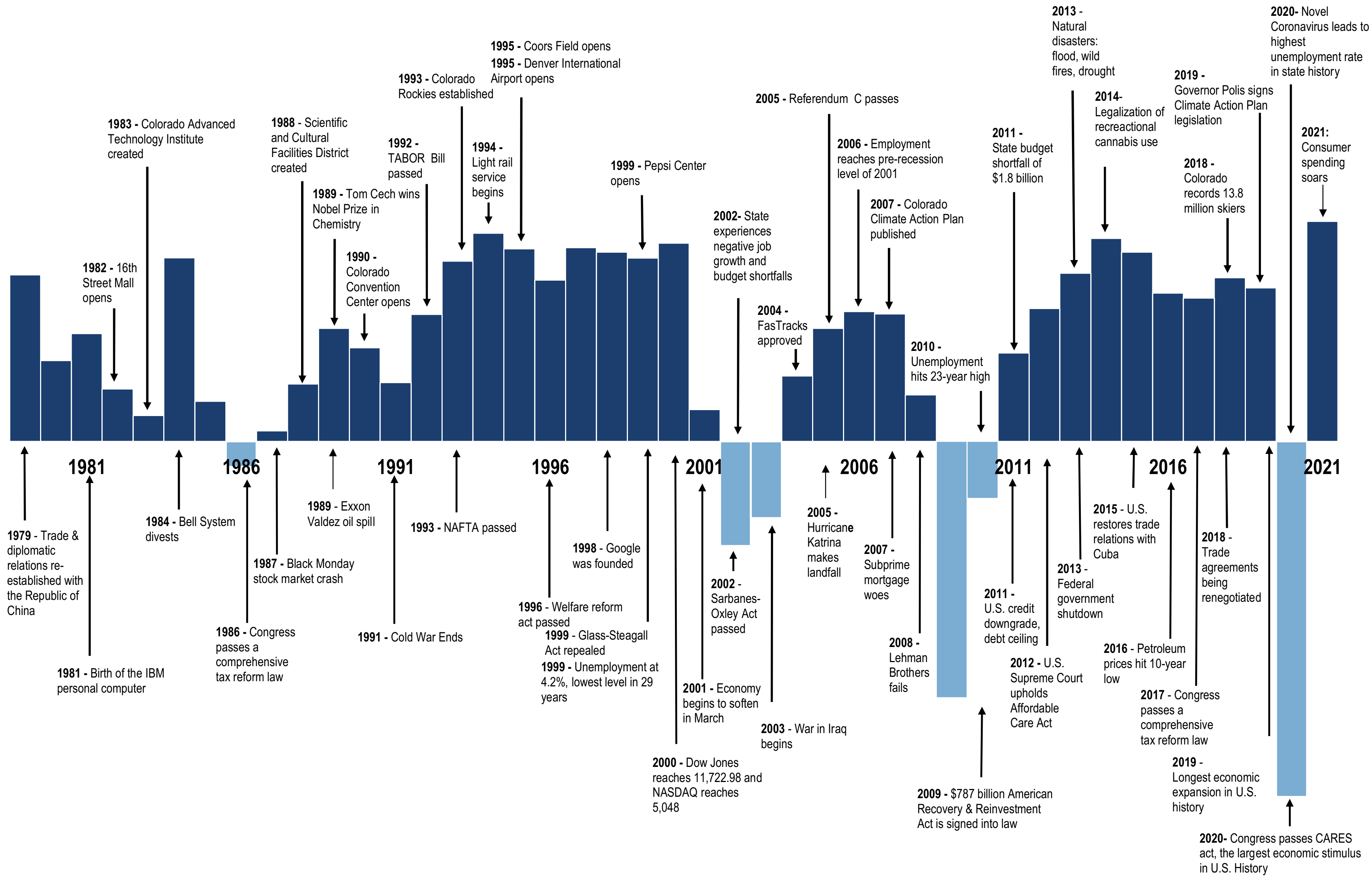
Over the past five decades, Colorado has experienced numerous economic booms and busts, dynamically changing industries and (mostly) unrelenting population growth. The timeline puts the COVID-19 recession and rebound into perspective, comparing the 2021 recovery to those following prior economic recessions through which Colorado has persevered.

In 1970, just over 1 million individuals were employed in Colorado, and the average annual earnings were under $6,700. Since then, wage and salary employment in the state peaked at over 2.9 million prior to the COVID-19 pandemic, not including proprietor employment, and average annual pay for covered wage and salary earners grew to $61,820. In 2020, wage and salary employment fell to just below 2.8 million, and average annual pay grew to $66,649.

Goods-producing industries accounted for 24% of jobs and made up 26.7% of the Colorado GDP in 1970. By 2020, those sectors accounted for 13.9% of total jobs and 19.2% of the state's GDP. While proprietor employment represented less than 17% of total employment in 1970, it now represents 25.6%. The share of women in the state's labor force has increased to 45.9%, nearly a 10-percentage point increase from 1970.

Throughout the 1970s, the Colorado economy benefited profoundly from booms in petroleum and mining production. The state has undergone an enormous increase in college-educated population as the percent of Colorado residents 25 years or older with four or more years of college nearly tripled, from 14.9% in 1970 to 42.7% in 2019. With a larger base of highly qualified employees, high-tech industries have added significantly to Colorado's economy and the state's key industry clusters, specifically aerospace, biosciences, telecommunications, and IT software.




1981
1986
1991
1996
2001
2006
2011
2016
2021
1979 - Trade & diplomatic relations re-established with the Republic of China
1981 - Birth of the IBM personal computer
1982 - 16th Street Mall opens
1983 - Colorado Advanced Technology Institute created
1984 - Bell System divests
1986 - Congress passes a comprehensive tax reform law
1987 - Black Monday stock market crash
1988 - Scientific and Cultural Facilities District created
1989 - Tom Cech wins Nobel Prize in Chemistry
1989 - Exxon Valdez oil spill
1990 - Colorado Convention Center opens
1991 - Cold War Ends
1992 - TABOR Bill passed
1993 - Colorado Rockies established
1993 - NAFTA passed
1994 - Light rail service begins
1995 - Coors Field opens
1995 - Denver International Airport opens
1996 - Welfare reform act passed
1998 - Google was founded
1999 - Pepsi Center opens
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- State experiences negative job growth and budget shortfalls
2002 - Sarbanes-Oxley Act passed
2003 - War in Iraq begins
2004 - FasTracks approved
2005 - Referendum C passes
2005 - Hurricane Katrina makes landfall
2006 - Employment reaches pre-recession level of 2001
2007 - Colorado Climate Action Plan published
2007 - Subprime mortgage woes
2008 - Lehman Brothers fails
2009 - $787 billion American Recovery & Reinvestment Act is signed into law
2010 - Unemployment hits 23-year high
2011 - State budget shortfall of $1.8 billion
2011 - U.S. credit downgrade, debt ceiling
2012 - U.S. Supreme Court upholds Affordable Care Act
2013 - Natural disasters: flood, wild fires, drought
2013 - Federal government shutdown
2014- Legalization of recreactional cannabis use
2015 - U.S. restores trade relations with Cuba
2016 - Petroleum prices hit 10-year low
2017 - Congress passes a comprehensive tax reform law
2018 - Colorado records 13.8 million skiers
2018 - Trade agreements being renegotiated
2019 - Governor Polis signs Climate Action Plan legislation
2019 - Longest economic expansion in U.S. history
2020- Novel Coronavirus leads to highest unemployment rate in state history
2020- Congress passes CARES act, the largest economic stimulus in U.S. History
2021: Consumer spending soars

U.S. Economic Outlook

Looking Back

While the impacts of COVID-19 continue to reverberate through the society and the economy, the recession that ensued lasted just two months—the shortest U.S. economic downturn on record, according to the National Bureau of Economic Research. The recession was short, but it cut deep. The economy (gross domestic product) shrank 9.1% year-over-year in the second quarter of 2020—the largest loss on record. The resulting annual decline of 2.3% was the steepest loss since 1946. The human toll was staggering—first and foremost, the lives lost and health impaired. The toll, though, on labor and income was a shock like none other on record. Jobless claims and unemployment spiked to record levels, and the U.S. lost 22 million jobs and the associated incomes in a matter of two months. Some businesses were designated "essential," some adapted to a new operating environment by shifting to remote work, and others shut their doors due to decreased demand or government mandates. The fiscal and monetary responses were arguably unprecedented in breadth, volume, and speed, injecting massive liquidity into the markets that supported households and businesses. The Federal Reserve's total assets increased from a pre-recession level of $4 trillion to nearly $8.7 trillion as of November 2021; the federal government has spent $3.5 trillion on the COVID-19 response; and additional stimulus has been committed from state and local government, nonprofits, and private businesses.

The Present

The short-lived recession quickly segued into recovery. The steep annualized losses turned into steep annualized gains, and the U.S. reached a new peak GDP in the second quarter of 2021. The labor markets are recovering, too, adding 18 million jobs back in 18 months beginning in June 2020, though still down 4 million jobs (2.8%) from the prior peak. After averaging 2.7% in 2019, the unemployment rate spiked to 14.8% in April 2020, but dropped to 4.6% in October 2021. Initial jobless claims averaged 218,000 in 2019 but spiked to 6.1 million the week of April 4, 2020; they decreased to 268,000 the week of November 13, 2021. Employee earnings have already recovered above pre-recession levels.

Looking Ahead

National GDP is projected to increase over 5% in 2021—the fastest pace of growth in nearly four decades. In 2022, growth is projected at 4%—the fastest growth observed since the tech boom that ended in 2000. Employment is projected to reach a new peak in the fourth quarter of 2022.

Consumer spending on goods and services generally accounts for nearly 70% of total GDP, and it declined 3.8% in 2020. Consumption rebounded sharply in 2021 growing 7.9% and surpassing pre-recession levels. Consumption will continue to grow, but at a much slower rate as the economy normalizes in 2022, increasing an estimated 3.5%.

REAL GROSS DOMESTIC PRODUCT, 2012-2022
(In Billions of Chained 2012 Dollars)

Economic Indicator	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021[a]	2022[b]
Real Gross Domestic Product	$16,254.0	$16,553.3	$16,932.1	$17,390.3	$17,680.3	$18,079.1	$18,606.8	$19,032.7	$18,384.7	$19,395.9	$20,171.7
Percentage Change	2.3%	1.8%	2.3%	2.7%	1.7%	2.3%	2.9%	2.3%	-3.4%	5.5%	4.0%
Personal Consumption Expenditures	$11,047.4	$11,211.7	$11,515.3	$11,892.9	$12,187.7	$12,483.7	$12,845.0	$13,126.3	$12,629.9	$13,627.7	$14,104.6
Percentage Change	1.4%	1.5%	2.7%	3.3%	2.5%	2.4%	2.9%	2.2%	-3.8%	7.9%	3.5%
Gross Private Domestic Investment	$2,621.8	$2,801.5	$2,959.2	$3,121.8	$3,089.9	$3,212.5	$3,394.8	$3,510.6	$3,316.2	$3,564.9	$3,757.4
Percentage Change	11.0%	6.9%	5.6%	5.5%	-1.0%	4.0%	5.7%	3.4%	-5.5%	7.5%	5.4%
Government Expenditures	$3,136.5	$3,060.7	$3,033.2	$3,088.4	$3,148.8	$3,165.2	$3,208.8	$3,279.5	$3,360.2	$3,387.1	$3,448.0
Percentage Change	-2.1%	-2.4%	-0.9%	1.8%	2.0%	0.5%	1.4%	2.2%	2.5%	0.8%	1.8%
Net Exports	-$551.6	-$519.3	-$575.3	-$721.7	-$757.1	-$799.5	-$864.2	-$905.3	-$942.7	-$780.0	-$810.0
Percent of Real GDP	-3.4%	-3.1%	-3.4%	-4.2%	-4.3%	-4.4%	-4.6%	-4.8%	-5.1%	-4.0%	-4.0%

[a]Estimate. [b]Forecast. Note: Excludes changes in inventories.

Sources: Bureau of Economic Analysis, Consensus Forecasts, and Colorado Business Economic Outlook Committee.

The pace of investment spending fell 5.5% in 2020, with the subcomponents of fixed business investment on structures falling 12.5% and equipment decreasing 8.3%. Gross private domestic investment increased an estimated 7.5% in 2021, above pre-recession levels. Investment will continue in 2022 at a slower rate, growing 5.4%.

Government spending grew in 2020 at 2.5%—the fastest pace since the last recession. Spending growth slowed considerably in 2021, to 0.8%, but is projected to accelerate to 1.8% in 2022.

Net exports continued to be a drag on U.S. economic growth. The deficit increased to record levels in 2020, to -$943 billion. Both imports and exports remained below the pre-recession peak in 2019. The trade deficit is projected to average -$780 billion in 2021 and -$810 billion in 2022 as the flow of trade works through supply chain challenges.

The Headwinds

While the recovery has momentum, numerous issues pose risks to the recovery, among them, COVID variants, the supply chain, inflation, and worker shortages. As of November, the U.S. was experiencing a sixth surge in COVID cases. Goods are stuck in transit, trade ports are full, and cargo containers are in an offshore holding pattern. Consumer prices began to surge in 2021, remaining above 5% year-over-year beginning in June, and rising above 6% in October. Job openings and quits spiked to record levels in 2021, signifying unprecedented demand for workers, and the phenomenon of an employee's market leading to more job hopping. Further, the labor force participation rate bounced from recession lows, but the October 2021 rate remained 1.3 percentage points below the 2019 average. The number of dual job holders also decreased.

Supply-side constraints have progressively gotten worse over 2021 and look to be a big issue going into 2022. Production in the economy has been unable to keep up with the huge increase in consumer demand, coupled with a consistent shortage of labor and worsening supply chain bottlenecks. The increasing spending by consumers may have helped the economy bounce back from the recession in record time, but this spending has put pressure on a supply chain battered with problems stemming from COVID-19. Many micro supply chain issues have morphed into a larger problem as modern supply chains are complex: full containers at ports sitting for weeks, a shortage of truck drivers and workers at major ports, a shortage of warehouse space, and factory production failing to meet demand. And all of this is a major driver of the increasing prices being observed by consumers.

Photo Courtesy of Gwengoat/iStockphoto.

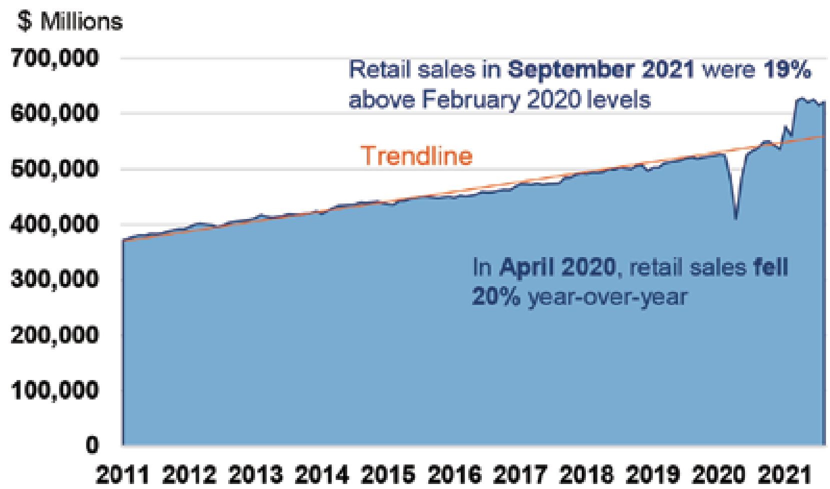
While there was a short blip in retail sales at the beginning of the pandemic, Americans' appetite to consume came roaring back pretty quickly. In fact, after a 20% decline in retail sales in April 2020 year-over-year, sales were back to pre-pandemic levels in June. Fast forward to 2021 and retail sales have significantly broken out of the 10-year trendline, heading for a record year. September retail sales were 13.9% and 20.6% higher than September 2019 and 2020, respectively, year-to-date sales were 20% above the same period in 2020; and September sales were 18.9% above levels seen in February 2020, before the pandemic. E-commerce sales were up 40% in

continued on page 8

U.S. Economic Outlook

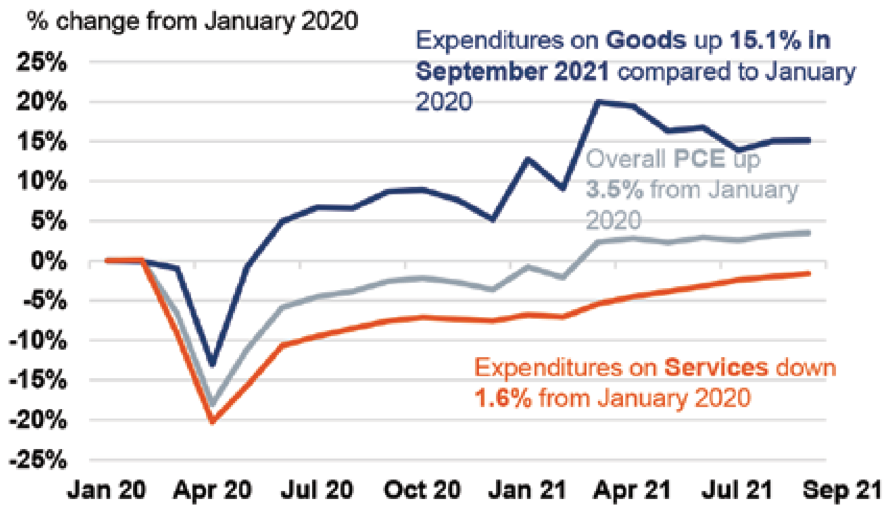
continued from page 7

U.S. MONTHLY RETAIL SALES



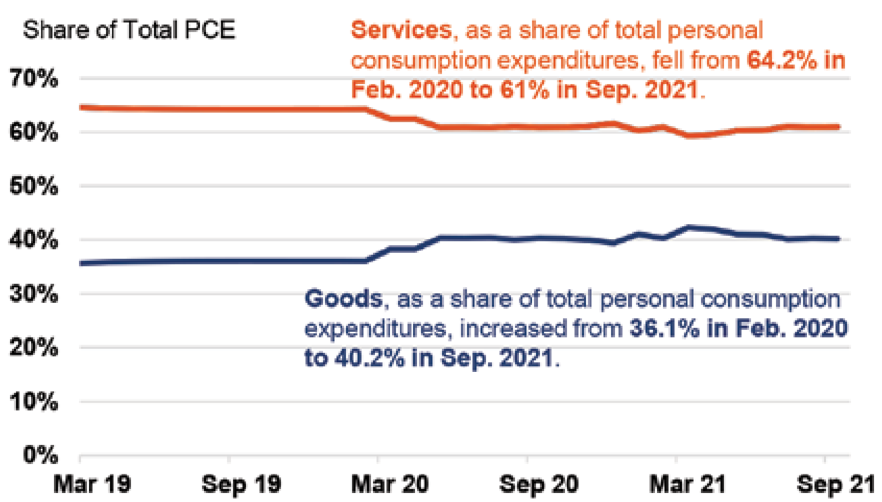
Source: U.S. Census Bureau.

PERSONAL CONSUMPTION EXPENDITURES PERCENT CHANGE FROM JANUARY 2020



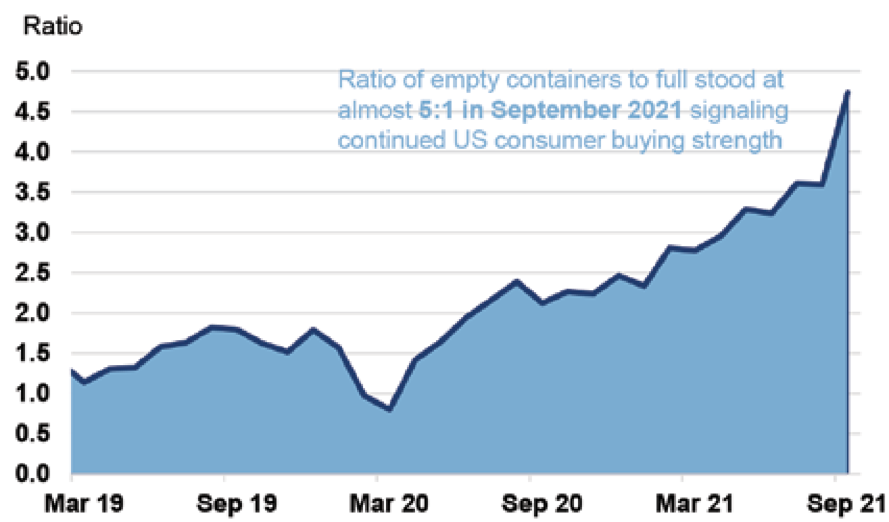
Source: Bureau of Economic Analysis.

PERSONAL CONSUMPTION EXPENDITURES: GOODS AND SERVICES AS A SHARE OF TOTAL



Source: Bureau of Economic Analysis.

RATIO OF EMPTY CONTAINER EXPORTS TO LOADED EXPORTS AT THE PORT OF LOS ANGELES



Source: Port of Los Angeles.

2020 nationally, and up 91% in Colorado. The surge in consumer spending has also rapidly accelerated import growth, with year-to-date imports in September 2021 up 21.1% over to the same period in 2020, compared to a gain of 17.4% for exports. This growth in consumer spending has significantly helped the economic recovery but has also put significant stress on supply chains that were already suffering from staff shortages and production issues due to the pandemic.

One reason for the surge in domestic demand for consumer goods is the historic stimulus that injected trillions of dollars into the economy and put money directly into people's pockets with COVID-relief checks. Another is the shifting consumer spending from services to goods as services were brought to a halt in 2020 due to COVID-19. Personal consumption expenditures (PCE) on goods as a share of the total was 40.2% in September 2021—the highest proportion recorded in the data from the Bureau of Economic Analysis going back to 2002. This shift was exacerbated in March 2020 due to the pandemic and has remained since. Personal consumption expenditures in September on goods was up 15.1% compared to January 2020, while expenditures on services was down 1.6%. This shift significantly increased the amount of goods demanded for production and shipped along global supply chains that was unexpected.

Ports have been unable to keep up with the mass amount of goods being imported in the United States. This creates an issue as around 70% of all U.S. international trade moves by water through America's ports. The Port of Los Angeles, America's busiest port which facilitated $259 billion in trade during 2020, had the busiest September in the port's 114-year history, with year-to-date growth of container counts at 26.5%. While container counts are up tremendously, so is the amount of total empty containers (up 28% year-over-year), while total loaded containers are down 9.7% and loaded exports are down 42%. In addition, the ratio of empty container exports to loaded container exports has been running over 3:1 since May 2021, significantly higher than the average 1.5:1 seen in 2019. This is a major indicator of continued consumer demand as containers are being sent back to other countries to get more goods.


Photo Courtesy of thitivong/iStockphoto.

Furthermore, according to Container xChange's Container Availability Index, the Port of Los Angeles has had a high surplus of full containers throughout most of 2021, with an average surplus of around 0.9 since March, indicating very few full containers are leaving the port. A value of 0.5 means that the same number of full containers leave and enter a port in the same week; a value of more than 0.5 means that more containers enter than leave. Shipping containers remain on ships off the coast, waiting to be unloaded as a record backlog of cargo ships are at U.S. ports. While the inactive container fleet reached record levels in 2020 due to COVID-19, with 9.8% of global container vessels idle in June 2020, normal levels have returned, sitting at 2.6% in August 2021, according to the U.S. Department of Agriculture.

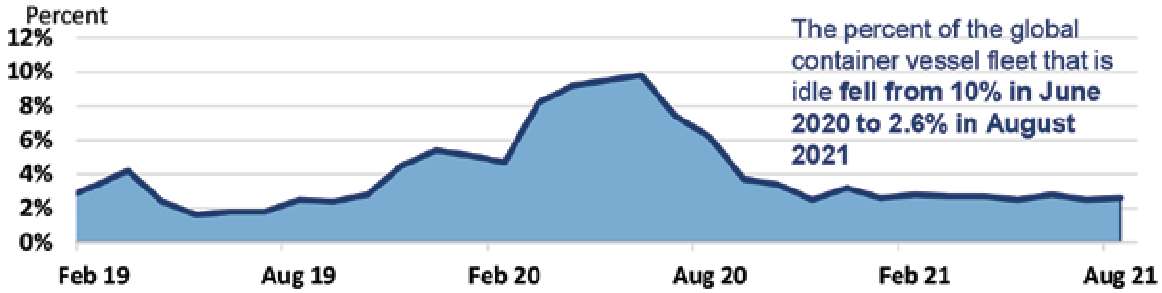
The port of Los Angeles in October had a record number of container ships sitting at port, waiting to get offloaded, with approximately 200,000 shipping containers, or about two weeks worth of work. According to Goldman Sachs, about one-third of shipping containers

continued on page 10

U.S. Economic Outlook

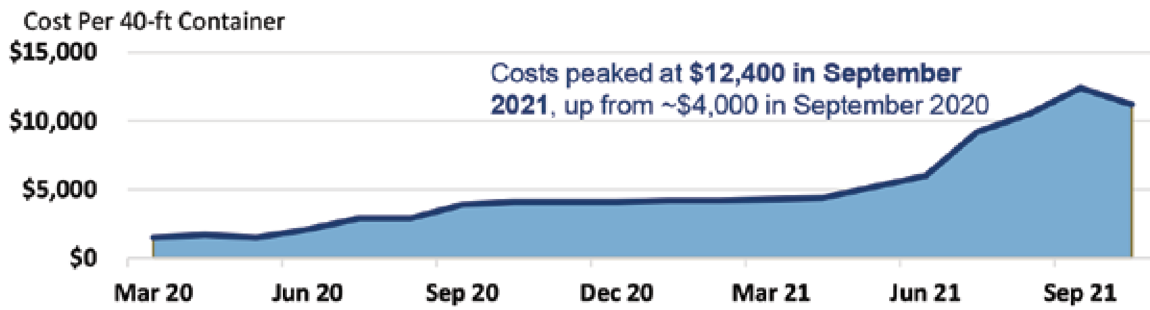
continued from page 9

MONTHLY PERCENTAGE OF THE GLOBAL CONTAINER VESSEL FLEET THAT IS IDLE



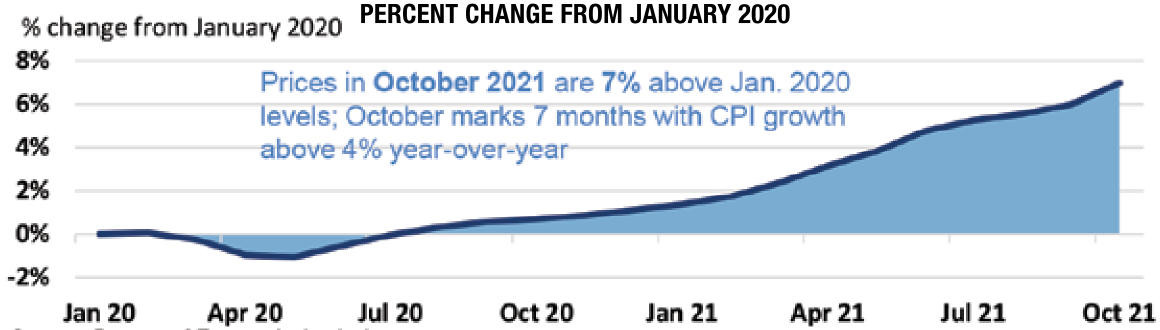
Source: U.S. Department of Agriculture.

GLOBAL CONTAINER FREIGHT COSTS PER 40-FOOT FREIGHT CONTAINER



Source: Drewry.

CONSUMER PRICE INDEX (CPI) FOR ALL URBAN CONSUMERS, U.S. CITY AVERAGE, PERCENT CHANGE FROM JANUARY 2020



Source: Bureau of Economic Analysis.

off the coast of California in September sat for more than five days after getting off the ship, compared to low single-digit percentages before the pandemic. On the East Coast, the Port of Savannah had 80,000 shipping containers sitting at the port in late October—50% higher than normal—with some ships waiting nine days to unload. A nationwide shortage of truck drivers is also contributing to supply chain woes, with the American Trucking Association estimating a shortage of as many as 80,000 drivers. And finally, there is nowhere to unload and store the mass amount of goods being imported into the U.S., as the vacancy rate for warehouses near the ports of Los Angeles and Long Beach was around 1% in Q3 2021, down from 2.3% in Q3 2020. The increased consumer demand in conjunction with these supply chain issues has pushed freight rates to record highs, with the average cost of shipping a standard 40-foot container surpassing $12,000 in September 2021, over 400% higher than a year ago. All of this shows the results of heightened U.S. consumer demand and the effects it is having on the supply chain.

The supply chain problems have created a negative aggregate supply shock, while heightened consumer demand stemming from deficit spending (COVID relief) has created an aggregate demand shock—both contributing to higher inflation which companies are battling, and consumers are in turn suffering from. The Consumer Price Index (CPI), which measures a basket of products ranging from gasoline and health care to groceries and rents, surged 6.2% year-over-year in October 2021—the largest increase since December 1990 and the seventh straight month with annual gains over 4%. The CPI is 7.5% above levels seen in October 2019 and 7% above levels observed in January 2020. Increasing prices for most inputs for businesses—agricultural commodities, petrochemical commodities, paper, transport, logistics, energy, labor—are all occurring at once.

The heightened inflation puts pressure on the Fed to raise rates, and inflation should not run out of control if people believe that the Fed will step in—in theory, actual inflation largely depends on what people expect it to be, as businesses and workers will adjust accordingly. The issue is that the five-year breakeven rates, a widely used measure of the market's expectations over the next five years, are at their highest levels since the series began in 2002, signaling an expectation that inflation is here to stay. The Fed has consistently expressed a belief that the current spike in inflation is transitory, but heightened inflation is now showing up in the data. The Fed can take steps to tame inflation through raising interest rates, but this stands to disrupt the economic recovery seen over the last year and cause possible job loss.

What can be done to help fix the supply chain issues?

Ports are taking action to help ease congestion and improve cargo movement. The Port of Los Angeles implemented a "Container Excess Dwell Fee," which charges ocean carriers dwelling for six days or more. The City of Long Beach also issued an emergency order to allow logistics companies and businesses to stack containers on their lots four containers high instead of two in an effort to free up port space and increase warehousing storage capacity. The Biden administration also rolled out a $17 billion plan to upgrade U.S. ports as part of the $1 trillion infrastructure bill.

While the actions being taken by ports and by the government will help to alleviate supply chain bottlenecks, this will take time as supply chains are global and complex with many moving parts. Reducing consumer demand may be the best way to address the supply chain issues. This could either be done by the Fed through tightening monetary policy, which has the potential to negatively impact the economy and threaten the economic and jobs recovery. Or—the more likely scenario—this could happen by itself gradually over time with the market correcting itself; prices increase enough to reduce demand, allowing supply chains to catch up. In addition, the profit incentive of corporations should push them to address and fix the supply chain issues. And finally, the falling COVID-19 caseload due to increasing immunity and vaccinations should help to get people out enjoying services again, reversing the shift of consumption back toward services spending instead of goods.

Economists, executives, and businesses are expecting supply chain issues to last into 2022 or longer and in October, the Federal Reserve chair, Jerome Powell, said that Americans should be prepared for the global supply chain crisis to remain through 2022. Continued supply chain issues, coupled with increased price pressures, will likely be the largest problem facing businesses in the year ahead, which, at the end of the day, will be passed along to the consumer. This has the potential to significantly slow the tremendous economic recovery that has been observed over the past year if not solved.

The national supply chain issues have not been absent to Colorado businesses, as they rely on input parts from not only around the U.S., but the world. Businesses in the state have had to grapple with increasing costs, a shortage of inputs, and increased wait times on top of increasing consumer demand. According to the Q4 2021 Leeds Business Confidence Index, which gauges Colorado business leaders' outlook of the economy, 77% of respondents noted supply chain disruptions to their industry, with 22% indicating supply chain issues have significantly disrupted their business. Respondents suggested that the passage of time, onshoring, and improving transportation could resolve supply chain issues in the state.

Contributors:
Jacob Dubbert, University of Colorado Boulder
Brian Lewandowski, University of Colorado Boulder

Colorado Economic, Employment, and Population Outlook

Economy

No state was spared the destructive impact from the COVID-19 recession, but Colorado performed above average. The state's GDP declined 3% in 2020, compared to a decline of 3.4% for the nation and a simple average of -3.3% for the 50 states. Year-over-year GDP growth continues to be strong, increasing 11.8% in the second quarter of 2021 to reach record levels. The state has the 17th-best employment recovery from the recession, recording a jobs deficit of 2.2% compared to the pre-recession peak; and year-over-year employment grew 3.9% in October 2021—12th-fastest nationally. While Colorado's unemployment rate seems to be lagging—it remained above average at 5.4% in October—the state had the 4th-highest labor force participation rate in the country, the 11th-highest labor force growth rate, and a labor force that totaled just 0.08% below peak levels as of October 2021.

For more than half a century, 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. For 57 years, this book has served as a chronicle of the changing issues and opportunities facing

STATE AND NATIONAL ECONOMIC COMPARISON, 2011-2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Q2 2020	Q2 2021
Colorado												
Real GDP Growth (Percent Change)	1.4	1.9	3.4	4.3	4.6	2.1	3.5	3.8	4.2	-3.0	-8.5	11.8
Personal Income Growth (Percent Change)	8.6	5.9	5.4	8.8	4.9	1.7	6.9	7.2	5.6	5.7	9.1	2.4
Per Capita Personal Income (PCPI) ($)	43,635	45,586	47,339	50,706	52,222	52,251	55,125	58,267	60,848	63,776	65,670	66,679
PCPI Growth (Percent Change)	7.0	4.5	3.8	7.1	3.0	0.1	5.5	5.7	4.4	4.8	8.1	1.5
Employment Growth (Percent Change)	1.6	2.4	3.0	3.5	3.2	2.4	2.3	2.5	2.3	-5.2	-9.9	7.8
Unemployment Rate (Percent)	8.4	7.9	6.9	5.0	3.9	3.3	2.8	3.2	2.8	7.3	11.7	6.3
Labor Force Participation Rate (Percent)	69.7	69.1	68.1	67.7	66.8	67.0	68.0	68.9	69.3	67.7	67.0	68.6
CPI-All Items (Percent Change)	3.7	1.9	2.8	2.8	1.2	2.8	3.4	2.7	1.9	2.0	2.7	1.9
Core CPI (Percent Change)	2.3	2.0	3.2	2.9	3.3	4.0	3.1	2.5	2.5	2.3	3.1	1.0
Shelter (Percent Change)	1.7	2.7	4.5	5.0	5.7	7.3	5.1	2.7	3.6	2.8	4.3	-0.4
United States												
Real GDP Growth (Percent Change)	1.5	2.3	1.8	2.3	2.7	1.7	2.3	2.9	2.3	-3.4	-9.1	12.2
Personal Income Growth (Percent Change)	5.9	5.0	1.3	5.5	4.8	2.6	4.7	5.0	4.1	6.6	10.9	1.1
Per Capita Personal Income (PCPI) ($)	42,783	44,614	44,894	47,017	48,891	49,812	51,811	54,098	56,047	59,510	61,712	62,215
PCPI Growth (Percent Change)	5.1	4.3	0.6	4.7	4.0	1.9	4.0	4.4	3.6	6.2	10.5	0.8
Employment Growth (Percent Change)	1.2	1.7	1.6	1.9	2.1	1.8	1.6	1.6	1.3	-5.7	-11.2	8.5
Unemployment Rate (Percent)	8.9	8.1	7.4	6.2	5.3	4.9	4.4	3.9	3.7	8.1	13.1	5.9
Labor Force Participation Rate (Percent)	64.1	63.7	63.3	62.9	62.7	62.8	62.8	62.9	63.1	61.7	60.8	61.6
CPI-All Items (Percent Change)	3.2	2.1	1.5	1.6	0.1	1.3	2.1	2.4	1.8	1.2	1.2	3.4
Core CPI (Percent Change)	1.7	2.1	1.8	1.7	1.8	2.2	1.8	2.1	2.2	1.7	1.8	2.6
Shelter (Percent Change)	1.3	2.2	2.3	2.8	3.1	3.4	3.3	3.3	3.4	2.5	2.9	1.9

Sources: Bureau of Labor Statistics and Bureau of Economic Analysis. Notes: "Core CPI" is defined as All Items less Food and Energy; U.S. personal income represents the sum of the 50 states and the District of Columbia.

people and industry in Colorado. Presenting historical data and forward-looking estimates on employment for each sector of the economy, the book 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 each of the NAICS supersectors by providing an overview of labor force and wage and salary employment totals.

Employment

Colorado added nearly 570,000 jobs following the Great Recession until the beginning of the pandemic recession in 2020. The state lost 143,500 jobs in 2020, shedding 5.1% of jobs on an annual basis. The employment losses mounted early in the recession—the state lost 376,000 jobs from February through April 2020. Colorado added back 313,000 over the following 18 months, leaving a jobs deficit of 2.2%, or 63,000 jobs. Colorado is projected to add 87,600 jobs in 2021, or growth of 3.3%. Growth of 2.7% is projected in 2022, with the state adding 73,900 jobs and effectively reaching a new record employment level in the state.

Year-over-year employment growth was recorded in all of Colorado's seven metropolitan areas in October 2021: Colorado Springs (4.7%), Denver-Aurora-Lakewood (4.6%), Boulder (4.6%), Greeley (4.5%), Fort Collins (1.6%), Pueblo (1.3%), and Grand Junction (1.1%). However, every MSA except Colorado Springs remains below their pre-recession peak.

Most businesses in the economy are small businesses—96.2% of wage and salary establishments have fewer than 50 employees. These small businesses represent 44.8% of jobs in Colorado.

Labor Force and Unemployment

The unemployment rate spiked to 12.1% in April 2020—a record level in Colorado. The annual rate increased from 2.7% in 2019 to 7.3% in 2020. As of October 2021, the rate fell to 5.4%, and is projected to average 5.6% for the full year (taking into account the high unemployment rates in the first half of 2021). The rate is projected to drop further in 2022 as the labor force continues to rebound and the number of unemployed decreases.

Labor Force Participation Rate

The labor force participation rate (LFPR) is the percentage of the civilian noninstitutional population 16 years and older either working or actively looking for work. This metric is calculated by dividing the labor force by the civilian noninstitutional population age 16 and older. The labor force is calculated as the sum of the number of employed and unemployed members of the civilian noninstitutional population age 16 and older, where "employed" is defined as someone who did any work for pay or profit during the week of the survey; did at least 15 hours of unpaid work in a business or farm operated by a family member they live with; or were temporarily absent from regular jobs because of illness, vacation, bad weather, labor disputes, or various personal reasons. Civilians within the noninstitutional population considered "unemployed" are those who did not have a job during the week of the survey, made at least one specific active effort to find a job during the past four weeks, and were available for work. Unemployed also includes those not working because they are waiting to be called back to a job they had been laid off from.

The LFPR is important because it conveys the relative amount of labor resources available for the production of goods and services.

The average national LPFR was 63.1% in 2019. Participation fell to 60.2% during the recession and rebounded to 61.6% as of October 2021. In 2019, Colorado's LPFR averaged 67.7%, and dropped to 64.9% in April 2020 but rebounded to 68.2% as of October 2021. Colorado ranks fourth in the nation in terms of the highest LFPRs, sitting behind South Dakota (68.7%), North Dakota (68.4%), and Nebraska (68.4%).

Employment-to-Population Ratio

Another measure of the labor market is the employment to population ratio. This measure of labor market performance is helpful because it tends to be less volatile than the unemployment rate, which has a fluctuating numerator (unemployed) and denominator (labor force). Colorado's employment to population ratio averaged 66.9 in 2019, fell to 57 in April 2020, and increased to 64.5 in October 2021, consistent with a deficit in employment statewide.

Labor Data Sets Differ

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.

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.

Population

Total Population Change

Census 2020 state level results were released in April 2021 and showed that Colorado's resident population

continued on page 14

Colorado Economic, Employment, and Population Outlook

continued from page 13

COLORADO RESIDENT LABOR FORCE
2012-2022
(Not Seasonally Adjusted) (In Thousands)

Labor Force	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021[a]	2022[b]
Colorado Labor Force	2,749.2	2,766.1	2,800.7	2,825.8	2,894.2	2,982.5	3,071.4	3,126.1	3,122.2	3,200.3	3,251.5
Total Employment	2,529.8	2,579.6	2,661.1	2,720.0	2,803.5	2,904.0	2,978.2	3,043.1	2,895.5	3,022.3	3,116.5
Unemployed	219.4	186.6	139.6	105.8	90.7	78.5	93.2	83.0	226.8	178.0	135.0
Unemployment Rate	8.0%	6.7%	5.0%	3.7%	3.1%	2.6%	3.0%	2.7%	7.3%	5.6%	4.2%

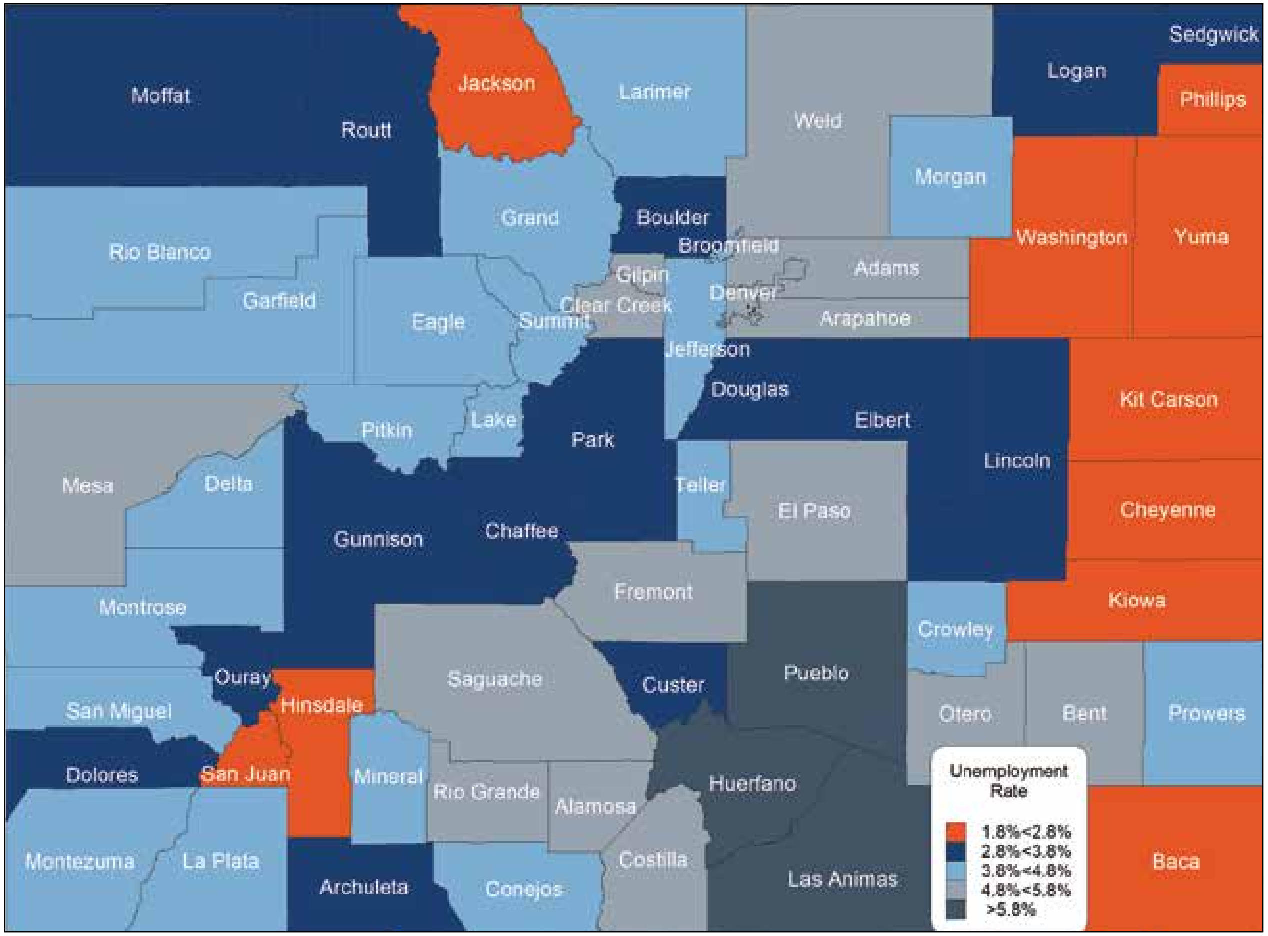
[a]Estimated. [b]Forecast. Note: There are methodological differences between the LAUS data series and the CES employment data series that is used throughout the rest of this book.
Source: Colorado Department of Labor and Employment (LAUS data) and Colorado Business Economic Outlook Committee.

COLORADO NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT
2012-2022
(In Thousands)

Sector	2012	2013	2014	2015	2016	2017	2018	2019	2020[a]	2021[b]	2022[c]
Natural Resources and Mining	30.3	30.6	34.1	30.7	23.7	25.8	28.6	28.8	21.8	19.9	20.5
Construction	115.8	127.5	142.2	148.8	155.3	163.7	173.2	179.1	174.9	176.2	180.2
Manufacturing	130.9	132.8	136.6	141.0	142.7	144.3	147.5	150.5	146.5	146.9	149.5
Trade, Transportation, and Utilities	409.5	420.1	432.7	445.7	453.9	461.3	470.4	477.9	468.8	485.8	490.7
Information	69.9	70.0	70.5	71.0	72.2	72.3	75.6	77.1	75.0	75.4	76.0
Financial Activities	146.7	151.0	153.9	159.0	163.9	168.1	171.6	174.6	172.4	177.7	182.8
Professional and Business Services	356.8	372.4	386.4	398.1	405.4	412.4	423.5	439.2	430.5	450.4	458.6
Education and Health Services	281.8	285.9	298.0	313.3	325.8	334.1	340.7	347.6	337.3	347.7	353.6
Leisure and Hospitality	279.7	289.4	300.4	312.8	323.6	333.2	339.7	345.4	272.1	305.2	336.9
Other Services	96.0	97.7	100.9	104.2	107.3	108.6	110.9	114.8	106.3	110.1	113.4
Government	394.3	403.2	407.9	416.5	428.1	436.7	445.6	455.1	441.0	438.9	445.9
Total[d]	2,311.7	2,380.6	2,463.6	2,541.1	2,601.9	2,660.5	2,727.3	2,790.1	2,646.6	2,734.2	2,808.1

[a]Revised. [b]Estimated. [c]Forecast. [d]Due to rounding, the sum of the individual sectors may not equal the total.Note: Nonagricultural self-employed, unpaid family workers, and domestics are excluded from the total.
Sources: Colorado Department of Labor and Employment (CES Data) and Colorado Business Economic Outlook Committee.

UNEMPLOYMENT RATE BY COUNTY, SEPTEMBER 2021



Source: Colorado Department of Labor and Employment, LAUS (Not Seasonally Adjusted).

as of April 2020 was 5,773,141, ranking it 21st in size in the United States. Colorado's 2020 population represents growth of 744,518, or a 14.8% increase over Colorado's 2010 Census population. Colorado's 2010-2020 growth percentage was the 6th-highest among U.S. states. Utah, Idaho, Texas, North Dakota, and Nevada saw larger percentage increases in population. The growth rate of 14.8% is slower than the last two decades and one of the slowest growth rates on record. Although the growth rate was slower this last decade, the total growth was similar to the previous decade of 727,935.

The growth between 2019 and 2020 is estimated to have slowed to 48,000, with net migration slowing to 27,300 and natural increase slowing to 20,600. Births remained flat, at 62,800, and deaths increased to 42,000—over 4,000 higher than the previous year due to COVID-19.

Births continue to slow in both Colorado and the U.S. even though the population of women of childbearing age is increasing. Changes in births have been driven by declines in births to younger mothers. Average age at first birth in U.S. is 27. In 2020, over half of all births in Colorado were to mothers age 30 and over. For 2020, births were projected to decline during the pandemic—and they did. The total fertility rate hit an all-time low in 2020, below 1.5 in Colorado and 1.6 for the United States. Replacement levels are 2.1, and the U.S. averaged around 2.0 from 1990-2010, but has been dropping annually since 2010. (The replacement rate is the level of fertility at which a population exactly replaces itself from one generation to the next. Or, replacement fertility is the total fertility rate at which women give birth to enough babies to sustain population levels.)

The slowing in births will have long-run impacts on K-12 and higher education, as well as the labor force. The State Demography Office is expecting births rates to be slightly lower in 2021 and then return to rates observed in 2019. The largest group of millennials are entering their 30s where Colorado has experienced increased birth rates.

Over time, the number of deaths in Colorado has increased, reflecting an increased number of older adults. COVID-19 has caused an additional increase in deaths in 2020 and 2021. Life expectancy at birth declined 1.5 years last year as a result of the pandemic. Experts are expecting a small increase in 2021 in life expectancy, but not quite a return to 2019 estimates. From 2000 through 2019, life expectancy had generally increased. Female life expectancy continues to be higher than male, but the increase through 2019 had been slightly higher for males than females. However, life expectancy has declined by almost two years for males during the pandemic.

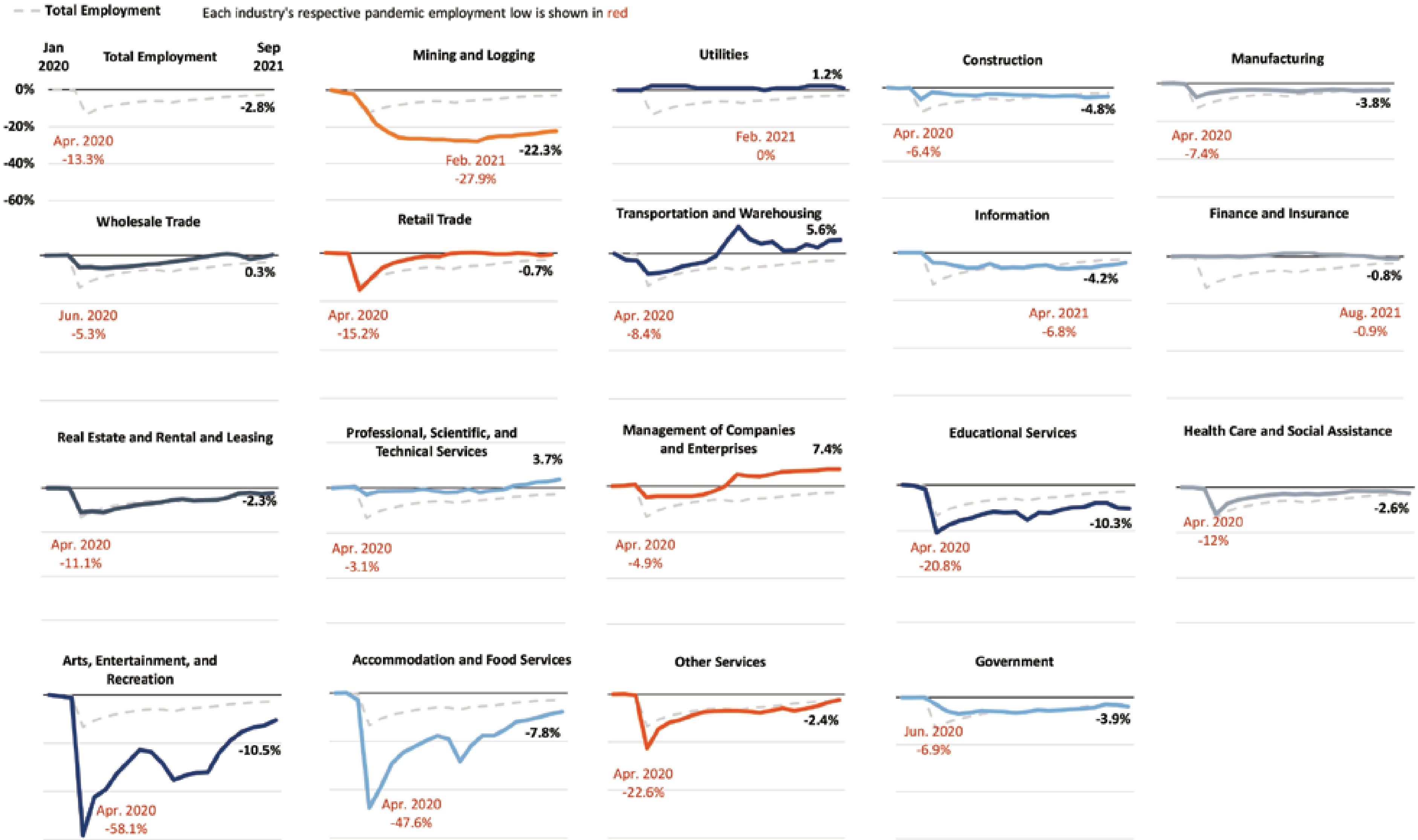
Net migration to the state has declined during the pandemic, continuing a slowing that started in 2015.

continued on page 16

Colorado Economic, Employment, and Population Outlook

continued from page 15

COLORADO EMPLOYMENT TRENDS BY SECTOR, PERCENT CHANGE FROM JANUARY 2020
JANUARY 2020 - SEPTEMBER 2021



Notes: Employment differences taken from January 2020; the month and percent difference from January 2020 for each industry's pandemic bottom in employment is shown for each industry.
The CES employment data is susceptible to large revisions.
Source: Bureau of Labor Statistics, Current Employment Statistics (CES).

Colorado Economic, Employment, and Population Outlook

AVERAGE ANNUAL PAY BY SECTOR COLORADO AND UNITED STATES (Q1 2021)

NAICS	Sector	Colorado	1-Year Growth	United States	1-Year Growth
11	Agriculture, Forestry, Fishing, Hunting	$42,130	3.1%	$39,903	6.1%
21	Mining	127,117	-3.3	107,258	-1.0
22	Utilities	113,220	1.1	117,118	3.2
23	Construction	68,333	4.4	67,476	3.3
31-33	Manufacturing	77,203	4.2	73,569	4.9
42	Wholesale Trade	94,699	3.9	85,029	5.3
44-45	Retail Trade	37,333	8.9	37,263	9.7
48-49	Transportation and Warehousing	56,757	-4.3	54,723	0.9
51	Information	125,896	11.9	142,438	17.1
52	Finance and Insurance	114,110	9.4	124,648	8.9
53	Real Estate and Rental and Leasing	66,895	8.2	65,437	5.5
54	Professional and Technical Services	107,787	3.9	108,447	6.6
55	Mgmt of Companies and Enterprises	156,205	6.4	133,053	5.1
56	Administrative and Waste Services	49,449	7.7	47,124	8.6
61	Educational Services	48,856	13.1	58,113	9.5
62	Health Care and Social Assistance	55,953	5.3	55,478	6.4
71	Arts, Entertainment, and Recreation	44,388	15.8	47,548	18.1
72	Accommodation and Food Services	25,379	0.9	22,748	0.3
81	Other Services	46,093	7.7	44,774	11.0
	Government	63,122	6.2	63,339	6.2
	Federal	87,662	2.5	86,071	2.0
	State	69,679	2.2	66,098	4.4
	Local	54,989	8.2	57,426	7.3
	Total, All Industries	67,343	7.8	64,930	8.8

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

International migration was down 70% as compared to the average level from 2010-2018 in both 2019 and 2020. In 2020, domestic migration slowed 35% relative to the average from 2010-2019. Even with the projected slower growth, Colorado's population is forecast to top 5.831 million in 2021. This is a growth of 45,400 including net migration of 30,000.

Change by County

From 2010 to 2020, 95% of the population growth was along the Front Range, compared to the previous decade where it was 78%. Denver led the growth over the decade, increasing by over 112,000. El Paso is the largest county, at 731,641, and Broomfield had the fastest growth rate of 32.7.

The fastest-growing counties (percent growth) were also along the Front Range except for Mineral, a smaller mountain county, which had the 4th-highest growth rate, with an increase of 24 people. Although Colorado's population has increased by 744,000 between 2010 and 2020, 11 of the counties observed declines over this period.

Age

Population growth by age group continues to be a defining factor for Colorado due to two primary influences. First, births have been declining since 2007 in both the U.S. and in Colorado, leading to an absolute decline of over one million in the population under 18 in the United States. Twenty-seven states observed a decline in the under 18 population, primarily in the Northeast, Midwest, and California. Colorado's under 18 population did increase over the decade by 38,000 but was only 5% of the total growth in the state. Within Colorado, 43 counties experienced declines in their under 18 population. There was no geography immune to declines. This situation will impact K-12 education, higher education, and in a few short years, the labor force.

The second significant impact is the growth in the 65+ population. Since Colorado does not currently have a large share of its population over the age of 65, the simple celebration of birthdays of primarily the baby boomers is contributing to the 65+ population being the fastest-growing age group in both total numbers as well as growth rates. Over the decade, the 65+ age group increased by over 318,000 and contributed to 43% of the growth in the state. The growth in the 65+ cohort

continued on page 18

Colorado Economic, Employment, and Population Outlook

continued from page 17

COUNTY POPULATION GROWTH, 2010-2020

	Rank	County	2010-2020	County	2020 Largest Population
Growth	1	Denver	112,753	El Paso	731,641
Growth	2	El Paso	104,409	Denver	717,632
Growth	3	Arapahoe	80,225	Arapahoe	655,044
Growth	4	Weld	76,954	Jefferson	582,782
Growth	5	Adams	76,359	Adams	520,070
				Douglas	360,037
Percent Growth	1	Broomfield	32.7%	Larimer	359,701
Percent Growth	2	Weld	30.3%	Weld	331,184
Percent Growth	3	Douglas	25.4%	Boulder	330,860
Percent Growth	4	Mineral	22.4%	Pueblo	168,434
Percent Growth	5	Larimer	19.7%	Mesa	155,910

Source: Colorado State Demography Office.

COMPONENTS OF COLORADO RESIDENT POPULATION CHANGE, 2012-2022 (In Thousands)

Year	Births (Resident)	Deaths (Resident)	Natural Increase	Net Migration	Population Change	Total Population
2012	64.7	32.8	32.0	39.1	71.1	5,194.7
2013	64.7	33.6	31.1	45.1	76.2	5,270.9
2014	65.7	34.0	31.7	45.1	76.8	5,347.7
2015	66.3	36.2	30.1	68.8	98.9	5,446.6
2016	66.6	36.8	29.7	53.3	83.0	5,529.6
2017	65.3	37.7	27.6	42.4	70.0	5,599.6
2018	63.8	38.2	25.6	51.8	77.4	5,676.9
2019	62.5	38.8	23.8	34.2	58.0	5,734.9
2020	62.8	42.1	20.7	27.3	48.0	5,782.9
2021[a]	61.9	46.5	15.5	30.0	45.5	5,831.2
2022[b]	62.0	41.0	21.0	40.0	61.0	5,892.2

[a]Estimated. [b]Forecast. Source: Colorado Department of Local Affairs, State Demography Office (November 2021 estimates).

is impacting the labor force, with a growing number of retirements, increased demand for health services and leisure and hospitality, and housing with lower rates of mobility and smaller household sizes.

Housing

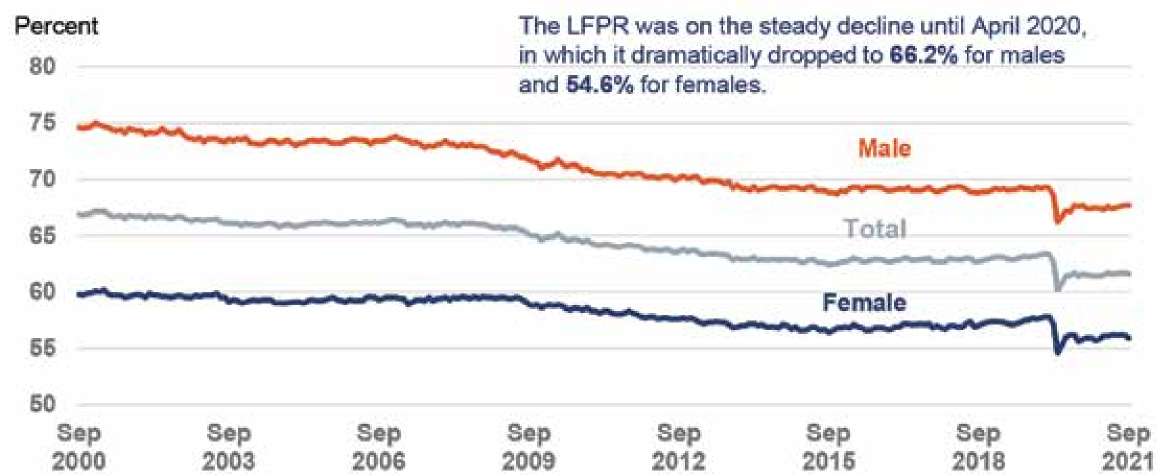
Housing unit growth slowed significantly during the last decade compared to the previous decade. Between 2010 and 2020, housing units increased by 278,500 compared with the previous decade where they increased by 404,000. This is a slowing of 126,000 fewer units even though the population increased by about the same amount. The growth in housing units between 2000 and 2010 was most likely too much for the population growth, contributing in part to the Great Recession, but the growth this last decade was most likely too few. Most of the slowing was in the early part of the decade when housing growth slowed to 10,000 units per year compared to 40,000 in the mid-2000s. Recently, housing growth has returned to 40,000 per year, which should help meet the demand from population and household growth. The ratio of housing units to households is 1.10, improving from the 35-year record low of 1.08 reached in 2016. The ratio declines when households grow faster than housing, and the ratio increases when housing units start to increase relative to households. The perfect ratio is uncertain, but the 40-year average is 1.11.

Household formation is forecast to continue to grow annually around 28,000-32,000 as long as job growth continues. The largest cohort of the millennials are in their 30s, the primary age for first-time home buyers. This, matched with low interest rates, is supporting continued demand for home ownership. Future job growth, as well as future expected retirements from the baby boomers, will support demand for workers and the need for housing. Aging of the baby boomers into their 70s and 80s may create more turnover in larger, single-family homes as the boomers look to downsize. Of course, there are several factors like location, availability, cost, and health needs that will also factor into these decisions.

Forecasts

COVID-19 slowed Colorado's population growth in the short run, with continued slowing births, increased deaths, and slowing migration. International migration contributes 20%-25% of Colorado's total net migration. There are signs that international migration will start to return in late 2021 and into 2022. The demand for labor should also draw more workers from abroad depending on U.S. immigration policies and staffing for visas. Population growth in 2021 is projected to remain around 45,500, or a 0.8% growth rate, but then return to pre-pandemic levels around 61,000 in 2022 and increase slightly to the low- to mid-70,000 through 2025. Through 2025, the forecast is for natural increase to remain in the low-20,000s and net migration to remain in the mid-40,000s to the low-50,000s. Growth is forecast to remain fairly strong from 2025-2030, driven by the

U.S. LABOR FORCE PARTICIPATION RATE FROM SEPTEMBER 2000-SEPTEMBER 2021



Source: Bureau of Labor Statistics, Current Population Survey.

retirements of baby boomers and the need for replacement workers. After 2030, population growth is expected to slow significantly due to a slowing economy, continued slowing birth rates, an aging population, slowing labor force growth, and slowing international immigration. Although Colorado's population growth is forecast to slow over the next few decades, it is projected to continue to outpace the nation, growing at roughly twice the national rate. Colorado is forecast to increase from 1.7% of the U.S. population in 2020 to 2% by 2050. The largest population growth by county is forecast to be along the Front Range. Between 2020 and 2030, the state's population is projected to increase by 717,000, with 88% of this increase, or 635,000 people, projected for the Front Range and of that 370,000 for the Denver Metro area. The North Front Range is expected to observe the fastest growth, at an annual average growth rate of 2%, or 151,000 people. The 2050 forecast for the state is 7.56 million, with 6.4 million along the Front Range, or 85% of the total population.

Impacts on Diversity

After over a year since the onset of the COVID-19 pandemic, female and minority populations are still working to recover from the disproportionate impacts they faced. The industries that observed the largest declines in employment were those that are women- and minority-dominated (lower wage and service-based occupations). Consequently, the unemployment rate among women and minorities at the beginning of the pandemic saw higher numbers than that of men and white populations. However, as the pandemic continued throughout 2020 and into 2021, the female unemployment rate dropped below that of males due to a decrease in labor force participation among women—a sign that women were disproportionately affected. Additionally, extreme differences in unemployment rates were observed between individuals with and without higher education, and a breakdown of educational attainment based on race helps to explain why minorities took a greater hit during the pandemic.

Gender

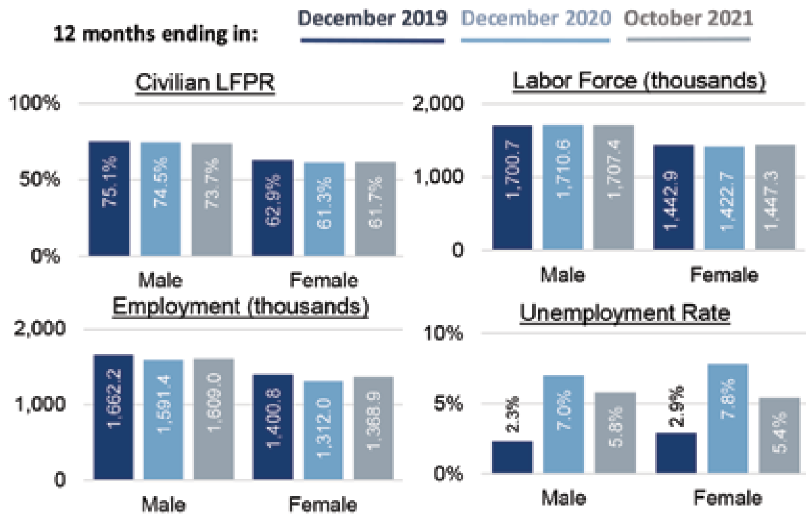
Higher unemployment rates were observed among women, racial minorities, and individuals with less education. For example, while the unemployment rate among both males and females rose drastically at the beginning of the COVID-19 pandemic, the initial increase in the unemployment rate and subsequent decrease have been relatively unequal between the two sexes. The unemployment rate among males increased from 3.5% in January 2020 to 13.6% in April 2020—a historical high. On a more extreme level, the unemployment rate among females jumped from 3.5% in January 2020 to 16.1% in April 2020—also a historical high. In Colorado, a similar trend was observed. Based on a 12-month average, the female unemployment rate rose from 2.9% in December 2019 (error range is 1.7-3.7%) to 7.8% in December 2020 (error range is 5.9-9.1%) —compared to 2.3% and 7%, respectively, for males, according to the Bureau of Labor Statistics, Current Population Survey. As of October 2021, the most recent 12-month average reveals that the female unemployment rate dropped to 5.4%, and the male unemployment rate declined to 5.8%. The unemployment rate among women saw a steeper jump partly due to female-dominated industries being hit harder by the pandemic—women made up 85.6% of health care support occupations, 76.2% of health technologists and technicians, and 75.2% of personal care and service occupations in 2019. For instance, the Health Care and Social Assistance industry in Colorado saw employment decline 11.4% in April 2020 from March. Interestingly, the female unemployment rate first fell below that for males in October 2020, reporting 6.8% for females and 7% for males. And this trend has continued since, with the female unemployment rate sitting at 4.5% and the male unemployment rate at 5% as of September 2021.

continued on page 20

Colorado Economic, Employment, and Population Outlook

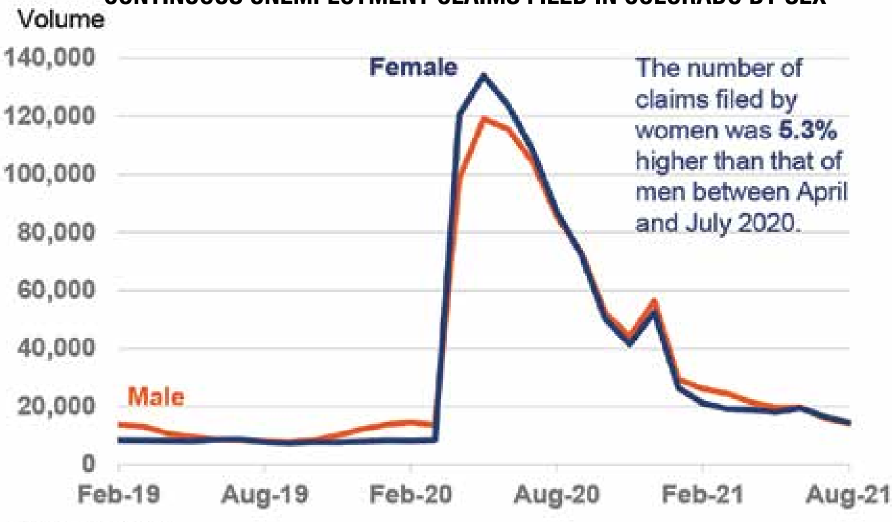
continued from page 19

COLORADO EMPLOYMENT STATISTICS AMONG MALES AND FEMALES



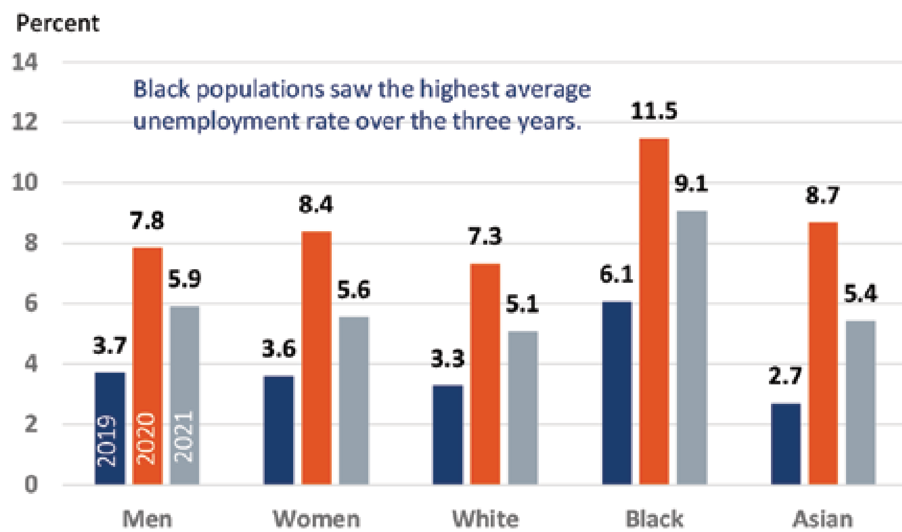
Source: LMI Gateway - U.S. Bureau of Labor Statistics, Current Population Survey.

CONTINUOUS UNEMPLOYMENT CLAIMS FILED IN COLORADO BY SEX



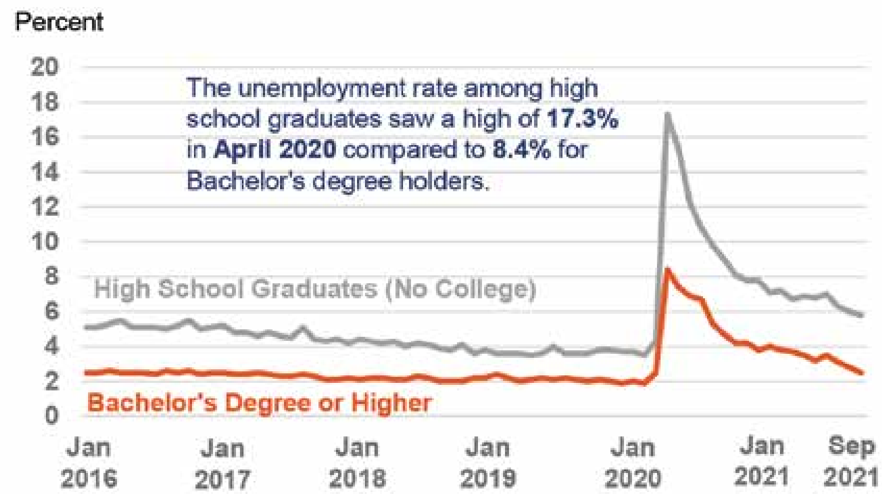
Source: ETA 203.

U.S. UNEMPLOYMENT RATE AMONG DIFFERENT GENDERS AND RACES



Source: U.S. Bureau of Labor Statistics.

U.S. UNEMPLOYMENT RATE BASED ON EDUCATIONAL ATTAINMENT



Source: Bureau of Labor Statistics - Current Population Survey.

The decline in the female unemployment rate can be explained by the record number of women who left the labor force at the beginning of the COVID-19 pandemic. The labor force was left with 4.2 million fewer women in April 2020 than in January 2020 (compared to 3.8 million fewer men), and the labor force participation rate for women fell from 57.8% in January 2020 to 54.6% in April 2020 (compared to a drop of 69.3% to 66.2% for men)—the lowest level since October 1985. In Colorado, the 12-month average from December 2019 to December 2020 revealed a 1.6% drop in the labor force participation rate for women compared to a 0.6% drop for men. Additionally, there were roughly 20,000 fewer women, and 10,000 more men in the labor force from December 2019 to December 2020, according to the Bureau of Labor Statistics, Current Population Survey. As of October 2021, the most recent 12-month average shows that the labor force participation rate for both females and males has yet to recover to pre-pandemic levels. The rate for females has improved slightly, now sitting at 61.7%, while that for males has decreased further, now sitting at 73.7%. Moreover, there were 486,634 continuous jobless claims filed by women in Colorado between the weeks of April 30 and July 31, 2020—5.3% more than men. However, beginning in September 2020 and lasting until June 2021, the tide shifted, and men filed 3.8% more claims than women. This may be due to female-dominated industries gradually starting to operate again.

The impact was harrowing for parents. The female labor force participation rate for mothers fell from 72.3% in 2019 to 71.2% in 2020, compared to a drop from 93.3% to 92.3% for fathers. One explanation for the decline may be attributed to the closure of schools and daycares. Both men and women, on average, spent more time per day caring for children in their households as their primary activity in 2020 compared to 2019—although women saw a greater increase in time spent than men. Men averaged 1.88 hours per day in 2020—a 21-minute increase from 2019, while women averaged 2.63 hours—a 24-minute increase from 2019. In addition, women spent on average 2.41 hours (a 1.4 hour increase from 2019) on education-related activities with household children in 2020 compared to 1.65 hours (a 41-minute increase from 2019) spent by men.

Race

The disproportionate impacts of COVID-19 could also be observed among different races. The unemployment rate among all racial populations rose drastically at the beginning of the pandemic and has since recovered significantly. However, the unemployment rates have yet to drop back to pre-pandemic levels. The unemployment rate for Asian populations saw the steepest climb, increasing from 3.1% in January 2020 to 14.5% in April 2020—a historical high—before rebounding to 4.2% as of September 2021. The increase in the unemployment rate for white populations was slightly less drastic, rising from 3% in January 2020 to 14.1% in April 2020—also a historical high—and falling back to 4.2% as of September 2021. Similarly, the Black unemployment rate grew from 6.1% in January 2020 to 16.7% in April 2020 and has since declined to 7.9% as of September 2021. The high unemployment rate seen among Black populations is partly due to the significant share of Black individuals in service occupations, which were harder hit by the pandemic. Black individuals make up 12.1% of the overall U.S. workforce, however, they comprise 17% of service workers. The service industry experienced a large employment loss during the pandemic due to the closure of businesses, therefore leaving many service workers unemployed. Service-providing industries in Colorado saw an employment decline of 12.7% in April 2020 year-over-year compared to a loss of only 6.9% for goods-producing industries.

In Colorado, a similar unemployment trend to that of the nation was observed, in which the number of continuous unemployment claims increased significantly at the beginning of the pandemic for all racial populations. There were 11,289 more claims filed among Asian populations, 15,058 more claims filed among Black populations, and 170,636 more claims filed within white populations between the weeks of March 31 and May 31, 2020. The number of continuous claims filed for all racial populations has since been on the decline; however, the values are still roughly double what they were before the pandemic.

Educational Attainment

There is an inverse correlation between educational attainment and the unemployment rate—the higher level of educational attainment, the lower the unemployment rate. This pattern could be seen during the pandemic, with the unemployment rate of individuals with a bachelor's degree or higher reaching a high of 8.4% in April 2020, compared to a high of 17.3% in the same month for individuals with just a high school diploma. Since reaching relative highs in April 2020, the unemployment rate for those with a bachelor's degree or higher dropped down to 2.5% as of September 2021, while the rate for those who did not go to college but are high school graduates only fell to 5.8%. In terms of the population that has college degrees, 55.6% of the U.S. Asian population had a bachelor's degree or higher in 2019. This is significantly higher than the 34.4% of the U.S. white population and 22.5% of the U.S. Black population reported. Similar numbers were seen in Colorado in 2019, with 53.4% of the Asian population, 44.3% of the white population, and 27.6% of the Black population holding a bachelor's degree or higher. ✣

Contributors:
Elizabeth Garner, Colorado Department of Local Affairs (Co-Chair)
Joseph Winter, Colorado Department of Labor and Employment (Co-Chair)
Monicque Aragon, Colorado Department of Labor and Employment
Cindy DeGroen, Colorado Department of Local Affairs
Jacob Dubbert, University of Colorado Boulder
Lucas Ericson, Leeds School of Business
Ryan Gedney, Colorado Department of Labor and Employment
Trevor Hall, Leeds School of Business
Shannon Kerr, Colorado Department of Labor and Employment
Brian Lewandowski, University of Colorado Boulder
Robert McNown, JTC Econometrics
Max Olson, Leeds School of Business
Jessie Ryce, Leeds School of Business

Agriculture

Expenses a Headwind for Colorado Agriculture in 2022

A banner year for prices and demand is forecast for Colorado agriculture in 2022. However, this positive news will be countered by higher production costs and the prospect of drought. Colorado farmers and ranchers will not see a significant increase in net income, with an estimated dip to $1.1 billion in 2021, followed by growth to $1.3 billion in 2022. The complexities of farming and ranching in Colorado reach across the availability of water, land, and labor. While demand for locally produced food is high, it is challenging for young farmers to purchase land and water when real estate prices continue to rise.

Water

As always, much depends upon the weather. The outlook for Colorado's ag economy is very strong, as long as there is water. Continued drought across the state will lead to higher income for some and lower income for others. Water in Colorado is complicated. Anyone wishing to start a farm or ranch operation that needs water can't just tap into a nearby river or dig a well. The right to use surface or well water is often tied to the land itself, and these water rights can be sold separately from the land.

Some of Colorado's established water rights go back to the 1860s. "Calls" on river water have been prevalent in the news, as owners of senior water rights assert their legal right to a certain amount of water, which may lead to junior water rights' owners not receiving all or even any of the water they would get in a year with more moisture available. These "calls" on the river system can lead to crops going unirrigated and dying, or simply not being planted at all.


Photo Credit: Flip Dalfonso.

INDUSTRY SNAPSHOT AGRICULTURE	
Nominal GDP, 2020 ($ Billions)	2.7
Real GDP, 2020 ($ Billions, 2012 Dollars)	4.1
2020 Real GDP Growth Rate	19.1%

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

Industry Impacts from COVID

The reverberations of the COVID-19 pandemic continue to ripple across agriculture, as supply chain challenges continue. Those who employ H2-A workers sometimes saw less availability of workers who wished to come to the U.S. for seasonal employment. Consumers are paying 2.5% to 4.5% higher prices for food at grocery stores and restaurants, and while farmers are receiving higher prices for some of their products, that is generally not tied to what consumers are paying. Farmers and ranchers receive only about 14.3% of every consumer dollar spent on food.

The pandemic did bring some additional government funds to agriculture. Farm payments saw a significant uptick in 2020 because of supplemental and ad hoc disaster assistance to farmers and ranchers for COVID-19 pandemic losses. Those federal payments were significantly lower in 2021.

The Colorado General Assembly appropriated $76 million in stimulus funds in 2021 to the Colorado Department of Agriculture. These funds will be distributed to: 1) Agricultural events such as county fairs, the State Fair, and the National Western Stock Show, which suffered losses because of event cancellations; 2) Colorado Proud, a Department of Agriculture program that promotes products that are grown, raised, or processed in Colorado; 3) drought resilience; 4) agriculture efficiency; and 5) agriculture loans.

Crops and Livestock

Colorado hay producers will benefit from higher prices for their hay, but ranchers and dairy farmers will pay more to buy that hay to feed their animals. Prices Colorado producers receive for wheat, corn, and cattle are up, but so are prices for fuel, natural gas, labor, trucking, and fertilizer. Farmers and ranchers are good at cutting costs to the bare minimum, but it is unlikely they will be able to avoid some increases in production expenses. They may be able to curtail some purchases, such as a new pickup or tractor, because there simply aren't any to buy.

Crop growers across the board are being affected by supply chain disruptions, from higher prices for getting their products shipped to market, to higher costs for crop inputs such as fertilizer, herbicides and pesticides, and the availability of parts and needed equipment. If parts for machinery or vehicles are available at all, they may be sitting in a container at a port, lacking transportation. Some parts and other hard goods are not available at all, because of a lack of raw materials or production further down the supply chain. Parts, supplies, and materials that are available have seen a significant uptick in price. From a lack of young plants for nursery and greenhouse growers to tires and machinery, Colorado agriculture is seeing the continued effects of supply chain disruption. Agriculture businesses and farmers who were told, "this will work itself out in a year," are hoping that supply chain issues will improve by next year.

The global market has a lot to do with increased demand. Colorado exports are on track to exceed 2020 by 30%,

continued on page 24

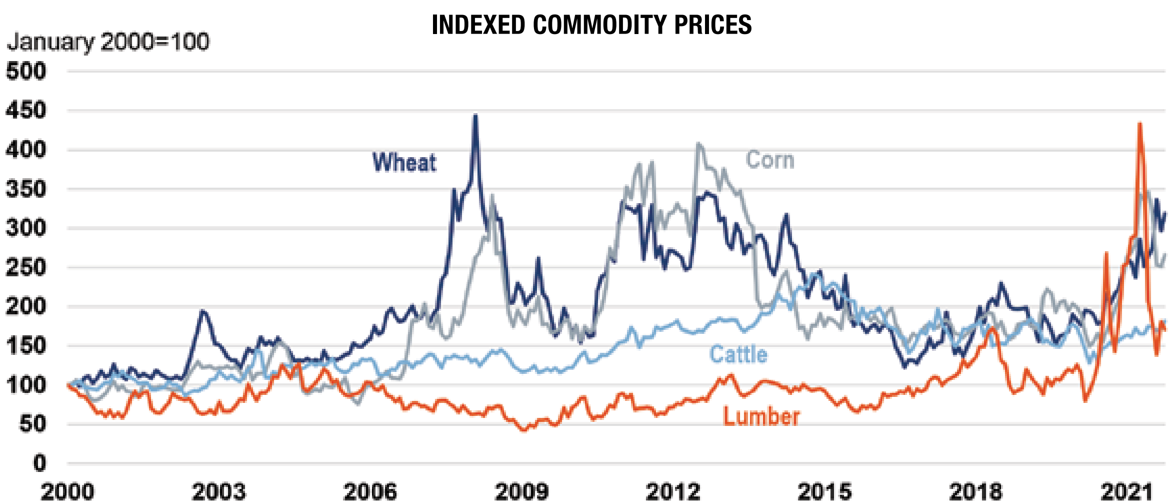
COLORADO AGRICULTURAL VALUE ADDED, INCOME, AND EXPENSES, 2012–2022
(In Millions of Dollars)

Year	Livestock	Crops	Total Value of Production	Value of Services and Forestry[a]	Government Payments[b]	Gross Value of Farm Revenue	Total Farm Production Expenses	Net Farm Income
2012	$4,487.2	$2,577.2	$7,064.4	$1,065.3	$215.7	$8,345.4	$7,006.8	$1,338.6
2013	4,705.7	2,320.3	7,026.0	1,345.5	239.0	8,610.5	7,216.0	1,394.5
2014	5,357.7	2,479.7	7,837.4	1,052.9	285.9	9,176.2	7,954.1	1,222.1
2015	5,551.8	2,224.7	7,776.5	929.3	218.6	8,924.4	7,309.2	1,615.2
2016	4,431.3	2,050.1	6,481.4	907.2	233.9	7,622.5	6,358.2	1,264.3
2017	4,732.2	2,207.0	6,939.2	1,058.3	268.7	8,266.2	7,226.9	1,039.3
2018	4,707.8	2,137.4	6,845.2	1,179.1	229.9	8,254.2	7,036.8	1,217.4
2019	4,962.9	2,395.9	7,358.8	948.5	278.5	8,585.8	6,857.5	1,728.3
2020	5,041.0	1,850.4	6,891.4	1,476.2	739.5	9,107.1	7,938.4	1,168.7
2021[c]	5,406.0	2,334.0	7,740.0	1,500.0	300.0	9,540.0	8,400.0	1,140.0
2022[d]	5,594.0	2,510.0	8,104.0	1,250.0	250.0	9,604.0	8,350.0	1,254.0

[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 Agriculture Committee.

Agriculture

continued from page 23



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; Generic 1st Live Cattle Future; Generic 1st Lumber Future). As of 11/11/2021.

Water is life. Photo Courtesy of Rio de la Vista.

largely driven by beef. Meat packers have seen increases in their exports to China, Korea, and Mexico. The world wheat and corn supplies have contributed to increased demand and higher prices for U.S. wheat and corn. World corn stocks are 36% lower than in 2020. The U.S. is exporting more corn to China as China rebuilds its breeding hog herd following a devastating African Swine Fever epidemic in 2018 and 2019. Continued strong market prices for corn will be somewhat dependent on China's continued demand.

Some Colorado ranchers have reduced their cattle herds in response to drought-caused loss of grazing pastures, and the high cost of hay. This is true across the U.S. as well as in Colorado, and it is causing an uptick in cattle prices because inventory of beef cattle across the country is reduced. In addition to selling part of their mother cow herd, some producers are selling their calves early to take pressure off of dry pasture land. However, prices have been good because both international and domestic demand for protein are very strong.

Colorado sheep and lamb producers are seeing all-time record highs for lamb prices. High-end restaurants, cruise ships, and catering operations that shut down for the pandemic have generally opened back up, increasing demand for lamb across the U.S. In August 2021 Colorado lamb prices hit an all-time high. Sheep producers, like others across the protein spectrum, are faced with challenges of finding employees for feedlot operations and for the meat packing operations where the animals are processed.

Colorado wheat farmers received timely rain and snow in spring 2021, harvesting a crop 69% larger than the previous year. The crop had been expected to be significantly lower based on drought conditions through the winter. Current wheat prices are significantly higher than they have been for several years, which means farmers will increase winter wheat acres planted this fall. Wheat growers who sold their 2020 crop immediately following harvest, at what looked like great prices, are wishing they had held onto some, or all of their crop to sell this fall and winter, when prices are continuing to rise. The 2021 U.S.


Photo Courtesy of Cristy Clearwater.

wheat stocks are the smallest since 2007, and world wheat production estimates have been revised downward, partly due to drought in Canada and the Middle East, which is also driving up the price.

Hemp, which experienced a huge boom when first legalized as a commercial crop, has dropped from 2,000 registered Colorado growers in 2019 to about 500 in 2021, and from 87,000 acres to 21,000. Growers cite the lack of a market and processing facilities for hemp fiber and competition from other states legalizing industrial hemp, creating an abundant supply on the market. State government support for hemp remains strong, and there are still many ardent supporters of the crop. The Department of Agriculture continues to work on development projects for hemp flour, fiber, and other uses.

Potato farmers in the San Luis Valley are facing a good news/bad news situation. Prices for potatoes this fall and winter are forecast to be high because hot, dry weather conditions reduced the potato crop in Idaho. However, water availability from irrigation wells tapping into the Valley aquifer continues to deteriorate. Unless those using irrigation wells in the Valley can rebuild aquifer supplies, they will face shut-downs.

Generally, Colorado agriculture employers are exempt from paying overtime to workers. This will soon change, as SB-087, passed by the state legislature in 2021, instituted overtime requirements for agriculture. This will affect a broad swath of Colorado agricultural production, from vegetable farms to row crops, nurseries, greenhouses, and dairies. Rulemaking for the new overtime requirements is taking place in fall 2021.

continued on page 26

Agriculture

continued from page 25

Much hinges on the expense side—labor, feed, trucking availability, parts/repairs, fuel, fertilizer, seed, fence posts, and more. Producers' ability to manage expenses will be the wild card, and if expenses can be contained, net income for 2021 and 2022 could potentially be higher than forecast.

Contributors:

Glenda Mostek, Colorado Nursery & Greenhouse Association (Chair)
Tyler Cozzens, Livestock Marketing Information Center
Rhonda Dinan, USDA/NASS Colorado Field Office
Brad Erker, Colorado Wheat Administrative Committee
Stephen Koontz, Colorado State University
Tom Lipetzky, Colorado Department of Agriculture
Leslee Lohrenz, USDA/NASS Colorado Field Office
Katelyn McCullock, Livestock Marketing Information Center
Bill Meyer, USDA/NASS Colorado Field Office
Rodger Ott, USDA/NASS Colorado Field Office
Julie Schmidt, USDA/NASS Colorado Field Office
Casey Toyne, Colorado Farm Service Agency

Spring colors of planting alfafa, Weld Country. Photo Courtesy of Shelby Chestnut.

Natural Resources and Mining

Colorado's abundant energy and mineral resources are an important asset of the state's economy. The Natural Resources and Mining (NRM) sector, while comprising less than 1% of Colorado's workforce, generates some of the highest per-worker income levels in the state. In the U.S. Energy Information Administration's (EIA) most recent assessment of 2019 proved reserves, Colorado ranked 7th in the U.S. for both petroleum liquids and wet natural gas. For coal, the state was 10th in recoverable reserves and 13th in production in 2020. This same year, Colorado ranked 17th in total value of produced nonfuel minerals, according to the annual U.S. Geological Survey Mineral Commodity report.

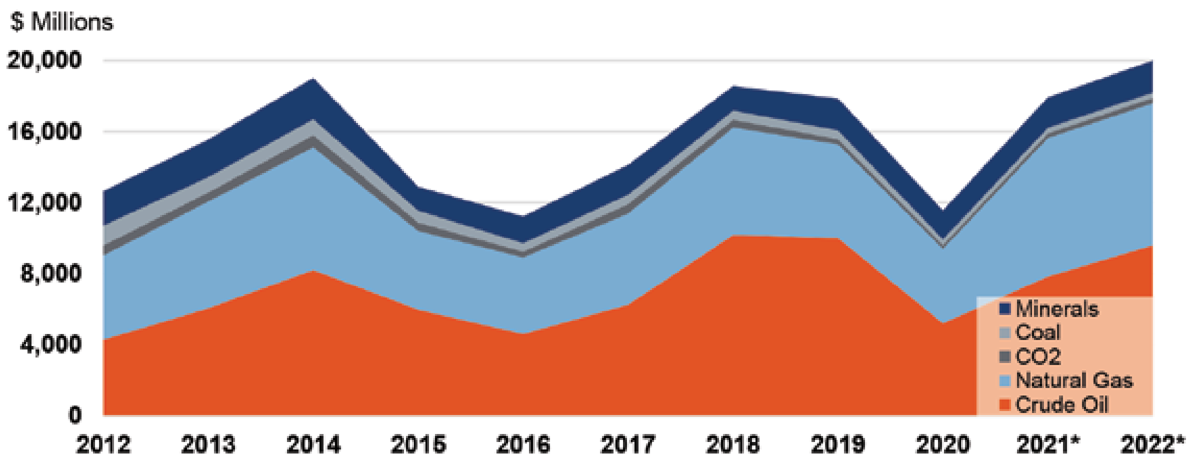
With the COVID-19 pandemic's effect starting to wane and commodity prices, especially natural gas, eclipsing pre-pandemic levels, Colorado's 2021 NRM sector valuation has essentially recovered from the 2020 downturn. Current employment in this sector (just under 20,000 jobs as of late 2021), however, is still down 30% compared with 2019 levels. While COVID has no doubt played a role in job losses due to short-term supply-demand shifts, it is the pre-COVID employment cyclicality downturn—driven by the shale boom of the last decade—coupled with an uncertain future demand that may keep Colorado's NRM employment numbers flat or continuing on a downward trend. Note that the total natural resource employment in the state is less than 1% of total state employment, while natural resource contribution to the state's GDP is about 4%.

The estimate of Colorado's NRM sector value for 2020 is $11 billion. For 2021, the valuation looks to be increasing by more than 60%, to $17.5 billion. Assuming energy prices hold up over the next calendar year, the NRM sector could see an even higher value approaching $20 billion or more in 2022.

Beyond 2022, there are many factors to consider when forecasting employment and value of Colorado's natural resource industry. These include the state of the national and global economies; the possibility of new or prolonged pandemic impacts; federal infrastructure spending; increased federal, state, or local regulation; and the volatile oil and gas supply-demand dynamics in the United States. All of these exist in a larger context of changing social attitudes toward natural resources, the environment, and climate change.

In 2020, the Natural Resources and Mining industry lost 7,000 jobs for a year-over-year decline of 24.3%—the steepest decline of all sectors. The industry is expected to lose 1,900 jobs (-8.7%) in 2021 and is expected to add 600 jobs (3%) back in 2022.

VALUE OF COLORADO NATURAL RESOURCES AND MINING, 2012-2022



*2021 estimated and 2022 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.

INDUSTRY SNAPSHOT
NATURAL RESOURCES AND MINING

Nominal GDP, 2020 ($ Billions)	7.3
Real GDP, 2020 ($ Billions, 2012 Dollars)	19.9
2020 Real GDP Growth Rate	-17.7%
Total Employment, 2020 (Thousands)	21.8
2020 Employment Growth Rate	-24.3%
Employment Growth National Rank	45
Share of Colorado Employment	0.8%
Share of National Employment	0.4%
Average Wage, 2020	91,879
Percent of Statewide Average Wage	136.3%
2020 Average Wage Growth Rate	1.7%

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

Oil and Gas

Colorado's total oil production is valued at an estimated $7.8 billion for 2021—50% higher than in 2020. The higher valuation is a reflection of higher crude oil prices as Colorado oil production is expected to fall nearly 14% in 2021. Due to recently higher spot prices for natural gas, the 2021 value of this commodity will be roughly $7.8 billion as well. This is a remarkable 86% higher than the

continued on page 28

Natural Resources and Mining

continued from page 27

VALUE OF COLORADO NATURAL RESOURCES AND MINING, 2012–2022 (In Millions of Dollars)

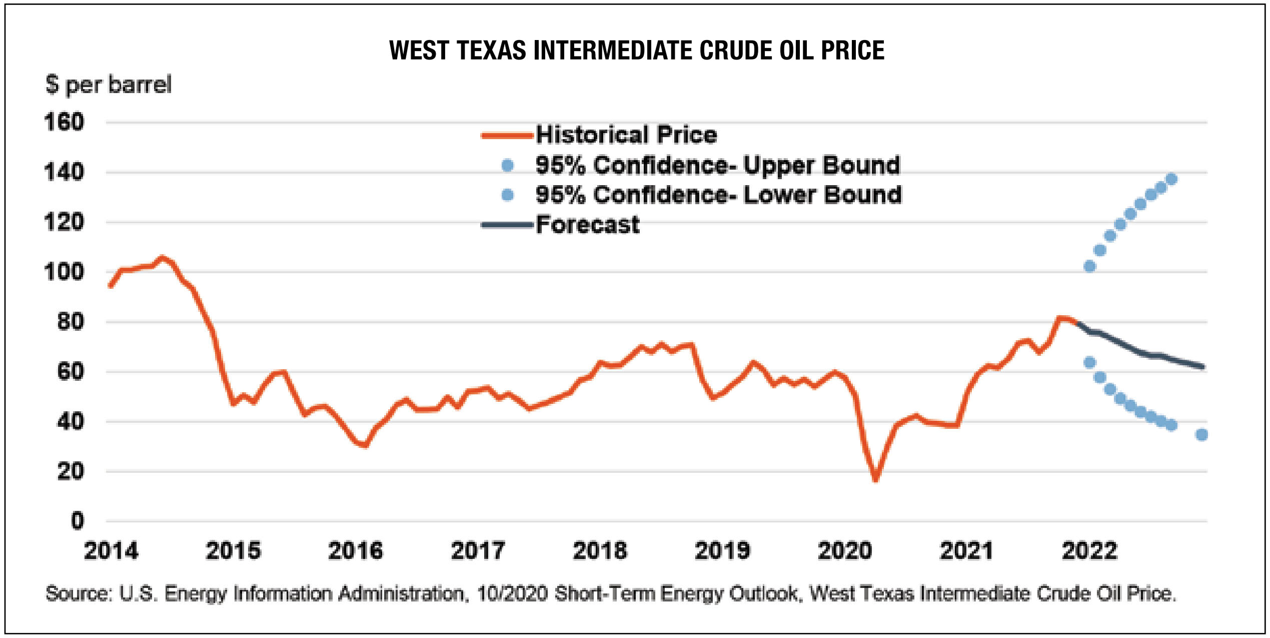
	Oil and Gas Extraction					Mining				
Year	Crude Oil	Natural Gas	Carbon Dioxide	Subtotal	Percent Change	Coal	Minerals	Subtotal	Percent Change	Total
2012	$4,278.0	$4,745.0	$560.0	$9,583.0	-1.1%	$1,129	$1,930	$3,059	-2.4%	$12,642
2013	6,057.0	6,012.0	500.0	12,569.0	31.2	873	2,110	2,983	-2.5	15,552
2014	8,209.0	6,911.0	678.0	15,798.0	25.7	900	2,320	3,220	8.0	19,018
2015	5,975.0	4,437.0	467.0	10,879.0	-31.1	675	1,340	2,015	-37.4	12,894
2016	4,607.2	4,308.7	318.8	9,234.7	-15.1	481	1,510	1,991	-1.2	11,226
2017	6,259.0	5,137.3	517.2	11,913.5	29.0	536	1,680	2,216	11.3	14,130
2018	10,182.0	6,055.8	437.4	16,675.2	40.0	512	1,380	1,892	-14.7	18,567
2019	10,015.4	5,270.0	299.1	15,584.5	-6.5	490	1,790	2,280	20.5	17,865
2020	5,212.6	4,191.4	203.8	9,607.8	-38.4	332	1,620	1,952	-14.4	11,560
2021[a]	7,837.3	7,813.7	250.0	15,901.0	65.5	330	1,700	2,030	4.0	17,931
2022[b]	9,600.0	8,000.0	300.0	17,900.0	12.6	300	1,800	2,100	3.4	20,000

[a]Estimated. [b]Forecast. Sources: Colorado Geological Survey, United States Geological Survey (USGS), COGCC, Dept. of Minerals and Geology, and CO Business Economic Outlook Committee.

COLORADO PHYSICAL OUTPUT OF FOSSIL FUELS, 2012–2022

	Coal	Crude Oil	Natural Gas	Carbon Dioxide	Index (Base Year: 2012 = 100)			
Year	Millions of Short Tons	Millions of Barrels	Billions of Cubic Feet	Billions of Cubic Feet	Coal	Crude Oil	Natural Gas	Carbon Dioxide
2012	28.8	48.7	1,658	439	100.0	100.0	100.0	100.0
2013	24.2	65.1	1,567	268	84.0	133.7	94.5	61.0
2014	22.8	94.7	1,581	355	79.2	194.5	95.4	80.9
2015	18.7	122.8	1,691	409	64.9	252.2	102.0	93.2
2016	12.8	119.9	1,708	444	44.4	246.2	103.0	101.1
2017	15.2	134.8	1,721	464	52.8	276.8	103.8	105.7
2018	14.3	169.2	1,904	427	49.7	347.4	114.8	97.3
2019	13.6	192.4	2,058	453	47.2	395.1	124.1	103.2
2020	10.6	171.5	2,064	301	36.8	352.2	124.5	68.6
2021[a]	10.0	147.6	1,935	299	34.7	303.1	116.7	68.1
2022[b]	9.2	160.0	2,000	300	31.9	328.5	120.6	68.3

[a]Estimated. [b]Forecast. Sources: CO Geological Survey Mineral and Minerals Fuel Activity Reports, COGCC, Dept. of Minerals and Geology, and the Colorado Business Economic Outlook Committee.



$4.2 billion valuation in 2020, and likely an all-time high valuation for Colorado's natural gas industry. Combining liquids and gas, this represents a 2% increase from the pre-COVID 2019 value for Colorado. For 2022, expectations are for a 13% increase in value over 2021, largely dependent on natural gas prices and overall economic stability. The September 2021 economic outlook from the Colorado Office of State Planning and Budgeting (OSPB) reports that severance tax collections for FY2020–21 (July 1, 2020–June 30, 2021) fell to negative $15.3 million—the consequence of pandemic-related reduced market activity and high ad valorem tax credit claims. On a positive note, OSPB revised severance estimates higher for FY2021–22 to $106.1 million due to improved market conditions. The forecast is for further increases to $140.2 million in FY2022–23 and $148.7 million in FY2023–24.

In March 2019, Colorado lawmakers voted to approve Senate Bill 19-181—legislation that significantly overhauls oil and gas regulation in the state. Changes included rewording the Colorado Oil & Gas Conservation Commission's (COGCC) mandate from "fostering" to "regulating" the oil and gas industry; providing local governments more regulatory oversight; restructuring the commission makeup; and creating new rules to prioritize public health, safety, and environmental concerns. On January 15, 2021, new COGCC rules went into effect that defined a new relationship between state and local governments regarding oil and gas activity, started collecting information on cumulative impacts, established larger setbacks, and overhauled the permitting process to pay more attention to operator planning and protection of the environment and wildlife.

Oil

Colorado crude production hit an all-time high in 2019 of nearly 193 million barrels. In 2020, oil output fell 10.9% to 172 million barrels, and is expected to decrease further to 148 million barrels in 2021, a decline of 13.9%. According to the EIA, Colorado accounts for roughly 3.5% of the total crude produced in the United States and ranks fifth among states in production as of August 2021. Development of the prime Niobrara shale assets in the Greater Wattenberg Area has been key to production growth in Colorado. Up until recently, new drilling was offsetting the rapid decline rates of lateral wells (estimated to be from 30% to greater than 50% in the first year). Estimates indicate the Niobrara shale play may contain as many as 2 billion barrels of oil, with the Denver-Julesburg Basin being the 5th-largest liquid play in the nation based on proved reserves.

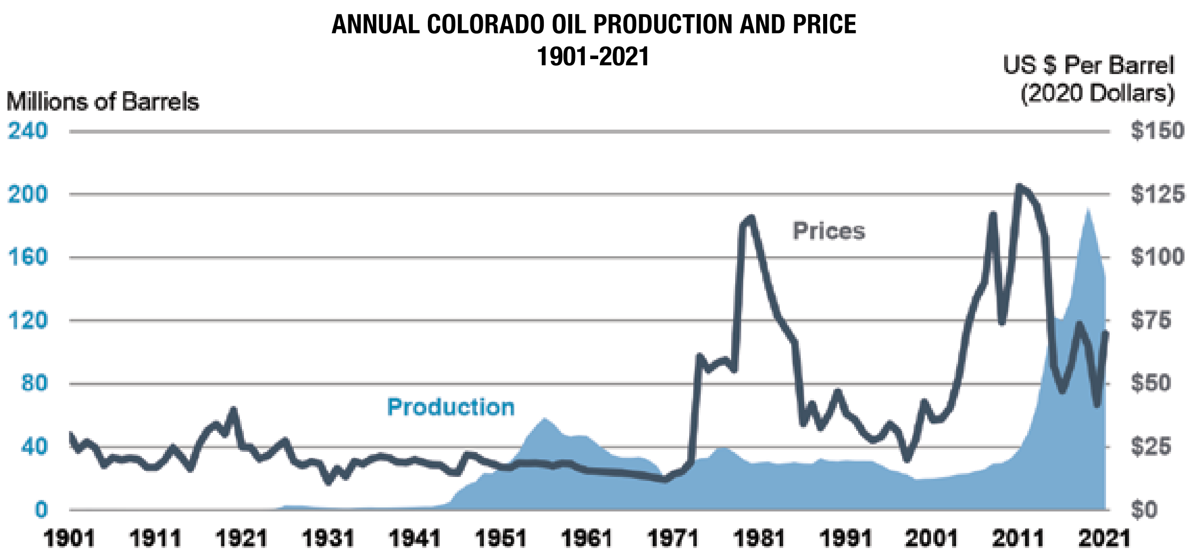
After low prices through much of 2020, the U.S. petroleum benchmark, known as West Texas Intermediate (WTI), started 2021 at around $50 per barrel and has steadily climbed to over $80 per barrel in late October. The 2021 average price of $67 per barrel so far is 72% higher than the 2020 WTI mean daily price of $39 per barrel. In fact, 2021 is seeing the highest average annual price since 2014 when the WTI price was over $93 per barrel. The Denver Basin regional pricing, however, is typically at a 15-25% discount relative to WTI prices due to market demand and supply chain network constraints. For 2021, the average mean Denver Basin sales price is $51 per barrel through mid-October. Looking toward 2022, the forecast is for pricing to remain similar to 2021, with a range of $40 to $70 per barrel most probable. Confidence in this wide forecast suffers from the volatility of the market and a highly responsive domestic industry. Political and economic events at both the national and global scale result in rapid swings in pricing and create supply-demand imbalances.

The International Energy Agency's (IEA) October Oil Market Report forecasts global oil demand of 96.3 million barrels per day (mb/d) for 2021, an increase of 5.5 mb/d from 2020. For 2022, the IEA is forecasting another increase of 3.3 mb/d to 99.6 mb/d. A slowing of new COVID-19 cases globally, combined with rising mobility, are contributing to an increased oil demand. Oil supply is

continued on page 30

Natural Resources and Mining

continued from page 29



Source: Colorado Geological Survey (based on RMAG, EIA, IHS, & COGCC data). Crude oil prices from BP Statistical Review of World Energy: 1900-1944 US average, 1945-1983 Arabian Light, 1984-2020 Brent. 2021 Brent (est.).

also increasing sharply with U.S. output recovering after Hurricane Ida and OPEC+ reducing cuts. Total global oil output as of September was 96 mb/d.

Regarding consumption in the United States, the EIA calculated 18.2 mb/d in 2020 and estimates 19.7 in 2021 and 20.4 in 2022. For domestic production, the U.S. averaged 11.3 mb/d in 2020 and 11 mb/d in 2021. For 2022, the forecast is for a further supply increase to 11.7 mb/d. With demand returning and prices high, operators will return shut-in wells back to production and resume drilling programs in some areas. EIA currently estimates that WTI for 2022 will remain similar to 2021, averaging $68 per barrel.

Retail Gasoline

The Colorado average retail price of automotive gasoline of all grades in 2021 (through October) was $3.21, a 38% increase from the 2020 average price. Nationally, EIA expects the average for regular grade to be $3.10 per gallon in 2021 and $3.04 in 2022. Regional prices for diesel (averaging $3.31 for 2021) have been within 5% of retail unleaded gasoline prices. Expectations are for Colorado gasoline to remain at a similar price in 2022 (between $2.90 and $3.40 per gallon average for all grades).

Natural Gas

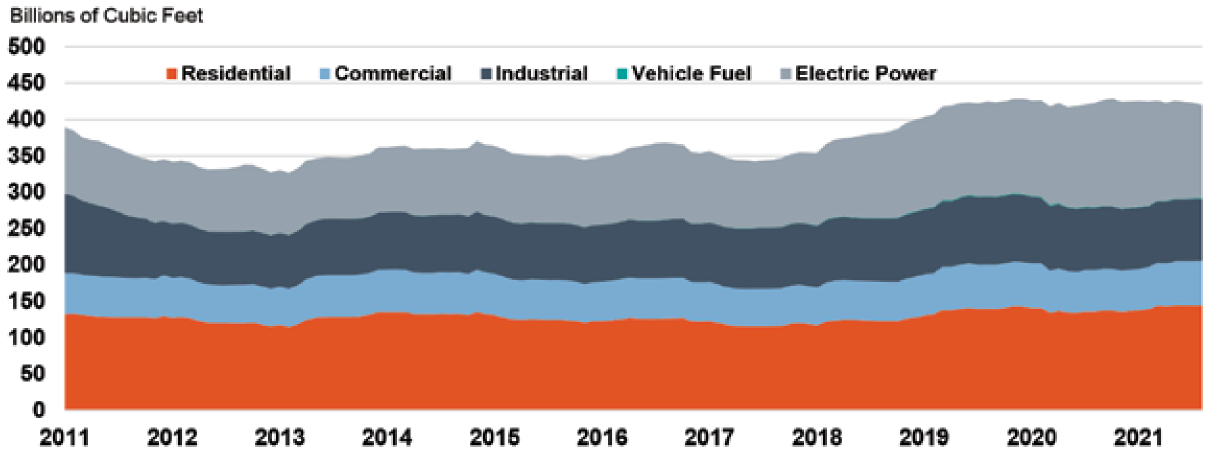
In 2020, Colorado ranked seventh in the nation for marketed natural gas production in the United States. EIA estimates that conventional and unconventional output from Colorado basins accounts for 5.6% of the total annual U.S. natural gas production. The state contains 11 of the largest natural gas fields in the country, leads the nation in gross withdrawals from coalbed methane wells, and contains almost a quarter of the economically recoverable coalbed methane in the country. Power generation has been shifting away from coal for many years. Currently, natural gas provides more than 34% of Colorado's electric power versus 20% a decade ago. Since 2001, consumption of natural gas for electricity has increased more than 70%.

Of the 523,221 million cubic feet of natural gas consumed by Colorado in 2020, roughly a quarter (28%) went to electric power and another quarter (26%) went toward residential consumption. Other significant end-uses included industrial consumption (18%), lease and plant fuel (16%), and commercial consumers (12%). For 2021 (through August), the average monthly residential gas price in Colorado was $10.60 per thousand cubic feet—the seventh lowest in the country.

For 2022, the expectation is that Colorado natural gas spot prices will range between $3 and $4 per thousand cubic feet. EIA is currently estimating the Henry Hub spot price average for 2021 to be at $4.26 per thousand cubic feet and is forecasting prices to remain strong with some decline in 2022 ($4.09 per thousand cubic feet). This is more than $2 higher than the $2.11 average spot price for 2020. High domestic demand for natural gas to generate electricity, strong global demand for U.S. liquefied natural gas (LNG) exports, and depressed natural gas inventory levels are all contributing to the increased price environment. EIA notes that the U.S. total working natural gas storage is currently 3% below the five-year (2016-20) average for this time of the year.

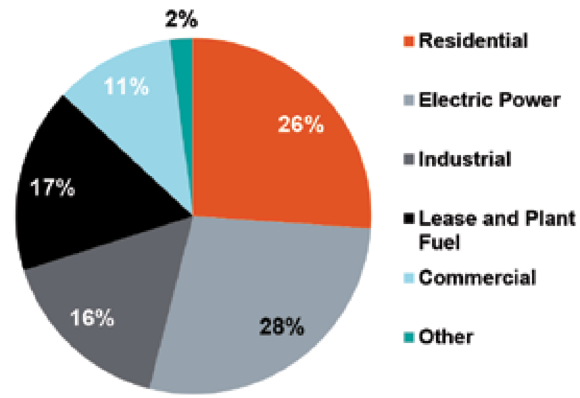
EIA forecasts suggest the average U.S. household using natural gas for heating will see a total winter 2021–22 (October through March) household expenditure increase of 30% over winter 2020–21 on average. If there is a 10% colder-than-average forecast scenario, this expenditure could jump to a 50% increase; if 10% warmer-than-average, the expenditure will still be 22% greater than last winter. Regionally, the West is forecast to see residential gas prices 20% higher ($2.31 per thousand cubic feet) than last winter. The National Oceanic and Atmospheric Administration (NOAA) estimates that the total heating degree days for winter 2021–22 in the Mountain Region will be 4,959, very similar to last winter's 4,943. Just under half of all households in the United States depend on

COLORADO NATURAL GAS DELIVERED TO CONSUMERS BY END USE, 12-MONTH ROLLING SUM, 2011-2021



Source: U.S. Energy Information Administration.
Note: Vehicle fuel accounts for less than 1% of consumption of total natural gas delivered to consumers.

COLORADO NATURAL GAS CONSUMPTION BY END USE, 2020



Source: U.S. Energy Information Administration.
Note: Other includes vehicle fuel and pipeline and distribution use.

natural gas as a primary heating fuel; for Colorado, this number is more than 70%.

There are more than 40,000 wells producing natural gas in Colorado. The total output (in combination with the associated gas generated from the state's "oil" wells) is estimated to be 1.94 trillion cubic feet (Tcf) in 2021. For 2022, production is forecast to increase slightly.

Carbon Dioxide

Colorado's carbon dioxide production is marketed almost exclusively for enhanced oil recovery (EOR) operations. In 2021, an estimated 300 billion cubic feet of CO2 will be produced in three counties (Montezuma, Dolores, and Huerfano), with the total production value estimated at $300 million.

Considering CO2 in the context of climate change, the state legislature recently passed a bill (SB21-264) that tasked the COGCC to examine the resources needed to ensure safe and effective regulation of the sequestration of greenhouse gases. Looking to the future, increased efforts to sequester CO2 (and other greenhouse gases) could add a new significant economic dimension to valuation.

Drilling Permits and Rig Activity

The COGCC has received 686 Applications for Permit to Drill (APDs) in 2021 (as of November 10, 2021)—a 38% decrease in the number of APDs received compared to 2020, and 50% less compared to 2019. For 2021, the commission approved 569 permits as of November 10 versus 1,114 permits in 2020. In 2021, 52% of the approved well permits were located in Weld County. The COGCC has recorded 562 spud notices in 2021 through mid-November. This is a 23% decrease from 2020 and a 62% decrease from 2019.

The 2021 average weekly active rig count for Colorado stood at 10 through the first week of November. By comparison, the average weekly active rig count in Colorado was 30 rigs in 2019 and 10 rigs in 2020. Assuming prices remain elevated and the new regulatory framework does not delay permit approvals, one can expect at least a modest increase in rig activity in 2022.

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 2021, that number reached greater than 83% of all issued permits; of these, close to 90% were located in Weld County. Noticed horizontal well starts totaled 512 through mid-November of 2021—91% of the state's total spud notices.

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 in the state peaked at around 40 million tons in 2004. Data provided to the Colorado Mining Association

continued on page 32

Natural Resources and Mining

continued from page 31

COLORADO NATURAL RESOURCES AND MINING EMPLOYMENT 2012–2022 (In Thousands)

Year	Employment	Percentage Change
2012	30.3	8.3%
2013	30.6	1.0
2014	34.1	11.5
2015	30.7	-10.0
2016	23.7	-22.8
2017	25.8	9.1
2018	28.6	10.6
2019	28.8	0.7
2020[a]	21.8	-24.3
2021[b]	19.9	-8.6
2022[c]	20.5	3.0

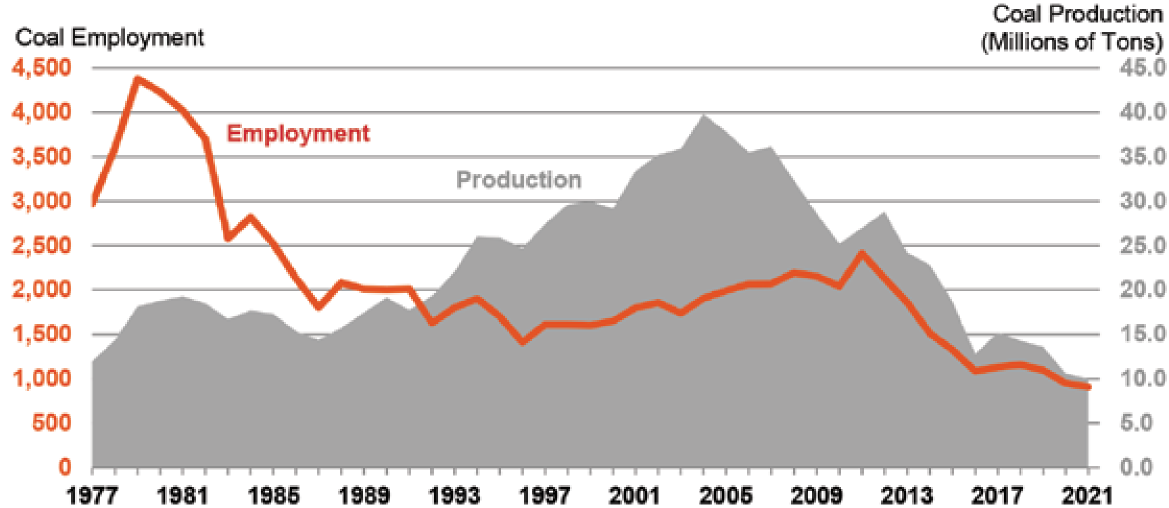
[a]Revised. [b]Estimated. [c]Forecast.

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

indicate that in 2014, when 23 million tons were produced, the industry accounted for $900 million in sales. With reduced production of 10.6 million tons and lower prices, sales fell to an estimated $332.9 million in 2020 and are expected to remain about the same in 2021 based on current trends, with production likely falling to 10 million tons in 2022. As of August 2021, coal production was at 7.4 million tons. Federal royalties on Colorado coal production decreased from $28.6 million in FY2019 to $7.6 million in FY2020. About half of the royalties are returned to Colorado to support public education and other activities.

According to the IEA, worldwide coal-fired electricity generation is estimated to increase by approximately 5% in 2021 and another 3% in 2022. Sales of Colorado coal outside the United States were close to 25% of total production in 2012 and 2013 but fell to 8% of total production in 2016. Sales outside the United States recovered to 20% in 2017 and 27% in 2018 before dropping to 5% in 2019 and 7% (0.69 million tons) in 2020. 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 12.8 million tons in 2016. These are the lowest production levels since the mid-1970s. Production recovered to 15.2 million tons in 2017 before sliding to 10.6 million tons in 2020. Colorado coal production is expected to remain close to 2020 production values based on current trends and to fall below 10 million tons in 2022.

ANNUAL COLORADO COAL PRODUCTION AND EMPLOYMENT, 1977-2021



Source: Colorado Division of Reclamation, Mining, and Safety. Employment totals based on December levels, 2020 based on July.

Coal must now compete in an environment where government 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 generated by coal-fired plants along the Front Range will also cause significant annual production losses. New Environmental Protection Agency regulations will also significantly curtail future production. Low natural gas prices in 2018 through 2020 added to the impact of these mandates, and other political action is leading to the closure of coal-fired power plants across the United States.

Mines

Colorado coal mines produce bituminous and subbituminous coal for electricity generation at power plants, and to a lesser extent, cement and coking operations. Coal is produced in five Colorado counties: Routt, Moffat, Rio Blanco, Gunnison, and La Plata. Gunnison County was the leading coal-producing county between 2001 and 2020, producing 189 million tons, followed by Routt County with 153 million tons, Moffat County with 127 million tons, and Delta County with 64 million tons. The last mine operating in Delta County closed in 2016. Arch Minerals' West Elk Mine produced 2.6 million tons in

2020, making it the highest-producing mine in Colorado. Early in 2020, it was announced that Tri-State Generation and Transmission would close its Colowyo mine in Moffat County by 2030. The Trapper and Colowyo mines supply coal to the nearby Craig and Hayden station power generating plants that are currently set for a phased retirement by 2030. Unit 1 at the Craig plant is expected to retire as early as 2025. Early in 2021, the Trapper Mine, which supplies coal to Unit 1 and 2 at the Craig plant, laid off about 12% of its workforce due to cuts in production that are expected between 2021 and 2025.

Value

Coal production and prices decreased in 2020. In 2012, the total value of coal sold in Colorado was estimated at $1.1 billion, with an average coal price of $37.54 per ton. EIA data indicate prices increased to $38.64 per ton in 2014 before falling to $36.12 per ton in 2015. The estimated U.S. average price of coal in 2019 was $36.07 per ton and decreased to $31.41 per ton in 2020. The value of coal sold by Colorado mines fell from $1.1 billion in 2012 to $332 million in 2020.

Employment

The Colorado Division of Reclamation, Mining and Safety tracks coal production and the employment of coal miners on a monthly basis. In December 2011, employment at Colorado's coal mines was at a 25-year high of 2,411 miners. 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 1,857 miners, due primarily to layoffs at the Elk Creek Mine. The number of people employed at Colorado coal mines was 1,160 at the end of 2018, 1,098 at the end of 2019, and 901 at the end of 2020. At the end of August 2021, employment was reported at 909.

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 2020, 45% of the coal produced in Colorado was shipped to 16 other states. In 2020, Utah took 2.3 million tons, followed by California and Arizona, which took 413,293 and 290,430 tons, respectively. The Deserado Mine, located in Rio Blanco County, exclusively supplies the Bonanza Power Plant in Utah. Sales to Alabama, Kentucky, and Tennessee, which took almost 6 million tons in 2010, have fallen to zero as the Tennessee Valley Authority eliminated its take of Colorado coal.

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, less than 2 million tons in 2015, and less than 1 million tons in 2016. International exports increased to 2.9 million tons in 2017 and 4.3 million tons in 2018. Foreign sales fell to 500,000 tons in 2019 but increased slightly in 2020 to 686,500 tons.

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 2020, 8.55 million tons were delivered while the percentage that came from Colorado mines was 36.3%. According to the EIA Electricity Data Browser, coal-fired power plants in Colorado consumed 11.5 million tons of coal in 2020, supplying the state with 36% of its electricity, down from 68% in 2010. Annual electricity generated at Colorado's seven coal-fired power plants fell from 34.6 million megawatt hours (MWhs) in 2010 to 19.5 MWhs in 2020. Electricity generated from natural gas increased from 11.1 MWhs to 18.2 MWhs between 2010 and 2020. Wind-generated electricity increased from 3.5 MWhs to 13.4 MWhs. The reduction in coal-fired generation from 26.4 MWhs in 2017 to 19.5 MWhs in 2020 was offset by natural gas, which increased from 16.4 MWhs to 18.2 MWhs. Wind increased from 9.4 MWhs to 13.4 MWhs while solar increased from 1.06 MWhs to 1.50 MWhs.

COLORADO ELECTRIC POWER INDUSTRY GENERATION BY PRIMARY ENERGY SOURCE, 2011-2020
(In Millions of Megawatt Hours)

Year	Coal	Natural Gas	Hydroelectric[a]	Wind	Solar	Biomass	Petroleum	Other[b]	Total
2011	34.0	10.2	2.1	5.2	0.1	0.1	0.0	0.1	51.4
2012	34.5	10.5	1.5	6.0	0.2	0.1	0.0	0.1	52.6
2013	33.7	10.7	1.2	7.2	0.2	0.1	0.0	0.0	52.9
2014	32.5	12.0	1.8	7.4	0.3	0.1	0.0	0.0	53.8
2015	31.6	11.8	1.5	7.4	0.3	0.1	0.0	0.1	52.4
2016	30.0	12.7	1.6	9.4	0.5	0.2	0.0	0.1	54.4
2017	29.2	12.5	1.6	9.3	1.0	0.2	0.0	0.1	53.8
2018	26.4	16.4	1.6	9.8	1.1	0.2	0.0	0.1	55.4
2019	25.3	17.1	1.6	10.9	1.2	0.2	0.0	0.1	56.3
2020	19.5	18.2	1.5	13.4	1.5	0.2	0.0	0.1	54.1

[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.

continued on page 34

Natural Resources and Mining

continued from page 33

Minerals and Uranium

Nonfuel mineral resources include metals, industrial minerals, and construction materials (e.g., aggregate, cement, etc.). The U.S. Geological Survey estimates that the total U.S. 2020 nonfuel mineral production value was $82.3 billion. In 2019, Colorado produced primarily cement, gold, molybdenum, sand and gravel, and crushed stone with an estimated production value of $1.62 billion, or approximately 2% of the estimated total U.S. production value.

Metals mined in Colorado include primarily gold and molybdenum, with some silver. The Colorado Geological Survey estimates that the 2020 production value of gold and molybdenum was about $690 million. This is a 11.5% decrease compared to the 2019 production value of $780 million. This decrease in value was primarily due to the fall in molybdenum prices as well as molybdenum production at Freeport-McMoRan Inc.'s (Freeport) Climax and Henderson mines. Freeport is the world's largest producer of molybdenum, and in 2020, the Colorado operations accounted for approximately 41% of their North America molybdenum production.

The combined molybdenum production at the Henderson Mine and Climax Mine decreased from 29 million pounds in 2019 to 24 million pounds in 2020, a decline of 17.2%. Estimated average prices for molybdenum decreased 23.6%, from $11.37 per pound in 2019 to $8.69 in 2020. Colorado was one of the largest producers of molybdenum in the United States in 2020. In 2020, Freeport estimated proven reserves of 40 million metric tons, with 0.19% molybdenum at the Henderson Mine, and 143 million metric tons, with 0.15% molybdenum at the Climax Mine. In 2020, Freeport reduced molybdenum production at the Climax Mine by approximately 50% in response to COVID-19 and a decline in molybdenum prices, and this is expected to continue through 2021. In October 2021, Freeport reported that production at Climax was back to pre-COVID levels.

Founded in 1921, Newmont is the largest gold-mining company in the world with operations in Africa, Australia, North America, and South America. Its corporate headquarters is located in Greenwood Village, Colorado. Production of gold at Newmont's Cripple Creek and Victor (CC&V) mine located in Teller County decreased from 322,000 ounces in 2019 to 272,000 ounces in 2020, primarily due to the timing of leach recovery and milling of lower ore grades. The estimated average gold price increased 26.9%, from $1,395 in 2019 to $1,770 per ounce in 2020, with the average price trending slightly higher 10 months into 2021. Colorado was the 3rd-largest producer of gold in the United States in 2020, following Nevada and Alaska. As reported by Newmont, gold production at CC&V decreased by about 18% in the first nine months of 2021 when compared to 2020, primarily due to lower recoveries and ore grades.

In 2020, Colorado produced and consumed approximately 53 million tons of aggregate (sand, gravel, and crushed stone). The production of construction aggregate was approximately equal to or slightly higher than the previous year's levels. The general aggregate production trend between 2012 and 2018 has been increasing. Forecasts for 2022 suggest similar levels of production in Colorado, as most regions of the state show continued strong construction levels. As the mining and construction segments were deemed essential industries in Colorado during the pandemic, volumes remained relatively unimpacted. An item that would positively impact this segment moving forward would be a federal aid package with dedicated funds for infrastructure.

Local zoning regulations and land-development alternatives continue to have an expanding negative impact on mining. These issues are expected to continue and to cause new crushed stone quarries and sand and gravel deposits to locate further away from large population centers, where the material is needed. If this were to be the case, material transportation costs to the high usage centers will rise, and the opportunity to minimize the carbon impact will be increasingly difficult.

As reported for several years, there was no uranium production in Colorado in 2020. According to the EIA, the total 2019 U.S. production of uranium continued its decline and was 89% less than in 2018. The EIA has not reported domestic uranium production between 2020 and the second quarter of 2021. As reported on its website, domestic uranium production activity did not reach a threshold where a specific production figure could be published without violating EIA confidentiality protections.

Most of the uranium used by U.S. civilian nuclear power reactors over the last several decades was imported from foreign countries. In 2020, 48.9 million pounds of triuranium octoxide was purchased by owners and operators of U.S. civilian nuclear power plants. According to the EIA, about 38.4 million pounds was purchased from foreign suppliers. Average spot prices for uranium increased from $25.64 in 2019 to $29.96 per pound in 2020. Uranium prices spiked in late 2021 and reached around $50 per pound due to purchases by a Canada-based investment fund. However, it is unknown if this activity will impact

VALUE OF COLORADO NONFUEL MINERALS AND URANIUM PRODUCTION, 2012–2022 (In Millions of Dollars)

Year	Nonfuel Minerals	Uranium	Total
2012	1,940	0.0	1,940
2013	1,930	0.0	1,930
2014	2,110	0.0	2,110
2015	2,320	0.0	2,320
2016	1,340	0.0	1,340
2017	1,510	0.0	1,510
2018	1,680	0.0	1,680
2019	1,790	0.0	1,790
2020	1,620	0.0	1,100
2021[a]	1,700	0.0	1,700
2022[b]	1,800	0.0	1,800

[a]Estimated. [b]Forecast.

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

future long-term prices that averaged $43 in October 2021, up from $34.50 per pound in January 2021.

Renewables

Colorado's abundance of renewable energy resources includes wind, solar, hydroelectric, geothermal, and biomass. Data from the EIA show clean electricity resources accounted for 30% of Colorado's net generation in 2020, a 5% increase from 2019, and an increase of more than triple since 2010. According to the Sierra Club, at least 10 Colorado cities have pledged to reach 100% clean energy by 2050. At the end of 2019, before the COVID-19 pandemic, Colorado's clean energy sector employed more than 62,000 workers, including more than 36,000 in energy efficiency, roughly 1,700 in energy storage, more than 2,000 in clean fuels, and more than 3,000 in clean vehicles. About 18,000 of those jobs were in renewable energy, according to the *E2: Clean Jobs Colorado* report. As of September 2020, Colorado had lost roughly 10% of its clean energy workforce to the pandemic. However, as more employees return to work, Colorado signals it is striving to restore its clean energy workforce. Data from the Colorado Public Utilities Commission show, as of 2021, Colorado ranks 3rd in the nation for employment in wind energy, 9th for bioenergy jobs, 11th for solar power employment, and 6th for overall renewable energy jobs.

Colorado was the first state to pass a voter-approved renewable portfolio standard (RPS) in 2004. The legislature has increased requirements three times, with the present standard mandating that investor-owned electric utilities provide 30% of their generation from renewable energy resources by 2020, with 3% coming from distributed generation. This has been one of the most ambitious renewable portfolio goals in the nation, and the Colorado Public Utilities Commission states that the existing wind and solar installations achieved this electricity goal, mostly through purchases by Colorado's largest utility, 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 2021, residential electricity rates in Colorado were 13.56 cents per kWh. This falls below the national average of 13.99 cents per kWh but is the second highest in the eight-state Mountain West Region, which averages 12.32 cents per kWh. As of August 2021, Colorado commercial rates are 11.61 cents per kWh, essentially equal with the national average of 11.60 cents per KWh. EIA data show Colorado's industrial rate averaged 8.57 cents for August 2021, which is slightly higher than the national average of 7.65 cents.

Governor Jared Polis campaigned on a platform to achieve 100% renewable energy by 2040, with a goal of addressing climate change and pollution. Specifically, Governor Polis laid out a roadmap that includes growing renewable energy sector jobs, modernizing the Colorado Public Utilities Commission, increasing the push toward zero emission vehicles and buildings, and supporting local governments and citizens in reaching 100% renewable energy through improved-energy efficiency. Due to the pandemic, Colorado lawmakers passed several consumer protection, bill assistance, and energy efficiency-related bills in 2020. Renewable energy bills including community choice and a biodiesel bill were postponed indefinitely.

In 2021, the Colorado General Assembly passed numerous energy-related bills, focusing on the operations of the Public Utilities Commission, funding for the Colorado Energy Office (CEO), renewable energy, electricity generation, transmission, and oil and gas. House Bill 1290 transferred $8 million to the Just Transition Cash Fund and $7 million to the newly-created Coal Transition Worker Assistance Program Account to implement the final Just Transition plan for Colorado, mandating targeted investment in coal-transition communities. Further, House Bill 1149 established the Strengthening Photovoltaic and Renewable Careers Workforce Development Program, developing a career pathway for the energy sector by the 2022-23 academic year. Senate Bill 261 added renewable energy storage as an eligible technology to meet the state RPS, and House Bill 1052 added some pumped hydroelectric energy generation in the definition of "eligible energy resources" for purposes of meeting Colorado's renewable energy standard. Additionally, House Bill 1324 allowed investor-owned electric utilities to submit proposals to the Colorado Public Utilities Commission for zero-emissions innovation energy technology projects and partnerships in Colorado. House Bill 1253 transferred $5 million from the General Fund to the Local Government Severance Tax Fund to provide renewable and clean energy project grants to local governments within the state, and Senate Bill 231 transferred $3 million to CEO's Weatherization Assistance Program, which provides energy-efficiency services to income-qualified Colorado residents.

Wind Energy

In 2020, Colorado ranked seventh nationally for total installed wind capacity, ninth in the nation for share of wind electricity generation at 23.5%, and third for wind industry employment. The Department of Energy's 2020 U.S. Energy and Employment Report showed that wind generation supported 7,509 jobs (at wind farms) and more than 6,000 employed at wind power-related manufacturing facilities. Cumulative wind power generating capacity has more than doubled since 2010 to reach more than 4,000 MW. Colorado installed 59 MW of wind in 2019 and 299 MW in 2020 (all from the new Bronco Plains wind farm by NextEra), and an additional 500 MW are currently under construction (as of fall 2021). Colorado wind farms include more than 2,250 wind turbines.

Most of Colorado's wind plants operate in rural areas with otherwise limited economic development opportunities, providing well-paying local direct and indirect jobs to hard-pressed areas. There are several reports on economic development from wind by the Department of Energy, including one on Xcel's 600-MW Rush Creek Wind Farm in eastern Colorado. Rush Creek Wind Farm was set to

continued on page 36

Natural Resources and Mining

continued from page 35

provide Colorado with 2,130 direct and supply chain jobs during construction and 125 operational jobs that will last for the life of the project. The Rush Creek Farm is part of Xcel's goal to produce more than 50% of its power from renewable energy sources by 2026.

The wind industry adds to local economies through lease payments to landowners, local income from taxes, wages of wind farm employees, and sales and use taxes from spending by these workers. The American Clean Power Association found that total capital investment through 2019 was $7.6 billion, and annual land lease payments to landowners totaled $16.6 million in 2020.

In addition to jobs at wind farms, Colorado is home to one of the nation's largest wind turbine manufacturers with Vestas blade, tower, and nacelle factories. The Rush Creek Wind Farm uses turbines that were mostly manufactured in the three Vestas manufacturing plants. Colorado also hosts smaller component manufacturers that supply the wind industry, such as Aluwind and Creative Foam.

Solar Energy

Colorado is a leader in solar energy, with more than 300 sunny days per year. As of mid-2021, Coloradans get 4.2% of their electricity from solar, according to the Solar Energy Industries Association (SEIA). In terms of cumulative installed solar electric capacity, Colorado ranked 13th nationally in 2020, with more than 1,700 MW of installed capacity as of mid-2021. Over the next five years, SEIA estimates the annual installed capacity will increase by another 3,683 MW, the 11th-fastest growth rate in the nation. A total of 415 solar companies operated in Colorado in 2020, employing approximately 6,770 people. According to SEIA, the total investment in Colorado solar is roughly $4.3 billion, and installation prices have dropped 36% over the last five years. In Pueblo, Colorado, the state's largest utility (Xcel Energy) is preparing to close two of three coal power units and replace 240 MW of the power with solar for the local steel mill. The solar plant is located on-site at one of Colorado's energy users—EVRAZ Rocky Mountain Steel—and is the largest behind-the-meter solar project in the United States.

As of 2021, Colorado has over 81,000 individual photovoltaic (PV) installations, capable of generating over 1,755 MW of power, according to Electricrate. Like many states, the rooftop solar community in Colorado has been thriving. In 2021, Colorado had an estimated $3.12 per watt install price for residential PV systems *(EnergySage, The cost of solar panels: what price for solar can you expect?).* According to a 2016 National Renewable Energy Laboratory (NREL) study, the total estimated installed capacity potential for rooftop PV in Colorado is 16.2 GW, and the annual generation potential is 23.5 terawatthours per year.

Hydroelectric Power

For the past decade, Colorado's hydroelectric plants have been providing between 2.3% and 4% of the state's total electricity. In 2020, the EIA reports about 3% of the state's total electrical output came from more than 60 hydroelectric generating stations. These facilities have the combined capacity to produce 1,150 MW of power. 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. The Bureau of Reclamation owns 550 MW of hydropower in Colorado and estimates that there could be as many as 30 additional hydropower sites within the state, with the U.S. Department of Energy reporting 11 more potential sites. This renewable resource provides a predictable and seasonably variable source of electricity. The industry employs several hundred individuals for operations and maintenance. Colorado is second only to California in small hydro installations, and pumped storage hydropower is still the nation's number one source of energy storage (Colorado Small Hydropower Association, June 2018).

Geothermal Energy

Neither biomass nor geothermal energy provide even 1% of Colorado's electricity, but there is potential from both resources. The geothermal industry considers investment in Colorado a higher risk when compared to states with operating geothermal power plants and has stated that incentives are needed to reduce financial risks. Colorado offers state income tax credits that may help reduce risks associated with investment in renewable energy. Enterprise Zone Tax Credits are available in economically distressed areas of the state if projects were built before January 2021, which biomass and geothermal energy facilities could both take advantage of (as could other renewables).

Direct-use geothermal resources in the state continue to contribute to local economies on a very small scale and are used for heating domestic and commercial structures, including greenhouses and aquaculture, spas, and other bathing. The use of geothermal (also known as ground-source, or geoexchange) heat pumps continues to slowly grow in Colorado. While these heat pumps are not strictly an alternative energy source, they consume electricity very efficiently (using one-half to one-quarter of the electricity consumed by conventional heating and cooling systems).

Biomass Energy

Colorado has one generator using woody biomass exclusively—Evergreen Clean Energy's 11.5 MW project in Gypsum, Colorado, which generates electricity using beetle kill trees. Given Colorado's forest resources, there are other opportunities for electricity from woody biomass. ✣

Contributors:
Chris Eisinger, Colorado Oil and Gas Conservation Commission (Chair)
Karen Berry, Colorado Geological Survey
Alexandra Evans, Colorado State University
Matt Morgan, Colorado Geological Survey
Alexander Papp, Coalgeo, LLC
Todd R. Ohlheiser, Colorado Stone, Sand & Gravel Association
Mike O'Keeffe, Colorado Geological Survey
Suzanne Tegen, Colorado State University
John Tobin, Natural Resources Education Program

Construction

The Construction sector has been surprisingly robust and stable in 2021, and it is expected that environment will hold for 2022. There will be a changing emphasis among the subsectors, with more production in residential projects and in infrastructure and a relative decline in nonresidential buildings.

Sector activity is forecast to end 2021 with $22 billion, which will be 7% above 2020 levels, with a 19% increase in residential permits contributing nearly all of the increase in valuation. Looking into 2022, a further 4% increase to $22.9 billion is projected, with growth in all subsectors.

A common theme throughout this forecast is that construction material prices have experienced high inflation but are moderating in late 2021. Contractors have created workarounds, absorbing significant portions of the increases, but they are looking to see higher prices being passed along to public and private owners and developers through next year. With fewer bids and less competition for many of the projects released for bid, successful companies will have room to raise overall project costs.

Another common observation deals with the ability to move projects forward in the absence of enough labor to complete the work. As with many sectors of the economy, there are labor shortages for all construction subsectors. As Colorado sees the conclusion of 2021, construction employment still is about 3,000 jobs short of pre-pandemic levels. There is demand for that many employees and more, especially for experienced craftsmen. The industry is projected to gain 1,300 jobs (0.7%) in 2021 to total 176,200, and is expected to add another 4,000 jobs (2.3%) in 2022. At the height of the next construction season, the state will finally see employment exceed pre-pandemic levels. This forecast is based on no further acceleration in COVID-19 cases and continued healthy in-migration. Beyond the current paucity of labor availability, even as vaccinations have helped to open the economy, the trend line of workers retiring from the trades continues. Observers have warned for years that a "silver tsunami" will affect labor availability. Due to the physical demands of construction, it is far more difficult for older workers to add years to a construction career than for older white-collar workers to continue. How many times have companies heard, "My knees just won't take it any longer?"

A caveat is that construction statistics are recorded on starts, that is, as projects receive permits. When a large multiyear project begins, the reported volume of work is inflated in that year, while tracking volumes in subsequent years understate put-in-place activity. There are fewer major projects announced to begin in 2022, so activity such as the Central I-70 work will continue in 2022, but the forecasted statistics may suffer from an absence of new major projects.

The Construction Committee expressed some uncertainty about the future growth in the economy, anticipating a higher level of sustained inflation than expected. That development would force the Federal Reserve to curtail its accommodative policy more rapidly, slowing down the strong economic growth that has occurred over the last year. The Fed has never been able to affect a "soft landing," in which growth continues in spite of tightening the monetary policy. Just the anticipation of higher mortgage rates can take the steam out of an expanding housing sector, and a recession will reduce tax revenues that support roads and highways.

INDUSTRY SNAPSHOT
CONSTRUCTION

Nominal GDP, 2020 ($ Billions)	23.5
Real GDP, 2020 ($ Billions, 2012 Dollars)	17.1
2020 Real GDP Growth Rate	-1.9%
Total Employment, 2020 (Thousands)	174.9
2020 Employment Growth Rate	-2.3%
Employment Growth National Rank	24
Share of Colorado Employment	6.6%
Share of National Employment	5.1%
Average Wage, 2020	68,209
Percent of Statewide Average Wage	101.2%
2020 Average Wage Growth Rate	5.6%

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

Residential

Single-Family Housing

Colorado's housing industry is booming in 2021, and continued growth is anticipated in 2022. Demand is strong for both resale and new housing, and limited supplies are resulting in sharp price increases.

Year-over-year increases in the median price of resale single-family homes for the first nine months of 2021 ranged from 15% to 18% across markets throughout the state. High prices have yet to discourage sales; markets across the state are on track to nearly match last year's record number of sales. However, resale homes were in very short supply throughout 2021. Sellers routinely have been able to expect multiple offers within a week or two of putting their home on the market, often at well above asking price. The median eight days on the market for homes sold during the first nine months of 2020 along the Front Range fell to just four days in 2021.

These resale housing supply limitations are increasingly motivating homebuyers to consider buying new homes. The number of single-family permits issued in Colorado is projected to total 29,000 in 2021 (up 8.9% from 2020), although homebuilders continue to struggle with increasing costs and limited availability of developed land, labor, and construction materials. In fact, most builders are limiting the number of homes released for pre-sale, understanding that locking in a home price for six to nine months before closing will preclude them from recovering cost increases during construction. The once-rare strategy of building speculative homes and

continued on page 38

Construction

continued from page 37

RESIDENTIAL BUILDING PERMITS BY TYPE 2012–2022

Year	Single Family	Multifamily	Total Housing Units
2012	12,617	10,684	23,301
2013	15,772	11,745	27,517
2014	17,104	11,594	28,698
2015	20,025	11,846	31,871
2016	21,577	17,397	38,974
2017	24,338	16,335	40,673
2018	26,134	16,493	42,627
2019	24,756	13,877	38,633
2020[a]	26,636	13,833	40,469
2021[b]	29,000	19,200	48,200
2022[c]	30,000	18,000	48,000

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

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

only putting them on the market as they are nearing completion is increasingly becoming the norm.

Mortgage interest rates have helped drive demand; other factors include first-time buyer millennials starting families and move-up buyers flush with cash from selling existing homes that have appreciated in value over the previous five to 10 years. These demand drivers will continue into 2022 and sustain the market to achieve a further 3.4% increase to 30,000 single-family permits.

In 2020, homes built along the Front Range accounted for 86% of Colorado's single-family permits. Demand is strong across all geographic regions of the state as documented by preliminary data showing solid single family permit increases through August 2021.

A significant shift from west to south and eastern parts of the metro Denver/Boulder area for the past few years will accelerate due to land availability. In particular, the City of Aurora aggressively moved to acquire water resources and distribution for the past decade. This has facilitated the delivery of over 7,000 single family lots to homebuilders over the past three years and will also help supply the 40,000 future lots currently planned in the city. Similar growth is anticipated in Douglas County in the south metro area where the Town of Parker's Reuter-Hess Reservoir was completed in 2012 and increased its water supply to accommodate up to 150,000 homes.

Dramatic increases in costs of construction materials during the second half of 2020 moderated through August 2021; the average year-to-date single-family permit value of $308,900 was virtually unchanged from the $311,200 for calendar year 2020. Homebuilders continue to employ a variety of tactics to limit the cost to build a home and still meet consumer expectations; nevertheless, the expectation for calendar year 2021 is for a permit value of $320,500 per home, up 3% from 2020.

Homebuilders remain concerned that supply chain issues will continue to delay deliveries of basic construction materials and other components such plumbing/lighting fixtures and appliances. These factors will put upward pressure on construction costs in 2022, and a 1% increase in permit value to $323,500 per unit for 2022 is projected.

Multifamily Housing

Multifamily construction increased dramatically in the past year as concerns regarding the pandemic impacts on the industry were alleviated. By year's end, 19,200 multifamily units are projected to be permitted, up 38.8% from 2020. In each year since 2010, an average of 95% of multifamily permits were located along the Front Range between Colorado Springs and Fort Collins.

Apartment construction following the deep 2008 recession has been strong, compensating for modest levels of single-family construction and fulfilling the demand

CONSTRUCTION EMPLOYMENT, 2012–2022 (In Thousands)

Year	Employment	Percentage Change
2012	115.8	2.9%
2013	127.5	10.1
2014	142.2	11.5
2015	148.8	4.6
2016	155.3	4.4
2017	163.7	5.4
2018	173.2	5.8
2019	179.1	3.4
2020[a]	174.9	-2.3
2021[b]	176.2	0.7
2022[c]	180.2	2.3

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

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

for households that are unable to meet the financial and credit requirements to purchase a home. Historically, multifamily construction has accounted for less than 30% of total residential construction. This proportion surged to more than 40% from 2012 through 2018, but the trend has reversed since 2019, returning to approximately one-third of residential construction.

The committee cautiously forecasts a decline in multifamily construction in 2022, based on the possibility that some of the permits in 2021 "borrowed" from construction in 2022. In addition, some developers may reevaluate projects in planning as the slew of units already under construction are completed. Expect 18,000 multifamily units to be permitted in 2022, a 6.3% decrease from 2021. Multifamily permitting has surpassed 2016-2018 levels when an average of 16,750 units started annually. Net in-migration was strong at that time and many markets had low vacancies. Likewise, vacancies also declined across most markets in the state in the past year, and migration is expected to increase from 2020, adding demand for the new units. Nevertheless, increased regulatory constraints from local governments and neighborhood resistance in some communities may slow projects moving forward and challenge the industry. Multifamily activity remains elevated compared with an average of fewer than 10,000 units a year pace between 1980 and 2015.

New multifamily construction consists overwhelmingly of apartments rather than for-sale condominiums. Apartments make up about 95% of multifamily units built since 2010, spurred by strong demand for rental housing and developers' concerns about potential construction defects litigation and related insurance costs. Despite recent legislation intended to address the issue, condominium construction is slow to return. Although most new condominiums have been high-end luxury units, an increasing number of projects include units subject to government-income restrictions, as well as more traditional garden-style condominiums. Still, builders report that financing for apartments is easier to obtain than for condominiums.

New multifamily units have been absorbed rapidly, largely attributed to continuing in-migration. Apartment markets across the state have tightened in the past year, with nearly all areas reporting a decline in vacancies, according to data from RealPage, Inc. During the third quarter of 2021, vacancy rates in Colorado were below 4% across the state, with the lowest vacancies outside of the Front Range. The north-central ski resort areas were fully occupied, with few-to-no vacancies available. Households able to take advantage of remote-work options in 2020 and 2021 may have at least temporarily relocated to the resort areas in the state, filling up the units. The Denver Metro area had one of the highest vacancies in the state, but that was only 3.2%.

VALUE OF CONSTRUCTION IN COLORADO BY TYPE
2012–2022
(In Millions of Dollars)

Year	Residential	Nonresidential	Total Building	Nonbuilding	Total Construction
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	7,565.9	4,350.9	11,916.8	2,438.5	14,355.3
2015	8,659.0	4,990.8	13,649.8	3,036.3	16,686.0
2016	10,161.0	5,987.8	16,148.8	2,705.6	18,854.4
2017	10,361.8	6,154.9	16,516.7	2,975.8	19,492.5
2018	11,772.6	8,155.0	19,927.6	4,522.9	24,450.5
2019	10,787.6	5,113.4	15,920.9	3,140.9	19,061.8
2020[a]	12,243.1	5,482.4	17,725.5	2,786.4	20,511.9
2021[b]	14,459.1	4,700.0	19,159.1	2,800.0	21,959.1
2022[c]	14,777.2	5,000.0	19,777.2	3,100.0	22,877.2

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

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

Indicative of the tight market conditions, rent growth was strong across the state during the past year. Most of the state experienced double-digit increases in rent from a year earlier. In response to the low vacancies, the strongest rent growth was outside of the Front Range. The average rent in the Denver metro area increased 14% during the past year, but areas further west, including Steamboat Springs and Grand Junction, increased 18% and 20%, respectively.

The construction value per unit is expected to increase in the next year, although some inflation may be offset by more recent easing of supply constraints and resumption of normal costs for inputs such as lumber. For 2021, the average value per multifamily unit will increase about 3%, to $147,300, and the value per unit is expected to rise only 1% in 2022, to approximately $148,800.

Nonresidential Building

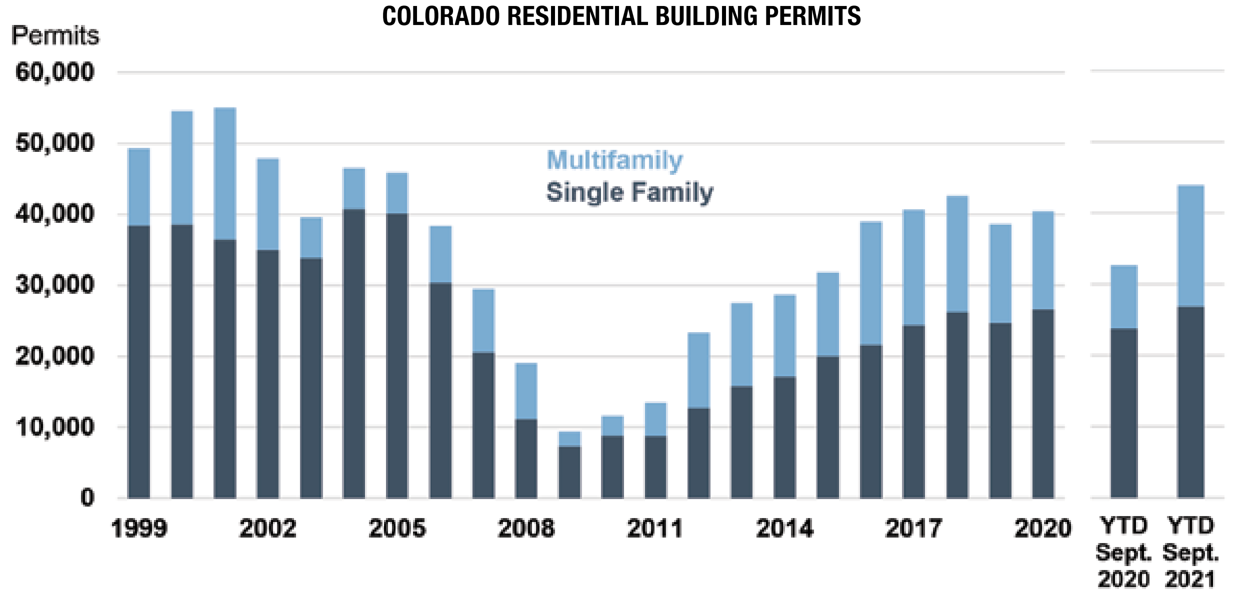
The nonresidential building sector tracks both commercial and institutional projects. Those include new and renovated offices, medical facilities, colleges and universities, retail outlets, churches, schools, and government buildings. The value of construction in 2020 reached nearly $5.5 billion, with a strong number of project starts in the last three months of the year.

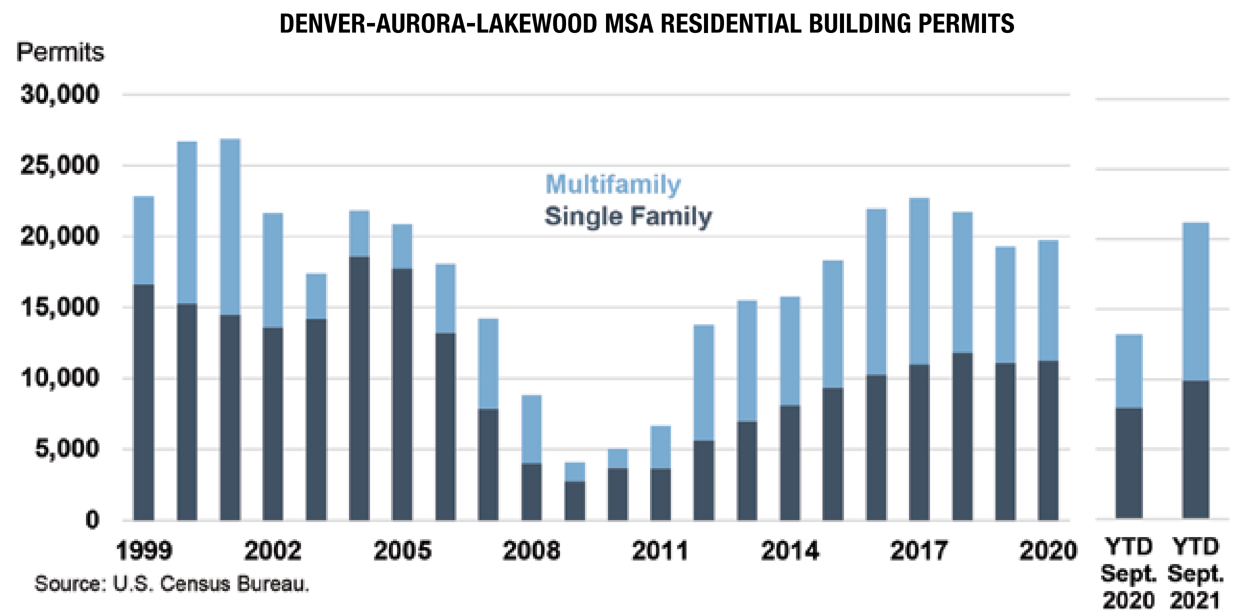
It is expected that 2021 will end the year at $4.7 billion, down more than 14% as uncertainty about future office and commercial demand and a paucity of major institutional projects take effect. Given the pandemic-influenced market for additional space, the outlook has been stronger than initially expected and provides a good level of support.

continued on page 40

Construction

continued from page 39





Source: U.S. Census Bureau.

New project starts in Colorado in 2022 are projected to total $5 billion. Denver voters approved $260 million in a capital projects bond issue on the November ballot, which will add to overall construction demand. In addition, $750 million in K-12 school bonds were approved, including $515 million on one bond issue in the Brighton 27J school district for a new high school, two new middle schools, several elementary schools, and three Career Technical Education centers adjacent to the district's three existing high schools. The state's Building Excellent Schools Today (BEST) grant program is not projected to have significant funding available in 2022 to match local bond issues, which makes it tougher for school districts to put together project proposals for the ballot. However, the BEST Program did award $296 million in grants in 2021, and some of those projects will show up in the 2022 nonresidential total.

Project starts in 2022 are expected to include fewer large projects, but rather an aggregation of many smaller projects. A notable project anticipated in 2022 includes GLO Park (Global Energy Park), a State of Colorado P3 project on 9.27 acres in Golden next to NREL and facilitated by a land swap between the state, Jefferson County, and the federal government. Other expected starts include a number of BioPharma and Life Sciences projects, K-12 school projects in Brighton and Grand Junction, and multiple projects along Brighton Boulevard in the River North Art District (RiNo).

The market will be influenced by significant offsetting forces. Drags on commercial construction demand include steep cost increases for construction materials, uncertain and delayed availability and delivery of those materials, and a continued persistent skilled labor shortage. Much of the increase in the valuation of nonresidential building is due to increases in materials prices rather than an increase in construction activity. The Bureau of Labor Statistics surveys show a 27.4% year-over-year hike in commercial building materials prices. A notable dynamic is that, to date, contractors passed along only about 4.5% of that cost on existing projects. As new projects come online, those cost increases will start to be passed along to public and private owners and developers. Increases in construction activity will follow a healthy net in-migration to the region. Much of that in-migration is a working-age demographic that is highly desired by corporations. Metro area economic development agencies report continued strong prospect activity leading to corporate expansion in, and relocation to, the Denver Metro area. Other positives include strong government budgets because of the federal funding government agencies have received during the pandemic, and surprisingly strong university construction budgets.

Project activity is still at a robust level, and much of the decrease from the recent 2017–18 highs of $6-8 billion is the lack of mega projects like the concourse expansions at Denver International Airport and the Gaylord Hotel project that pushed dollar totals higher in those years.

Nonbuilding

Nonbuilding measures new construction of infrastructure projects. This subsector tracks roads and bridges, drainage and flood control, water and wastewater facilities, electric power generation and transmission, reservoirs, mass transit, and similar projects.

Public works projects comprise a substantial portion of this subsector; as a result, the volume of work correlates significantly with the availability of public funding. Decreases in public funding, however, typically take a bit of time before causing a decrease in public works projects, as many projects are the culmination of years of planning. The opposite is not always true: a sudden increase in public funding can quickly generate an increase in public works spending on "shovel-ready" projects.

Nonbuilding in 2021 is projected to end virtually unchanged from 2020, at $2.8 billion. Material price inflation, labor shortages, and flat tax revenue into the Highway User Tax Fund all contributed to this stagnation. A few notable projects that were awarded in 2021 include the Niyol and Panorama wind farms in northeastern Colorado and a Colorado Department of Transportation (CDOT) project at I-70 Vail Pass totaling over $500 million, combined.

Road and bridge construction spending is forecast to increase in 2022. The legislature this year increased infrastructure spending, providing CDOT and local governments with a boost in road and bridge funding. Over the course of several years, new charges on gas will send higher revenues to infrastructure. The sweeping new law also contained a $500 million boost to transportation from the state General Fund. This funding, plus the fourth and final $500 million tranche from a series of Certificates of Participation issued by the state, will boost transportation funding above 2021 levels by a modest amount. Major projects expected to be awarded next year by CDOT include the reconstruction and expansion of I-70 at Floyd Hill, a segment of I-25 south of Fort Collins, and I-270 through Denver. New state infrastructure spending will also add funding for transit and support of fleet electrification like charging stations. Some of this work may begin as early as 2022. The Infrastructure Investment and Jobs Act will further boost the state's funding for transportation projects and could add $100-$200 million in 2022.

With the passage of Proposition DD in 2020, water projects are getting a slight boost in funding. Prop DD made online sports betting legal and dedicated a portion of the tax proceeds to fund the Colorado Water Plan. Some of the large water projects being planned for 2022 include one in Thornton and the First Creek Interceptor project in Aurora.

Approximately $3.1 billion in nonbuilding projects is expected for 2022, which represents a 10.7% increase over 2021.

Contributors:
Katharine Jones, U.S. Department of Housing & Urban Development (Co-Chair)
Penn Pfiffner, Construction Economics, LLC (Co-Chair)
Craig Fimple, TCF Bank
Michael Gifford, Associated General Contractors of Colorado
Tony Milo, Colorado Contractors Association
Daniel Page, University of Colorado Boulder
Mike Rinner, Consultant

Manufacturing

Manufacturing in Colorado was a $24.9 billion industry in 2020, representing about 6.5% of the state's nominal GDP despite the sector comprising just 5.5% of the state's nonfarm employment base. Prior to the pandemic, Colorado's manufacturing employment grew consistently through the economic expansion, posting annual gains from 2011 to 2019 despite slower growth than Colorado as a whole. Notably, several manufacturing subsectors outperformed total employment growth in the state during the last expansion, including food products, beverages, chemicals, plastics and rubber products, machinery, and electrical equipment and appliances. These sectors have been bolstered by renewable energy investments, breweries, cannabis products, aerospace, and health care. Indeed, Colorado's mix of manufacturing industries has contributed to the sector outperforming employment growth nationally. From 2010 to 2019, Colorado's manufacturing sector grew at an annualized rate of 2.1% compared with 1.2% nationally.

Colorado's manufacturing sector outperformed total employment in the state during the pandemic. From February 2020 to April 2020, seasonally adjusted manufacturing employment fell by 7.5% compared to 13.3% statewide. The sector also fared better than nationally, where manufacturing employment fell 10.8%. However, after an initial bounce from April to October, data indicate Colorado's manufacturing employment flattened to close 2020, and growth has remained tepid in 2021. As of September 2021, sector employment remained down by 3.8% compared with pre-recession levels, while industry-wide employment was down by just 2.8%. The sector has been challenged by both labor shortages and supply chain disruptions that have persisted much longer than expected. Recent survey data released from the Federal

INDUSTRY SNAPSHOT
MANUFACTURING

Nominal GDP, 2020 ($ Billions)	24.9
Real GDP, 2020 ($ Billions, 2012 Dollars)	23.7
2020 Real GDP Growth Rate	-3.0%
Total Employment, 2020 (Thousands)	146.5
2020 Employment Growth Rate	-2.7%
Employment Growth National Rank	6
Share of Colorado Employment	5.5%
Share of National Employment	8.6%
Average Wage, 2020	77,207
Percent of Statewide Average Wage	114.5%
2020 Average Wage Growth Rate	4.4%

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

COLORADO MANUFACTURING EMPLOYMENT BY INDUSTRY, 2012-2022
(In Thousands)

Industry	2012	2013	2014	2015	2016	2017	2018	2019	2020[a]	2021[b]	2022[c]
Food	19.3	19.9	20.6	21.6	22.2	22.8	23.3	23.8	23.7	24.1	24.4
Beverage and Tobacco	5.6	5.9	6.4	7.0	7.8	8.3	8.7	8.9	8.4	8.6	8.7
Printing and Related	5.3	5.3	5.4	5.5	5.5	5.5	5.3	5.0	4.3	4.2	4.1
Other Nondurables	15.5	15.7	16.0	16.7	17.1	17.4	17.9	18.5	18.6	19.2	19.8
Subtotal, Nondurable Goods	45.7	46.8	48.4	50.8	52.6	54.0	55.2	56.4	55.0	56.0	57.0
Nonmetallic Minerals	6.9	7.3	7.7	8.1	8.1	8.5	8.6	8.4	8.1	8.2	8.2
Fabricated Metals	14.1	14.8	15.7	15.4	14.8	14.7	15.2	15.2	14.7	13.9	14.2
Computer and Electronics	22.4	21.9	21.5	21.6	21.4	21.8	22.4	22.8	23.0	23.4	24.0
Transportation Equipment	8.8	8.8	8.8	9.4	9.6	9.8	10.1	10.8	11.2	11.2	11.4
Other Durables	33.0	33.2	34.5	35.8	36.2	35.5	36.0	36.8	34.8	34.2	34.7
Subtotal, Durable Goods	85.2	86.0	88.2	90.3	90.1	90.3	92.3	94.2	91.5	90.9	92.5
Total, All Manufacturing	130.9	132.8	136.6	141.0	142.7	144.3	147.5	150.5	146.5	146.9	149.5

[a]Revised. [b]Estimated. [c]Forecast. Subsectors may not sum to the total due to rounding.

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.

Reserve Bank of Kansas City notes that 95% of surveyed firms in October reported struggling with supply chain disruptions. The disruptions have caused delayed projects and rising prices. Some firms have had to turn away business. Most businesses report that they expect the disruptions to last well into 2022. Unfortunately, downside risks to the sector identified by the committee in last year's outlook have been realized. By year-end 2021, Colorado's manufacturing sector is expected to average 146,900 employees, a 0.4% increase from 2020. However, growth in the sector is expected to accelerate in 2022 as exports rebound and supply chain issues begin to ease. In 2022, employment is expected to increase by 2.6% and reach 149,500 employees, remaining below the pre-pandemic peak.

Nondurable Goods

Nondurable goods include the production of goods that generally last for less than one year. Nondurable goods continues to be a bright spot in Colorado manufacturing, offsetting losses in the durable goods subsectors and fueled by steady growth in food manufacturers, a recovering beverage sector, and the increasing influence of cannabis manufacturing. However, positive growth in these subsectors was partially offset by contractions in printing. In 2020, nondurable goods manufacturing accounted for nearly 38% of manufacturing employment. Nondurable goods employment will increase an estimated 1.9% in 2021 and is estimated to average about 56,000 workers for the year. Nondurable goods are expected to post another year of growth in 2022, increasing by 1.7%, an addition of about 1,000 jobs.

Food Manufacturing

The largest nondurable goods subsector in Colorado is food manufacturing. Colorado food brands and co-packers manufacture candies, baked products, tortillas, burritos, coffee, and animal feeds. They also process meat, grains, sugar, milk, cheese, and other dairy products.

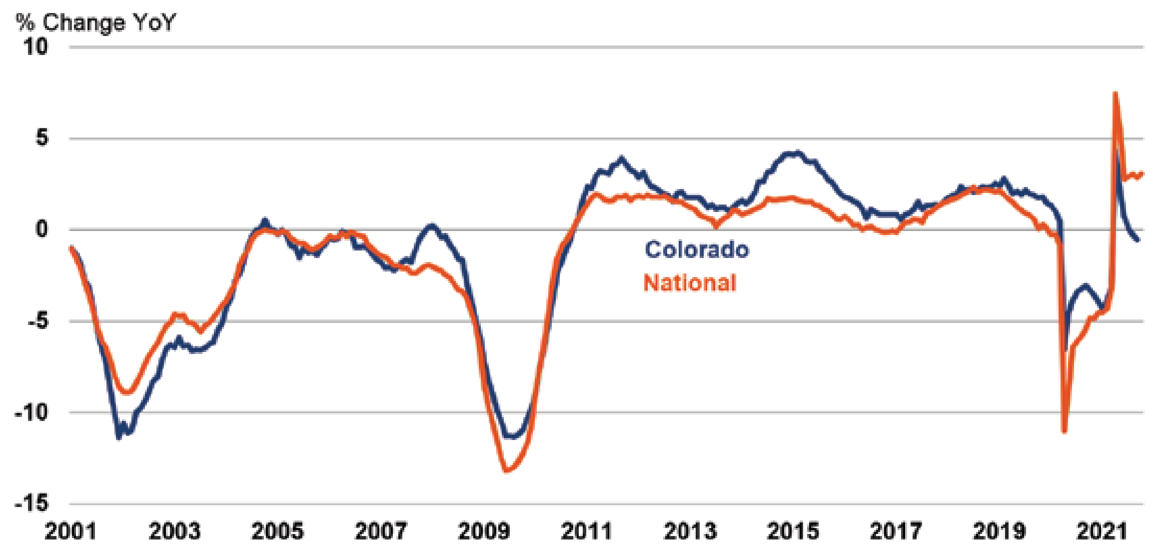
Beyond large food manufacturers, Colorado is home to many boutique manufacturers, often specializing in niche natural and organic products. Recently, there has been an expansion in plant-based proteins, which can be made into sport drink mixes, butters, flours for many different foods, and alternatives to meat in the forms of "steak," "jerky," and even "chicken." Brewery-branded foods, from sausage and bratwurst to donuts, have also been an area providing a new revenue stream across manufacturing subsectors.

Food manufacturers continued to face hurdles getting their food processed safely and to markets, with demand still shifted from larger businesses and restaurants to direct-to-consumer sales due to the pandemic. Those who had technology in place were able to adapt more quickly to the rapid changes needed. Some manufacturers have taken the time to invest in changing their products with additional research and development, upgrading their production spaces, automating more, or improving their online presence. New products going to market have been hurt by less foot traffic in stores, but those who have tapped into online market research have launched quite successfully in the last year.

Canada, Mexico, and countries in Asia are major purchasers of Colorado-produced food products, with Canada, China, and Japan increasing the most in 2020, while Hong Kong, South Korea, and Indonesia were important markets that saw declines. Colorado food manufacturing exports totaled over $1.65 billion in 2020, rising 3.5% from the 2019 level, but not regaining the levels seen in 2017 and 2018. Food manufacturing exports made up 20.3% of all Colorado exports in 2020 and continue to be the second-largest export category for the

continued on page 44

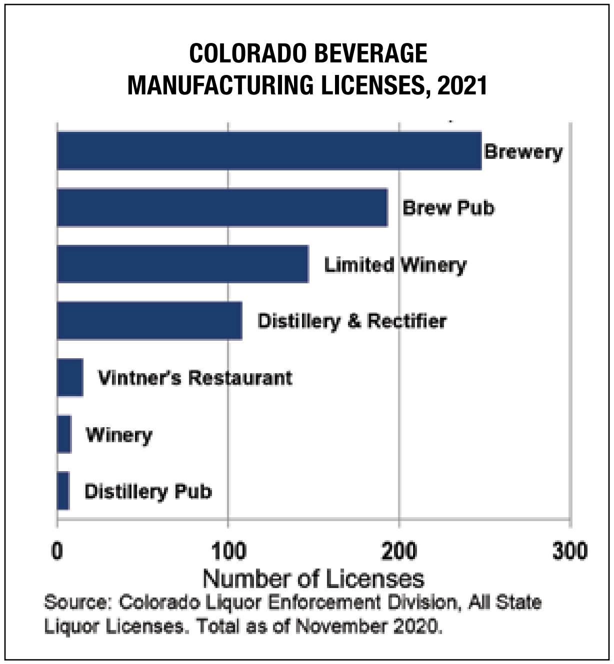
MANUFACTURING EMPLOYMENT GROWTH 2001-2021

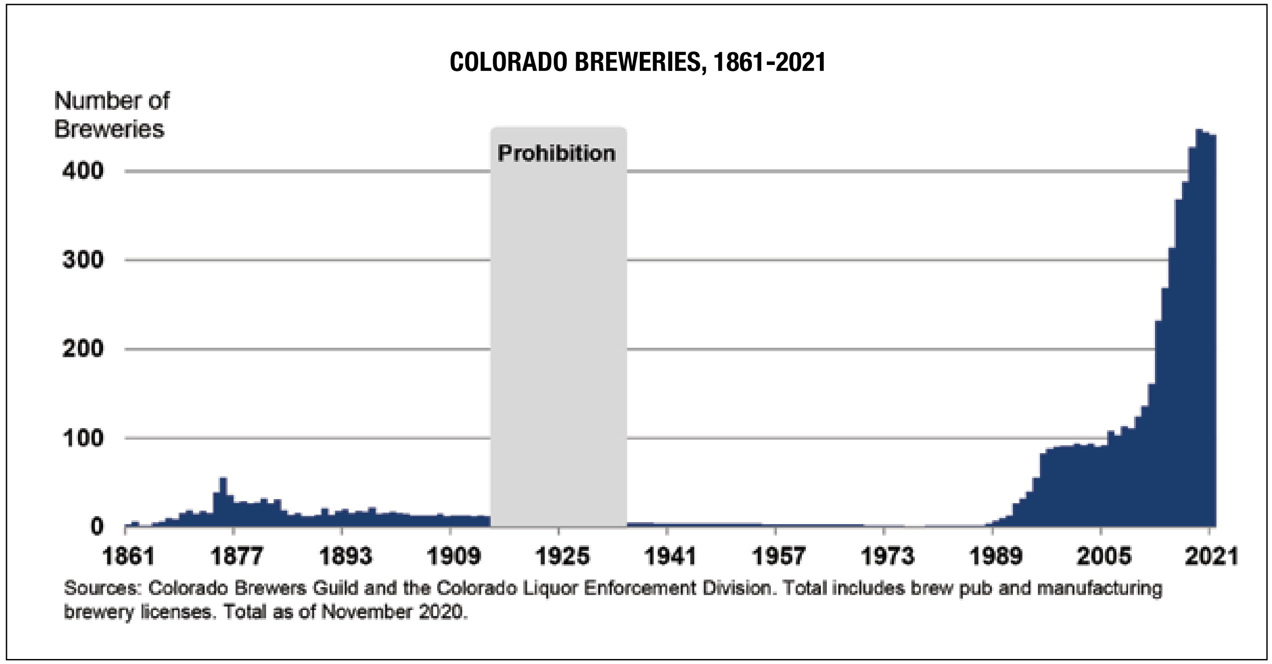


Source: Bureau of Labor Statistics, Current Employment Statistics (Seasonally Adjusted).

Manufacturing

continued from page 43





state. Of the 2020 food manufacturing exports, 95% were to North America (excluding U.S.) and Asia combined. Between 2019 and 2020, exports to Asia rose $2.5 million and increased by $73 million to North America, primarily due to an increase in meat products.

As with many areas of manufacturing and all other sectors, finding new employees, or even hiring back employees, is an issue. After losing 185 employees in 2020, employment in this subsector is expected to experience some growth, adding 425 jobs in 2021, and another 350 jobs in 2022, reaching a total employment of 24,400 workers and representing 43% of the nondurable goods subsector.

Beverage Manufacturing

Firms in the beverage subsector produce soft drinks, ice, bottled water, beer, wine, liquor, and specialty drinks like kombucha, sake seltzer, and "craft" milk. Most of the subsector employment is located along the Front Range. Craft brewers, however, reach even small groups of people across that state. According to the Brewers Association, in 2020 Colorado ranked fourth in the country for the number of craft breweries (433). In 2020, the state produced just over 940,000 barrels of craft brew, the seventh-highest production in the country. This was significantly less than the 1.5 million barrels in 2019, but one key reason for the drop in production and rankings came from breweries that were bought and are now categorized as non-craft beer beverage manufacturers.

The brewing industry took a significant hit with the pandemic, causing many to reduce staffing levels. The Brewers Association reported things were improving in the second quarter of 2021. Nationwide, there was an increase in brewer permits throughout the pandemic, but it is not the significant number it has been in the past. Closings in 2020 were surprisingly lower than the previous trend. There have been various ways to get beers to customers off-premises, but many of these methods rely on canning, which adds cost and supply issues. Some locations have expanded their outdoor dining and drinking areas, and those who are investing in canning or outdoor space feel this is a way to not just survive but thrive in the future. Many in this subsector have also invested in research, finding ways to innovate more quickly and produce nontraditional products to expand their audience.

Several bills were signed that helped breweries, distilleries, and wineries. To-go alcohol and delivery will be allowed to continue through July 1, 2025. Alcohol limits for distillery pubs, as well as wine and cider restaurants, were increased. Breweries and distilleries joined wineries in streamlined paperwork for throwing festivals, which can help raise money. Wineries may now add a noncontiguous production facility nearby without a separate license. The temporary federal excise tax break was made permanent, likely saving Colorado breweries $3.5 million per year according to the Brewers Association President/CEO Bob Pease.

Colorado exports of beverages and tobacco products decreased 60.6%, from $33.6 million in 2019 to $13.2 million in 2020. Most of this was from a continued decline in exports to Canada and Mexico, which dropped a combined $19.3 million and went from a combined share of 87% of beverage and tobacco product exports to just 75%. There was no significant increase to help offset these declines. After losing 488 workers in 2020, employment in the beverage subsector is expected to gain back about 170 in both 2021 and in 2022, reaching just over 8,700 workers, which is close to where it was in 2018.

Printing and Related

Colorado employment in printing and related products continued to struggle in 2020. Printed product exports, which have been a positive factor in past years, were down 7.8% to $47.4 million, with only Mexico showing significant growth, accepting 23% of printed product exports in 2020. Employment ended up falling by 630 workers in 2020 and is expected to continue to decline in 2021, and again in 2022 to end at 4,050 workers.

Other Nondurable Goods

The other nondurable goods subsector includes textiles, textile products, leather and allied products, apparel, paper products, petroleum and coal products, chemicals, and plastics and rubber products.

In 2021, employment in the textiles, apparel, and leather and allied product subsectors averaged about 2,000 employees, stable with 2020 levels. The subsectors continue to struggle during the economic recovery, and growth is not forecast for 2022.

Paper products manufacturers employed about 1,300 employees in Colorado in 2020, with employment forecast to remain flat through 2022. Paper products employment contracted steadily throughout the last decade, yet Colorado's sector has stabilized, supported by the manufacture of converted paper products into labels, laminates, and other packaging-related solutions, with growth attributable to the region's active food and beverage brands. COVID-19 remains a wildcard. Employment in this small subsector may see downward pressure as craft beer and food brands navigate a more difficult consumer environment.

Petroleum and coal products manufacturing firms refine crude petroleum and coal into usable forms. This subsector has a small presence in Colorado, with just over 800 workers in 2019 and 2020. The sector was unscathed in the 2020 recession and employment growth was flat year-over-year. Employment is expected to average around 800 workers in both 2021 and 2022.

Chemical products manufacturing firms employed almost 8,800 workers in 2020 and was the largest of the other nondurable goods subsectors. The subsector has seen large gains in employment over the last few years, bolstered by more cannabis and pharmaceutical manufacturing in the state, increasing 10.7% in 2018, 8.9% in 2019, and 5.8% in 2020; the subsector observed a five-year annual rate of growth of 7.5% from 2015 to 2020. While employment dropped 5% in April 2020 from March due to the pandemic, it was back to pre-pandemic levels by September. Employment gains in the subsector continued through the first quarter of 2021, with employment through March up 1.7% compared with the same time period in 2020.

Between the first quarters of 2019 and 2021, 90% of employment growth in this sector came from pharmaceutical and medicine manufacturing. This industry represented 62.4% of employment in the subsector and covered firms headquartered in Colorado such as Tolmar Inc. and Boulder Scientific Company. Inotiv Inc., an Indiana-based biopharmaceutical company, acquired Plato BioPharma Inc., a Westminster-based in vivo pharmacology and drug-discovery company, this year for $15 million. Inotiv acquired three companies in the Denver-Boulder area in 2021, including $47 million for Bolder BioPath Inc., a contract pharmacology and pathology company, and $22 million for HistoTox Labs Inc. Cannabis companies continue to expand and build new manufacturing facilities in the state due to the increasing popularity and consumption of cannabis, which continues to increase at double-digit rates.

Recent strength in the chemical products manufacturing subsector, which added around 700 jobs in both 2018 and 2019 and almost 500 jobs in 2020, is expected to continue through the forecast period, albeit at a slower rate due to supply chain challenges. Employment in chemical products manufacturing is expected to increase to 9,300 workers in 2021 (6.1%) and 9,850 workers in 2022 (5.9%), strengthened by continued growth in pharmaceutical and medicine manufacturing.

Colorado plastics and rubber products manufacturing firms make a diverse mix of goods ranging from transmission belts to cell phone cases to credit cards to dog toys. The subsector was impacted by the recession as firms lost more than 300 jobs from the first quarter of 2020 to the second quarter. The subsector ended the year down 2.6% from 2019. Employment partially rebounded in the first quarter of 2021 and is expected to steadily increase to about 5,830 employees for the year. Nationally, the subsector has also shown growing strength as employment continues to climb back to pre-recession levels. Boosted by improving export activity and demand, Colorado's subsector is expected to follow a similar path in 2022 and regain pre-recession employment of around 5,950 employees. A downside risk for the subsector is labor shortages as firms struggle with finding employees with the right skills. A positive anecdotal sign is that emerging additive technology classes are becoming more common in schools, which may boost local recruitment in the years to come.

continued on page 46

Manufacturing

continued from page 45

Durable Goods

Durable goods industries represented about 62% of employment in the manufacturing sector in 2020. Durable goods manufacturing generally includes the production of goods lasting longer than one year, such as nonmetallic minerals, fabricated metals, computer and electronic products, transportation equipment, and other durable goods. Durable goods employment will contract by an estimated 600 jobs (-0.7%) in 2021, to 90,900 employees. Significant contractions in fabricated metals and machinery manufacturing offset gains that mainly came from computer and electronic products. By the end of 2022, the durable goods subsectors are expected to partially recover, with employment increasing by 1.8%, or the addition of 1,600 jobs. Extended supply chain disruptions, labor shortages, and rising prices have continued to impact the durable goods subsectors and represent significant downside risks.

The nonmetallic minerals subsector employs approximately 8,200 workers in Colorado, a 0.6% increase from 2020. The sector is expected to remain at these levels in 2022. Companies classified in this subsector in Colorado manufacture products largely made of glass and ceramics used in the electronics and construction industry. As most of the state's jobs in the industry produce plumbing fixtures, glass products, and concrete and stone products, employment in this subsector tracks closely with the health of the construction industry.

The fabricated metals subsector is one of the larger manufacturing industries in Colorado in terms of jobs. 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. The subsector manufactures goods for several sectors including the state's aerospace industry, beverage industry, medical devices, renewable energy, and oil and gas. The subsector fell by 3.7% in 2020 and is on pace for its second-consecutive annual contraction in 2021. Machine shops, an industry that comprises nearly a quarter of jobs in the subsector, continued to struggle. The industry lost about 300 jobs in 2020 with the loss of companies such as Western Forge that produced hand tools for Craftsman, among others.

Photo courtesy of 1933bkk/iStockphoto.

In 2021, employment is expected to fall 5.4% to 13,900 employees. However, employment is expected to partially rebound in 2022 with more favorable oil and gas prices, stronger export activity, aerospace activity, and beverage production. The subsector is expected to grow by 2.2% to 14,200 employees.

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 comprises navigational, measuring, electromedical, and control instruments, an industry group largely influenced by Colorado's aerospace and health care companies. The subsector includes several national firms and is closely tied with national trends and the state's export market. Computer and electronic products were Colorado's largest export industry in 2020.

Momentum in Colorado's computer and electronic products subsector continued into 2021 and is on pace for its fifth-consecutive year of employment growth. In contrast to many areas of the state, employment in the computer and electronic products subsector held steady through the recession. While growth stalled through the rest of 2020, data indicate the subsector has expanded through the first nine months of 2021. The subsector has been bolstered by resurging export activity to key trade partners including Malaysia, China, Taiwan, and Canada. Another indicator of strength in the subsector is strong investment activity in computers and peripheral equipment by the nation's businesses through the third quarter. However, the nation's supply chain mismatches and product delays have slowed potential growth. Extended delays pose one of the largest risks to the outlook for the subsector in 2022. By the end of 2021, employment for the year will be an estimated 23,400 jobs, an increase of about 1.7%. Growth is expected to accelerate in 2022 as supply chain disruptions ease and companies are able to meet order backlogs and strong demand. Employment is forecast to grow by 2.6% in 2022, increasing to 24,000 jobs.

Large aerospace companies dominate the transportation equipment manufacturing subsector, which includes the manufacture of spacecraft, satellites, and aircraft parts, as well as truck and auto parts, boat parts, and bicycles. The subsector is sensitive to international demand and federal spending on national defense and space exploration. Colorado's aerospace companies added employment through 2020, a bright spot in manufacturing. However, the subsector has been challenged in 2021, and data indicate employment in September 2021 was down 4.4% year-over-year and was up just 0.4% year-to-date. Lockheed Martin recently reported lower sales expectations for 2022, citing supply chain issues and slower defense spending. Supply chain disruptions began to impact the subsector as early as the latter half of 2020, causing some delays to aerospace projects and increased costs. The unexpected length of supply chain disruptions into 2021 has resulted in realized downside risks for the subsector. Despite challenges, the state remains an attractive location for aerospace companies, and expansions and relocations are expected to offset the recent employment shock. The subsector is expected to remain flat in 2021 at about 11,200 jobs. Growth is expected to resume in 2022 as supply backlogs ease and companies resume delayed projects and production. Employment is projected to increase about 1.8% to 11,400.

Other Durable Goods

The six other durable goods subsectors include manufacturing of machinery, furniture, wood products, electrical equipment, primary metals, and miscellaneous other durable goods. Together, these subsectors will employ an estimated average of 34,200 workers in 2021, a decrease of 1.6%. Employment in these subsectors is sensitive to a variety of economic factors, including trade policy, business climate, consumer behavior, labor prices, and opportunities for automation. Employment in other durable goods manufacturing is projected to partially rebound in 2022, increasing by 1.4% and reaching 34,700 jobs.

Machinery manufacturing firms make products that apply mechanical force to perform work. Colorado's diverse machinery manufacturing subsector produces a broad array of goods, including wind turbine components, jet engine controls, HVAC and industrial cleaning equipment, automation equipment, thin-film coating equipment, and canning assemblies. The pandemic negatively impacted many of Colorado's machinery manufacturing companies, including demand from sectors such as automotive vehicles and parts, aviation, oil and gas, and health care. Flagging demand from these sectors depressed employment in 2021 where jobs will fall by an estimated 4.1% to 11,900 employees. In 2022, machinery manufacturing is expected to recover slowly, growing by 0.8% and reaching about 12,000 employees. It should be noted that many firms may be moving to more automation, boosting investment and productivity, but with minimal job growth.

The pandemic negatively impacted employment in Colorado's furniture and related products subsector. Many of Colorado's employees work in cabinetry, and the sector is closely tied with household growth, home sales, and renovation activities. Other firms in this subsector include window, shade, mattress, door, and other furniture firms. Despite strength in the state's residential activity, employment in Colorado's furniture and related products manufacturing subsector contracted significantly during the pandemic-induced recession. Growth has struggled during the subsequent recovery and remains well below pre-pandemic peaks. The subsector has struggled with rising lumber prices. Further, rising interest rates may impact demand moving into 2022. Employment in Colorado's furniture and related products subsector is expected to remain flat in 2021 at about 5,300 employees. Employment in the subsector is expected to climb slowly in 2022, increasing by 1.9%, but will remain below pre-pandemic peaks.

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 in the state was challenged well before the pandemic, with employment contracting from 2016 to 2019. The subsector contracted again in 2020, falling by 4.7% and marking the fifth-consecutive year of falling employment. While employment was up slightly in the first quarter of 2021, the sector is expected to continue its downward trend through the year. In 2021, employment in the subsector is expected to fall 2.5% to 2,000 employees. Negative indicators include falling orders in the subsector nationally, an uncertain outlook for nonresidential building activity, and a weak rebound of Colorado's export activity. Employment in the sector is expected to rebound modestly in 2022, averaging about 2,100 employees.

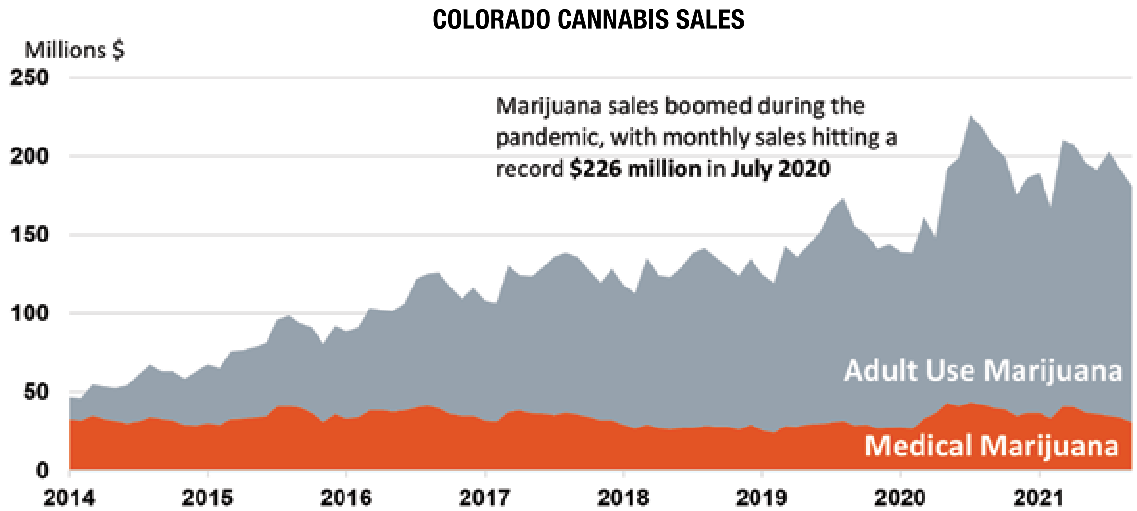
Employment in the primary metals manufacturing subsector, which includes firms that smelt or refine metals from natural ore and scrap, as well as firms that sell minimally processed metal products, is expected to contract by 4.4% in 2021, losing about 100 jobs and averaging about 1,900 employees. Many companies in the subsector operate on tight margins and were already facing headwinds by the end of 2019. Looking ahead, job growth is expected to remain flat in 2022.

The miscellaneous manufacturing subsector encompasses durable goods manufacturers that are not classified elsewhere. In Colorado, the largest firms in this subsector are medical equipment manufacturers, though other employers include makers of 3D printers and fishing equipment. Employment in the subsector fell significantly during the recession but regained some of the lost jobs by the first quarter of 2021. Employment is expected to slowly recover to 9,600 jobs in 2021 and 9,700 jobs in 2022. Over the longer term, employment in this subsector is expected to remain stable once jobs recover. ✣

Contributors:
David Hansen, Colorado Legislative Council (Chair)
Peter Doyle, Hirsh Precision Products, Inc.
Jacob Dubbert, University of Colorado Boulder
Bart Taylor, CompanyWeek
Rebecca Wilder, UCCS Economic Forum

The Colorado Cannabis Market

Colorado was an early adopter when it came to cannabis legalization, and the state continues to be a trailblazer. Cannabis for medical use was legalized in the state in 2000, only one of eight states to allow legal medical marijuana use at that time. Colorado then legalized cannabis for recreational use in 2012 (went into effect in 2014), becoming one of the first states along with Oregon to do so. As of mid-year 2021, Colorado is one of 18 states in the U.S. that allow legal retail/recreational cannabis use and one of 36 states that allow for the medical use of cannabis. Now, Colorado is one of the few states in the U.S. to legalize recreational marijuana delivery and the consumption of social cannabis onsite.



Source: Colorado Department of Revenue.

Since the first retail stores licensed to sell recreational marijuana legally opened in Colorado in 2014 (the first in the world at the time), recreational marijuana sales in the state have increased almost six-fold since legalization to reach over $1.7 billion in 2020. Total annual marijuana sales (including both medical and recreational) have increased from $68 million in 2014 to $2.2 billion in 2020, observing a compound annual growth rate of 21.4% over the six years, according to the Colorado Department of Revenue, Marijuana Enforcement Division. Approximately $182.5 million of marijuana products were sold in the state monthly in 2020, up from $56.9 million per month in 2014. Colorado had the third-highest marijuana sales in the U.S. in 2020, behind California and Washington.

Total marijuana sales in 2020 were a record $2.2 billion, a 25.3% increase from 2019, according to the Colorado Department of Revenue, Marijuana Enforcement Division. This follows growth of 13.1% in 2019, 2.5% in 2018, and 15.3% in 2017. A closer look shows that recreational sales grew by 24.1% in 2020, and medical sales increased 30.7%. Marijuana sales are continuing their strong gains in 2021, with total sales year-to-date (YTD) in September 2021 up 6.6% over 2020 to $1.7 billion, signaling another record year in 2021.

Three-fifths of overall marijuana sales in Colorado occurred in five counties (total sales year-to-date through September 2021): Denver County led the way with 30.7% of total sales, followed by Arapahoe County (8.8%), Adams County (7.1%), Boulder County (6.3%), and El Paso County (6.2%). As of September 2021, there were 40 counties in the state reporting recreational marijuana sales and 30 reporting medical sales.

In 2020, dispensaries, restaurants, hotels, and other businesses could apply for cannabis consumption areas, where cannabis products may be sampled or consumed on site. A few new cannabis-friendly businesses have popped up in Colorado where customers can socially consume, including The Coffee Joint, Bodega, and Tetra 9. These new retail channels and consumption spaces are set to expand and grow Colorado's cannabis market even further.

Medical cannabis delivery to patients began in January 2020, and retail cannabis followed in 2021. The legislation allows delivery by licensed retailers only during the first two years and allows third-party delivery companies starting in 2022. The delivery bill expands access and convenience to patients and adults, which can also serve to encourage market expansion. As of November 2021, there were 17 medical delivery permits in the state, according to the Marijuana Enforcement Division. The first legal marijuana delivery to a residence in Denver happened in August.

In 2021, the Denver City Council passed an overhaul of city marijuana rules and regulations that authorized delivery, expanded types of hospitality establishments, and provided licensing exclusivity for most types of marijuana licenses for social equity applicants to achieve the goal of more equitable access to the industry. The comprehensive social equity program for marijuana licensing in Denver seeks to break down barriers to entry and prioritize those who were affected by the prohibition of marijuana. Eligibility criteria for the social equity program include one of the following: the applicant resides in an opportunity zone or a "Disproportionate Impacted Area;" the applicant or applicant's parent, legal guardian, sibling, spouse, child, or minor in their guardianship was arrested or convicted for a marijuana offense; or the applicant's household income did not exceed 50% of the state median income. Additionally, the program:

- removes the cap on retail store and cultivation locations and allows only Social Equity Applicants to apply for new retail store and cultivation locations until July 1, 2027;
- provides applicants with exclusive access to medical and marijuana manufacturing licenses and medical and retail marijuana transporter licenses until July 1, 2027; and
- offers waived or reduced application or license fees.

The overall cannabis industry outlook remains positive as additional states in the U.S. legalize and regulate cannabis, cannabis use is allowed in more public spaces, and cannabis in general is more widely accepted. Market growth is expected to continue in Colorado in 2022, albeit at a slower pace.

Contributor:
Jacob Dubbert, University of Colorado Boulder

Trade, Transportation, and Utilities

The Trade, Transportation, and Utilities Sector is the largest provider of jobs in Colorado, with more than one-sixth of the state's workers included in this industry. Included in the sector are wholesale trade, retail trade, utilities, warehousing, and multiple facets of transportation (air, truck, transit, rail, pipeline, etc.). This industry lost 9,100 jobs in 2020 (1.9%), but added back an estimated 17,000 jobs in 2021, effectively surpassing the pre-recession peak. Growth is projected to slow in 2022, partially due to worker shortages. Total employment in 2022 is projected to increase 1% to total 490,700 jobs.

Trade

Wholesale

Wholesale businesses employed an estimated 111,500 Coloradans in 2021 with more than 95% working for merchant wholesalers, firms that sell to retail outlets. The remaining 5,000 employees are employed by electronic markets and agents and brokers. More than 65,000 are employed by firms selling durable goods, including computers, peripherals, and electronic equipment. Businesses selling groceries and related products account for the largest share of the 39,000 nondurable wholesale jobs. Several large Amazon warehouses are included among wholesale employers in Colorado.

Wholesale employment grew steadily over the past decade, interrupted only by a pandemic-related loss in 2020, and this trend should continue. Industry pay in Colorado averaged nearly $95,000 in 2020—40% above the average pay for all industries. Labor shortages will have less impact on wholesale trade than on retail. The sector is expected to add 1,400 jobs in 2022. As wholesale employment is cyclical, the forecast assumes continued economic growth.

Retail Trade

Colorado's retail sector accounts for almost 270,000 jobs, or nearly one-tenth of the state total. It includes several of the state's largest employers as well as many mom-and-pop stores. Colorado retailers include grocery stores, auto dealers, big-box stores, gas stations, and many other stores that sell to households. Annual retail trade sales approached $127 billion, including those of online sites, some of which are operated by stores with brick-and-mortar operations and others that sell only online, are also included in the retail category (excluding food services).

Consumers opened their wallets in the spring and summer. Colorado retail trade sales through July 2021 were more than 18% ahead of the previous year. All retail sectors showed healthy growth, although those that were strong during pandemic restrictions—such as food stores and internet sales—saw more modest increases. National sales showed similar growth, and they rebounded in September after slowing in the previous month. Inflation has been an important contributor to sales growth. The

INDUSTRY SNAPSHOT
TRADE, TRANSPORTATION, AND UTILITIES

Nominal GDP, 2020 ($ Billions)	58.6
Real GDP, 2020 ($ Billions, 2012 Dollars)	51.8
2020 Real GDP Growth Rate	-4.0%
Total Employment, 2020 (Thousands)	468.8
2020 Employment Growth Rate	-1.9%
Employment Growth National Rank	11
Share of Colorado Employment	17.7%
Share of National Employment	18.7%
Average Wage, 2020	55,719
Percent of Statewide Average Wage	82.6%
2020 Average Wage Growth Rate	5.8%

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

TRADE, TRANSPORTATION, AND UTILITIES EMPLOYMENT, 2012-2022
(In Thousands)

Year	Wholesale Trade	Retail Trade	Total Trade	Transportation and Warehousing	Utilities	Total TTU
2012	93.9	243.0	336.9	64.6	8.0	409.5
2013	96.3	248.4	344.7	67.6	7.9	420.1
2014	99.7	254.5	354.2	70.4	8.1	432.7
2015	103.2	262.1	365.3	72.2	8.2	445.7
2016	104.7	268.1	372.8	73.0	8.2	453.9
2017	106.3	270.8	377.1	76.1	8.1	461.3
2018	108.2	273.2	381.4	81.0	8.0	470.4
2019	110.4	272.3	382.7	87.0	8.2	477.9
2020[a]	108.0	261.8	369.8	90.7	8.3	468.8
2021[b]	111.5	269.9	381.4	96.5	7.9	485.8
2022[c]	112.9	272.6	385.5	97.1	8.1	490.7

[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.

Metro Denver consumer price index for commodities, which includes most items sold at retail, was up 9.3% in September 2021 over a year earlier. Third-quarter GDP estimates show consumer spending on goods declined after adjusting for price increases.

Despite continued vehicle shortages, Colorado's new car registrations through September were up more than 18% over last year. As registration figures lag sales, these data do not reflect the impact of the late summer and fall surge in COVID cases. The dollar value of auto sales has grown faster than unit sales as the share of more expensive light trucks and luxury vehicles continued to increase. The two leading models sold were Ram pickups and Ford F-150s. State sales by auto and parts dealers through July exceeded last year by 28%. Supply constraints will depress sales through the remainder of the year and well into 2022. The Colorado Auto Dealers Association forecasts a sharp slowing in sales in the fourth quarter, with registrations for the year only slightly ahead of 2020 and well below 2019.

The retail sales outlook is dominated by lingering aftereffects of the COVID pandemic as well as the likelihood of success in controlling it in 2022. Hot labor markets, government payments under COVID relief programs, and strong appreciation in homes and financial assets have left households in a very strong financial condition. Colorado personal income in the first half of 2021 posted the strongest growth in seven years. But merchants are plagued by shortages of both goods and workers and the Delta variant-induced resurgence in caseloads and hospitalizations in late summer and fall has put a damper on consumer confidence. The University of Michigan consumer sentiment index fell in October and is down 12 points since April.

Households have plenty of money to spend. The Commerce Department reported that U.S. consumers were holding some $1.6 trillion in savings, or 9.4% of disposable income, and the government may distribute more funds if the pending social spending bill is enacted. Supply bottlenecks and worker shortages should abate in 2022 as the COVID vaccine becomes more widely available in much of the world, and spending continues to shift toward services. These developments, along with reduced fiscal stimulus and modest monetary tightening, will restrain inflation.

Consumer spending will slow in late 2021. Shipping bottlenecks will likely have some damping effect on holiday sales and chip shortages will limit new vehicle supplies, but very strong growth in the early months will result in a state retail trade sales gain of more than 16% in the current year. Inflation should moderate in 2022. Households will have stocked up on durable goods other than automobiles and will spend a larger share of their incomes on services such as restaurant meals, entertainment, and travel. Continuing price increases in food, gasoline, home heating, and rents may limit spending on discretionary items. Colorado retail trade sales are forecast to grow 6% in 2022. This is markedly slower than 2019 or 2020 but is in line with gains between 2014 and 2018.

Retail employers will still face difficulties meeting their workforce needs in 2022, along with higher wages. They will resort to more labor-saving changes such as automation, self-service, and more online sales. After adding 8,100 workers in 2021, retail stores are expected to add another 2,700 next year. This will increase sector employment just above 2019 levels.

Colorado Auto Sales

Colorado's new car retail segment continues to be very strong, and the outlook is very positive going forward. Total direct jobs within franchised new car dealerships is 40,960, and most dealerships have unfilled positions in various departments, especially in service department auto technicians and title clerks.

During the early months of the pandemic, new car sales dropped initially but started recovering before the end of 2020. New car sales are booming in 2021, with percentage gains in sales as high as 20.5% through the first half of the year. Through Q3 2021, new car registrations were up 12.5% in Colorado, matching that of the nation. This is even while the industry is suffering from drastic inventory shortages due to supply chain disruptions.

The total earnings for Colorado residents attributed to franchised new car dealership operations is $2.26 billion. The average new car dealership has 81 employees, and the average Colorado new car dealership payroll, including fringe benefits, is $5.43 million.

Supply chain disruptions have dramatically decreased car inventories of franchised new car dealership lots, as much as a 95% reduction in some instances. Certain dealerships have sold out of every new car available on their lot and in their showrooms, something never before experienced in modern history.

A main victim of the supply chain disruptions is the shortage of microchip processors used in various parts within new cars, including key fobs, climate controls, steering and braking systems, and other electronic systems. In addition to the microchip shortage, new car manufacturers are experiencing delays or short supplies in steel, aluminum, foam for dashes and other interiors, and rubber for tires and other parts. Some automakers are also starting to experience shortages of wiring harnesses.

Once supply chain disruptions are resolved, the overall auto sector outlook is very promising as the new car supply has not begun to catch up with demand. It is estimated that more new cars are on order from automakers at this point in time than at any time in history, with some estimates of the order bank to be double the highest level in history.

Industry consolidation is another prominent trend in 2021 nationally, and especially here in Colorado, and is expected to continue into 2022. More than 20% of the franchised new car dealers in Colorado have changed ownership so far in 2021, a number that is more than 400% higher than at any time in history. Industry consolidation is expected to continue, though it is not

continued on page 52

Trade, Transportation, and Utilities

continued from page 51

RETAIL SALES, 2012-2022
(In Billions of Dollars)

Year	Trade Sales[a]	Change
2012	70.7	5.5%
2013	74.0	4.7
2014	79.3	7.1
2015	83.3	5.1
2016	87.9	5.5
2017	91.1	3.7
2018	95.4	4.7
2019	99.8	4.6
2020	108.6	8.9
2021[b]	126.6	16.6
2022[c]	134.2	6.0

[a]Excludes food services. [b]Estimated. [c]Forecast.

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

expected to adversely affect the overall economic outlook for consumers, sales, or culture.

Due to dramatically small, even unimaginably low, new car inventory levels and backlog at factories in pre-ordered cars at manufacturer level by dealers and consumers, it is estimated that the new car pipeline is short by over five million new cars on dealer lots now. That is equivalent to four to five months of normal automaker production; it will likely take over a year, and maybe closer to two years, to catch up on inventory re-stock when production is finally back to normal. The good news is that consumers are realizing that the car in their driveway is worth much more now than it was just six to 12 months ago and makes it easier to trade when a new car is selected to replace it. New car quality continues to improve, and electrification is changing the industry as far as performance and excitement goes. New cars continue to get better and better, and the new electrified models are increasing public interest in an upgrade.

Warehousing

The Warehousing and Storage sector has seen strong employment gains in recent years, with a five-year compound annual growth rate of 18.2%, bolstered by increased online shopping and the needed storage and distribution facilities to strengthen supply chain operations. The subsector increased 22.3% in 2018, 25.2% in 2019, and 25.9% in 2020; this growth has continued through Q3 2021, albeit at a slightly slower rate (15.4%). As online shopping continues to increase its share of overall consumer spending, there will be an increased need of warehousing and storage, sustaining employment gains in the years ahead. Growth in warehousing and storage also continues to be heavily influenced by the changing landscape of consumer shopping and the response from companies, a trend exacerbated by the pandemic. Additionally, Amazon continues to publicize the hiring of additional warehouse workers, announcing the hiring of 150,000 seasonal workers across the U.S. with attractive signing bonuses; this includes over 100 openings at the Colorado Springs warehouse and more than 200 openings at Denver locations. Employment in the subsector is expected to increase to 20,300 employees in 2021, growth of 14.7%, and 23,900 employees in 2021, growth of 17.7%.

Transportation

Couriers and Messenger and Support Activities for Transportation

The Couriers and Messenger sector includes delivery entities such as Fedex and UPS, along with many smaller delivery companies. The subsector has seen the largest gains within the Transportation and Warehousing sector over the last few years, bolstered by the increase in online shopping and subsequent delivery needs. Couriers and Messenger employment observed large gains in 2020 due to even more online shopping stemming from the COVID-19 pandemic, continuing an ongoing trend. Employment increased 12.1% in 2018, 9.9% in 2019, and an astounding 28.4% in 2020 year-over-year; the sector has grown at a five-year compound annual growth rate of 11.5%. This trend has continued throughout 2021, with employment through September 2021 year-to-date up 22% compared to the same time period in 2020. Employment in the sector is projected to continue to observe strong growth—an increase of 11.8% in 2021 to reach 19,900 employees, then an increase of 10.6% in 2022 to reach 22,000 employees.

Employment activity in the support activities for the transportation subsector offers a different story, however. While employment increased 6.7% in 2019, the sector was heavily impacted by COVID-19 in 2020, declining 9.3% year-over-year. While employment has recovered somewhat, average employment in Q1 2021 was still down 10.6% over Q1 2020. Employment in this subsector is expected to see a gradual increase in 2021 and 2022 as the tourism industry recovers from COVID-19. Pipeline transportation and ground transportation employment is expected to remain stable in 2021 and 2022.

Air Transportation

The COVID-19 pandemic negatively impacted the global aviation industry unlike any other event in history. While the airline industry has recovered significantly from 2020 lows as Americans are starting to travel again, passenger traffic has yet to return to historically high 2019 levels. National data from the Bureau of Transportation Statistics show that U.S.-based airlines carried more than 384.4 million passengers in 2020, a decline of 58.5% compared to 2019. Year-to-date passenger traffic through August 2021 totaled 332.9 million, 24.6% higher than the same period last year but still 45.8% lower than in 2019. Total operated flights by airlines remains down compared to 2019 as well, with 592,760 flights in August 2021, 15.9% below 2019 levels but 50.4% higher than 2020 levels.

COLORADO AIRPORT STATISTICS, 2012-2020
(In Thousands)

Passengers and Cargo	2012	2013	2014	2015	2016	2017	2018	2019	2020
Passengers (in thousands)[a]									
Denver International Airport (DEN)	53,156	52,556	53,473	54,015	58,267	61,379	64,495	69,016	33,742
Colorado Springs Municipal Airport (COS)	1,639	1,300	1,250	1,179	1,298	1,675	1,725	1,672	728
Grand Junction Regional (GJT)	439	422	428	429	465	481	488	549	278
Aspen-Pitkin County Airport (ASE)	430	413	435	467	509	490	571	608	368
Durango-La Plata County Airport (DRO)	373	386	388	374	376	374	379	391	199
Eagle County Regional Airport (EGE)	336	334	330	314	328	309	348	380	286
Montrose Regional Airport (MTJ)	145	169	175	205	230	245	268	316	202
Yampa Valley Airport (HDN)	120	184	184	188	215	193	200	212	176
Gunnison-Crested Butte Regional Airport (GUC)	62	62	63	69	70	65	73	72	58
Fort Collins-Loveland Municipal Airport (FNL)	70	5	4	7	9	6	5	6	N/A
Cortez Municipal Airport (CEZ)	15	16	8	5	9	16	16	17	11
San Luis Valley Regional/Bergman Field (ALS)	14	14	8	6	8	13	14	20	9
Pueblo Memorial Airport (PUB)	20	13	14	7	5	8	21	24	11
Telluride Regional Airport (TEX)	16	13	7	0	0	5	4	11	7
Total Passengers	56,835	55,888	56,767	57,264	61,788	65,262	68,607	73,293	36,075
Cargo, Freight, and Air Mail (in millions of lbs.)									
DEN Freight and Express	488	470	487	491	504	525	559	628	614
DEN Air Mail	34	29	33	55	47	60	54	44	47
DEN Total	522	499	519	546	552	585	614	672	661

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.

According to a national tracking poll by Longwoods International, Americans are ready to travel again as vaccinations have increased and COVID-19 cases have steadily declined. A survey fielded in October 2021 showed that 40% of travelers reported they will spend time with family over the holidays without any COVID-19 precautions or concerns, and only 4% say they do not plan to spend time with family due to COVID-19.

The number of travelers with trip plans in the next six months stood at 91%—the highest level since the beginning of the pandemic and up from a low of 57% in December 2020.

According to the International Air Transport Association's (IATA) July 2021 Airline Business Confidence Index, air travel demand started to slowly recover in some markets in Q2 2021, giving more optimism to airline business executives about air travel volumes and profitability in the future. This comes a year after the aviation industry experienced its sharpest quarterly fall in demand and profits since the Global Financial Crisis

continued on page 54

Trade, Transportation, and Utilities

continued from page 53

COLORADO ELECTRIC POWER CONSUMPTION 2012-2022 (In Millions of Kilowatt Hours)					NATURAL GAS (In Billions of Cubic Feet)	
Year	Nonresidential	Residential	Total	Percentage Change	Total Gas Consumption	Percentage Change
2012	35,465	18,220	53,685	0.4%	443.8	-4.9%
2013	34,913	18,529	53,442	-0.5	467.8	5.4
2014	35,304	18,093	53,397	-0.1	479.0	2.4
2015	35,731	18,385	54,116	1.3	466.9	-2.5
2016	35,968	18,834	54,802	1.3	441.0	-5.5
2017	36,215	18,615	54,830	0.1	438.1	-0.7
2018	37,163	19,287	56,450	3.0	485.7	10.9
2019	37,116	19,405	56,521	0.1	514.0	5.8
2020	35,567	20,483	56,050	-0.8	523.2	1.8
2021[a]	35,906	20,794	56,700	1.2	549.5	5.0
2022[b]	35,707	19,526	55,233	-2.6	535.5	-2.5

[a]Estimated. [b]Forecast.

Sources: Energy Information Administration, Xcel Energy, and Colorado Business Economic Outlook Committee.

in Q2 2020. The majority (52%) of respondents expect air travel demand to recover to 2019 levels in 2023.

Colorado has a total of 14 commercial service airports; 13 of those had scheduled passenger service in 2020 and 2021. The only airport without scheduled commercial flights was Northern Colorado Regional Airport (FNL). Three of Colorado's airports, Alamosa (ALS), Cortez (CEZ), and Pueblo (PUB), fall under the federally subsidized Essential Air Service (EAS) program.

Colorado airports are seeing a rebound in passenger traffic in 2021. Passenger traffic at Denver International Airport (DEN) in August 2021 year-to-date was up 72.2% compared to the same period last year but still down 19.3% compared to 2019 levels. Traffic at the Colorado Springs Airport (COS) fell 56% in 2020 year-over year but was up 146% in September 2021 year-to-date compared to 2020 and up 7% compared to 2019. Colorado Springs passenger traffic is less than 3% of the DEN volume.

Passenger traffic was down substantially across all of Colorado's 14 airports in 2020. Southern airports, Alamosa (ALS) and Pueblo (PUB), saw enplanements decline 52.8% and 55.6% in 2020 year-over-year, respectively. Mountain airports—Aspen (ASE), Vail/Eagle (EGE), Steamboat Springs/Hayden (HDN), and Telluride (TEX)—experienced declines of 40.3%, 25.2%, 17.1%, and 32.2%, respectively. Western Slope airports—Cortez (CEZ), Durango (DRO), Grand Junction (GJT), Gunnison (GUC), and Montrose (MTJ)— observed declines of 35.7%, 49.1%, 44.4%, 20.2%, and 36.2%, respectively.

Denver International Airport

DEN is owned and operated by the city and county of Denver. The city's Department of Aviation employs approximately 1,300 people at the facility, and the airport celebrated 25 years of operation on February 28, 2020. Year-to-date through September 2021, DEN's three largest carriers were United (43%), Southwest (32%), and Frontier (11%). DEN recorded 197 nonstop destinations in November 2021.

DEN served 69 million passengers in 2019, ranking it the 5th-busiest airport in North America and the 16th-busiest in the world. This was the highest number of annual passengers in DEN's history. The impact of the pandemic caused passenger traffic at DEN to drop 51.1% in 2020, reaching an annual total of 33.7 million passengers. The decrease in passenger traffic hit bottom in April 2020, and the airport has posted one of the strongest recoveries, ranking the airport 3rd-busiest in the world during the first seven months of 2021. From January through September 2021, DEN recorded 42.5 million passengers—74% more than during the same period in 2020, but 18% below 2019. The month of September alone recorded 5.5 million passengers—88% more than September 2020 and 8% below September 2019. September 2021 was the 2nd-busiest September on record for DEN; July 2021 was the 4th-busiest month ever for the airport. The comparative recovery has to do, in part, to the relatively small portion of passenger traffic derived from international passengers—4.6% in 2019. The international travel market was devastated due to COVID-19, and global borders are just beginning to open back up.

Notable factors driving DEN's above-average recovery include strong demand for domestic travel as well as DEN's central geographic location which allows for convenient connections. In 2020, DEN ranked as the largest domestic origination and destination (O&D) airport in the U.S. for the first time in history. At the same time, the percentage of passengers using DEN for connections has reached its highest level in nearly a decade. This is a result of several factors, including airline network reductions, particularly on transcontinental routes; outsized demand for leisure travel; and the depth of competitive air service offered at DEN. Going into the pandemic, DEN ranked as the largest operation for Denver-based Frontier Airlines. In May 2020, DEN became the largest operation for Southwest Airlines and will remain in the top position moving into 2022. And, for three consecutive quarters—4Q 2020, 1Q 2021 and 2Q 2021—DEN was the largest operation for United Airlines. It is unprecedented for a U.S. airport to be the largest operation for three airlines at one time.

Utilities

Colorado natural gas and electricity rates moved up in 2021 with natural gas prices. Adverse regulatory conditions have dropped natural gas production by 3% year-over-year despite higher prices. Cold weather and a rebounding economy helped boost natural gas consumptions compared to 2020.

Electricity prices have risen around 4% in 2021. Electricity consumption rose in 2021 with increased economic activity. Continued conservation efforts, ongoing adoption of on-site solar, and a partial return to the workplace are expected to drop consumption in 2022.

Xcel Energy announced plans to achieve net-zero greenhouse gas emissions from its natural gas business by 2050 and reduce carbon emissions by 25% by 2030. Xcel Energy plans to purchase natural gas only from suppliers with certified low emissions and continue to improve the natural gas delivery system to achieve net-zero methane emissions by 2030. Programs will encourage the use of electric appliances and low-carbon gas alternatives including hydrogen and renewable natural gas along with support for natural gas conservation.

Carbon-free energy and conservation continues to replace coal-fired electric generation. Tri-State updated its Responsible Energy Plan to increase renewables and energy storage by 2,000 megawatts by 2030. In August, Colorado Springs Utility closed the 95-year-old Martin Drake coal-fired power plant in the center of the city.

Colorado natural gas consumption grew by 5% in 2021 to an estimated 549.5 BCF. Electricity consumption rose by 1.2% in 2021, to an estimated 56,700 million kWh. Utility jobs fell to 7,900 in 2021 with increased retirements. The number of jobs should move up in 2022, with ramp ups in electric vehicles, building electrification, and conservation.

Contributors:
Tim Sheesley, Xcel Energy (Chair)
Jacob Dubbert, University of Colorado Boulder
Gregory Fulton, Colorado Motor Carriers Association
Laura Jackson, Denver International Airport
Tim Jackson, Colorado Automobile Dealers Association
Bill Kendall, Economist
Jason Peuquet, Xcel Energy

Information

Companies in the Information industry are responsible for creating, distributing, and transmitting information. In 2020, the Information industry lost 2,100 jobs as the pandemic affected operations for many businesses, including film operations and movie theaters, and long-run trends in digitization, automation, and consolidation shed jobs across other sectors. The industry is expected to gain 400 jobs (0.6%) in 2021 and 600 (0.7% growth) in 2022 as pandemic-related distortions ease.

Publishing Sector

The Publishing sector 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. Over the past two decades, the types of products produced by the publishing industry have diversified to include an increasing amount of electronic and internet-based products, such as audio, downloadable files, digital books, and mobile device applications. Though even with diversification, the number of jobs in print and news publishing industries continues to decline, with the pandemic exacerbating recent job losses. Employment in the software publishing sector has remained relatively stable throughout the pandemic to date, with labor shortages expected to constrain growth through 2022.

Newspaper Publishing

Consistent with national trends, Colorado continues to experience a long-run decline in the number of establishments and number of employees in the newspaper publishing industry as the industry consolidates and migrates toward digital consumption. Stagnant advertising sales and consumers' unwillingness to pay for digital news has challenged the industry in the information age. Consolidation has hit local news outlets hardest over the past decade.

In 2020, the COVID-19 pandemic exacerbated these longer-term challenges, causing the industry to undergo temporary layoffs, additional downsizing, and further migration toward the digital provision of news. Colorado's newspaper publishing industry employed 2,053 in 2020, down 12.1%, or 258 jobs, from the prior year. This marks the 15th consecutive year of job losses, but the losses are expected to slow in 2021 and 2022 as the industry stabilizes from pandemic impacts.

Book Publishing

The book publishing industry in Colorado has remained resilient during the pandemic to date. The largest employers are concentrated in Boulder and Colorado Springs in niche publishing sectors. The industry is quite small, with 702 employees as of 2020. In spite of pandemic disruptions, the industry expanded slightly in 2020, with employment up 1.7% in 2020 from year-ago levels and the number of establishments rising from 88 in 2019 to 94 in 2020.

According to the Association of American Publishers, nationwide revenues among book publishers remained stable in 2020 and rose 18.1% in the first half of 2021 over the same period in 2020. Consumer book sales were up 17% in the first half of the year. Revenues were up by double digits for both traditional print, including hardback and paperback, as well as downloaded audio. Revenues from religious presses, education, and professional books all rose in the first half of 2021 over year-ago levels.

Directory Publishing

The directory publishing industry includes companies that publish not only directories, but also mailing lists and collections of facts both in print or electronically. The largest employers in Colorado provide marketing services through the collection of consumer data and consumer credit and loyalty programs. The directory publishing industry supported 759 employees during 2020, a 21.8% decline over 2019 levels. Both the number of establishments and number of employees have declined annually for the past decade. The impacts of the COVID-19 pandemic exacerbated declines in 2020, as the number of establishments shrunk from 26 to 22 and the industry shed 212 jobs relative to 2019 levels. Ongoing consolidation in the industry is expected to continue into 2022.

**INDUSTRY SNAPSHOT
INFORMATION**

Nominal GDP, 2020 ($ Billions)	24.3
Real GDP, 2020 ($ Billions, 2012 Dollars)	27.1
2020 Real GDP Growth Rate	6.7%
Total Employment, 2020 (Thousands)	75
2020 Employment Growth Rate	-2.7%
Employment Growth National Rank	4
Share of Colorado Employment	2.8%
Share of National Employment	1.9%
Average Wage, 2020	123,495
Percent of Statewide Average Wage	183.1%
2020 Average Wage Growth Rate	12.9%

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

Software Publishing

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.) Fueled by organic, homegrown growth, as well as through acquisitions and company relocations, the sector expanded by 2.9% in 2020 to 16,500 jobs. The industry has experienced rapid growth in the six years leading up to 2020, yet headwinds from the pandemic and labor shortages have muted more recent growth. Labor shortages are expected to constrain growth in both 2021 and 2022, as the sector competes with other industries for programmers and other talent.

In 2020, there were 833 software publishing companies, an addition of 79 establishments year-over-year, or an increase of 10.4%. 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. Colorado has a high concentration of employment in the software industry (twice the national average).

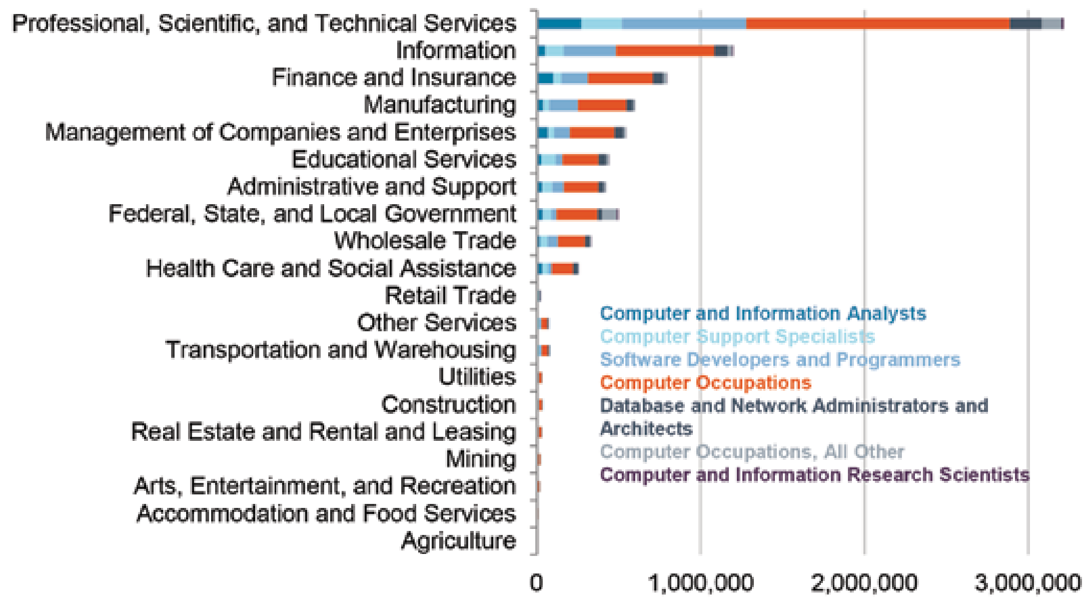
Telecommunications

Employment in the Telecom sector declined by -2.2% (575 jobs) in 2020, after falling by -1.2% (325 jobs) in 2019. Approximately 26,200 people worked in the Telecom sector in 2020 across 696 establishments throughout Colorado. Over 52% of these establishments are located in the Denver Metropolitan Statistical Area (MSA); however, with many larger companies based in the metro area, almost 72% of all telecom jobs are in the Denver MSA. The sector includes large Colorado-based companies such as DISH Network and Zayo.

The Telecom sector was significantly affected by the pandemic-induced recession, much like other sectors, with employment falling by 500 jobs from March to April 2020. Employment continued to fall throughout 2020 and is still trending downward in 2021. Employment in the Telecom sector is projected to remain the same in 2021, before increasing in 2022.

Broadcasting and telecommunications are combined for GDP reporting; this combined sector expanded 4.5% in 2020, after observing a 1.9% decline in 2019. The sector contracted 1.7% in 2014, 4.7% in 2015, 6.9% in 2016, and 8.5% in 2017, but expanded a whopping 30.7% in 2018. In 2020, GDP in the telecom and broadcasting sector accounted for just 3.3% of the state total, up from 2.6% of the 2017 statewide GDP.

NATIONAL COMPUTER AND IT JOBS BY OCCUPATION ACROSS INDUSTRIES, 2020



Source: Bureau of Labor Statistics, Occupational Employment Statistics, May 2020.

Employment in the Telecom sector has been on the decline since a high of 46,800 in 2001 and has observed a five-year compound annual growth rate of -0.6% and a 10-year CAGR of -0.9% (2020). Earlier in the decade, from 2001 to 2006, the sector's employment experienced a 41% decline as the industry shed 19,000 jobs. This trend was reversed for three years, from 2006 to 2009, as 4,000 jobs were added over this period. Job losses were again the norm from 2009 to 2012, with payrolls falling a combined 4,700, or 15% (with a considerable portion of this loss due to the aforementioned cuts at CenturyLink after its merger with Qwest). Since 2012, Telecom employment has fluctuated, with four years of job growth and five of decline.

The Wired and Wireless Telecommunications subsector, created in 2017 when wired and wireless carriers were collapsed into the same component sector, accounted for a majority of the telecom job losses, with employment falling 307 in 2020 after falling 471 in 2019. Satellite telecommunications employment declined by 2.7% and other telecommunications employment declined by 4.9% in 2020 year-over-year.

Impact of COVID-19

The COVID-19 pandemic exacerbated the shift to more digital and online services. The switch to remote working for a large number of occupations in 2020 has continued in 2021, with many companies still in a work-from-home environment and others continuing online video meetings even at the office. This has increased the demand

continued on page 58

Information

continued from page 57

for networking infrastructure and connectivity, which appears to be here to stay. Video conferencing platforms have seen their usage explode, with a leading platform, Zoom, reporting a 458% increase in customers in Q2 2020 over Q2 2019 and a 36% increase in Q2 2021 over Q2 2020.

The ongoing trend toward digital communication and entertainment appears to have sped up as well. Wireless-only households in the U.S. jumped to 65.8%, broadband internet subscribers increased 4% year-over-year, video-on-demand services saw their viewership skyrocket 30.3% in 2020 over 2019, the number of smart devices in homes nearly doubled, the number of wireless-connected devices increased by more than 20 million, and the number of messages sent over wireless increased by 119 billion. The skyrocketing demand for connectivity for these services poses a challenge to the existing infrastructure and networks. This increase in demand for network and infrastructure could lead to increased hiring from companies within the sector.

INFORMATION EMPLOYMENT 2012–2022 (In Thousands)

Year	Publishing	Telecom	Other	Total
2012	21.7	27.2	21.0	69.9
2013	20.8	27.4	21.9	70.0
2014	20.5	27.5	22.6	70.5
2015	20.5	27.0	23.6	71.0
2016	20.5	27.4	24.3	72.2
2017	21.0	26.1	25.2	72.3
2018	21.6	27.1	27.0	75.6
2019	22.0	26.7	28.4	77.1
2020[a]	21.9	26.2	26.9	75.0
2021[b]	22.1	26.2	27.1	75.4
2022[c]	22.3	26.9	26.8	76.0

[a]Revised. [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 and is ever more important with increased remote work, online education, and health care. Economic research shows that 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 areas.

Over 90% of Coloradans have access to broadband at speeds of 100 Mbps or faster, ranking the state 25th in broadband access, according to BroadbandNow. However, only 62% of Coloradans have access to fiber-optic services, and 4% have access to one gigabit broadband internet. Additionally, unequal access to broadband across the state has created a digital divide. Broadband provisions in Colorado communities located outside the Front Range present unique challenges, and nearly 84% of the state's population lives in urban areas along the Front Range. Approximately 91% of rural Colorado had broadband access in June 2021, up from 70% in 2017; the Funding for Broadband Deployment bill (HB 1289), which was signed by Governor Polis in 2021, is expected to get the state to 100% rural broadband coverage. Still, an estimated 397,000 people still do not have access to a wired connection capable of 25 Mbps, and 173,000 do not have access to a wired internet connection at all. The divide in broadband access between rural and urban communities has had even more implications during the pandemic, as remote schooling and work are more difficult.

Smaller communities have been slower to engineer and deploy broadband utilities infrastructure, but they are catching up. Successful deployment in small towns, such as Red Cliff, Meeker, and Wray, provide innovative and inspiring examples for other communities to follow.

For example, a 481-mile fiber line from Georgetown to Rangely that serves a 10-county region and is run by the Northwest Regional Council of Governments became operational in May of 2020. In November 2019, residents in smaller municipalities like Edgewater, Rico, and Mead, along with larger towns including Lakewood, Greenwood Village, and Parker, voted to approve the provision of municipal broadband or partner with the private sector to provide the service. In June 2021, Mountain View Electric Association, in partnership with Conexon Connect, announced a $190 million expansion of broadband services by bringing fiber broadband to rural portions of Arapahoe, Crowley, Douglas, Elbert, El Paso, Lincoln, Pueblo, and Washington counties.

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 Colorado Department of Local Affairs (DOLA) that has awarded over $20 million in matching grants since 2016 for a statewide investment of $34 million to numerous rural communities throughout 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. There are two broadband grant programs currently available in Colorado, including the Broadband Interconnectivity (HB21-1289) Grant Program with $5 million available to provide public institutions, private businesses, and citizens access to reliable broadband service, as well as the Broadband Planning and Infrastructure Set-Aside with $3.6 million available to support local governments in improving broadband services.

Broadband access allows many rural communities the potential to attract remote workers and location-neutral businesses that can help 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, which have the promise to reduce health care costs while improving outcomes. The United States Department of Agriculture (USDA) announced in October 2020 the investment of $6.3 million in high-speed broadband in rural Colorado, and another $10.5 million in August 2021. This funding is part of the effort to provide broadband services to unserved and underserved rural areas and is part of the $550 million Congress allocated to the second round of the ReConnect Program. The most recent funding will be used by the Delta-Montrose Electric Association to deploy fiber and connect 2,410 households, 6,877 people, three educational facilities, 89 businesses, and 115 farms spread over 126 square miles. The USDA released the Funding Opportunity Announcement (FOA) for the third round of ReConnect Program funding in October 2021, with a deadline of February 22, 2022.

Telephone

Telephone, the legacy business for telecom providers, has been experiencing a protracted decline since the turn of the century. The Centers for Disease Control and Prevention, which tracks landline use to assure representative samples in its health studies, reported that 65.8% of U.S. households had only cellphone service in 2020. This was a significant jump from the 59.2% reported in 2019. According to this study, fewer than 32% of all households still had a landline, and about 1.8% had only a landline. According to Leitchman Research, the top telephone companies lost around 405,000 video subscribers in 2020 compared to a loss of 630,000 in 2019. Improvements in VoIP services have allowed 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 focus on higher margin business-to-business sales and have diversified into separate wireless, wireline, internet, cable TV, and providers of emerging cloud-based and data center technologies.

Television

Similar to the decline in land telephone subscriptions, pay-TV companies have been losing subscribers at a continued steep rate due to the uptick in video-on-demand services. A report from Leitchman Research revealed that major pay-TV providers in the U.S. lost about 5.1 million subscribers in 2020, compared to a loss of 4.8 million in 2019, continuing the declining trend observed over the last couple years. As internet speeds have become faster and more affordable in many markets, customers have been "cord-cutting" and leaving traditional cable and satellite services. Leitchman reported that 78% of U.S. households have subscription video on-demand service from Netflix, Amazon Prime, and/or Hulu in 2020 (up from 74% in 2019), with 58% of households subscribing to multiple services.

Telecom companies are trying to stem this decline by using new technologies like high-definition, on-demand, online, mobile, multicasting, and bundling services like Disney+ with Verizon subscriptions or including Apple TV+ with hardware purchases from Apple. 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. Coincidentally, the top cable and telephone providers in the United States (which represent 96% of the market) added 890,000 net additional broadband internet subscribers in Q2 2021, compared to 1.26 million in Q2 2020. There are now 107.4 million broadband subscribers in the U.S.—an increase of 4% year-over-year; cable companies provided broadband service to 74.7 million while telephone companies provided service to 32.7 million. The pandemic significantly increased broadband subscribers, with over 2.4 million net additions in the first half of 2020—the most net additions in the first half of any year since 2008—but growth has slowed in the first half of 2021, with 842,447 net additions. Viewers of ad-supported video-on-demand (AVOD), with examples like Hulu, Roku, and Peacock, increased 30.3% in 2020 year-over-year and are projected to grow from 127.7 million viewers in 2021 to 164 million in 2025, according to eMarketer.

Wireless

The pandemic, coupled with ongoing advances in wireless communications, has caused consumers to continue to move away from landlines and pay-TV providers. As more content is delivered wirelessly, and with 5G (fifth-generation) mobile networks now being rolled out, telecoms are fighting to expand their spectrum to meet the demands of bandwidth-intensive consumers. Wireless providers invested $30 billion in 2020 to power these wireless networks, a five-year high. Over 300 million Americans are now covered by 5G, up from 200 million last year, according to CTIA. 5G networks are estimated to contribute between $1.4 to $1.7 trillion to the U.S. economy and create between 3.8 million and 4.6 million jobs by 2030.

According to the FCC, the number of connected devices exceeds 442.5 million, or 1.3 devices for every resident in the United States. A survey by Deloitte found that 38% of Americans added internet-connected devices to their homes during the pandemic, and the average U.S. household has about 25 smart devices, up from 11 in 2019. The pandemic also saw the number of messages exchanged over wireless networks increase by over 119 billion, driven by a 28% increase in GIFs, memes, videos, and other MMS messages. According to Pew Research Center, 97% of Americans own a cell phone and 85% own smartphones (up from just 35% reported in the first smartphone ownership study in 2011). Additionally, tablet computers are owned by 53% of Americans (up from just 3% in 2010), but this share has plateaued over the past four years perhaps due to the increased size of many smartphones. The uptick in ownership of these data-hungry devices and the increasing prevalence

continued on page 60

Information

continued from page 59

of smart-home Wi-Fi connected devices like thermostats, doorbells, and appliances has resulted in increased demand for spectrum, especially high-band.

The rollout of 5G networks will take some time to cover all of Colorado's population, but Denver and Colorado Springs residents now have 5G coverage. 5G networks have the promise to be 100 times faster than the current 4G networks and about 10 times faster than 4G LTE networks. The deployment of 5G networks will likely take a number of years to build out; these networks are designed to work on an extremely high bandwidth above 20 GHz, but this high-spectrum band cannot travel more than a mile versus the current 4G LTE that can reach devices within a 20-mile radius. The build out of 5G networks will require numerous small cells/antennas installed 30 feet above the ground, likely on existing utility poles or streetlights. A number of these towers went up in 2019 throughout Denver in public right-of-ways that run between sidewalks and roads. The deployment of these small cells has been occurring a few blocks at a time; it will take a few years before most big population centers in Colorado are covered.

Data Processing

The Data Processing, Hosting, and Related Services industry is made up of companies that provide infrastructure for hosting or data processing services, which may include web hosting, streaming services, or application hosting. With the booming Internet of Things (IoT) taking over every aspect of life, the increasing popularity of AI, big data, and data analytics, skyrocketing data usage, and the accelerated need of businesses to digitize business models, data centers and cloud services are in high demand. Some examples of Colorado companies include Pax8, Ibotta, and Equinix.

The industry is quite large in Colorado, with 1,334 firms employing almost 15,000 people in 2020, and wages are way above average, at $139,423. With the ongoing increase in data usage and cloud services, industry employment in the state increased 6.9% in 2020 year-over-year, one of the few bright spots in the Information sector. The industry has observed a five-year employment CAGR of 10.4% and employment in 2020 was 64% above 2015 levels. The growth in firms is similar, with 6.5% growth in 2020 year-over-year and a five-year CAGR of 21.2%. Pax8, headquartered in Greenwood Village, Colorado, saw three-year revenue growth of 1,872%, ranking it No. 164 on the 2021 Inc. 5000. The outlook for the Data Processing industry is strong, as spend on public cloud services is projected to grow by 8.4% in 2021 worldwide (according to Gartner), M&A activity and data center investment is expected to hit a record in 2021, and data center demand grew by a staggering 72.9% in 2020—a record year. According to JLL, Denver is expected to see continued growth in data center usage and space acquisition by technology and finance institutions. The majority of data center demand in the Denver market is driven by technology, health care, banking & financial services, telecom, and retail & e-commerce companies.

Film, Television, and Media

Impact of Colorado Film Incentive

In May 2012, the Colorado Legislature passed a law providing an incentive that allows for a performance-based rebate of up to 20% of qualified Colorado expenditures for films, television series, commercials, and video games produced in Colorado. Since the incentive's inception, the increase in inquiries and applications has been palpable; over $21.4 million in incentives has been paid or conditionally approved to productions as of the end of FY 2020-21 (June 30, 2021). The Colorado Office of Film, Television & Media (COFTM) reports $150.2 million in actual and predicted production spend and 4,924 cast and crew hires from the start of the program in 2013 through FY 2020-21.

Using a multiplier effect, it is estimated that approved productions will have generated over $270 million to 55 counties in Colorado, impacting 10,889 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, which were recently updated to include more contemporary data.

Film Incentive Process

Film incentive projects must meet statutory requirements during the application process, including minimum spends and a minimum Colorado resident hiring requirement of 50% cast and crew. After completing an internal review process within COFTM, each project is presented to the Economic Development Commission (EDC). This group, made up of Colorado business leaders, must vote to approve each project before a purchase order or contract is initiated and principal photography may commence. After completion of the film, television show, commercial, or video game, a Certified Public Accountant, who has completed training with COFTM, must review and sign off on the project's qualified expenditures. After an additional review by the COFTM analyst, a check up to the approved incentive amount will be issued to the production company.

Over the last nine years, Colorado's film scene has benefited from high-profile productions from major film studios and reputable independent production companies, such as Universal Studios and Netflix. A few notable films include the Netflix original films, "Our Souls at Night" (Robert Redford, Jane Fonda) and "Amateur" (Josh Charles, Michael Rainey Jr.); "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. In television, Colorado received notable screen time with the incentivized Bravo TV series, "Top Chef," which showcased the state's agricultural landscape in addition to scenery in Denver, Boulder, Aspen, and Telluride. Since 2018, we've seen a continued trend in unscripted television productions, with COFTM incentivizing 14 projects produced locally

COLORADO FILM INCENTIVES PROGRAM 2013-2021

Number of Completed Projects	100
Incentives Paid	$21.4M
Total Cast and Crew Positions Created	4,924
Economic Impact	
Total Production Spend	$150.2M
Estimated Tax Revenue	$16.5M
Net Cost to State	$4.9M
Estimated ROI	31:1

Source: Colorado Office of Film Television and Media.

INCENTIVIZED VIDEO GAME PROJECTS 2013-2021

Number of Completed Projects	9
Incentives Paid	$2.6M
Number of Jobs Created	381
Economic Impact	
Total Production Spend	$22.3M
Estimated Tax Revenue	$2.5M
Net Cost to State	$100k
Estimated ROI	223:1

Source: Colorado Office of Film Television and Media.

COMPETING WESTERN STATES OFFERING INCENTIVES

State	Incentive	Allocated Funds FY 2022 (Millions)
California	20-25% tax credit	$660.0
New Mexico[a]	25% film / 30% TV tax credit	$130.0
Montana	20-35% tax credit	$12.0
Utah	25% tax credit	$9.9
Oklahoma	20-37% rebate	$30.0
Wyoming	15-30% rebate	$3.0

Source: Colorado Office of Film Television & Media.

[a] New Mexico adds 5% for Film & TV Production in Rural Areas.

to air on Food Network, PBS, Facebook Live, HGTV, and Velocity Channel.

Growth of the Gaming Industry

Colorado's video game industry has also been boosted by nine incentives for adventure games since the inception of the program, including the "Life is Strange" series produced by Deck Nine in Westminster and "Project Blue Tree" currently being produced in Boulder by Serenity Forge. Deck Nine's most recent release, "Life is Strange: True Colors," debuted in the top 10 highest-selling games on Xbox in September 2021 (NPD Group, October 18, 2021). Incentivized gaming projects in FY 2019-20 and FY 2020-21 alone are estimated to have spent $12.9 million in local qualified expenditures.

In 2022, the video game industry is advantageously poised to see exponential growth due to both the ongoing effects of the COVID-19 pandemic and the natural evolution and integration of gaming technology into more facets of society. The effects of the health crisis on gaming have been twofold: in following stay-at-home and quarantine precautions, customers have more opportunity for screen time than ever before. Additionally, gaming work—unlike most non-animated film and television productions—can be performed remotely, which has led to an increase in production. The two largest gaming companies in Colorado are experiencing more opportunities to win higher-dollar projects than ever before.

According to a May 2021 report by Newzoo, a market research firm in the gaming industry, the 2021 global games market is forecast to generate $175.8 billion in revenue in 2021 and engage 2.9 billion players around the world by the end of the year. The market is expected to surpass $200 billion in revenue by 2023. This exceeds the combined revenues of the National Football League, Major League Baseball, National Basketball Association, and the National Hockey League. The relevance of gaming also reaches beyond the entertainment industry and into advanced industries such as aerospace, military,

COLORADO FILM INCENTIVE PROGRAM 2013-2021 INCENTIVIZED VIDEO GAME PROJECTS

Number of Completed Projects	5
Incentives Paid	$2.1M
Number of Jobs Created	222
Economic Impact	
Total Production Spend	$10.9M
Estimated Tax Revenue	$1.3M
Net Cost to State	$738K
Estimated ROI	15:1

Sources: Colorado Office of Film Television & Media.

and health care, as gaming provides another avenue to test procedures and simulate experiences. The industry expects to rapidly grow further into these spaces in the coming years.

Colorado Film and Television Industry in Decline

Commercial production has become a large part of the state's film market due to Colorado's reputation of having a strong crew base. Thanks to partnerships across the state with 12 COFTM-activated Regional Film Commissions and local film liaisons, the office now has a better scope of commercial activity. Since FY19, Colorado has remained a key location for the commercial industry, including content for Skull Candy (Denver), Harley-Davidson (Leadville), Subaru (Telluride), as well as local campaigns for Colorado Great Outdoors (Durango) and Colorado Lottery (Jefferson County). Additionally, Colorado was a popular music video location for musicians Enrique Iglesias ("Después que te perdí" filmed in Park County), Dan + Shay ("Tequila" filmed in Frisco), and Brooks Forsyth ("Cast My Dreams to the Wind" filmed in Victor). However, as Colorado's crew base continues

continued on page 62

Information

continued from page 61

to shrink due to the inconsistent nature of the state's incentive program, the state could begin to lose this "free" business.

Unfortunately, Colorado's infrastructure is also declining. Rental houses, which supply commercial and film productions with camera, lights, electrical equipment, and more, are a key part of any community's film industry and allow access to gear for both in and out-of-state companies. This infrastructure is attractive to out-of-state companies because they do not incur the added expense of renting gear that must then be shipped from and returned to another state. However, due to reduced General Fund allocation for the incentive program, Colorado rental houses are seeing a decline in business. Anecdotally, Ken Seagren, the owner of Colorado's largest rental house, Lighting Services, Inc. (LSI), reported a 95% decline in local rentals in 2019 over past years. Additionally, one of Colorado's largest soundstages, WestWorks Studios (17,000 square feet of studio space), closed its doors at the end of 2019.

In the first five years of the state's performance-based rebate, steady incentive funding led to a substantial increase in film and television crew. Anecdotally, producers who worked in the state inquired about returning with new projects. A new, younger crew population, many of whom graduated from Colorado institutions of higher education, supplemented this crew base. Various institutions across the state, including the Colorado Film School and CU Denver's College of Arts and Media, have reported an increase year after year in film and video students, and institutions like the University of Northern Colorado, Red Rocks Community College, and Front Range Community College are exploring new film and entertainment industry programs and expansions. At the same time, with fewer incentive dollars and a decrease in larger, out-of-state productions, Colorado's film and television workforce has begun to look for opportunities in other film-friendly states such as New Mexico and Georgia. Increases to film incentives in Utah and Montana have also attracted projects looking to film in the region.


Larimer Square Summer Film Series. Photo coutesy of VISIT DENVER.

From the inception of the 20% performance-based rebate through FY 2020-21, the Colorado Office of Film Television & Media has been allocated a total of $18.9 million in General Fund funding for incentives. Though continued funding reflects the success of the program thus far, COFTM must compete annually for General Fund dollars. COFTM was allocated $250,000 in FY 2020-21, a significant drop from the previous year's $750,000. The COFTM allocation continued to shrink since the office was allocated $5 million in the third year of the program. As a result of lower funding allocations, COFTM made an effort to support Coloradans who live and work within the state by awarding incentive dollars to only in-state applicants between FY 2017-18 and FY 2019-20. Fewer funds have resulted in fewer incentivized productions and a lower impact on both the state's workforce and economy.

Thanks to the passage of HB 21-1285 in June 2021, which allocated a one-time infusion of $6 million into the film incentive program, as well as an increase in the long bill allocation to $1.25 million, COFTM entered FY 2021-22 with $7.25 million in available incentive funds. In the first quarter of FY 2021-22, $1.5 million of this new incentive funding already attracted 10 projects, with a cumulative estimated total of $10.8 million in local qualified expenditures, and nearly 380 cast and crew hires. The effects of increased funding have been quickly reflected in the influx of incentivized productions. However, the long-term future of the program is dependent on maintaining a consistent incentive program that can be relied upon by Colorado crew members as well as in- and out-of-state producers. If the incentive continues to fluctuate year after year, crews will continue to leave the state and not return, gutting Colorado of its skilled workforce and diminishing opportunities for future productions to film in the state.

The number of crew and cast positions associated with projects incentivized by COFTM dropped drastically in years in which the budget was cut. Likewise, the total Colorado expenditure associated with productions incentivized by COFTM dropped drastically in 2018 and continues in a downward direction as a result of decreased incentive funding. The primary reason for the declines in positions created and expenditures is that a smaller budget can only support incentives for smaller productions, with lower budgets and, therefore, smaller crews. The rebounds in total production spend and positions created over 2020 can be directly attributed to the additional $1.25 million "Band-Aid" from strategic funds that the Economic Development Commission (EDC) (more information below on page 64) approved in October of 2019.

Impact of the COVID-19 Pandemic

The global film industry has been enormously impacted by the COVID-19 pandemic, which effectively shut down production across the world beginning in March 2020. Production costs have risen as much as 20-30% as the need to implement new positions (such as COVID-19 compliance officers, health and safety managers, and additional production assistants), consistently outfit cast and crew with personal protective equipment, and introduce longer production schedules due to staggered and shortened work days has unavoidably increased budgets across the board ("TV, Movie Spending Rose Despite Pandemic Shutdown," *Forbes,* June 30, 2021).

Throughout the early months of the pandemic, industry leaders began assembling health and safety guidelines through coalitions, unions, guilds, and governments to pave the way for cast and crew to get back to work, and beginning in summer 2020 some large studio productions, as well as some micro-budget productions, began to come back on-line. The introduction of vaccinations in 2021 has also lessened production risk somewhat. However, the pandemic has left an insurance vacuum that precludes most small- and mid-size productions (which account for 94% of production in the U.S., according to an article in Stephen Follows Film Data and Education) from starting work again. As of October 2021, countries like the United Kingdom, Australia, and Germany have implemented compensatory programs to aid productions unable to acquire production insurance without a COVID-19 exclusion, but the U.S. has not implemented any similar initiatives.

Due to various logistical concerns stemming from the pandemic, many incentivized Colorado productions have continued to be put on pause, which accounts for the high number of FY20 incentivized projects that are labeled as "still in production." However, some projects have been able to move forward, and many of the paused productions that were slated to begin filming in spring 2020 have completed production or are still underway.

Union Negotiations

The COVID-19 pandemic exacerbated labor concerns on the part of crew members across the country. Throughout the first quarter of FY 2021-22, the leadership team of the International Alliance of Theatrical Stage Employees (IATSE) convened new contract negotiations with the Alliance of Motion Picture and Television Producers (AMPTP) in which crew demands included longer turnaround times between shoot days, increased pay for the lowest-paid crafts and for work done on streaming productions, and increased safety measures. In October 2021, IATSE members voted nearly unanimously to strike should negotiations not result in better working conditions. As of late October, an agreement was reached between IATSE and the AMPTP, averting a strike. However, reports of unrest within the membership may signal that the deal has not yet been fully settled. A nationwide IATSE strike would effectively bring all unionized productions to a halt.

The Exhibition Industry: Movie Theaters and Film Festivals

The effects of the COVID-19 pandemic and the changes in the theatrical film industry were detrimental to local Colorado theaters and theaters nationwide. According to the Motion Picture Alliance's 2020 analysis of the theatrical entertainment environment, the U.S./Canada box office market was $2.2 billion, down 80% from $11.4 billion in 2019. New films released dropped from 987 in 2019 to 338 in 2020. Without their regular moviegoers and film schedule, theaters had to get creative to maintain their businesses and staff, shifting to hosting small rentals for birthday parties, meetings, and other private events.

At the local, state, and federal levels, programs were created to financially support theaters and other arts venues and small businesses. In April 2020, the Small Business Association created the Paycheck Protection Program to help small businesses continue functioning and maintain their staff, and some theaters were able to take advantage of this program. In late December 2021, the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act was signed into law, creating the Shuttered Venue Operator Grant (SVOG). The grant provided over $16 million through the Small Business Association for eligible venues including live performing arts organization operators and motion picture theater operators. As of October 18, 2021, the SVOG had awarded 12,328 grants totaling $9.9 billion. Grants were awarded to 274 venues in Colorado, including 22 motion picture theater operators, for a total of $197 million in funding. In late 2020, the Colorado Office of Film, Television and Media created the Rural Theaters COVID-19 Support Grant, which distributed $320,000 to 34 private, nonprofit, and community-run theaters in 23 counties across the state.

Some independent theaters were able to pivot to virtual screenings during the pandemic, to varying levels of success, according to an article by Indiewire (Motion

continued on page 64

Information

continued from page 63

Picture Alliance). Virtual screenings may have helped to modestly offset some of the costs of closure, though these screenings required both theaters and audiences to learn about and become familiar with a new screening platform, and for platforms like Eventive to keep up with the unprecedented user activity. Virtual screenings provided a way for audiences to support their local theaters, and they provided increased access to films for people who lived far away from theaters or had other issues accessing theaters in person. However, many virtual screenings are priced similarly to in-person screenings and require the monthly cost of a streaming service, casting doubt on the sustainability of this kind of service.

Many of these independent theaters also host film festivals that had to be canceled, postponed, or made into digital festivals in 2020 and 2021. Some festivals had great success in both reaching their traditional audience and also in building new audiences as digital festivals. Other festivals had more difficulty bringing in audience numbers similar to the previous years' in-person festivals. As festivals shift back to being in-person in 2021, Colorado festivals have anecdotally reported having trouble bringing those audiences back and feel like they are once again starting from scratch. In-person festivals also require more money and more personnel, especially with increased COVID protocols. Festivals are now buying COVID tests, more cleaning supplies, and personal protective equipment, and hiring new positions such as COVID safety officers. In-person festivals also require production assistants, projectionists, and many more volunteers than virtual festivals. Many of these workers are gig workers, typically traveling from festival to festival, oftentimes across the country, to work for different organizations for a few weeks at a time. With festivals being canceled or moving online, the typical sources of income festival workers relied on were not as consistent or available. Similar to the concerns expressed publicly by workers in other industries in the last year-and-a-half, festival workers have also expressed dissatisfaction with the long hours, low pay, and payment through 1099s common in the festival circuit, among other concerns.

The Future of Colorado's Film Industry

Limited funds for Colorado's incentive program put the industry at risk as production companies continue to make location decisions based on the production budget's bottom line. Inquiring production companies with budgets too large to see an impact from Colorado's limited funds often move their films to neighboring states that offer similar scenery and larger funding opportunities. During the 2019 legislative session, New Mexican lawmakers voted to increase the state's annual allocation from $50 million to $110 million; an additional $20 million was provided for FY 2020-21. California doubled its incentive program for FY 2021-22, with a large portion of the additional funds earmarked for studio construction. Lawmakers increased the film incentive allocation in Montana from $750,000 (the same amount Colorado has been allocated the previous three fiscal years) to $12 million for FY 2021-22. Wyoming is currently considering reinstating its years-defunct film incentive at $3 million per biennium.

All of COFTM's FY2019-20 allocation was approved for five projects within the first two months of the fiscal year. As a result, in an effort to keep Colorado's film incentive running as a minimally viable program, COFTM requested an additional $1.25 million from Colorado's Economic Development Commission (EDC) in October 2019 as a supplemental "band-aid." Due to similar circumstances in November 2020, the EDC awarded an additional $2 million to the program. The EDC was created by the Colorado General Assembly to promote economic development in Colorado. It consists of 11 members, with three members appointed by the Senate, three appointed by the House, and five appointed by the governor.

The film industry is incentive-driven. Colorado's film and television activity will continue to reflect the incentive program's annual allocation.

Contributors:
Kate Watkins, Colorado Legislative Council (Chair)
Kelly Baug, Colorado Office of Film Television & Media
Jacob Dubbert, University of Colorado Boulder
Tad Johnson, Colorado Office of Film Television & Media
Brian Lewandowski, University of Colorado Boulder
Hasti Soltani, Colorado Office of Film Television & Media
Donald Zuckerman, Colorado Office of Film Television & Media

Financial Activities

The Financial Activities industry consists of two sectors that comprised 6.5% of statewide employment in 2020: (1) Finance and Insurance, and (2) Real Estate and Rental and Leasing. Financial Activities outperformed many other industries in 2020, losing just 1.3% of jobs. The industry rebounded above pre-recession levels in 2021, with projected annual employment at 177,700 jobs—growth of 3.1% over 2020. Growth is expected to continue in 2022, increasing 2.9% or 5,100 jobs.

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 2012-2022 (In Thousands)

Year	Finance and Insurance	Real Estate and Rental and Leasing	Total
2012	103.5	43.2	146.7
2013	106.8	44.2	151.0
2014	107.8	46.1	153.9
2015	110.6	48.4	159.0
2016	113.6	50.2	163.9
2017	116.0	52.2	168.1
2018	117.6	54.0	171.6
2019	118.0	56.6	174.6
2020[a]	118.5	53.9	172.4
2021[b]	120.7	57.0	177.7
2022[c]	123.2	59.6	182.8

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

Note: Sum of the sectors may not equal the total due to rounding.
Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committee.

Finance and Insurance

Capital Markets

There has been no shortage of economic and geopolitical uncertainty buffeting the capital markets. In fact, if one were to detail all of the economic levers and all of the economic variables that have been put in play over the last several years, one could write volumes on possible versus probable outcomes.

For this exercise, the goal is to attempt to summarize some of the pertinent points. Famed economist and investor Benjamin Graham once said, "In the short run, the market is a voting machine but in the long run, it is a weighing machine." That means that in the short term, the best narrative wins. Those investments that align with that narrative tend to do the best, regardless of fundamentals. Think momentum and popularity, aka, meme stocks and some digital assets. However, in the long run, the best businesses win. Those popular investments may not survive if their ability to fund themselves cheaply evaporates before they achieve sustainable profitability.

For example, a company that produces fewer than 240,000 electric automobiles per year has a market capitalization of more than $1 trillion, making it worth more than all other auto manufacturers together that produce approximately 80 million vehicles per year. Not to say that the electric vehicle (EV) manufacturer in question does not have a "cool narrative," but is that valuation sustainable? Many have lost fortunes betting against this company. Only time will tell, but many did not think Lehman would fail. Or will the company take a page from AOL's playbook, which acquired an old-school media company, Time Warner, before the Dot-com bubble burst? Could this EV manufacturer make an offer to an old-school auto manufacturer that it cannot refuse?

A digital example is cryptocurrency Shiba Inu. In 15 months, it rallied over 12,700,000%. A story is going around that an individual purchased $8,000 of Shiba in August 2020, which translates into a value of approximately $5.7 billion as this crypto coin rocketed. This rally made Shiba Inu coin one of the top 10 digital currencies by market cap, though as of late 2021, it has slipped to 11th place by market cap.

INDUSTRY SNAPSHOT FINANCIAL ACTIVITIES

Nominal GDP, 2020 ($ Billions)	82.6
Real GDP, 2020 ($ Billions, 2012 Dollars)	65.1
2020 Real GDP Growth Rate	1.4%
Total Employment, 2020 (Thousands)	172.4
2020 Employment Growth Rate	-1.3%
Employment Growth National Rank	23
Share of Colorado Employment	6.5%
Share of National Employment	6.1%
Average Wage, 2020	97,276
Percent of Statewide Average Wage	144.3%
2020 Average Wage Growth Rate	9.8%

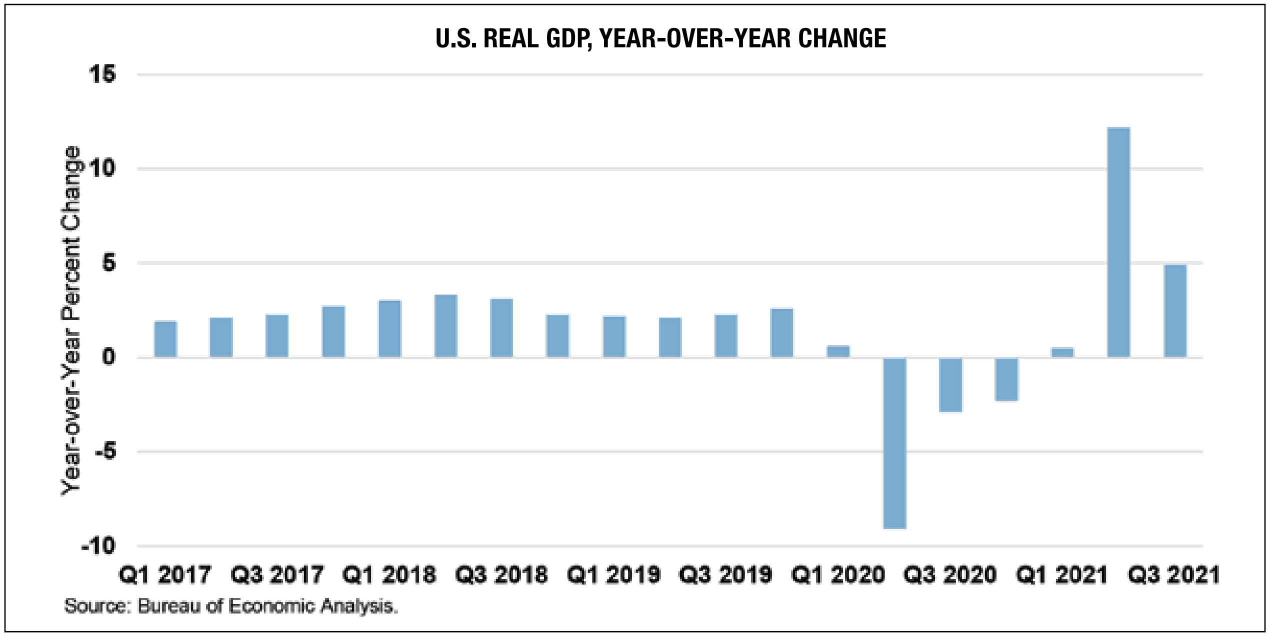
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics.

Helping fuel the meteoric rise in financial assets is a massive amount of stimulus to mitigate the economic disruption wrought by the COVID-19 pandemic. The website USASpending.gov indicates that there has been $3.4 trillion in total U.S. government outlays to mitigate COVID so far, and that is just in the United States. The prior administration pre-COVID had cut taxes and initiated a trade war that pushed Uncle Sam into a $1 trillion budget deficit, leaving many to wonder if that was the start of modern monetary theory (MMT). The United States is in uncharted territory, albeit, Japan has been running massive deficits for years. Do deficits matter? Lest we forget, early in the COVID panic, the Federal Reserve returned to zero interest rate policy (ZIRP), while also purchasing $120 billion in government bonds (U.S. Treasuries and mortgages) each month via quantitative easing (QE). Will we have runaway inflation? Stagflation? Deflation?

continued on page 66

Financial Activities

continued from page 65



Source: Bureau of Economic Analysis.

Or will we somehow manage to walk the tightrope of another Goldilocks economy, an economy that is not too hot or not too cold?

Looking at GDP starting in 2019 to present, the high and low was back-to-back. GDP in Q2 2020 declined 31%, followed by a Q3 rally of more than 33%. Meanwhile, 2021 has brought some semblance of normalcy along with the threat of what could be called stagflation as momentum wanes into Q4 2021—weak growth and inflation reaching a 30-year high. GDP growth in 2021 has been reported as 6.3% in Q1, 6.7% in Q2, and 2.1% in Q3—the latter of which is in line with the five-year average pre-COVID.

The Consumer Price Index has been running between 4.9% and 6.2% from May through September 2021—a far cry from the double-digit inflation of the 1970s, but still a 30-year high. Federal Reserve officials have repeatedly stated that this spate of inflation is transitory. That statement has become a punchline in some circles; with a long enough time horizon, many things can be viewed as "transitory." Through the years, the Fed has stated that it focuses on the core personal consumption expenditures index (PCE). While elevated, the Q3 2021 PCE Core was a less threatening 4.5% (still more than double the 2% target we have been taught to focus on). Yet, over the last two years, median rents in Denver have increased at double-digit rates. The Energy Information Administration forecasts natural gas prices to increase by 30% heading into winter 2021. Increases in fundamental necessities such as rent and heat are akin to a regressive tax, taking a disproportionate bite out of the earnings of lower-income workers. Should this continue, it will exasperate an already wide wealth gap. At a minimum, it could be a drag on a consumption-based economy and impact consumer confidence.

Meanwhile, the stock market has been hitting record highs. Following a modest pull-back in late Q3 2021 on fears of restrictive monetary policy at the Fed, new record highs for the major indices are being set, even as this missive is being written in early November. In an environment where savings accounts earn a pittance, those with the wherewithal have been pouring money into risk assets. As of November 5, 2021, the Dow Jones is up more than 18% year-to-date, the S&P 500 is up more than 25% year-to-date, the NASDAQ is up nearly 24% year-to-date, and the Russell 2000 is up more than 23% year-to-date. The obvious questions are how long can these gains persist as economic stimulus dries up, the Federal Reserve prepares to taper its $120 billion per month purchase of government and mortgage-backed bonds, and the expectation that restrictive monetary policy will address inflationary pressures? Many argue that stocks are priced to perfection, meaning that there is insufficient risk premium to compensate investors for any economic headwinds, let alone an exogenous shock. Another factor to be aware of is the uneven attribution of gains among the major indices. In the final months of 2021, only about half of the companies in the S&P 500 are trading above their 200-day moving average (bullish indicator), meaning the balance of the companies in the S&P 500 are trading below their 200-day moving average (bearish). Stock buybacks are helping fuel this distortion—many financed by companies taking advantage of the low interest rate environment to borrow funds for the buybacks. In the S&P 500, the top 20 companies account for roughly half of the buyback outlays in the index.

Another risk "asset" that has seen phenomenal growth is digital assets. The most familiar proxy is Bitcoin, which hit a record high on October 20, 2021, of $65,996.35—impressive given that it started the year at only $28,996.28. This is not for the faint of heart, though, as the price chart looks more like a model of the scariest roller coaster. A new development is that one company in the digital asset space announced its intention to apply for FDIC insurance for their "stablecoin." This is on the heels of a Presidential Working Group report that said that U.S. institutions issuing "stablecoins" must have FDIC insurance.

FINANCIAL MARKETS: STOCKS
2011-2021

	Index				Annual Percent Change			
Year	S&P 500	Dow Jones	NASDAQ	Russell 2000	S&P 500	Dow Jones	NASDAQ	Russell 2000
2011	1,258	11,578	2,653	784	12.8%	11.0%	16.9%	25.3%
2012	1,258	12,218	2,605	741	0.0	5.5	-1.8	-5.5
2013	1,426	13,104	3,020	849	13.4	7.3	15.9	14.6
2014	1,848	16,577	4,177	1,164	29.6	26.5	38.3	37.0
2015	2,059	17,823	4,736	1,205	11.4	7.5	13.4	3.5
2016	2,044	17,425	5,007	1,136	-0.7	-2.2	5.7	-5.7
2017	2,239	19,763	5,383	1,357	9.5	13.4	7.5	19.5
2018	2,674	24,719	6,903	1,536	19.4	25.1	28.2	13.1
2019	3,231	28,538	8,973	1,668	20.8	15.5	30.0	8.7
2020	3,756	30,606	12,888	1,975	16.3	7.2	43.6	18.4
YTD Nov. 10, 2020	3,546	29,421	11,554	1,737	9.8	3.1	28.8	4.1
YTD Nov. 10, 2021	4,685	36,080	15,623	2,390	24.7	17.9	21.2	21.0

Source: Yahoo! Finance. Note: YTD represents the growth year-to-date from the prior end-of-year close.

To understand the scale that crypto assets have achieved, let's look at the market capitalization of the three largest. Bitcoin takes the top spot, with a market capitalization of approximately $1.23 trillion; Ethereum comes in number two, with a market capitalization of approximately $0.5 trillion; and at a distant third is Binance Coin, at $107 billion.

Events in 2021 that helped support Bitcoin include El Salvador declaring Bitcoin as legal tender, and the SEC approved a Bitcoin exchange-traded fund (ETF). The catch with the Bitcoin ETF is that it tracks the value of Bitcoin futures rather than the spot rate of Bitcoin because the SEC is wary of price manipulation in the spot rate of digital assets. Many digital assets exhibit price action that can best be described as "suspicious." By tracking the futures, these suspicious price blips are muted.

Looking at interest rates, with the Fed's pivot to a zero interest-rate policy (ZIRP) in 2020, distortions have rippled across all financial assets. The massive liquidity injected by central banks and governments around the globe have served to amplify the distortions. In a near yield-less interest rate environment, investors are compelled to accept increasing levels of risk in the chase for meaningful investment returns. For homeowners, it has worked in their favor. Per a Freddie Mac research report, borrowers who refinanced in 2021 saved an average of 1.2%, equating to approximately $2,800 per year. Interestingly, homeowners may have learned a lesson or two following the Great Financial Crisis as 30% of refinance borrowers also shortened their loan terms when refinancing. Homeowners have also seen real estate values climb as single-family rentals continue to evolve as an institutional asset class. Should interest rates rise, institutional investors may provide a floor that limits the severity of a correction in home prices.

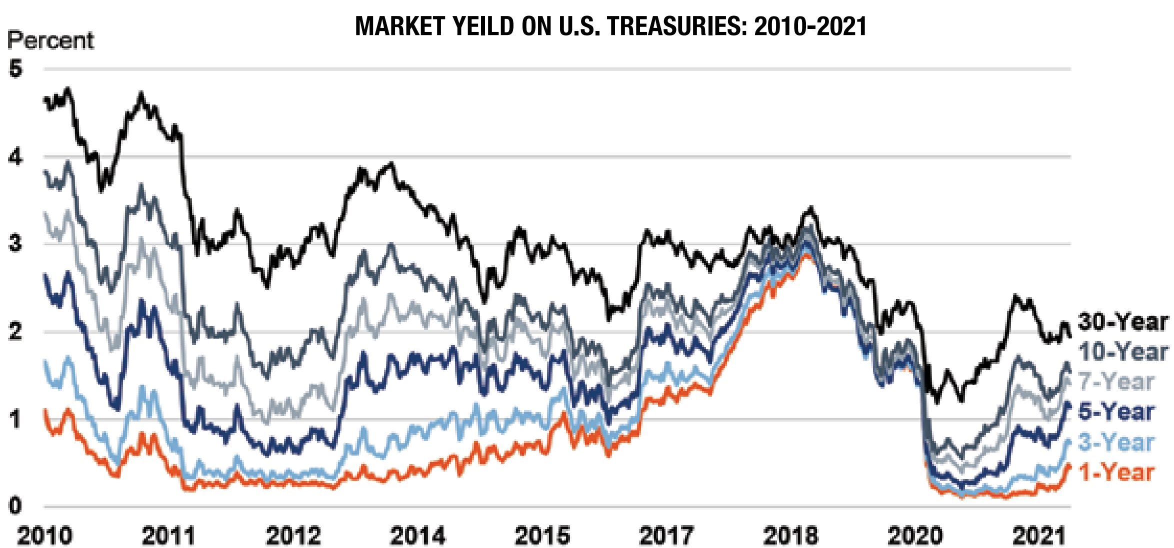
Another interesting phenomenon happened as a result of the low-rate environment. For the first time ever, the high yield corporate debenture index traded below 4%. Most would find it laughable to call 4% "high yield," but everything is relative. This raises the question of what happens if interest rates were to rise? Are we creating zombie companies that only survive provided they have access to cheap capital? Will this inhibit the Federal Reserve as it attempts to balance its duel mandate of stable prices and full employment? Raising interest rates would inhibit demand and tame consumer-led inflationary pressure, but at the risk of destabilizing companies dependent on access to cheap capital. If weak companies were snuffed out, unemployment would rise. The other challenge is that supply chain disruptions are transitory and inflationary pressure caused by such disruptions are outside the sphere of influence of central banks.

This low-rate environment punishes savers, putting the risk-free rate at levels that effectively force risk taking. Think of the rule of 72. By dividing the number 72 by the annual rate of return, investors get an approximation of how many years it will take to double their money. Once upon a time, diligent savers could deposit funds into a savings account or purchase U.S. savings bonds, and at a rate of 5%, they could double their money in approximately 14 years. Over a 30-year career, they could potentially double their money twice. However, in today's environment, even if they stretch out to a 10-year Treasury note, which yields approximately 1.5%, it will take them 48 years to double their money. In such an environment, it is difficult to get ahead without exposure to financial risk assets (like stocks) and/or real estate. With inflation

continued on page 68

Financial Activities

continued from page 67



Source: Board of Governors of the Federal Reserve System.

at a 30-year high, any portfolio without risk assets will actually fall behind in purchasing power.

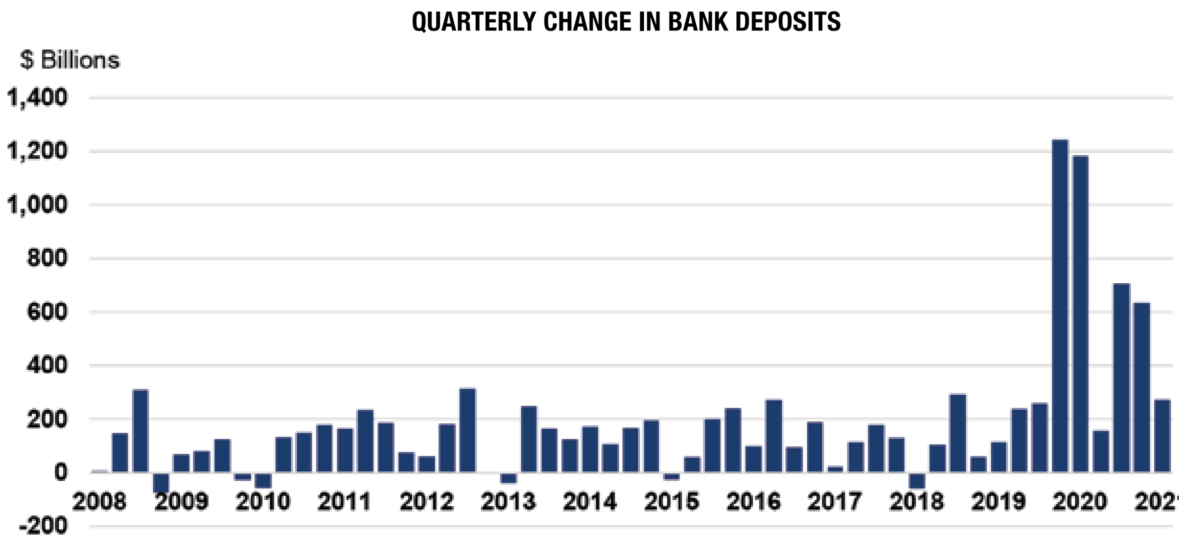
Supply disruption is a contributing factor in the inflation picture. Fiscal stimulus was injected into the economy that kept consumer demand elevated despite COVID-19. However, COVID disrupted U.S. trading partners and ports of entry. Furthermore, the United States remains in a trade war with China. Many companies are recognizing that there is a tradeoff between efficiency and resiliency. The former reduces friction and maximizes profit but increases the vulnerability to disruption. Readers may recall that in March 2021, a large cargo ship became stuck transiting the Suez Canal. This quite literally created a bottleneck for cargo. The metaphorical supply chain bottleneck has continued as companies attempt to shift manufacturing from China to such countries as Vietnam, Thailand, and Mexico, as well as back to the United States. This is a less than expedient process that is further hindered by the fact that many of these countries are still struggling with COVID, and all remain vulnerable to new COVID variants.

Heading into the 2021 year-end holidays, there have been warnings of shortages and price increases due to supply chain disruption and backed-up ports of entry. These shortages and price increases are impacting a wide range of goods, from staples to electronics. The cost to transport shipping containers from China to the United States has been soaring due to demand, and the lead time has climbed as container ships sit at anchor offshore awaiting their turn to dock at the backed-up ports of entry. The *Wall Street Journal* reports that large retailers like Walmart, Costco, and Home Depot have resorted to the expensive tactic of chartering smaller container ships that can transit to smaller, less congested ports. Ordinarily, the year-end holidays fuel a level of optimism and exuberance heading into the New Year. If favorite treats or electronics are unavailable and/or have an inflated price tag, how will this impact consumer confidence?

Will we be lacking in forward economic momentum heading into 2022? Continued supply chain disruptions remain a threat to businesses large and small, impacting profitability and, in the extreme, can impact businesses' ability to service their loans—the latter of which is a concern of banks.

With trillions of dollars already spent trying to minimize the economic shock of the pandemic, the last thing the economy needs is another exogenous event that disrupts the tenuous recovery. Some of the leading risks being discussed that could provide such a shock include:

- New COVID variants that prove resistant to vaccines.
- Aggressive monetary tightening by the Federal Reserve and/or by global central banks that results in a stock market crash or a capital flight from the emerging markets.
    - At present, the Federal Reserve has announced plans to taper its quantitative easing by $15 billion/month beginning in November 2021. This would take QE from its present $120 billion/month to zero by June 2022.
    - The forward yield curve has priced expectations for two to three quarter-point tightenings in 2022.
- The catalyst could be Great Power Competition, known as GPC.
    - The U.S., China, and Russia are at the heart of GPC.
    - Provocative military action regarding Taiwan and/or over Ukraine.
    - Increasing trade stress with China or the energy security of Europe with Russia as provocateur.
- A property crash in China that destabilizes the status quo.
    - Chinese developer Evergrande has already missed a debt payment.
    - Chinese developer Kaisa saw their stock trading suspended and said they are seeing "unprecedented pressure" on their finances.



Source: Federal Deposit Insurance Corporation. Includes all FDIC-insured institutions.

- Cyber-hacking that spirals out of control, disrupting infrastructure in major economies.
    - Think SolarWinds hack of 2020 and the Colonial Pipeline hack of 2021 as a precursor.

Until something acts as a catalyst to alter the steady upward march of financial assets, the trend remains your friend. The Federal Reserve will attempt to engineer another Goldilocks scenario. However, with a Fed balance sheet that has grown from some $800 billion pre-Great Financial Crisis to some $8 trillion today, coupled with the current ZIRP environment, one wonders how much maneuvering room it has left?

Colorado continues to benefit from the allure of the Rocky Mountains, cultural options, a premier international airport, all major sports franchises, and its university system—all of which appeal to a talented workforce, attracting businesses and the jobs they bring. This diversity positions the Colorado economy to better weather any slowdown and to capitalize on any economic activity.

Commercial Banking

The current makeup of banks operating in Colorado consists of 130 banks; 74 are headquartered in Colorado while the remaining 56 are headquartered in other states. Roughly 56.7% of the deposits in Colorado banks reside in the four largest banks. The deposits of each of those four range from $22 billion to $40 billion. In this context, deposits can serve as a rough proxy for loans. Conversely, community banks with less than $100 million face a situation where those 34 banks (26% of all banks doing business in Colorado) collectively hold $1.57 billion in deposits (0.8% of the industry total). Total deposits in Colorado are $197 billion.

Capital, Earnings, Loans, and Reserves—U.S. Data

In 2021, U.S. banks held more than $2.3 trillion in capital to support all banking activities, making the U.S. banking system the most financially sound in the world. Banks chartered in Colorado had about $7.1 billion in capital. Reserves for loan losses provide an additional buffer.

That financial soundness has helped bolster the country's FDIC-insured institutions. In June 2019, banks had a net income of $123 billion. In 2020, like other businesses, banks saw a significant decrease in net income and reported income of $36 billion as of June 2020, then rebounded and reported net income of $138 billion in 2021. In 2019, return on assets was 1.36%, and there was a drop of 99 basis points over the next 12 months. Since then, banks have bounced back with a return of assets, at 1.32%.

A Glimpse at Community Banks

The community bank subset also reported positive numbers. Community banks—those smaller than $10 billion and that comprise more than 90% of all FDIC-insured institutions—reported a year-over-year quarterly net income close to $2 billion. Over 60% of community banks reported a higher net income in Q2 2021 versus Q1 2020.

Banks entered the COVID-19 pandemic with unprecedented strength and capital levels. Industry experts say the fact that banks showed profits in this environment is proof of U.S. banks' paramount strength and resiliency.

Interest Rates

The average net interest margin (NIM) for the banking industry was down 31 basis points from the previous year to 2.5% in 2021 as the decline in average earning asset yields outpaced the decline in average funding costs. The year-over-year compression of the NIM was broad based.

continued on page 70

Financial Activities

continued from page 69

Responding to the economic impact of the global COVID-19 pandemic, the Federal Reserve dropped key interest rates close to zero, saying it will keep them there until inflation exceeds its 2% target, which many Federal Reserve Board members do not expect will happen before 2023. The move will damage banks' lending margins and hit net profit. Banks were already warning investors of the effects of low interest rates on their earnings, despite encouraging news about loan impairment levels.

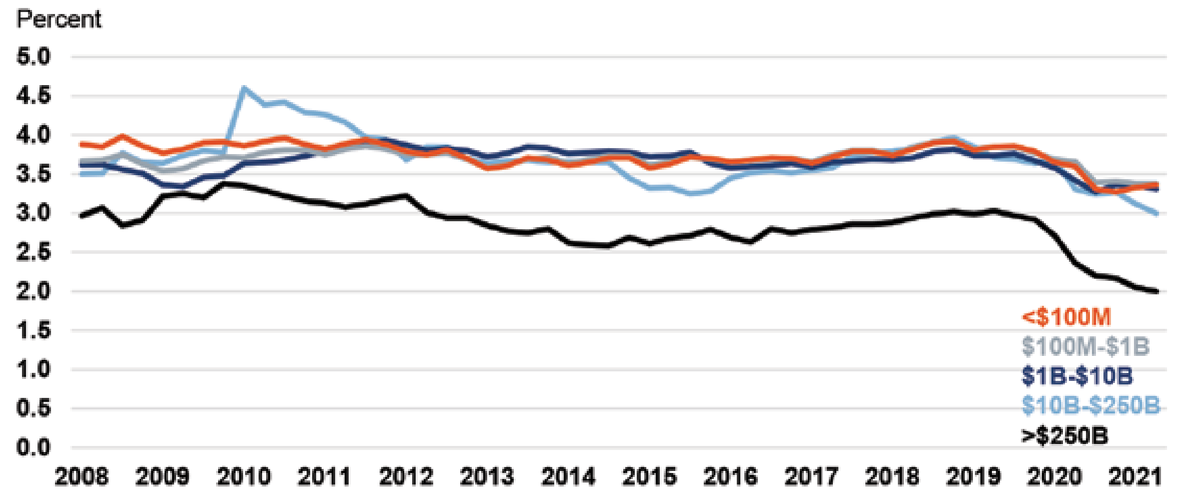
Banks and COVID-19 Relief

Like every other industry, U.S. banks in 2020–21 experienced unprecedented economic conditions. The industry was not only able to navigate relatively smoothly the onset of the COVID-19 pandemic on its own operations but also to devote enormous resources to assist customers in weathering related economic strife. Banks have been able to offer loan workouts for pandemic-affected customers because they entered this crisis from a position of strength, thanks to record capital and liquidity levels, as well as prudent planning and risk management. While anecdotal, many banks report that a majority of customers granted loan forbearance (meaning tolerance in loan repayment) has returned to the original schedule of loan payments.

Banks constituted the delivery system for distributing Paycheck Protection Program (PPP) funds from the U.S. Treasury and the Small Business Administration (SBA) as part of assistance approved by the Coronavirus Aid, Relief, and Economic Security (CARES) Act economic relief bill in April 2020. Colorado bankers excelled in the first round, making 110,000 PPP loans in the state worth $10.4 billion in a matter of weeks. Nationally, banks advanced all $525 billion extended to 5.2 million borrowers.

In the second draw of the PPP, Colorado bankers made over 87,000 loans despite some issues with the SBA's electronic loan processing system (ETran). Those loans resulted in over $4.7 billion to the small businesses that applied and were in need of these critical funds. Combining round one and two of the PPP, Colorado bankers made more than 187,000 loans, resulting in over $15 billion to Colorado business owners.

QUARTERLY NET INTEREST MARGIN



Source: Federal Deposit Insurance Corporation. Includes all FDIC-insured institutions.

Banks continue to help small businesses. Despite high expectations that PPP loans would be forgiven, when the loan is not, the business is responsible for repaying a large loan in a short time frame. Most small businesses were not, and are not, in a position to do that. The banking industry advocated for broad debt forgiveness that is in line with the stated intent of the program and most practical economic result. That effort has succeeded in forgiveness on loans for under $150,000 and a simplified form to start processing PPP debt forgiveness.

Eligible small businesses accessed PPP funds to cover payroll and benefits costs, as well as mortgage interest, rent, and utilities expenses. Banks fronted the first and second round of $15 billion in PPP funds to small businesses. Banks will be repaid by the government when the loan is forgiven, when the borrower repays the debt, or when the SBA guarantee applies upon loan default. This lending helped save an estimated 900,000 jobs in the state.

It is important to note that the PPP funds, while called loans, were never intended to be loans; they were intended to be grants, upon a small business's proof of use of those funds for approved personnel and other expenses. In the wake of the funds' distribution, banks have been focused on making it easier for loans to be forgiven and treated as grants, like they were intended.

Loans in excess of $150,000 still face a complex application process that takes a great deal of time and causes frustration for the borrower and the bank alike. In addition, to assist small businesses in avoiding additional tax liability when they are already incurring financial hardship, banks are pushing against a policy that PPP forgiveness is counted as income to borrowers for tax purposes.

Customer Debt

Household debt saw a significant increase in Q2 2021 involving mortgage loans and auto loans. Reports show that household debt in Q2 increased by over $310 billion (2.1%) from Q1, resulting in the biggest increase in 14 years. Total household debt is close to $15 trillion.

Mortgage balances make up the largest increase from Q1 to Q2, at $282 billion. Outstanding mortgage debt in the United States is now over $10 trillion. Mortgage refinances and originations in Q2 reached $1.2 trillion. Over the course of the last four quarters, mortgage originations reached a historic high, close to $4.6 trillion.

Credit card balances are on the rise again, with an increase in over $17 billion from Q1 to Q2 2021. Even with the increase, consumers are in a better position than they were in 2019. Balances that year were $140 billion higher than current balances.

Student loan debt is sitting around $1.5 trillion. Delinquency levels are low due to the help of the CARES Act, which provided emergency relief for federal student loans (including a suspension of loan payments) and a 0% interest rate, and stopped collection on defaulted loans. Student loan payments are set to restart after January 31, 2022. Federal and private loans not owned by the U.S. Department of Education are not covered under the CARES Act.

Loan Demand and Fee Income

Almost 70% of all banks increased their noninterest income from a year ago. But amid continued COVID-imposed tightening of purse strings, job loss, and economic constriction, banks' fee income from various sources, including loans, is expected to be pressured.

Banks participating in the PPP say they do not expect to generate much, if any, profit from the loans created. Banks cite high costs associated with technology projects, large personnel costs for working long hours to assist customers, and other factors.

Banking is impacted by deteriorating economic conditions and the implementation of the current expected credit losses (CECL) accounting methodology that requires banks to allocate expected losses over the life of the loan. Under current accounting rules, provisions for credit losses increased by $3.7 billion from Q1 to Q2 2021 but declined by almost $73 billion from the previous year. Over 60% of banks reported lower provisions than the year prior.

Uncertainty over how long the pandemic will last and the amount of damage it will inflict on the economy are clouding the water for banks working to determine how many of their loans will not perform as the customer agreed. From the first quarter to the second, the four biggest banks in the United States nearly doubled the amount of money they set aside to cover soured corporate loans. The quartet earmarked a near-record $32 billion for loan losses, a move that followed a first-quarter effort to insulate against consumer loan losses.

Consumer Behavior

Some consumers are deferring loan and credit card payments because of financial hardships during the coronavirus pandemic, but the bank-granted deferrals do not show up on credit reports. This makes it difficult for banks to determine credit worthiness.

Meanwhile, banks are also working to manage coronavirus-fueled increases in bank deposits. Consumers are holding onto their money as unemployment and uncertainty remain high and the pandemic continues. Deposits grew significantly in 2020, and 2021 growth continues to be strong. Q1 showed an increase in deposits of over 3.5%. Q2 growth was slower than the previous quarter but still up around 1.5%, which is close to $272 billion. To manage the glut, banks have employed a variety of tools, including low interest rates on deposits, purchasing mortgage-backed securities, or banking the cash at the Federal Reserve to garner some earnings. In doing so, banks plan on liquidity remaining high.

Mergers and Acquisition

The number of FDIC-insured commercial banks and savings institutions declined from 5,066 to 4,951 year-over-year from Q2 2020 to Q2 2021. Mergers account for the biggest decrease in these numbers.

Mergers and acquisition (M&A) activity in Colorado slowed over the last two years. Turmoil and uncertainty brought by COVID-19 overshadowed once-favorable drivers for continued mergers and acquisitions in banking. Mergers often result in increased capital and the ability to offer new services.

A 2021 Deloitte report on activity in banking says, "After a year of unprecedented upheaval, economic disruption, and political uncertainty, we're beginning to see the light at the end of the tunnel. With 2021's global rollout of multiple COVID-19 vaccines, consumer confidence should increase, companies should be more bullish, and economic activity should start to resemble what it was prepandemic. This is an encouraging mix and will bring good news for 2021 banking and capital markets (B&CM) mergers and acquisitions (M&A) activity. In fact, a flurry of dealmaking toward the end of 2020 helped to offset a moribund second quarter and signaled companies' intent to move ahead despite challenges."

Regulation

As the nation enters a new presidency, uncertainty looms over the prognosis of bank regulation regarding tax policy, overall regulatory environment, the fate of the Consumer Financial Protection Bureau, and the possible advent of postal banking.

Changes at the helms of the United States' banking regulatory agencies are determining the temperature of banks' operations as they could result in more robust enforcement actions and require institutions to allocate

continued on page 72

Financial Activities

continued from page 71

additional resources toward compliance and serving their communities.

Marijuana

The banking industry supports Colorado Rep. Ed Perlmutter's Secure and Fair Enforcement (SAFE) Banking Act, a bill aimed at allowing banks to serve the legal cannabis businesses. In April 2021, the Secure and Fair Enforcement (SAFE) Banking Act passed the house once again with a vote of 321-101. This makes the fifth time it has passed in the House. The SAFE Act has been added as an amendment to the National Defense Authorization Act (NDAA). In late September 2021, the NDAA passed the House with a vote of 316-113. Even with the Safe Act included in the NDAA, it still faces hurdles in the Senate.

U.S. Small Business Administration

Disaster Assistance

While exhibiting unparalleled resiliency, small businesses across the country and the state face prolonged difficulties related to ongoing economic disruption, recovery, and reconstitution created by the COVID-19 health crisis. In 2021, the SBA continued its nearly 70-year mission to assist the nation's over 32 million small businesses. The Agency worked to revive the U.S. economy and provide critical pandemic relief to the countless mom-and-pop small businesses—the hardest-hit industries, including shuttered venues and restaurants—and their employees by delivering more than $1 trillion in economic aid throughout the Agency's COVID relief measures.

SBA sustained delivery of the funding authorized primarily under the 2020 CARES Act, which made $376 billion in relief for U.S. workers and small businesses. Subsequently, several more pieces of federal legislation approved by Congress added programs to be administered by the Agency, including the Economic Aid to Hard-Hit Small Businesses, Nonprofits and Venues Act (Economic Aid Act) signed into law on December 27, 2020, as well as the American Rescue Plan (ARPA) and PPP Extension Acts signed into law March 11, 2021, and March 30, 2021, respectively.

The CARES Act established and authorized activation of several temporary measures to address the COVID-19 outbreak: Section 1112 SBA Debt Relief; Economic Injury Disaster Loans (EIDL) and EIDL Advance; PPP; and SBA Express Disaster Bridge Loans. Additionally, the act appropriated funds for expanded outreach and technical assistance by SBA, its partners, and other federal channels. The delivery of these products continued into 2021, and many were further capitalized and augmented by the new federal legislation.

Outside of legislation to help provide relief and preserve working capital, clients with outstanding SBA disaster loans from disasters other than COVID-19 were initially granted automatic deferments on those payments for a period of 12 months, which was subsequently extended to 24 months by the SBA. Borrowers will resume their regular payment schedule with the payment immediately preceding March 31, 2022.

Section 1112 Debt Relief

Under Section 1112 of the CARES Act, $17 billion was allocated and the SBA was authorized to offer Small Business Debt Relief on a few different levels for outstanding non-disaster SBA loan clients. First, current 7(a), Community Advantage (CA), 504, and SBA Microloan borrowers were relieved of the obligation to pay principal and interest owed on those types of loans in good standing for a six-month period. This debt relief incentive also applied to any new non-COVID SBA loans closed and disbursed through September 27, 2020, to allow small

SBA ECONOMIC RELIEF PROGRAMS

Program	Colorado Awards	Colorado Dollars ($B)	National Awards	National Dollars ($B)
SVOG Initial Awards	274	0.210	12,564	12.0
SVOG Supplemental Awards	111		5,301	1.7
RRF	1,771	0.481	101,004	28.6
COVID EIDL Loans	59,288	4.500	3,836,370	283.8
Targeted EIDL Advance	6,105	0.052	447,473	3.9
Supplemental Targeted EIDL Advance	4,841	0.024	359,864	1.8
CARES Act EIDL Advance	87,334	0.268	5,781,390	20.0
2021 PPP	87,088	4.738	6,681,929	277.7
2020 PPP	109,170	10.403	5,141,665	522.1
Total	355,982	20.675	22,367,560	1,151.6

SVOG as of 11/1/21, RRF as of 6/30/21 (program end), EIDL as of 10/21/21, CARES Act EIDL as of 7/15/20, 2021 PPP as of 6/30/21 (program end), 2020 PPP as of 8/30/20 (program end).

Source: Small Business Administration, Colorado District Office.

businesses to take advantage of six months of debt relief payments made on their behalf.

The Economic Aid Act further appropriated $3.5 billion to be used to provide additional debt relief payments for 7(a), 504, and Microloan borrowers beyond the six-month period prescribed in the CARES Act. The level of assistance and number of months varied based on loan type, industry, and when the loan was approved. Generally, the maximum payment per month was limited to $9,000 under new program rules. Section 1112 Debt Relief was limited to the level of available funding provided by Congress. All funding was fully used by September 23, 2021.

Economic Injury Disaster Loan

In 2020, the SBA activated its longstanding Economic Injury Disaster Loan (EIDL) disaster program in response to the pandemic. Program delivery continued into 2021. The COVID EIDL Program is a long-term direct loan program, initially offering six months of working capital in the form of a low-interest loan. Due to ongoing economic injury, program policy was subsequently revised in 2021 to provide 24 months of working capital, with automatic deferment of the payments for the period of two years, instead of one year.

To encourage greater access and use of the program, on September 8, 2021, new COVID EIDL policy changes included an increase to the maximum loan cap from $500,000 to $2 million (limited to $10 million per corporate group); relaxed affiliation rules; provided a new path to meet size standards for the hardest hit industries; and expanded use of funds. Funds may now be used to pre-pay business nonfederal debt incurred at any time (past or future); make scheduled federal debt payments; and pay other fixed debts, payroll, accounts payable, and other financial obligations and operating expenses that cannot be paid due to the disaster's ongoing impact. This allows borrowers the ability to essentially convert business debt on less than reasonable terms to EIDL loan terms that may be more favorable and reduce debt burden.

The EIDL COVID-19 program continues to serve a significant number of small businesses, nonprofits (including faith-based entities), and for the first time in the EIDL program's history, agricultural businesses. Nationwide, as of October 21, 2021, nearly 3.84 million loans totaling almost $284 billion have been extended in COVID EIDL initial funds and increase requests. In Colorado, 59,288 recipients have been approved for approximately $4.5 billion, representing 1.6% of the national approvals in volume and dollars.

The CARES Act also created a new EIDL "Advance" companion to the loan program. The amount of an Advance award was determined by the number of employees reported by the applicant: $1,000/employee, up to a maximum of $10,000. The national allocation of $20 billion was fully expended on July 11, 2020, having assisted more than 5.78 million recipients. EIDL CARES Advance funds were awarded to 87,334 Coloradans for a total of $267.7 million.

In 2021, the Economic Aid Act and the American Rescue Plan each created and capitalized new funding sources associated with the COVID EIDL Program: Targeted EIDL Advance (TEA) and Supplemental Targeted Advance (STEA). Applicants for the COVID EIDL loan were evaluated for eligibility to receive up to $15,000 in funding from SBA that does not need to be repaid. These "advances" are similar to grants, but without the typical requirements that come with federal government grants. Entities normally eligible for the EIDL Program were eligible to apply for TEA and STEA, including sole proprietors, independent contractors, and private, nonprofit organizations. Agricultural enterprises were not eligible. However, agricultural businesses, such as farmers and ranchers, could still apply for loan assistance through the COVID EIDL loan program.

The Targeted Advance provides funds of up to $10,000 each to applicants that did not receive a full CARES Act Advance and otherwise qualify. Specifically, the business must be located in a low-income community as defined by Section 45D(e) of the Internal Revenue Code; suffered greater than 30% economic loss over an eight-week period since March 2, 2020, compared to the previous year; and have 300 or fewer employees. As of October 21, 2021, a total of 447,473 TEA awards equaling $3.9 billion have been allocated across the United States. In Colorado, 6,105 TEA advances for almost $52.1 million have been awarded.

The American Rescue Plan Act further authorized Supplemental Targeted Advance payments of $5,000 each to the hardest hit small businesses and nonprofit organizations. Applicants for STEA must meet additional eligibility criteria. Specifically, the business must be located in a low-income community as defined by Section 45D(e) of the Internal Revenue Code; suffered greater than 50% economic loss over an eight-week period since March 2, 2020, compared to the previous year; and have 10 or fewer employees. The STEA award would be in addition to the $10,000 TEA award. As of October 21, 2021, a total of 359,864 STEA awards in the amount of $1.8 billion have been allocated across the nation. In Colorado, 4,841 STEA advances for almost $24.2 million have been awarded.

The EIDL programs have reached across geographic locations and economic regions, including rural and underserved communities. All industries—including retail, hotels and restaurants, agricultural enterprises, and health care and social assistance services—have been assisted. Approvals in Colorado were also made throughout the whole state and across multiple industries. The authorization for the COVID EIDL loan program is set to expire on December 31, 2021. Both TEA and STEA awards will continue to be processed until the sooner of funds exhaustion or program expiration.

Paycheck Protection Program

In 2020 and continuing into 2021, the SBA and U.S. Treasury jointly administered a new program originally authorized under the CARES Act called the Paycheck Protection Program (PPP). The act allocated $350 billion in much-needed relief for millions of small businesses

continued on page 74

Financial Activities

continued from page 73

and other eligible applicants due to economic losses caused by the COVID-19 pandemic. Small businesses, nonprofits, and religious organizations used these emergency loans to keep their employees on their payrolls, as well as sustain and even retool their operations.

PPP loans were 100% federally guaranteed loans, delivered by a national network of approved PPP lenders, to small employers who maintain their payroll during this emergency. PPP borrowers could be eligible for 100% loan forgiveness if the funds were used in certain increments for eligible payroll costs, payments on business mortgage interest payments, rent, or utilities during a covered period of choice, lasting between eight and 24 weeks after disbursement. Initially, payments were deferred for six months after the final forgiveness decision but that was increased to a longer deferment of 10 months past the covered period to address the sustained economic injury.

After two allocations and a program extension, with additional flexibilities authorized under the PPP Flexibility Act of 2020, the program authorization ended on August 8, 2020, leaving a balance of approximately $130 billion in unallocated funds. At program end, the SBA approved 5.2 million loans for a total of more than $525 billion.

The Economic Aid Act of 2021 reinstituted the PPP program through March 31, 2021, and authorized a total program level of $806.45 billion for new first draw PPP loans and for second draws. Under the new legislation, PPP allowed for certain eligible borrowers that previously received a PPP loan to apply for a Second Draw PPP loan with the same general loan terms as their First Draw PPP loan. A borrower was generally eligible for a Second Draw PPP loan if the borrower previously received a First Draw PPP loan and used the full amount only for authorized uses; had no more than 300 employees; and could demonstrate at least a 25% reduction in gross receipts between comparable quarters in 2019 and 2020.

Second Draw PPP funds could be used for payroll costs, including benefits, mortgage interest, rent, utilities, worker protection costs related to COVID-19, uninsured property damage costs caused by looting or vandalism during 2020, and certain supplier costs and expenses for operations. For most borrowers, the maximum loan amount of a Second Draw PPP loan was 2.5 times the average monthly 2019 or 2020 payroll costs, up to $2 million. For borrowers in the Accommodation and Food Services sector (NAICS Code 72), the maximum loan amount for a Second Draw PPP loan was 3.5 times the average monthly 2019 or 2020 payroll costs up to $2 million.

The American Rescue Plan Act signed on March 11, 2021, appropriated an additional $7.25 billion for the PPP, bringing the total funds to $960.75 billion. Under this legislation, PPP eligibility was expanded to include certain additional nonprofit organizations and certain internet-only news and internet-only periodical publishing organizations (NAICS Code 519130), playing a crucial role in delivering local news; information; and content, including the dissemination of emergency information related to the pandemic, access to vaccinations, and assistance to help businesses and communities recover. There were also defined set-asides in the statute and further reforms announced by the administration during the program to ensure there was equitable access to PPP funds by smaller and underserved employers.

The program was in such high demand, yet facing expiration, so consequently the PPP Extension Act of 2021 signed into law on March 30, 2021, extended the program for two months, to May 31, 2021, and provided an additional 30-day period for the SBA to process pending loan guaranty applications. Funds were ultimately exhausted in late May 2021, and the program ended shortly thereafter.

At closing, the PPP provided over 11.8 million loans totaling nearly $800 billion, offering small businesses and nonprofits in all 50 states a lifeline to keep employees on payroll and connected to their benefits throughout the crisis. The national average loan approval size was less than $67,000.

The unprecedented loan volume was greatly aided by strong partnerships with 5,467 lenders of all sizes located around the country. Nearly 6.7 million loans totaling $277.7 billion of the total approvals occurred in 2021. After new legislation revived the program, more than half (57%) of the total PPP approvals were made in the 2021 round, signifying that there were still lingering effects of the pandemic, which necessitated additional economic relief. In addition, more than half (56%) of the 2021 approvals were First Draw loans, suggesting that program access during the 2020 round may have been an issue. The 2021 round of PPP made strides in ensuring equitable access and successfully reached smaller borrowers with 97% of all loans made in increments of less than $250,000 and 96% of the volume approved for businesses with 20 employees or less.

At program end, there were a total of 196,258 loans valued at $15.1 billion approved for Coloradans in all 64 counties of the state and distributed by over 1,000 lenders. This represented just under 1.66% of the national loan volume and 1.89% of total national loan dollars approved. Colorado's average loan size was slightly over $77,000. PPP loans originated in Colorado in 2021 accounted for 44% of the total approvals.

The Agency is now working to process forgiveness requests. It launched a streamlined application portal to allow borrowers with PPP loans $150,000 or less to apply for forgiveness directly through the SBA. Prior to this option, businesses that did not apply for forgiveness within 10 months of the end of the covered period were at risk of owing principal and interest payments on their PPP loans. Through October 2021, 72% of all PPP loans have submitted forgiveness applications; 71% of all PPP loans have been fully or partially forgiven. Forgiveness has been requested for 78% of the total loan value; 76% of the total PPP loan value has been forgiven, in full or in part. Overall, the Agency has fully forgiven millions of PPP loans, sending more than $500 billion back into the economy.

Shuttered Venue Operators Grant (SVOG)

The Shuttered Venue Operators Grant (SVOG) program was established by the Economic Aid Act and amended by the American Rescue Plan Act. The program included over $16 billion in grants to shuttered venues, administered by SBA's Office of Disaster Assistance. Eligible entities included: live venue operators or promoters; theatrical producers; live performing arts organization operators; museum operators; motion picture theater operators (including owners); and talent representatives. Applicants must have been in operation as of February 29, 2020. Eligible applicants could qualify for initial grants, generally equal to 45% of their gross earned revenue, with the maximum amount available for a single grant award of $10 million. Supplemental funding was also made available for successful recipients of initial awards who suffered a 70% or greater revenue loss for the most recent calendar quarter (as of April 1, 2021, or later). Supplemental grants are based on 50% of the original award amount, capped at a total of $10 million (initial and supplemental combined).

The Agency accepted applications from April 2021 through June 2021. As of November 1, 2021, the Agency has approved 12,564 initial SVOG grants totaling $12 billion. The average award size is $816,000. In addition, it has begun awarding supplemental grants for a total of 5,301 approval valued at $1.7 billion. To date, a total of 274 initial grants and 111 supplemental grants valued at over $210.2 million have been awarded to eligible Colorado venues.

The SVOG program's unique application portal did not collect demographic data as the federal grant required a System for Award Management registration, which collects demographic data on an optional basis from registrants. As of the end of July 2021, approximately 6% of SVOG applicants had provided this voluntary information with their SAM.gov registration.

Restaurant Revitalization Fund (RRF)

Restaurants are the core of our neighborhoods and propel economic activity on Main Streets across the nation. The American Rescue Plan Act established the Restaurant Revitalization Fund (RRF), which provided $28.6 billion in direct economic relief funds to restaurants and other hard-hit food establishments that experienced economic distress and significant operational losses due to the COVID-19 pandemic.

This program provided entities with funding equal to their pandemic-related revenue loss up to $10 million per business and no more than $5 million per physical location. Recipients are not required to repay the funding if funds are used for eligible purposes by March 11, 2023.

Among the hardest-hit businesses, the SBA's funding served as a valuable resource in helping food service businesses survive. While the program was oversubscribed, the SBA focused greatly on delivering much needed relief to as many food and beverage businesses in the marketplace, as possible. As of June 30, 2021, the RRF program received more than 278,000 submitted eligible applications, representing over $72.2 billion in requested funds. Approximately 101,004 applicants were approved before the fund was exhausted.

The overall reach and success of this program directly translated into sustained jobs and opportunities for hundreds of thousands of Americans. Underserved populations received approximately $18 billion in grant awards including: women-owned businesses, $7.5 billion; veteran-owned businesses, $1 billion; social and economically disadvantaged businesses, $6.7 billion; and businesses owned by representatives of multiple underserved populations, $2.8 billion. The average size of grant awards applicants received was $283,000.

In Colorado, 1,771 entities were awarded a total of nearly $481.1 million, representing almost 2% of the total national allocation.

Other Relief

The successful delivery of the SBA's disaster relief programs was reliant on rapid and effective distribution of information to eligible recipients, which was made possible through strong lender relationships and collaboration among stakeholders and partners. It was also critically important to utilize diverse partners to expand SBA's reach in attempts to ensure fair and equitable access. To augment this effort to reach more underserved communities, the CARES Act also provided funds to allow SBA to create disaster assistance materials in languages other than English. Materials were subsequently made available in 17 different languages.

Outreach and technical assistance support from key partners were especially crucial in Colorado. The SBA Colorado District Office worked closely with statewide SBA resource partners, such as the Colorado Office of Economic Development and International Trade (OEDIT), host to Colorado Small Business Development Center (SBDC) Network and its 15 subcenters; SBA's Women's Business Center at Mi Casa Resource Center; and the Denver SCORE and Colorado Springs SCORE Chapters; along with many other chambers and economic development advocates and organizations to assist Colorado's approximately 674,741 small businesses with a variety of support and programs within local communities as well as supporting technical training opportunities.

Additionally, the American Rescue Plan created and funded a new initiative within SBA, the Community Navigator Pilot Program, which will begin to gear up in late 2021. This initiative is designed to reduce barriers that all small businesses, including those owned by disadvantaged groups such as veterans, women, and those from rural communities and communities of color, often face in accessing critical support. The program will provide $100 million in funding to 51 hub organizations across the country that will work with hundreds of local

continued on page 76

Financial Activities

continued from page 75

spokes to connect America's entrepreneurs to government resources so they can recover and thrive. Several Colorado organizations were recently identified as hubs or spokes to successful Community Navigator awarded applicants. In 2022, the SBA Colorado District Office will work to establish partnerships to expand the number of providers available to assist Colorado entrepreneurs.

Summary

Not including debt relief payments, through the end of 2021 the SBA has delivered more than $1 trillion to over 22 million applicants across all its economic relief packages. Based on 2017 data for the 50 states and Washington, D.C., Colorado is generally noted as having approximately 2% of the nation's small firms measured by number of employees and payroll. Based on 2019 data for the 50 states, D.C., and Territories, its population is 1.7% of the nation. In comparison, Colorado's share of SBA disbursement over the last 18 months compared fairly with 1.8% of the total dollars and 1.6% of the total awards made.

Although there was an unprecedented amount of financial support from local and federal sources, the provisions are finite, and many were temporary. Most SBA economic relief incentives have been fully exhausted or expired. Many of the successful PPP borrowers have already expended both first draw and second draw loans and are now applying for forgiveness. Section 1112 small business debt relief ended in late September and, therefore, full payments on existing SBA loans were due starting in October 2021. Non-COVID Disaster loan deferments will expire in March 2022. The EIDL Disaster loan payment deferments will expire within 24 months of disbursement.

SBA technical assistance and core guaranteed programs can be utilized to help offset access to capital concerns in the future. In addition, many state and local governments are just beginning to implement new incentives developed courtesy of funding from the American Rescue Plan.

An encouraging circumstance born out of the pandemic is that many small businesses pivoted operating models to e-commerce platforms or changed product offerings to meet unique pandemic market demands and have found that this diversification will have long-term benefits.

Small businesses are the driving force of economic stability in the United States and will lead the way to allow the nation to rebound. They account for 44% of U.S. GDP, create two-thirds of net new jobs, and employ nearly half of the country's private workforce workers. They also reinvest 68% of revenues to build and sustain communities.

The main major concerns impacting potential growth for small businesses in 2022 are continuing supply chain issues; potential access to affordable capital, coupled with debt capacity after two years of adding obligations to survive pandemic conditions; and the Great Resignation (the trend of workers leaving their jobs during the pandemic), causing difficulties with access to labor.

Ultimately, the effects of the COVID-19 pandemic are ongoing, which could further impact small businesses financially as they attempt to reconstitute at less than full operating capacity. According to the SBA Office of Advocacy, "while some businesses have largely recovered from the initial decline, others continue to lag, and some recovered only to experience subsequent declines." Small businesses are still struggling to obtain key goods to operate. According to a recent report by SBA, the three industries most impacted by domestic supplier delays as of June 2021 were manufacturing, construction, and retail trade. Domestic supply delays are also coinciding with higher commodity prices for small businesses. Finally, while small businesses desire to hire and need employees, the tight market may continue to affect employment growth.

Colorado is home to approximately 674,741 small businesses, which is 99.5% of all Colorado business. Colorado small business employment grew by 42.2% between 1994 and 2018, which exceeded the national small business employment growth rate. While data analyzed by the SBA for purposes of publishing its 2021 Colorado Small Business Profile predates the pandemic, the impacts of which have differed by industry, geography, and demographic group, small businesses have historically been a major source of job creation. Small businesses employ 1.2 million people, or 48% of Colorado employees. Therefore, the recovery of this group is vital to the state's economy.

Colorado's lauded entrepreneurial spirit and access to a very robust small business development support ecosystem will be a benefit to this state on its road to economic recovery.

Colorado Credit Unions

Hopes that the COVID-19 pandemic would be in the proverbial rearview mirror and that Colorado's economy would be surging faded during the second half of 2020. But typical seasonal trends, combined with the widespread availability and increasing acceptance of effective vaccines, help put COVID-19 cases and deaths on a significant declining trend during the first half of 2021, helping economic conditions.

State and federal policymakers remained engaged in meaningful ways during 2021, supporting the state's economy with substantial fiscal stimulus, extension of foreclosure and eviction moratoriums, as well as continuing assistance for the unemployed. The Federal Reserve also remained accommodative—keeping short-term market interest rates close to zero and continuing its bond-buying program. Bond purchases kept longer-term market interest rates low and helped to buoy equity markets. The broad S&P 500 index gained nearly 40% over the year ending June 2021.

Budding confidence in a return to normalcy increased substantially. This, in turn, was reflected in solid economic data and in favorable credit union operating results during the year.

The number of full-time employees at Colorado credit unions increased by 317 from June 2020 to June 2021. This represents an increase of more than 6.3%. Notably, however, more than 68% of the 317 new full-time jobs were due to hiring by one of Colorado's largest credit unions. Credit unions in Colorado will likely see modest employment growth in full-time employment between 2% and 3% in 2022.

As a group, the state's credit unions entered the pandemic in great shape overall, with all key financial shock absorbers in place. Despite big challenges during 2021, many financial indicators in the sector actually improved. This was especially obvious in asset quality data that hit a modern-day high in the period. Both the +60-day loan dollar delinquency rate and the loan net charge-off rate improved over the year, with the delinquency rate at 0.35% at the end of June 2021, and the loan loss rate averaging 0.23% during the year. Both of these metrics are at modern-day lows, indicating a record-high proportion of loan balances have been paid on time. Delinquency rates are expected to increase during 2022 from this mid-year 2021 low and may reach double that level with forbearance and stimulus programs ending.

Liquidity grew—an important development in the face of crisis and uncertainty. At the beginning of the pandemic, Colorado credit union surplus funds (cash and equivalents) were equal to 20.8% of total assets. Liquid funds subsequently grew faster than assets, and the surplus funds-to-asset ratio increased to 23.1% by mid-year 2020 and to 27.7% by mid-year 2021. The state's cooperative depository institutions are clearly well-positioned for any unexpected spikes in consumer liquidity demand in 2022.

Earnings rates, reflected in net income as a percent of average assets, averaged 0.73% during the year and rose to 0.80% in the first half of 2021. The aggregate capital ratio started 2020 at 11.2%—very close to its all-time high—and finished mid-year 2021 at 10.1% of total assets. The aggregate capital ratio thus remains more than three percentage points higher than the level deemed to be "well capitalized" by regulatory authorities. This is an astounding result given fiscal stimulus payments increased credit union deposits in the state by 28%, which, in turn, boosted assets (i.e., the denominator of the capital-to-assets ratio) by over 20%.

In the first half of 2020, Colorado credit unions originated 2,269 SBA PPP loans, injecting $83.7 million into the state economy. Since that time (i.e., in the year ending June 2021) credit unions in the state continued to lend, originating an additional 1,400 PPP loans worth $39.3 million. In other words, between the start of the pandemic and mid-year 2021, Colorado credit unions originated a total of 3,569 loans totaling $123 million. Colorado credit unions reflect an average PPP loan size of $50,173, well below the $83,399 average among other lenders and a clear sign that credit unions were firmly focused on helping independent, Main Street, mom-and-pop businesses—not professional sports teams, national franchise restaurants, and the like.

Colorado consumers recognized and embraced these efforts. Credit union membership growth continued to outpace state population growth by a wide margin. Colorado credit union memberships increased at a 4.1% pace in the year ending June 2021, an acceleration compared to the 3.7% increase in the year ending June 2020. The 4.1% membership increase is almost 4.5 times faster than the state's 2020 population growth rate. Colorado credit union memberships now total 2.2 million, or over one-third (36%) of the state's population.

Members continued to deposit enormous federal fiscal stimulus payments into their credit union accounts, which led to a 15% increase in savings and deposits in the year ending June 2021. This is a bit slower than the 18.3% increase in the year ending June 2020 but more than double the 7.3% long-run average annual growth rate in savings balances among credit unions in the state. Overall, 90% of Colorado's 77 credit unions experienced increasing assets over the period June 2020 to June 2021.

Colorado's not-for-profit credit unions also experienced healthy loan growth, with portfolio balances increasing 5.7% from mid-year 2020 to mid-year 2021. That increase was a bit slower than the 8.8% increase during the 12-month period ending June 2020. Consumers were especially cautious about borrowing during the second-half 2020 COVID-19 surge, and as economic activity picked up in the first half of 2021, strong demand collided with the unfortunate realities of growing supply chain disruptions. With continued uncertainty in 2022, it is likely that loan growth will not be robust, though is expected to outpace 2021 slightly with increases in members.

In percentage terms, credit union commercial loans reflected the most pronounced growth in the 12-month period. PPP lending and other forms of small business assistance increased overall commercial loan portfolio balances by 22.9% in the year ending June 2021.

Federal Reserve pandemic policy responses kept long-term market interest rates near historical lows that continued to support a huge volume of mortgage refinancing activity. Purchase money mortgage originations also increased at a healthy rate. Overall, the state's credit unions originated a record $10.3 billion in first mortgages in the year ending June 2021—about 10% higher than the 12-month total reported in the year ending June 2020. Colorado credit union first mortgage loan balances increased 17.8% during the 12-month period.

Insurance

While the financial markets continue pivoting away from referencing inflationary pressures, such economic increases may not present all bad news for the insurance markets. In brief, insurers generate revenue through two simple avenues—underwriting profit and investment income. With increasing claim trends, insurers have become restrictive relative to their risk tolerance as the investment margins available through conservative investment vehicles such as U.S. Treasuries have made it imperative for them to closely scrutinize their underwritten risk exposures. With evident inflation increases on the horizon, the Fed may need to increase rates, thus arguably offering insurers a higher rate of return on their investments over the next few years.

continued on page 78

Financial Activities

continued from page 77

Furthermore, in an industry survey undertaken by Aon, interviewed business leaders expressed a bullish outlook on the economy heading into 2022. Business leaders also communicated an increased risk appetite for future investments—especially those related to innovative technologies.

Insurance Trends

Anyone purchasing insurance or following global pricing trends over the past few years will attest to the consistency in price increases combined with the constriction of limits and requests for increased retentions. As of Q2 2021, price increases appear to be softening as the markets may be gaining comfort with how to manage the pandemic and ongoing climate-related events, according to Willis Towers Watson PLC. Based, in part, on reinsurance capacity availability and exponential increases in jumbo jury verdicts, excess umbrella, general liability, directors and officers, and cyber liability lines continue to show mid-level, double-digit increases, a trend expected to continue through 2022, according to the Risk Report by the International Risk Management Institute, Inc. (IRMI). IRMI notes that rate increases exceeding 50% are not uncommon for general liability lines of coverage with insurers scrutinizing food-related product liability exposures emanating out of restaurant service procedures required from the pandemic.

Commercial auto liability experienced a 10% premium increase for the 15th-consecutive quarter in Q2 2021, according to Willis Towers Watson PLC. This will continue to impact the commercial trucking industry, with the increased costs being shifted to the downstream consumer. The pandemic impact may provide a diamond in the rough as the decreased mileage due to the lockdown may impact loss ratios. This data point will be balanced against the driver shortfall and potential safety concerns due to the need to train new employees.

Incessant ransomware losses, including the high-profile cases of Colonial Pipeline and JBS USA, have resulted in limited available cyber coverage and astronomical premium increases often exceeding 100% year-over-year. This trend will continue into 2022 along with additional exclusions as the insurers attempt to limit exposure and shift prophylactic burdens onto the insured entity. The end result is that cyber coverage will become a more expensive and less protective line item on the company balance sheet with the caveat that governmental attention and a pending impetus to fortify cyber defenses and critical infrastructure (Carolyn Polikoff, "The Train Slows for Some: Q2 2021 Commercial Market Update," Woodruff-Sawyer & Co., August 10, 2021).

The commercial and residential property markets have remained tight due, in part, to supply chain issues emanating out of COVID-related shutdowns and the increase in catastrophic events such as hurricanes and wildfires impacting metropolitan areas. The East Troublesome and Cameron Peak fires of October 2020 are estimated to have resulted in $620 million in insurable costs. According to data compiled by the Rocky Mountain Insurance Information, these catastrophic losses come on the heels of the May 2017 hail event that disrupted the Metro Denver area to a total of $2.3 billion in damages. Colorado continues to experience catastrophic claims at a higher rate than national averages. Rate hikes will continue to impact Colorado businesses and residents over the next few years (Gavin Souter, "Firm insurance market expected to last into next year," Risk Management, October 12, 2021).

Builders' risk remains challenging as the cost for basic construction materials, when the materials are even available, has caused significant construction project delays and resulted in policy extensions and unanticipated premium payments to retain coverage in force, according to IRMI. Insurers, for the most part, are including communicable disease exclusions to eliminate potential ambiguity relative to their intent on coverage. Litigation has ensued relative to business interruption coverage under the premise of civil authority mandates, and the international courts have been mixed on their rulings. The committee believes governments will push the insurers to broaden their interpretation of business interruption coverage to help bolster the economy and ensure that companies can recoup some of their mandated income loss during the pandemic lockdown period.

One bright spot is that workers' compensation rates have remained stable over the past few years, although insurers are pushing employers to take on higher deductibles. This line of coverage tends to be packaged with other liability lines such as general liability and auto to leverage the stability and control elements in place. According to the IRMI Risk Report, COVID-19 impacts have not been significant, although insurance underwriters are likely to stratify pricing options based on percent of vaccinated and telecommuting employees.

Insurance premiums will continue to constitute an increasing line-item expense. In a hard insurance market, such as what we are experiencing, insurers will mandate that employers take more skin in the game relative to retentions and investment in safety and risk prevention programs.

Insurance Industry Consolidation

A trend toward consolidation continues within the industry, with major entities partnering with specialists to fill in coverage gap offerings while creating standard operational efficiencies. This extends into the broker community that saw the federal rejection, on antitrust grounds, of the Aon/Willis merger in mid-2021. The political landscape has changed since the accepted merger between Chubb and ACE in 2017, which resulted in the creation of the largest insurer in the industry. With the failure of the Aon acquisition, this leaves an unsatiated appetite within the industry that may be satisfied through acquisition of smaller regional brokers to sustain the competitive growth strategy. With Denver serving as a regional hub for most insurance carriers and brokers, this could result in transitioning business and human capital through continued consolidation into 2022.

One area of development that may present an exposure to the insurance market of Colorado is the continuing growth of the cannabis industry. Presently, the industry is regulated and taxed on a state-by-state basis, leaving the business owners with limited options relative to banking and insurance procurement. With cannabis legal for recreational use in 10 states, it is only a matter of time before legislatures, recognizing the economic benefits to state coffers, will promote legalization in other jurisdictions (Linchpinseo, “Trends Transforming the Cannabis and CBD Industry Outlook in 2022,” September 23, 2021). As critical mass is attained, the federal government will undoubtedly recognize the widescale acceptance and push for federal regulation. This will open the market to national and international insurers presently precluded from offering coverage without federal buy-in. Once these markets open up, an escalation is anticipated in the acquisition of regional and surplus lines insurers that specialize in the cannabis industry while reducing liability specific premiums based on both the influx of additional national competitors and the excitement generated through engaging into a new industry for these insurance industry participants.

Post-COVID Industry Impact

Provider availability and supply chains have disrupted the industry during the pandemic, leading facilities to reevaluate the need to support broader wellness initiatives, as well as standard acute treatment (Leo Carroll, “Learning from risks to enhance resilience,” 2021). Health care facilities and insurers must take a closer look at the redundancies necessary to maintain operations, and the insurance industry will undoubtedly incent those entities undertaking an enterprise evaluation of resources and implementing methodologies to reduce claim costs and operational exposures.

From an employment perspective, the insurance industry has outperformed the overall U.S. economy throughout the pandemic period. At the peak of COVID, during Q1 2020, where the U.S. unemployment rate increased from 3.5% to 14.7%, the insurance industry remained relatively consistent, with unemployment peaking at only 4.8% (Jeff Rieder, “U.S. Property-Casualty Insurance Industry Trends and Outlook for 2021,” Aon, February 2021). The industry continues to compete for top talent along with the rest of U.S. companies, thus salaries are rising commensurate with the demand surplus balanced against available supply. The ability to offer virtual work environments should benefit the industry in attracting top talent, while this same work-from-home culture should result in a diminished utilization and need for office space in the near interim. It is generally expected that employees will return to an office setting, with most companies offering a hybrid environment, thus resulting in cost savings relative to rent and general operations expenses.

Real Estate and Rental and Leasing

Commercial Real Estate

Throughout the COVID-19 pandemic, Colorado’s economy and the commercial real estate industry have experienced a mixed bag of results. The economy lost ground to COVID lockdowns, which were followed by supply chain constraints and worker shortages. Following large scale layoffs in 2020, Colorado began recovering. Between September 2020 and September 2021, Colorado added 102,000 jobs, representing 3.9% growth, in the Information, Financial Activities, Professional and Business Services, and Government sectors. Industries such as aerospace, health care, and information technology have led the way. Impacts in commercial real estate were disproportionate, especially in the industrial and office markets, with industrial experiencing remarkable strength and resiliency whereas office is not expected to meaningfully recover until 2022, or perhaps longer.

Several trends have evolved through the pandemic that suggest that the office is not going away, but its future will be more nuanced and hybrid. While businesses desire that their employees return to the office, employees appear to have a strong desire to retain a significant level of flexibility in how and where they work in a post-pandemic world. Eighteen months of remote work means that people have restructured their homes, their family schedules, and their personal priorities in ways that may not make it appealing to spend more than the occasional few days back in the office. Top enterprise technology companies are redefining the “hybrid work model” that expands the concept from not just working from home but also working from anywhere, such as outdoors. This is a dynamic shift that has implications for urban versus suburban office properties, property Class types, new construction, and workspace design innovations.

The return to an office environment will evolve slowly. Organizations must invest in changes focused on improving the workplace to bring people back to the office, as it is challenging at best to train new employees five days per week in the virtual world. Companies are rethinking space planning, operations and policies, and developers are emphasizing customization and utilization. In the interim, Class A buildings will recover more quickly than Class B/C since Class A buildings offer more in-place wellness attributes. Older-class buildings will be renovated over time as rental rates increase, providing the cash flow to support the investment.

Office occupiers expect more customization and utilization. Functional changes will include small-scale spaces (war rooms), Zoom rooms, rooftop access to fresh air and natural light, expanding Wi-Fi connectivity to serve third places where work happens outdoors, and more casual, relaxed environments. COVID-19 has intensified office-user awareness on hygiene. Developers will need to incorporate innovations in wellness and HVAC systems such as bipolar ionization, which reduces viruses and pathogens, increase air circulation, and install touchless systems, such as in elevator cabs.

There is increasing demand to create successful and safe work environments that encourage collaboration, performance, and innovation. Over the past 18 months, telecommuting has received a robust trial. There is an ongoing war for talent, and employees are demanding greater flexibility from their organizations going forward. It is expected that the workplace of tomorrow will be

continued on page 80

Financial Activities

continued from page 79

hybrid, and the emphasis will be on wellness-incorporating innovations in technology and design.

Metro Denver

Consistent with the state as a whole, the Denver MSA experienced solid economic fundamentals prior to the pandemic, which have begun to show signs of improvement as residents move toward vaccination and returning to the office. Households have grown 18% from 2010 to 2021, and population has grown 18.3% in the same time period. Median household income is projected to increase 13.2% over the next five years, and the Denver Metro consistently finds itself among the top cities for business and economy, lifestyle, and innovation and technology rankings. Part of the Mile High City's appeal includes its large number of residents with bachelor's degrees or higher (45.8%), large number of millennials, and the lure of the outdoors lifestyle. Major companies such as Arrow Electronics, DaVita, Newmont Mining, and Ball Corporation have chosen the Denver metro area for headquarter operations and expansion.

Despite the pandemic's effect on the local economy, Denver remains a market best poised to recover due to its diverse industry mix, quality of life, and deep talent pool. The real estate market has also exhibited strong fundamentals on the heels of COVID-19 within certain property types. As corporations seek markets with less dense office offerings and lower reliance on mass transit than in gateway markets, but with the same high-quality talent available, Colorado, Denver, Boulder, and the entire Front Range are well positioned to continue to gain jobs and investment as a result of the pandemic.

Denver's office market continues to feel the impact of the pandemic, with workers showing reluctance to return to the office on balance. Surveys suggest workers will ultimately return but that a hybrid model of three to four days spent in the office is more likely going forward than four to five days. With many companies still unsure about go-forward office needs, the Denver office sector posted 1.9 million square feet of negative net absorption through the first three quarters of the year. Total vacancy increased to 19.4%, a 440 basis points (bps) climb from this time last year, while sublease availability climbed 5.2% year-over-year to 4.5 million square feet. Despite the increase from last year, sublease availability fell 9.8% quarter-over-quarter. The direct asking lease rate increased marginally to $31.47 per square foot full-service gross (FSG) from Q2 2021. Development activity marked the lowest pipeline since 2013, with speculative development representing 85.6% of the total volume. Preleasing figures were minimal. Only two projects were delivered in Q3 2021, most notably the fully preleased 240 Saint Paul project in the historically supply-constrained Cherry Creek submarket.

The recent flight to quality has created a disparity within property classes, and Class A space has begun to exhibit stronger fundamentals than that of Class B and C space. The future use and demand for office space continues to evolve as tenants explore more flexible and remote options while reevaluating their current office footprint. Looking ahead, many tenants are starting to occupy space within recent deliveries in the downtown submarket at Block 162, Market Station, and McGregor Square, offering increased optimism for future absorption levels as leases commence and employees return to the office. Positive leasing activity over the past two quarters within both direct and sublease space represents the most activity since Q1 2020, pushing the YTD total 28.6% higher than the figure posted this time last year. Large blocks of space are beginning to offer enticing and flexible incentives to users throughout the metro area, and coupled with the recent spike in activity, signs are pointing to improvements in the near-term.

Denver's industrial market has proved its resilience to COVID-19 by reporting in Q3 2021 its 46th-consecutive quarter of positive net absorption with a year-to-date total of 4.5 million square feet, a 66.9% increase year-over-year. The projected annual absorption total will likely exceed 7.0 MSF—an all-time record high driven by significant e-commerce, 3PL and distribution requirements tied to accelerated e-commerce adoption, and the switch from "just-in-time" to "safety stock" inventorying. Net absorption and delivery volume are both on track for the highest annual totals on record, supported by strong build-to-suit activity and near-record leasing volume. Construction activity remained elevated with 9.7 million square feet of projects underway, and despite not reaching a new record high in Q3, the volume still ranks up with some of the highest totals ever recorded in the Denver metro. Of the total, 3.7 million square feet is concentrated in build-to-suit projects. Direct vacancy remained stable at 6.8%, and availability fell slightly to 8.7% this quarter. Direct asking lease rates recorded marginal change to $8.93/sf NNN. For the first time on record, the achieved rate slightly exceeded the asking rate, climbing 13.9% year-over-year to $9.03. This increase is due in part to an uptick in flex and manufacturing deals executed at high rates, along with consistent activity within the life science industry.

With an influx in capital, investors, institutions, and developers all remain bullish on the Denver industrial market. Investment sales activity has seen notable growth over the past year, with pricing per square foot surpassing the $200 per square foot mark. The industrial market and industrial-using-employment has also benefited strongly from growth in e-commerce, manufacturing, transportation, warehousing and utilities, construction, and wholesale trade. The Denver region is positioned to sustain its high level of appeal based on a growing population, mature fundamentals, and strong, consistent demand.

Denver's retail market has emerged from the height of the pandemic with improving fundamentals, despite the hardships faced in 2020. The market experienced great weakness where expected, within enclosed malls, restaurants, and gyms, but showed strength in online retailers with grocery and pharmaceutical anchors. The pandemic accelerated the evolution from largely in-person shopping to internet-based fulfillment, a trend that has stuck around, but recent activity and key fundamentals have started to indicate the comeback and recovery of brick-and-mortar retail. The migratory push to the suburbs has helped local retailers, and the suburban submarkets have been posting some of the lowest vacancy rates in the metro area over the past several quarters.

The average direct asking lease rate remained elevated at $20.33/sf NNN in Q3 2021. Total availability and direct vacancy rates continued to stabilize this quarter. Availability dropped 17 bps quarter-over-quarter to 8.8% while direct vacancy fell 13 bps to 7.3%. Direct vacancy is down 15 bps year-over-year. Retail development activity in Metro Denver declined this quarter with 539,000 square feet underway, though several sizable projects delivered this quarter—most notably the 43,200-square-foot project at Parkside at City Center. Positive net absorption of 282,000 square feet in Q3 2021 pushed the YTD total to 293,000 square feet, highlighted by strong recovery in the Central, South, and Northwest submarkets. The third quarter of 2021 marks the second straight quarter of positive activity following four straight quarters of negative net absorption. Improving fundamentals and an uptick in activity point to the retail recovery outpacing expectations despite ongoing virus concerns.

Northern Colorado

From 2015 to 2020, job growth in two Northern Colorado metropolitan statistical areas (Greeley and Fort Collins) posted gains of 5.9% (even with the pandemic), significantly outpacing the national growth rate of 0.3% during the same period. Weld and Larimer counties were among the three fastest-growing metro areas in one of the nation's fastest-growing states over the last decade, according to the 2020 Census. Northern Colorado is projected to be a metro area of about 1 million people by 2039. Growth industries include aerospace, advanced manufacturing, bioscience, creative industries, energy, food and agriculture, and information technology. As of June 2021, the unemployment rate was 6%, just below the state of Colorado at 6.2% and slightly above the nation at 5.9%. Future job growth over the next 10 years is predicted to be 51.8%, which is higher than the expected U.S. average of 33.5%. The blend of innovative manufacturing and high-tech firms, an educated population, research facilities, and a first-rate research university that emphasizes commercialization of research makes Northern Colorado extremely attractive to employers.

Writing in the *Colorado Real Estate Journal,* Joe Palieri, senior advisor for NAI Affinity, commented that 2021 has been a good year for commercial real estate in Northern Colorado. Despite COVID-19 resurgence, rising construction costs, labor and material shortages, and political upheaval, real estate development and investment has been undeterred. While the office and industrial markets are not as strong as they once were, multifamily and industrial properties are still in high demand. Through the first six months of 2021, CBRE notes that direct vacancies for office, industrial, and retail properties rose slightly due to new additions to supply. Asking lease rates were stable to slightly down year-over-year, and except for industrial, net absorption was negative. Population and job growth are expected to continue. Expect commercial real estate to rebound in the second half of 2022.

Southern Colorado

Prior to the pandemic, the Southern Colorado metropolitan region experienced exceptional growth and prosperity for about a decade. Development and investment in commercial real estate and infrastructure surged. In the past 36 months, Colorado Springs recorded rapid population growth, a shift to a younger demographic, construction of thousands of apartments, from downtown to the suburbs, and the completion of several city-changing projects like widening I-25 through downtown, the U.S. Olympic & Paralympic Museum, and Weidner Field. Pre-pandemic, El Paso County's top three growth industries were Health Care and Social Assistance, Professional and Technical Services, and Construction. Over the next five years, local economists expect job growth to outpace available workers, especially in fields like nursing, health care and technology. Yet, a temporary market shift is occurring in the office segment, as a number of larger spaces (>30,000 square feet) come back to market, either as direct vacancy or sublease space. Return to office policies are still evolving, and office brokers, like Peter Scoville and Greg Phaneuf of Cushman & Wakefield, note that their clients expect to be near or above pre-COVID occupancy levels by early 2022.

After ranging between 3.2% and 3.8% from 2017 to 2019, the unemployment rate for the Colorado Springs MSA peaked at 12.6% in April 2020. As of June 2021, the unemployment rate sat at 6.5%, just above the state at 6.2% and the nation at 5.9%. Based on year-to-date average comparisons through June 2021, job growth turned positive again, up 2.3% compared to the same period last year. Cecilia Harry, chief economic development officer of the Colorado Springs Chamber and EDC, commented that she sees opportunities for high-tech industries, such as cybersecurity and computer systems, to adapt and innovate. She cites semiconductors as an example and points to the importance of microchips in the supply chain of a wide variety of products popular and necessary for consumers.

For the first six months of 2021, CBRE reports that the office, industrial and retail product sectors were a mix of results. One of the more exciting projects in El Paso County is the 3.7 million-square-foot multilevel Amazon distribution and sorting facility at Peak Innovation Park, which will deliver in Q3 2021. Amazon plans to expand its footprint in the Springs with the $9.1 million purchase of the former Western Forge manufacturing plant, which will become a new 105,000-square-foot warehouse and distribution facility. Industrial properties report increasing lease rates, averaging $10.45/sf NNN, decreasing vacancy at 4.3%, and positive net absorption. Retail performed much better than office, primarily due to population trends, reporting positive net absorption and active development, which increased direct vacancy to 6.5%, but increases in lease rates to $15.73/sf NNN. As

continued on page 82

Financial Activities

continued from page 81

noted above, office vacancy and rents will rebound in 2022. Overall, the area has a very positive outlook, and temporary market anomalies will reverse course over the next 12 months.

Summary

Colorado has been one of the nation's fastest-growing states. Pre-pandemic, job and population growth was occurring along the Front Range. While COVID-19-caused lockdowns and layoffs temporarily halted the economic progress, business resumed in a remote-work environment. The office segment is greatly impacted by this dynamic shift. Employees have reoriented their lives to accommodate a new workday model, and going forward, employees will demand more flexibility from organizations. Companies are innovating with technology and workplace design, and developers are responding, too. A 2022 rebound for the commercial real estate markets is expected, and already Colorado's major MSAs are reporting strength in underlying real estate indices, like rents and absorption.

Residential Real Estate

The Colorado real estate market has been on a 10-year run largely predicated on the macroeconomic conditions of the national and local economies. At present, there are threats that Colorado must address in order to maintain this run. Additionally, there are many economic forces that are fueling growth in the market: positive net migration, favorable interest rates, and the inability of builders to keep up with rising demand.

Colorado Real Estate Market

The Denver Real Estate Market

In reviewing the Denver real estate market, the analysis examines single-family homes, lower downtown condominiums, and the Denver rental market.

Single Family Homes

The demand for single-family homes in Colorado continues to be robust. All markets for single-family homes were strong in 2021, but buyers' preferences shifted from densely populated central Denver to the Denver neighborhoods, such as Washington Park, Congress Park, and Central Park. This change in preferences is likely because people are working from home and are no longer commuting to the city every day.

The average home price in Denver in September 2021 was $582,043 compared with $494,839 in 2020, representing a 17% increase. Additionally:

- the months' supply of inventory dipped to 1 from 2 the previous year,
- the number of showings increased to 16 from 12, and
- the median days on the market dropped to five from 12.

All these figures indicate too many buyers are chasing too few homes.

To provide some context regarding the level of competition in the Denver market this is how a typical $450,000 single-family home listing plays out in the market:

- Listing goes active on Thursday.
- Showings occur Thursday, Friday, Saturday (typically 10-20 showings).
- Agent receives the first full-price offer on Friday or Saturday and gives notice to all agents who have expressed interest in the property that offers are due some time on Sunday.
- The agent and the seller review multiple offers Sunday and go under contract on Sunday evening.

Frustrated buyers who continue to lose in this market have resorted to the following tactics to become more competitive:

- Buyer agents submit offers with escalation clauses where they agree to beat any competing offer by $5,000 up to $500,000 (per the example above).
- Buyer agents submit appraisal gap clauses agreeing to bridge a gap in purchase price and appraised value by bringing additional cash to the closing table.

It is not uncommon to get multiple offers with escalation clauses that play off each other and drive the offer price to the upper boundary of the escalation clauses. In the previous example, if the agent receives two escalation clauses capped at $500,000, the offer price immediately escalates to $505,000 (depending on the incremental bid in the escalation clauses.)

In this market, buyers are becoming increasingly frustrated and are willing to overpay for homes in order to win these bidding wars. If this continues, buyers may opt out of home ownership in Denver or move to less competitive markets.

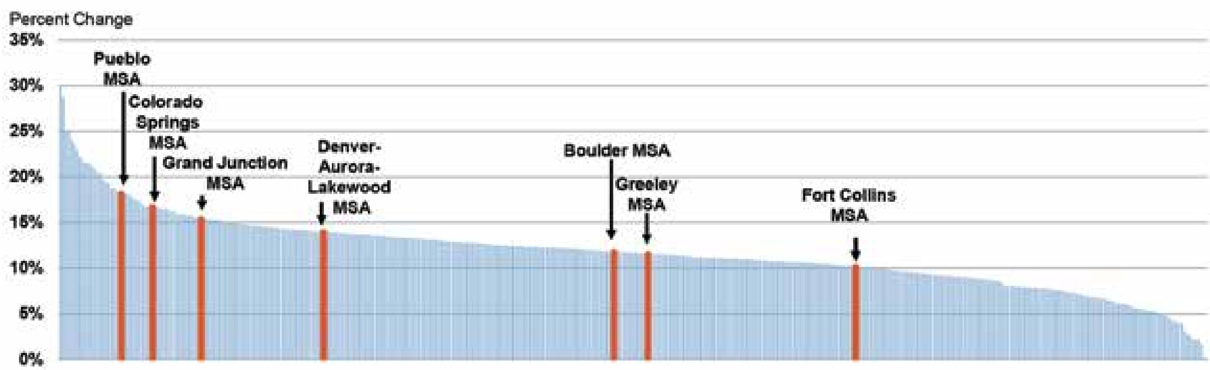
Appraisers have been unable to keep up with the rapid appreciation rates as they are appraising homes based on closed transactions, not homes under contract. As a result, buyers are increasingly having to bridge gaps in appraisal value and purchase price with cash. Going back to the scenario above, let's say the buyer's appraisal gap language reads as follows: Buyer agrees to bridge any gap between appraised value and purchase price up to $20,000. If the house in the example appraises for $490,000, the buyer would have to bring an additional $15,000 to the closing as the lender typically will loan only against the appraised value.

Per the W*all Street Journal,* 7% of homes sold in 2021 did not appraise for the purchase price. The committee expects this number will go up in 2022. That said, buyers will have to bring a lot more cash to the closing table to drive appreciation rates higher in 2022.

Outlook for Single Family Homes in 2022

The appreciation rates in 2021 clearly are not sustainable. However, there are no indicators that suggest a balanced market will appear in the near term. If interest rates remain relatively low and the number of buyers exceeds that of available homes, buyers will continue to bid up home prices. The committee believes that appraisals will become more of an issue in 2022. Additionally, the committee believes that interest rates will increase, thus diminishing buyer purchasing power. All this being said,

FHFA YEAR-OVER-YEAR HOME PRICE CHANGE BY METROPOLITAN STATISTICAL AREAS, Q2 2021



Source: Federal Housing Finance Agency, All Transactions Index (Not Seasonally Adjusted).

it is estimated that home prices will begin to plateau, and that home price appreciation will return to historical levels of 5 to 10%.

Lower Downtown Condominiums

The Denver Lower Downtown (LoDo) condominium market was negatively impacted by COVID-19 in 2020, but buyers came back to this market in droves in 2021. The data paints a picture of a relatively balanced market tilting in favor of the sellers.

The LoDo condominium market appreciated 5.2% in 2021, which is in line with what the committee projected in 2020; however, the average price per foot went up 12.6%. The McGregor Square development next to Coors Field has eclipsed the $1,400/square foot price point with intention to pass $1,500 per foot before it sells out, according to Lori Greenly, owner of Denver High-Rise Living. This indicates that buyer demand for luxury units with upscale amenities are, and will continue to be, in demand.

In 2021, the number of active listings stayed constant while closed listings jumped 87%, from 263 to 494. This indicates that buyers sitting on the fence in 2020 became active buyers in 2021 as COVID anxiety began to ease. Additionally, this surge in transactions is the result of the completion of large projects such as McGregor Square that added 103 condos to the Denver Market (reported by McGregor Square Residences), and strong demand quickly absorbed these units.

The months of inventory shows a fairly balanced market of buyers and sellers, at 5.2 down from 6.4 in 2020. This reduction in inventory indicates that the trend may be moving toward a sellers' market. It should be noted that this market is not nearly as tight as the market single-family home market that only has one month of inventory.

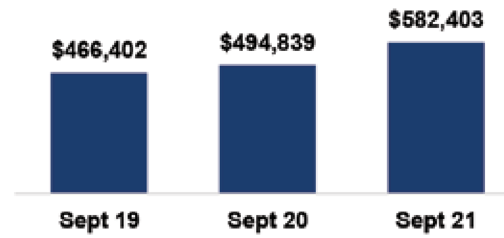
Many condominium projects are in the design and early construction phase, such as X Denver 3; however, few projects are scheduled to be completed in 2022. Additionally, McGregor Square is close to selling out; thus, inventory for condos could be drying up in 2022, resulting in price appreciation.

How does Denver's homeless population issue affect this market?

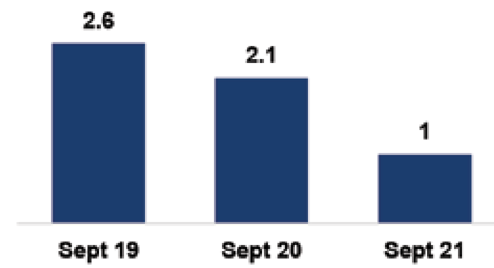
If you spend much time in central Denver, you cannot help but notice the increase in homeless encampments.

continued on page 84

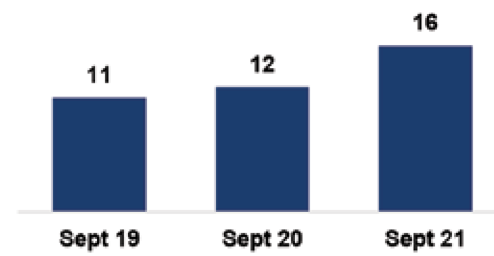
DENVER AVERAGE HOME PRICE



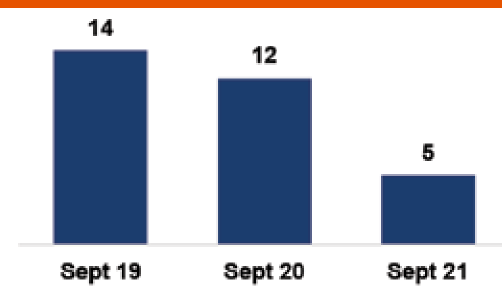
DENVER MONTHS OF SUPPLY (12-Mo. Ave.)



DENVER MEDIAN SHOWINGS TO PENDING



DENVER MEDIAN DAYS IN MLS



Source: REcolorado.

Financial Activities

continued from page 83

These encampments have no services, such as water and bathrooms, thus, the sites quickly become a health hazard and drag down the real estate value in the neighborhoods where they reside. These homeless encampments have had an acute impact on the LoDo and broader downtown real estate markets. Initiative 303 on the 2021 ballot sought to ban camping on private property without written permission from the property owner, would have required the city to enforce unauthorized camping, and allowed the city to establish up to four authorized camping locations on public property with lighting, running water, and restroom facilities to support the homeless population of the city (reported by BallotPedia.Org). The initiative did not pass.

New Building Projects

A number of new condo projects broke ground in 2021. One project of particular note is X Denver 3, which is a 351-unit, 22-story building at the corner of 21st and Arapahoe. This building will not add units to the market in 2022 but will provide much-needed inventory in the near future.

Outlook for the LoDo Condominium Market

In 2020, the committee projected a pullback in the condominium market. Instead, this market held its own, growing by 5%.

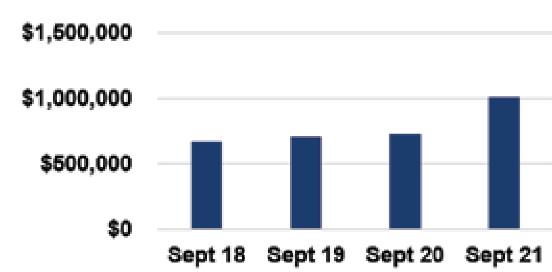
For 2022, McGregor Square will sell its last units and only limited inventory will be coming online. That said, there will not be enough inventory to meet demand, thus downtown condo prices should increase 10–12% in 2022.

Denver Metro Rental Market

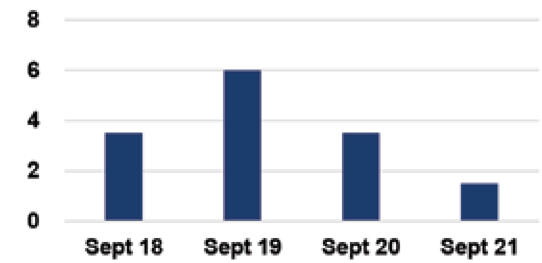
The average price for a home in the Denver Metro continues to rise, meaning that fewer people can afford homes and an increase in competition for rental properties. Per the National Association of Realtors, the median rent in Denver is $1,866, representing a 12.9% increase in 2021 compared to a modest 1% increase in 2020. Additionally, the vacancy rate in Denver is 3.7%, which is historically low and indicates a competitive market for renters.

The surprising figure is the lack of disparity between one- and two-bedroom units in the more competitive markets. This may be attributed to a lack of rental units as a whole, thus renters are willing to pay nearly as much rent for a one-bedroom unit as a two-bedroom unit.

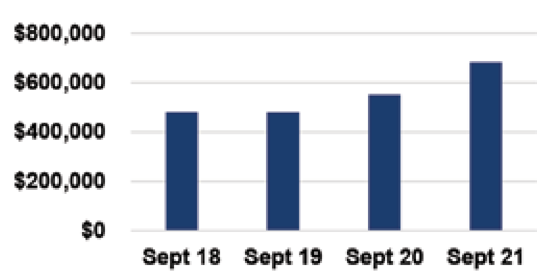
SILVERTHORNE, AVERAGE CLOSE PRICE



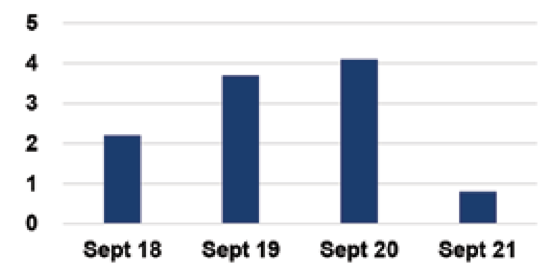
SILVERTHORNE, MONTHS OF INVENTORY



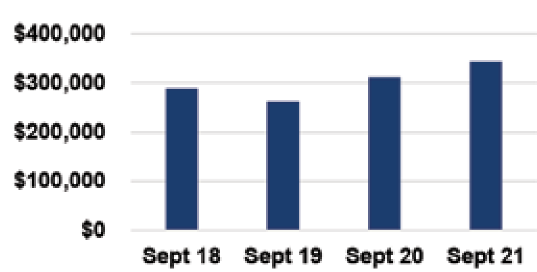
WINTER PARK, AVERAGE CLOSE PRICE



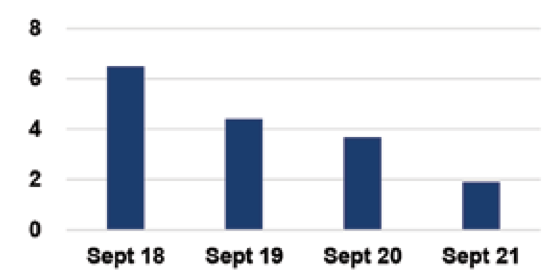
WINTER PARK, MONTHS OF INVENTORY



COLORADO SPRINGS, AVERAGE CLOSE PRICE



COLORADO SPRINGS, MONTHS OF INVENTORY



Source: REcolorado.

Denver has been a major target for multifamily investment in 2021. Recently, Loft 9 Apartments, a 418-unit apartment community, was acquired by a Los Angeles- and Miami-based private equity firm. This firm is very bullish on the Denver and Colorado Springs apartment market and seeks additional investments similar to Loft 9. Projects such as this do not address the shortage of rental units in Denver, but they do provide a glimpse into what the real estate professionals are seeing in the Denver market. Low vacancy rates, affluent renters, and favorable migration patterns should all contribute to rising rents in 2022.

Outlook for the Denver Metro Rental Market

The committee expects rental rates to increase but at a slower rate of 3% to 5%. This is largely due to low vacancy and limited inventory coming online.

Colorado Springs Real Estate Market

Massive growth is occurring in the other Front Range markets, such as Colorado Springs, as people seek other more affordable markets. Unfortunately, as more people opt for this alternative, home prices in these markets are also on the rise.

The average home price in Colorado Springs in September 2021 was $511,378. This price is nearing that of Denver, and the appreciation rate of 21% exceeds Denver's 17% appreciation rate. Additionally, the months of inventory has drastically fallen from just under two in 2018 to below one in 2021, indicating a fiercely competitive market in Colorado Springs.

Mountain Markets and Western Slope

The mountain markets have boomed as people have opted to work from home in the mountain communities. The committee looked at data from three mountain locations from and the Western Slope to assess market conditions: Silverthorne, Winter Park, and Grand Junction.

The average home in Silverthorne appreciated from $726,558 to $1,011,729 in September 2021 (39% rate of appreciation.) Much of this may be attributed to its proximity to Denver and being centrally located with easy access to many ski mountains. Inventory dropped from 3.5 to 1.5 in 2021, which is a similar theme to the Front Range markets, meaning tight inventory and high demand. The committee does not see these dynamics changing in 2022; however, rising interest rates and a return to the office may dampen demand for homes in the mountain communities in 2023 and beyond. As a result, the committee expects to see appreciation rates in the Silverthorne market to return to historic levels of 5% to 10%.

The average Winter Park home sold for $684,353 in September 2021 compared to $551,426 in 2020 (24% rate of appreciation.) This market is slightly more affordable than Silverthorne, possibly because of the longer drive from Denver and the market offers access only to Winter Park/ Mary Jane ski mountains. However, the Winter Park market exhibits the same dynamic as Silverthorne as months of inventory dropped from 4 in 2020 to 0.8 in 2021. That said, this market will continue to appreciate as long as there are more buyers in the market than homes for sale.

Grand Junction represents a major MSA on the Western Slope with its own diverse economy that does not solely rely on tourism. Home values are more affordable than that of the Front Range and the tourist mountain communities. The average home price in Grand Junction was $343,593 in September 2021 compared to $311,298 in 2020 (10% appreciation rate.) The months of inventory dropped from 3.7 in 2020 to 1.9 in 2021. The additional inventory relative to the Front Range market makes Grand Junction less competitive for buyers but it is still well within the confines of a sellers' market. (Note: A healthy, balanced market typically has five to six months of inventory.) The committee anticipates that this dynamic will continue into 2022, thus Grand Junction real estate should continue to appreciate at rates seen in 2021.

Outlook for Mountain and Grand Junction Markets in 2022

Mountain Towns - Demand for mountain properties is expected to decrease in 2022, but the drop in demand will not be enough to offset the lack of inventory. That said, appreciation of 8% to 10% for the Colorado mountain towns in 2022 is projected.

Grand Junction – Grand Junction should continue on its current trajectory. The city is a great destination for retirees with its mild climate, and economic conditions should remain fairly constant. According to the City of Grand Junction website, the population the city has tripled since 1970, and with current growth projections its population will exceed 100,000 by 2050. This represents a steady growth rate 1.1%. Given these conditions, the real estate market in Grand Junction is anticipated to appreciate 5% to 10% in 2022.

Conclusions

The Colorado real estate market has been running hot and this will likely continue in 2022. The market, however, has issues that must be addressed if Colorado is to sustain an upward trajectory. Climate issues such as water and wildfires will become increasingly impactful as water and land are key limiting factors to growth. Additionally, social issues such as homelessness, traffic, and congestion all must be addressed if Colorado is to remain a popular lifestyle destination.

Contributors:
Ron New, Consultant (Chair)
Sean Breeze, Your Castle Realty
Scott Earl, Mountain West Credit Union Association
Brandon Knudtson, Colorado Bankers Association
Steve Levine, SVP Moreton & Company
Richard Morgan, Academy Bank
Jessica Ostermick, CBRE
Frances Padilla, Small Business Administration
Mark Robey, Mountain West Credit Union Association
Jenifer Waller, Colorado Bankers Association

Professional and Business Services

Professional and Business Services (PBS) is a uniquely diverse industry, aggregating activity across Professional, Scientific, and Technical Services; Management of Companies and Enterprises; and Administrative and Support, Waste Management and Remediation Services. The sector has consistently produced solid employment growth across Colorado, adding over 100,000 jobs since 2011.

As was the case in 2020, PBS has clearly weathered the pandemic far better than most other sectors due to a confluence of factors and conditions. Importantly, the relatively easy shift to work-from-home in the largest PBS subsectors ensured companies could keep trusted talent and continue generating revenue. The business-to-business orientation means productive work generally need not be face-to-face but can be relatively efficiently sourced and managed remotely. In fact, PBS employment only saw a minor reduction in spring 2020 before quickly resuming growth in summer 2020. That said, some PBS sectors remain at risk due to disruptions from the Delta variant spike in fall 2021, which has slowed the return to the office. Moreover, increasing recruiting and retention challenges are vexing some employers in a strangely tight labor market, despite a record number of job openings and opportunities.

Employment for the PBS sector declined 2% in 2020. Overall, PBS employment is projected to grow 4.6% to average 450,400 jobs in 2021. Despite any headwinds, growth will likely continue at 1.8% in 2022, to total 458,600.

Geographically, PBS companies and jobs in Colorado are historically clustered largely along Colorado's Front Range, particularly around Fort Collins, Boulder, Denver, and Colorado Springs. This dense concentration is largely due to a networking effect between the businesses concentrated along the Front Range as well as the increasing supply of innovative, highly educated, and experienced PBS talent living in the same area.

The PBS subsectors generally employ highly skilled, highly educated workers who are compensated at above-average salaries. This is particularly true for the technology and management of company sectors. As noted, the sector has quickly adapted to the pandemic due to its ability to leverage remote-working technologies and a declining need to be physically present on job sites or directly interface with colleagues or customers to effectively do their jobs.

Far more than most other sectors, a precondition of PBS employment is often higher education. According to the U.S. Census Bureau, educational attainment is increasing in Colorado. Between 2010 and 2019, the percentage of Colorado residents with at least a bachelor's degree increased from 36.4% to 42.7%, ranking the state second in the United States. The total number of residents ages 25+ with at least a bachelor's degree increased by approximately 40%, or by 485,000 people over that period. Colorado also has the country's highest proportion of people with a science or engineering degree at 39.1%.

While Colorado ranks very high on college attainment, particularly among people who have migrated to the state, challenges remain for Colorado's own high school graduates. According to the Colorado Department of Higher Education's 2021 legislative report, "Pathways to Prosperity: Postsecondary Access and Success for Colorado's High School Graduates," 56% of Colorado's 2019 high school graduating class went on to enroll in a postsecondary institution immediately after graduation (down 1% from the prior year). Of those who did enroll, 73% attended a four-year institution, but 25% enrolled in schools out of state—the same as in 2018. This limits the talent base for STEM and other skills needed to compete for the highest-paying PBS jobs.

While producing new PBS talent in high schools and postsecondary institutions is critical, keeping the talent in state is just as important. Because most PBS work performed is not physical labor, many engineers, technologists, accountants, attorneys, enterprise managers, and others continue working well past normal retirement age, contributing to the steady, long-term increase in these positions across the state.

INDUSTRY SNAPSHOT
PROFESSIONAL AND BUSINESS SERVICES

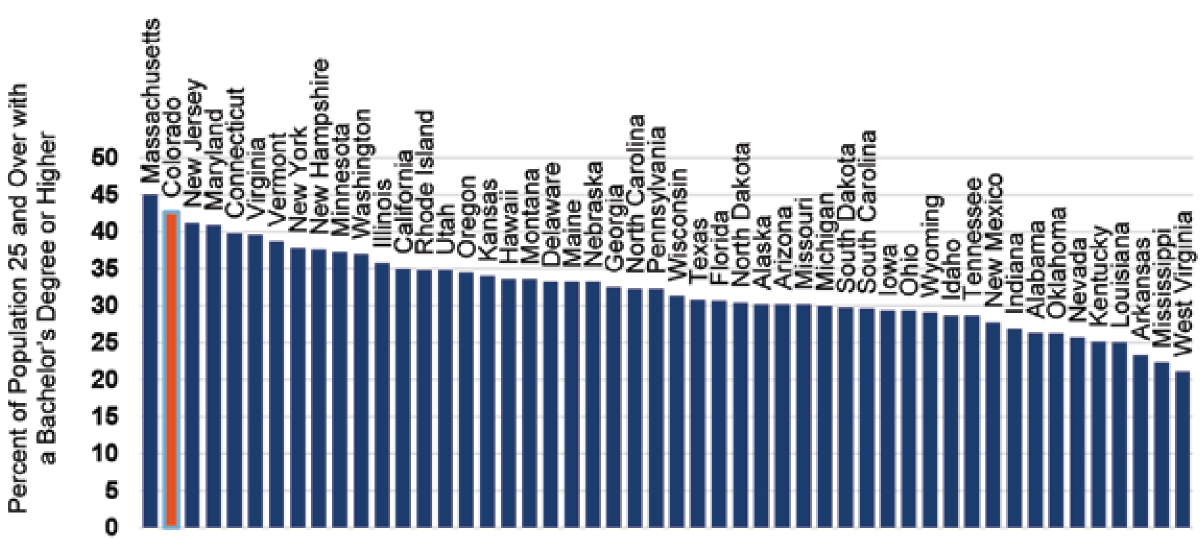
Nominal GDP, 2020 ($ Billions)	58.8
Real GDP, 2020 ($ Billions, 2012 Dollars)	55.3
2020 Real GDP Growth Rate	-2.3%
Total Employment, 2020 (Thousands)	430.5
2020 Employment Growth Rate	-2.0%
Employment Growth National Rank	6
Share of Colorado Employment	16.3%
Share of National Employment	14.2%
Average Wage, 2020	90,744
Percent of Statewide Average Wage	134.6%
2020 Average Wage Growth Rate	4.9%

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

Because PBS clients are largely businesses, the number of new business filings has proven a useful predictor of future PBS job growth. The Q2 2021 Quarterly Business and Economic Indicators report from the Colorado Secretary of State's Office shows that total new entity filings increased 25.7% year-over-year in Q2 2021, improving on the 24.3% increase from 2019 to 2020. Significantly, about 157,000 new entities were filed in the 12 months ending in Q2 2021, a 19% increase over the approximately 132,000 filed over the 12 months ending Q2 2020.

According to WalletHub's 2021 Most & Least Innovative States report, Colorado ranked as the sixth-most innovative economy in the country. The index uses 22 key indicators of innovation-friendliness, including share of STEM professionals to R&D spending per capita and tech-company density. Colorado ranked second for

EDUCATIONAL ATTAINMENT BY STATE, 2019



Source: U.S. Census Bureau, American Community Survey (2019 1-year estimates).

the Highest Projected STEM Job demand by 2028, first for Best Eighth Grade Math & Science Performance, and fifth for Highest Share of Technology Companies.

According to the Q1 2021 PitchBook-NVCA Venture Monitor, Denver led the nation (along with Chicago) with the highest year-over-year growth in venture capital (VC) deals in Q1 2021 among the 10-largest tech hubs the report included. In Denver alone, a total of 98 funding rounds were closed in Q1 2021, up 14% from last year. With a total of $1.2 billion in funding, this Denver market saw growth of 264.8% in the VC sector. Growth doesn't stop there for Denver-area tech startups. In January, Greenwood Village-based Pax8, a cloud IT company, announced it planned to expand its platform following a $96 million capital raise. Catalyst Investors and Sageview Capital led the round that will help the startup grow its team and expand its cloud marketplace technology

While the overall employment forecast for Colorado has proven as challenging as ever, overall expectations for PBS are for continued job growth. If anything, the second year of the pandemic has proven that PBS has successfully adapted and benefited from remote working via video conferencing and other technologies and longer-term, relationship-driven contracts with businesses and governments. Perhaps most importantly, the supersector has largely avoided the highly disrupted physical supply chains, shipping bottlenecks, currency fluctuations, geopolitical and trade policy challenges, union/labor disruptions, and other challenges facing other sectors. Of course, challenges to businesses in other industries eventually reduces funds available for spending on professional services and technologies, but these are also enablers to better manage the challenges and have proven resilient. As has been the case over the last decade, the challenges of globalization, automation, and commoditization challenge the value delivered by full-time positions across the legal, engineering, architecture, accounting; computer systems design; services to buildings; and business support services sectors.

Despite the headwinds, the great quality of life, ample opportunities, climate, outdoor recreation, and other benefits of living in Colorado are still driving net in-migration, particularly among PBS millennials coming from more populated areas. Those seeking refuge from crowded city environments have been finding open space and outdoor recreation opportunities a big draw. These newcomers are disproportionately bringing the PBS skills required for the knowledge-based workforce of the future. Colorado companies are ideally positioned to take advantage of the rapid growth of business professionals, scientists, technologists, and engineers in the state.

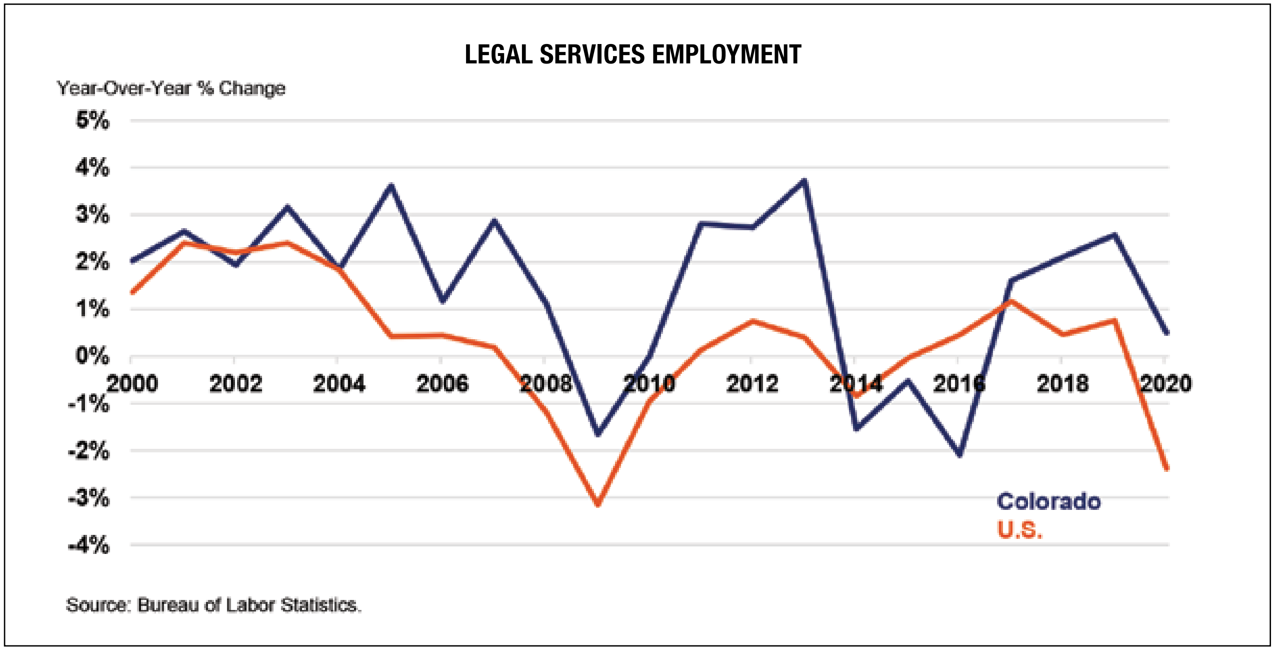
Professional, Scientific, and Technical Services

The Professional, Scientific, and Technical Services (PST) Sector comprises establishments that provide services that often require high levels of expertise and training, including legal, engineering, computer design, and advertising services, among others. Employment in the PST sector actually increased 1.3% in 2020 year-over-year—a bright spot within the overall PBS sector. Through September 2021, the sector averaged around 243,000 workers, an increase of 1.8% over the average through September 2020. While employment growth has been muted, the sector is one of the strongest sectors in Colorado's job market. Continued employment

continued on page 88

Professional and Business Services

continued from page 87



CU Boulder aerospace engineering graduate student Anthony Carfang launches a UAV for testing north of Boulder, 2014.

growth across PST is anticipated for 2022, with an increase of 2.3% to average 254,600 jobs.

Legal Services

Legal Services jobs in Colorado have remained stable over the last 10 years despite the increase in Colorado's population and business activity. This is likely occurring because of increasing efficiency, adoption of technology, outsourcing, and innovation in delivery models. Legal Services employment increased 0.5% in 2020, and average employment through September 2021 year-to-date stood at 20,100, a 0.8% increase versus the same period last year.

The legal system has evolved with the pandemic in 2021. In short, while the pandemic has increased activity related to commercial real estate, employment law, and compliance, the broader forces of automation, globalization, and outsourcing are holding down the need for additional hiring across Legal Services in Colorado.

Over the past five years, Legal Services employment growth has fluctuated, with some years declining up to 2.2% and others gaining up to 1.5%. In this context, the committee expects this subsector to stabilize at 20,100 in 2021. The committee expects only minimal growth of 0.2%, or 100 positions in 2022, averaging 20,200 through 2022.

Architectural, Engineering, and Related Services

Employment in the Architectural, Engineering, and Related Services (AES) Sector has exhibited steady growth over the last five years, averaging just above 2.5%. The year-over-year increase in employment of 1.7% for 2020 was the second-lowest increase in employment in the last 10 years. Steady growth has occurred from January 2021 through September 2021 of an average additional 1,000 AES positions. As a result, the committee expects continued growth of 1.9%, or 1,000 jobs, in 2021. While growth will increase as projects come online, the challenge of filling open positions will moderate potential growth in the year ahead. However, there is promise of an active spring bidding season supporting steady staffing in this subsector. The committee expects continued 2.5% growth in 2022, resulting in an average 53,000 positions over the full year.

Appropriations for public infrastructure projects, such as environmental mitigation, roads, transit, bridges, water, wastewater, and drainage are continuing. The General Assembly passed SB21-260 with the governor's signature, which will provide state appropriations for transportation projects for the next 10 years. This new law will be funded through a combination of General Fund transfers and new fees on gasoline, diesel, electric vehicles, residential deliveries, and rideshare trips. The law will slightly increase funding for highway, road, and bridge projects. A main focus is to increase funding for electric vehicles and to develop more robust charging station infrastructure, with the intent to increase the number of personal and commercial electric vehicles, new electric transit, and school buses, as well as converting diesel school buses to electric.

Projects from the various Colorado agencies are expected to continue and to be more focused on repurposing and enhancing rather than adding new buildings, roads, and bridges. More emphasis is being placed on developing existing vehicle corridors as multimodal, along with tying together disconnected hiking trails in municipal agencies for motivating people to use their vehicles less. In November 2021, Denver had on the ballot a bond issue to significantly change many busy corridors to reduce vehicular traffic; it passed in November.

Private-sector projects are continuing in residential single- and multifamily housing. Material cost increases and shortages, coupled with labor shortages, are affecting contractors' costs and schedules, which are anticipated to delay project occupancies. While residential development of single and multifamily units continues to increase, construction starts in industrial, manufacturing, retail, and other commercial buildings are declining in 2021 and are expected to continue at a slower pace for several quarters, especially in hospitality/hotels, commercial retail, and office buildings.

The pandemic has increased remote working in most offices. Company IT departments have had to ramp up their remote services, which has added costs, but savings on travel and other costs have offset this situation. Remote working technology continues to improve as more capital is expended to make the experience more seamless. Most firms continue to work a hybrid schedule comprising a few days in the office with the rest of the week at home. Productivity also seems to remain at levels high enough for companies to continue this type of work. Some companies have gone completely remote when their leases ended, and this trend may increase the amount of available office space throughout the years.

TOTAL PROFESSIONAL AND BUSINESS SERVICES SUPERSECTOR EMPLOYMENT, 2012-2022
(In Thousands)

Year	Professional, Scientific, and Technical Services	Management of Companies and Enterprises	Administrative and Support and Waste Management and Remediation Services	Total[a]
2012	180.2	32.3	144.4	356.8
2013	189.2	34.6	148.7	372.4
2014	196.7	35.5	154.1	386.4
2015	204.4	36.6	157.1	398.1
2016	209.8	37.4	158.2	405.4
2017	215.4	39.2	157.7	412.4
2018	224.4	40.8	158.3	423.5
2019	235.3	42.3	161.6	439.2
2020	238.3	42.5	149.8	430.5
2021[b]	248.8	46.3	155.3	450.4
2022[c]	254.6	47.1	156.9	458.6

[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.

Optimism for funding public agency projects continues in 2021 and 2022. The most notable continuing projects are those that are funded by multiple agencies and special districts. The Colorado transportation budget is expected to increase because of the new transportation funding law, along with the national infrastructure bill. This federal transportation bill also contains a significant amount of funding for electrical vehicles and charging station infrastructure.

Continuation of visible projects that will involve engineering design services and subsequent construction are interstate and state highway work around the Denver Metro area and around Colorado. Denver International Airport's Great Hall project and concourse expansions are continuing. The expansion of the National Western Complex, which was approved in 2015, also continues but is facing funding issues after voters recently voted no on Referred Question 2E, a $190 million bond measure that would have helped pay for a 10,000-seat arena and the renovation of a stock show building into a community market. Two new hangers are being built at Centennial Airport in Arapahoe County, with others being planned in the future to expand operations.

As anticipated years ago, school attendance in some areas is declining. One reason for this is that post-Gen Z birth

continued on page 90

Professional and Business Services

continued from page 89

rates are declining to much lower levels than the previous two generations. Consequently, many elementary schools in Aurora and Denver are looking to close due to fewer students. For example, the Littleton School district replaced one elementary school and one middle school in 2021 with the strategy to transfer students from older schools to these newer ones. High schools around the state will likely be seeing a reduction in students in a few years and will have to adjust. Currently, school districts feel that schools have the capacity for lower levels, so no new high schools are anticipated to be replaced in the near future. Colleges will be challenged by the end of the decade to maintain student levels as they are prone to the headwinds of fewer students due to lower birthrates and greater competition from trade schools and lower-tuition community colleges.

Students are returning to colleges in the fall 2021 after declining enrollment in 2020. Universities are allowing in-class instruction, with vaccinations being required. If students test positive for COVID-19, remote learning for a short period is available for them. A few enrollment statistics at Colorado universities include:

- **Colorado School of Mines:** Total undergrad and graduate students increased 2.2% from 2019 (6,607) to 2020 (6,754), then increased 6.2% in 2021 (7,172). The percentage of female students also increased from 30.7% in 2019 to 30.9% in 2020 and 31.4% in 2021.
- **CU Boulder:** Total students declined 1.6% from 35,528 in 2019 to 34,975 in 2020, then increased 2.6% in 2021 to 35,897. The percentage of female students was 44.9% in 2019, 45.4% in 2020, and 45% in 2021. Total students at the College of Engineering was 7,438 in 2019, 7,616 (+2.4%) in 2020, and 8,115 (+6.6%) in 2021. The percentage of female students at the College of Engineering was 29.2% in 2019, 29.1% in 2020, and 29.7% in 2021.
- **CSU Fort Collins:** Total students declined 3.2% from 35,466 in 2019 to 34,326 in 2020, then declined 0.5% in 2021 to 34,162. The percentage of female students was 53.4% in 2019, 54.7% in 2020, and 55.7% in 2021. Total students at the College of Engineering was 3,325 in 2019, 3,130 (-5.9%) in 2020, and 3,102 (-0.9%) in 2021. The percentage of female students was 26.1% in 2019, 26.3% in 2020, and 26.6% in 2021.


Rustandy Building bridge. Photo courtesy of Glenn Asakawa/University of Colorado.

Subsector Activity

Gary Bales, vice president of Control Solutions Inc., stated, "The market is strong with an abundance of building and opportunity for both new construction and retrofits. The local school districts throughout the Front Range will be retrofitting and building additions along with focusing on air quality with new equipment replacements. Another booming market is the multifamily loft and apartment buildings in Denver and Colorado Springs. Qualified resources for both field and management positions are next to impossible to get. Staffing and the fact that commodities such as copper and sheet metal is the highest it has been in decades. The shortage of equipment and commodities will be the biggest struggle for 2022. I have been in the HVAC Mechanical Business since 1994 and have never experienced the lack of commodities and qualified people to operate a business effectively and efficiently. As we face today's challenges it will be a frustrating 2022 with an overabundance of work along with not enough people or product to execute effectively."

Computer Systems Design and Related Services

The Computer Systems Design (CSD) subsector has averaged over 5% employment growth annually over the past nine years. Employment in the subsector increased 2.6% in 2020 year-over-year and average employment through September 2021 is 0.4% higher than the same period in 2020. Businesses within this subsector are primarily engaged in planning and designing computer systems that integrate computer hardware, software, and communication technologies. Nearly all businesses rely on computer and information technology to effectively operate. Many businesses, however, lack the resources and knowledge to perform these functions internally so they hire out these services to firms within the CSD industry. Firms offering these services may also provide training and support for the users of the system, including on-site management and operation for clients.

The CSD industry is largely made up of highly educated and technically skilled workers. Many workers in the CSD industry are working as computer systems analysts, computer software engineers, and computer programmers. A strong talent pipeline is required to enable growth in this industry. Colorado continues to be a net importer of young, talented labor contributing to faster CSD employment growth in Colorado compared with national CSD growth over the past four years.

According to CBRE's 2021 Scoring Tech Talent report, Denver ranked #12 for the best market for tech talent, dropping down from #7 the year prior despite adding over 5,000 positions in 2020. The report analyzes 13 metrics, including tech talent supply, growth, concentration, cost, completed tech degrees, industry outlook for job growth, and market outlook for both office and apartment rental growth.

CSD was hit unusually hard in the first half of 2021, losing 3,400 jobs year-over-year, but it resumed expansion through the end of the 2021, particularly as we saw activity picking up since mid-summer. In this context, the committee anticipates only a 1% increase of 6,700 jobs by the end of 2021. Growth is expected to accelerate in 2022 at a rate of 5% to average 70,300 jobs.

Subsector Activity

Oracle is currently posting 39 open positions across Colorado, with an emphasis on Broomfield and Denver. Key positions include: NetSuite account executives, business development consultants, tax analysts, marketing managers, developers, and engineers. Similarly, Cognizant has 24 open positions across the Front Range in technology and engineering, corporate, digital and IT infrastructure.

Management, Scientific, and Technical (MST)

Management, Scientific, and Technical (MST) Consulting Services has averaged 6.2% growth over the last five years. Employment in the sector increased 3.5% in 2020 year-over-year and is projected to increase 6.9% in 2021, adding 2,400 jobs. MST employment is projected to grow an additional 8%, or add an additional 3,000 jobs, in 2022, to average 40,100.

Metro Denver is now the top location in the nation when it comes to adding jobs in science, technology, engineering and mathematics (STEM), according to the 2021 STEM Job Growth Index from RCLCO and CapRidge Partners. RCLCO has released the STEM Job Growth Index ("STEMdex") as a tool to highlight the top locations for STEM employment today and most likely in future years. Denver ranked eighth on the index in 2018, fifth in 2019, and third in 2020, and this year ended ahead of tech havens Seattle, Austin, and San Francisco. The Colorado Economic Council has committed more than $10 million in tax credits to stimulate additional growth in technology and technology education.

One area of strength is Colorado's aerospace industry—the state has the 2nd-largest aerospace economy according to the Colorado Space Coalition, with major aerospace contractors Maxar, Boom Supersonic, United Airlines, Lockheed Martin, and United Launch Alliance. Approximately 64% of Colorado's 500+ aerospace and aerospace support companies employ fewer than 10 people. "We're putting our flag in the ground and declaring that we can be the Silicon Valley of aerospace. ...," according to Major General John Barry, USAF (Ret.), co-founder, Colorado's Aerospace Alley Initiative (Aerospace: Colorado Makes a Name for Itself | Site Selection Magazine). It's an industry that contributes more than $15 billion per year to the state economy while employing more than 30,000 workers. Aerospace employment in Colorado, according to a report by the Metro Denver Economic Development Corp., grew by 19.4% in the four years ending in 2019.

Subsector Activity

Maxar, a space technology company, continues to play an outsized role in Colorado's Professional, Scientific and Technology sector, but competition is growing as more federal contracts are moving to multi-vendor agreements, eroding some market share for Maxar. As one example, the National Reconnaissance Office (NRO) pays Maxar $300 million a year for access to Maxar's WorldView-1, WorldView-2, WorldView-3, and GeoEye-1 satellites, as well as the company's image archive. EnhancedView was a 10-year deal with Maxar and NRO set to expire in 2020, but when the NRO took over the management of the contract, it added three one-year options worth about $300 million each (https://spacenews.com/nros-strategy-to-buy-satellite-imagery-shaped-by-thriving-commercial-market/).

United Airlines plans to buy 15 jets from Centennial-based, Boom Supersonic, with options to buy more in the future. In March 2021, United Launch Alliance, which is headquartered in Centennial, Colorado, won $224.3 million in contracts covering two satellite launches for the U.S. Space Force in 2023.

Management of Companies and Enterprises

Management of Companies and Enterprises (MCE) includes a very broad cross section of company headquarters and regional offices for businesses. The sector, which continues to represent less than 2% of Colorado's overall employment, has produced 2% to 5% job growth over the previous five years. This sector represents 9.9% of overall PBS industry employment. Diverse industries and products are represented by companies in this sector,

continued on page 92

Professional and Business Services

continued from page 91

including VF Corporation, Antero Resources, Prologis, Ball Corporation, Arrow Electronics, Johns Manville, and Newmont Mining.

Employment in the sector increased 0.2% in 2020 year-over-year, and employment in 2021 through September averaged 45,800, up 9.2% over the same period in 2020. This strong growth is a product of the depressed employment levels observed in 2020 due to the pandemic and appears to be returning to the strong growth levels observed over the years preceding 2020. Given the diminishing impact of the pandemic, the sector is anticipated to return to traditional growth ranges through 2022, resulting in an average employment of 47,100.

Job growth in this sector is driven by national and international economic conditions, as well as corporate headquarter relocations. Some of these relocations are driven by corporate officer preference, others by Colorado's business climate, and some follow other notable Colorado industry trends.

Subsector Activity

AMP Robotics, headquartered in Louisville, Colorado, deploys AI, sensors, and robotics to cull valuable materials from waste streams and capture some of the $11.4 billion in recyclables lost to U.S. landfills annually. The company is adding to its 150-person workforce, hiring 35 positions at its sites in Denver, Louisville, and Broomfield, Colorado (https://siteselection.com/issues/2021/jul/colorado-your-genuine-self-companies-and-individuals-fulfill-their-potential-in-colorado.cfm). The company was founded in Boulder by CEO Matanya Horowitz, and was supported by the Colorado Office of Economic Development and International Trade (OEDIT) in the form of early-stage, export, and other grants.

Vail Resorts, North America's largest ski area operator, raised its minimum wage to $15 an hour in summer 2021, with worker pay being the largest investment the company is making heading into the 2021-22 ski season. The company also announced it was offering paid sick-time for full-time seasonal workers and increasing other benefits and perks for workers.

Administrative and Support and Waste Management and Remediation Services

This sector comprises establishments that 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. The number of job openings in the sector is one of the highest in the state, indicating a potential gap in the supply of potential workers looking ahead. Sector employment represents 34.8% of overall PBS industry employment with 149,800 employees in 2020. Employment was heavily impacted in 2020 due to the pandemic, with the sector losing 7.3% of its workforce. While sector employment has rebounded in 2021 with average employment through September up 2.8% over the same period in 2020, employment is still around 6% below pre-pandemic levels. Employment is projected to grow 3.7% in 2021 to average 155,300, and further growth of 1% is expected in 2022 to total 156,900.

Employment Services

Employment Services jobs are related to hiring and placing personnel. The unsettled labor market in the United States and in Colorado has proven to be a barrier to hiring in this sector. While this sector typically served as an early indicator of future hiring trends, the pandemic, and the variety of industries served, have made it particularly difficult to foresee the cumulative impact over the next year. Overall, this sector is fundamentally changing as companies are relying more on internal recruiting resources as compared to outsourcing.

A key trend for this sector is an increase in competition both directly from other companies and from the numerous web services including Indeed, LinkedIn, and public-sector job boards. With the rise of unemployment since March 2020, the Colorado Department of Labor's website, Connecting Colorado, was advertising more than 143,000 jobs for public agencies and private companies in October, a full 100% increase over the 70,000 jobs posted a year ago. Public agencies and private companies are simply advertising for positions on their websites instead of using employment services. Business associations are also including job boards on their websites, which are designed to match employers with potential employees.

Although the Employment Services sector observed a loss of 8,000 jobs (17%) to 40,300 positions in 2020, the sector has started to recover, with average employment through September 2021 up 5.5% over the same period in 2020. Given this employment trend, the subsector is projected to grow 5.5% in 2021. Consistent with longer-term trends and assuming a broader, statewide recovery, robust growth of 5% is expected in 2022, with employment expected to average 44,900 jobs for the year. While strong employment growth is projected for both 2021 and 2022, employment will still be around 9%, or 5,000 jobs lower than 2019 levels. This reflects the structural changes to internal recruiting and web-based services eroding the role of traditional recruiting companies which will hamper employment growth in the future.

Services to Buildings and Dwellings

The Services to Buildings and Dwellings subsector comprises establishments primarily engaged in providing services to buildings and dwellings to include extermination, fumigation, cleaning, transportation, landscape care, and maintenance services. Employment averaged 45,100 in 2020, a decline of 1.8% year-over-year. Average employment through September 2021 was up 2.9% over the same period in 2020, indicating a rebound in employment from the pandemic.

The COVID-19 pandemic and concerns about returning to work make it necessary to have extensive and repeated cleaning and disinfectant work in office buildings. The increase in modern technology to support new buildings

Photo courtesy of nito100/iStockphoto

requires new skills and talents that is driving the hiring of a younger, more technically oriented workforce. With the expectation of the impact from the pandemic receding, the PBS Committee expects employment in the subsector to grow 2.5% in 2021 year-over-year to average 46,200 jobs. Continued moderate growth is expected in 2022, with the subsector projected to grow 2% to average 47,200 positions across the state. Despite the relative increase in economic activity that might warrant more hiring, the challenges around recruiting and retention of the technical positions in this sector are apparent headwinds.

Job growth in this sector typically correlates to construction as well as rental and occupancy rates—each of these having suffered significantly in 2020. The rising number of COVID-19 cases in summer 2021 caused employers in Metro Denver to pause on plans to bring workers back, contributing to a continued rise in the region's office vacancy rate, according to a third-quarter update from Newmark, a commercial real estate brokerage. The region's office vacancy rate increased to 21% in Q3 2021 from 20.7% in Q2 2021 and around 14% in Q1 2020. Q3 2021 marked the sixth consecutive quarterly rise in the office vacancy rate. These higher vacancy rates signal further difficulties for the Services to Buildings and Dwellings subsector.

Subsector Activity

Hospitality at Work (HAW) is a full-service commercial real estate company, overseeing buildings across the Front Range. According to T.J. Tarbell, Sr. Vice President of HAW, "COVID has impacted nearly every aspect of the CRE business. Some predict that COVID has forever altered the CRE business, while others expect a complete return to normal. Others fall somewhere in between. Regardless of your long-term view, the near-term outlook is one defined by more uncertainty. The Delta variant has certainly resulted in a slower return to the office. We're seeing physical occupancy across our office portfolio remain steady around 50%. However, on a positive note, we are seeing leasing activity pick up as many businesses see a light at the end of the tunnel. In the investment sales market, we are seeing a lot of well-capitalized buyers competing for deals, which is also a sign of optimism. Our focus remains on those things that we can control, which starts with operating safe and healthy buildings for our valued tenants." Wage growth remains strong, and competition is heavy for quality real estate personnel (property managers, facilities/maintenance technicians, property accountants, etc.). According to Tarbell, finding and hiring quality talent remains a challenge. Companies will need to adjust their planning and recruiting tactics in order to address the staffing challenges ahead.

Support Services

Support Services aggregates outsourced professional services such as advisory, security, payroll, logistics, and other professional office functions. Employment in this sector declined 0.6% in 2020 year-over-year, marking the seventh year of continuous employment declines. As with Legal Services, the number of business support services jobs is often pressured by industry consolidations,

continued on page 94

Professional and Business Services

continued from page 93

globalization, automation, and programmed configured software as a service (SaaS), all of which saw increases during the pandemic. Given this dynamic, Support Services employment is projected to shrink 3.2% (600 jobs) in 2021, to average 19,000. A continued reduction in employment of 3% is expected in 2022, resulting in average employment in the subsector of 18,400.

Subsector Activity

One bright spot in the sector may be a resumption of business travel as the pandemic recedes. A rapidly-growing Denver corporate travel management company, Hotel Engine, which is looking to add 1,739 jobs over the next eight years received approval for up to \$8.85 million in state job growth incentive tax credits, founder and CEO Elia Wallen told the *Denver Business Journal.* The local company, which now has about 300 employees, has been on a growth spurt through the coronavirus pandemic, even as worldwide business travel dipped 52% in 2020, according to the Global Business Travel Association. The company grew its bookings by 142% between the third quarter of 2020 and the same period this year, and it boosted its number of business customers 60% over the past year, from 25,000 in September 2020 to 40,000 currently. Hotel Engine, which is eligible for as much \$9 million in job-growth incentive tax credits and location-neutral hiring incentives from the Colorado Economic Development Commission over the next eight years if it creates all anticipated positions, expects to hire 400 people in 2022. It also is in the process of looking for a downtown Denver headquarters, as it has outgrown existing space in Glendale and needs room for 700 employees.

Photo courtesy of ryasick/iStockphoto.

Waste Management and Remediation Services and Other

Jobs in this subsector include local hauling of waste materials; recyclable materials recovery facilities; remediating contaminated buildings, mine sites, soil, or ground water; and providing septic pumping and other miscellaneous waste management services. Waste management volumes generally trail demographic and consumer trends, aggregate societal activity, housing, and commercial growth.

This subsector is expected to see employment growth as these services are a trailing indicator of overall population growth and development. However, consolidation may be taking a toll as well as the shift from commercial to residential activity during the pandemic. Given this context, a 4% increase in employment is projected for 2021 to total 46,100. A reversion to more traditional growth patterns of 1.5% is expected in 2022, to average 46,800 jobs for the year.

Subsector Activity

As a follow up to last year's sector overview of the changing nature of waste management and recycling, the *Denver Post* reported that beginning in the spring of 2021, the city of Arvada will be taking a single-hauler approach to garbage collection, contracting with Republic Services for citywide service in contrast to the nine different haulers that currently provide residential pickup service. The city will also use the pay-as-you-throw model, which is already in place in several Front Range communities, including Lafayette, Louisville, Golden, and Sheridan. The program seems to be working with top recycling communities on the Front Range having pay-as-you-throw programs. Loveland, which charges as little as $3.25 a month for a 17-gallon trash bin, is at the top of the list with a 60% recycling rate. Louisville and Lafayette are at 44% and 36%, respectively. Arvada's recycling rate is below 15%. Colorado's recycling rate was less than half the national average in 2019, according to a study released last fall (https://www.denverpost.com/why-subscribe-to-the-denver-post/).

PBS Sector Summary

The many subsectors of Professional and Business Services will continue to collectively support employment across Colorado's Front Range in 2021. Overall, PBS employment is projected to grow 4.6% in 2021 to average 450,400. Growth will continue at 1.8% in 2022, with an additional gain of 8,200 jobs to total 458,600.

Contributors:
Brian Pool, Government Performance Solutions (Chair)
Ashley Cawthorn, Berg Hill Greenleaf Ruscitti, LLP
Mark Hamouz, P.E., Engineering Consultant
David King, Management Consultant
Michael Yeadon, Keysight Technologies

Education and Health Services

The Education and Health Services (EHS) Supersector comprises private-sector education, as well as four private-sector health care and social assistance sectors, including ambulatory care, hospitals, residential and nursing facilities, and social assistance. This industry represents almost one in every eight jobs in the state of Colorado. More than 88% of industry employment is made up of Health Care and Social Assistance, while about 12% is related to Educational Services. EHS was impacted early in the pandemic as it faced similar shutdowns as the broader person-to-person services industry. Educational and Health Services employment fell 3% in 2020, but rebounded an estimated 3.1% in 2021, leaving the industry below pre-pandemic levels. The industry is projected to increase another 1.7% in 2022, effectively recouping jobs lost due to the pandemic.

COLORADO EDUCATION AND HEALTH SERVICES EMPLOYMENT, 2012–2022 (In Thousands)

Year	Educational Services	Health Care and Social Assistance	Total
2012	35.4	246.4	281.8
2013	36.1	249.8	285.9
2014	37.2	260.9	298.0
2015	38.6	274.7	313.3
2016	39.8	286.0	325.8
2017	40.5	293.6	334.1
2018	41.9	298.8	340.7
2019	43.5	304.1	347.6
2020[a]	39.8	297.4	337.3
2021[b]	42.0	305.7	347.7
2022[c]	43.2	310.4	353.6

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

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

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

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 accounted for in local government; public higher education employees are accounted for in state government.

Contributions to Colorado's employment come from many schools within the state's private K-12 and post-secondary institutions, the latter 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 (DU), Regis University, and Colorado College.

As of October 2021, Colorado had a net loss of 29 private colleges and schools; 59 institutions left the state while Colorado gained 30 new schools. Notable losses included Ashford, American Sentinel, University of the Rockies, and Johnson & Wales. There were some gains, such as Arizona College of Nursing, which opened two locations that will help to address the demand for nurses in Colorado.

Profit and Nonprofit Colleges and Universities

DU is Colorado's largest private university. COVID-19 affected all campuses across Colorado, and in academic year (AY) 2020, DU experienced a $21 million loss in revenue, freezing hiring and nonessential spending and delaying capital projects. Due to these efforts, the university only laid off 38 members of its staff by the summer of 2020. DU managed to make the shift to an enhanced virtual classroom presence in AY2020-21, with 456,147 Zoom sessions taking place with 3.9 million participants. All the sessions accounted for 198 million minutes. Overall, "By the end of the spring quarter, 9,500 community members were cleared to be on campus. Only one week of classes between September 2020 and June 2021 had to be transitioned from in-person instruction to online, and a total of 4,282 class sections took place on campus, just under half of what would occur in a normal year"(https://www.du.edu/news/executing-2020-21-academic-year-look-behind-numbers). DU recently announced plans to open a mountain campus in Larimer County; some operations will begin immediately with expansion continuing into 2022.

Johnson & Wales University (JWU), a multicampus private, nonprofit university known for its culinary school, was recognized in last year's report as it celebrated 20 years in the Denver community. Unfortunately, in June 2020, JWU announced it would close its doors permanently in the summer of 2021. This was a strategic decision to eliminate two campuses (Denver and North Miami), and while the decision was already being examined before the onset of COVID-19, the pandemic accelerated the decision. JWU officially closed in the summer of 2021.

INDUSTRY SNAPSHOT EDUCATION AND HEALTH SERVICES

Nominal GDP, 2020 ($ Billions)	27.2
Real GDP, 2020 ($ Billions, 2012 Dollars)	23.9
2020 Real GDP Growth Rate	-5.6%
Total Employment, 2020 (Thousands)	337.3
2020 Employment Growth Rate	-3.0%
Employment Growth National Rank	18
Share of Colorado Employment	12.7%
Share of National Employment	16.3%
Average Wage, 2020	55,198
Percent of Statewide Average Wage	81.9%
2020 Average Wage Growth Rate	7.0%

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

Private for-profit accredited colleges include Arizona-based University of Phoenix. In fall 2021, a total of 78 private accredited colleges were listed on the Colorado Department of Higher Education website (down from 83 in fall 2020); 60 of those are nonprofit and 18 are for-profit, 39 are private seminary schools, and 25 are headquartered outside of 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 and/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.

Career Schools and Colleges

The private education sector also includes career schools and colleges that provide training in the trades and crafts, helping to meet a growing national demand. The Career Education Colleges and Universities (CECU) provides training for high demand occupations being met by private schools, such as skilled commercial drivers, surgical technologists, electricians, nurses, construction workers, manufacturers, and others.

The private career schools in Colorado represent only a small percentage of overall employment, but their importance cannot be overlooked. In 2021, a total of 244 in-state occupational schools (down from 271 in 2020) and 21 out-of-state occupational schools (up from 18 in 2020) that are approved to market in Colorado are registered with the Colorado Department of Private Occupational Schools. Among Colorado-based private accredited colleges are schools as diverse as Boulder Massage Therapy Institute, Lincoln College of Technology, and IBMC College, with three locations in Colorado. Life Time Academy from Minnesota and WyoTech are out-of-state schools that are approved to operate in Colorado.

Private Secondary Education in Colorado

In 2019-20, the Colorado Department of Education listed 716 nonpublic-sector school locations (the term nonpublic schools applies to private, parochial, and independent schools) that provide education to children in nursery through kindergarten and compulsory school age grades 1-12.

Across the country, all schools and districts are struggling to find and retain credentialed permanent teaching staff and are especially struggling with filling substitute teacher positions. It is purely a factor of numbers. The same number of students are graduating from college with the course work and desire to be educators, but given the growth in population in Colorado, the supply cannot keep up with the demand. As Colorado's population expands, some areas of the state are recording growth of young families in the prime childbearing demographic. The challenge of finding enough qualified teachers is a particular problem with private schools as they typically do not pay as much or have the quality of benefits as compared to public schools.

Consider that private schools currently represent 10% of all student attendance and 25% of all schools nationally; however, private education still has a long way to go to be an equally available alternative to public education. The problem that plagues all private schools is a mechanism to fund the tuition requirements of students. There are many great private high schools on the Front Range, including top-rated Kent Denver, Regis Jesuit, Denver Academy, Colorado Academy, and Valor Christian, just to name a few. This disparity in the ability to pay tuition creates an economically driven gap in the quality of high school education students receive.

Cautious Growth

Driving the cautious optimism for growth over the near-term are several hurdles, including the following:

- The ability of all schools, private and public, to adjust to the changing demands of increased online coursework and reduced seat time during the duration of the pandemic; see earlier description of virtual sessions held by DU alone.
- Closures related to legal and financial difficulties will limit growth. Johnson & Wales University announced in June 2020 the closure of their Denver Campus, which fully closed in the summer of 2021. Ashford, American Sentinel, and University of the Rockies are other examples of notable schools to close operations in Colorado.

Educational Support Services

Colorado's private education sector includes educational support services. One example is Pearson Education, which is a subsidiary of a multinational company headquartered in London. Among other software businesses in the learning and education delivery sector in Colorado is Amplifire, which focuses on a results-based learning platform for education, as well as health care and Fortune 500 companies.

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 the educational support field.

Summary

Education is in the midst of significant transformation and reform, including an accelerated increase in the adoption of online learning for all age levels. This heavy reliance on technology requires more strategic thought specific to pedagogy and instructional design and also provides tremendous opportunities for data-driven education. When

continued on page 98

Education and Health Services

continued from page 97

"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 Care and Social Assistance

The private-sector Health Care and Social Assistance Sector is a significant contributor to Colorado's economy. The sector employed 297,400 workers in 2020, a decline of 2.2% year-over-year. While the sector was impacted by the recession, it grew an estimated 2.8% in 2021, and growth is projected at 1.5% in 2022. However, the impact of COVID-19 to the various health care sectors has not been consistent. Ambulatory services have grown 2% between Q1 2020 and Q1 2021. Conversely, nursing and residential facility employment has fallen by 4% over the same period. Health care is a complex system impacted by demographic trends, health insurance coverage, the health care workforce, health care delivery trends, and public policy.

Population Trends

Aging

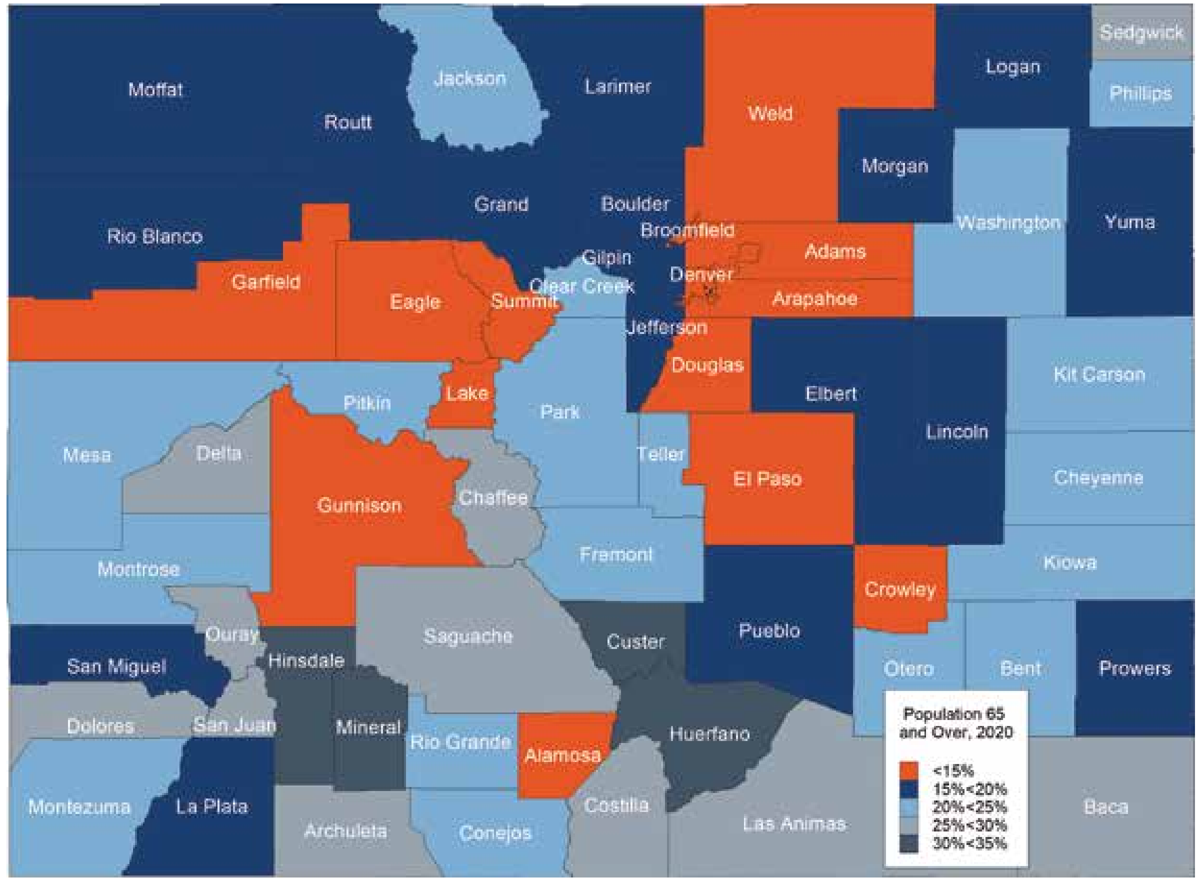
The State Demography Office projects that Colorado will be home to 5.9 million people by 2022, an increase of 13% from the 5.2 million people that called Colorado home in 2012. Over this period, the growth in the 65-and-older cohort continues to outpace younger cohorts, with a growth rate of 53.5% between 2012 and 2022. The age cohort of 0–64 is projected to grow 8.1% over the same period.

Select Populations and Health Status

According to America's Health Rankings produced by the United Health Foundation, Colorado ranked 13th in 2020. Improvements in health status metrics included a 25% decrease in food insecurity between 2013-2015 and 2016-2019, per capita income increased 13% between 2017 and 2019, and flu vaccination rates increased 27% between 2018 and 2019. Negative trends impacting state health include a 34% increase in chlamydia between 2008 and 2018, a 34% increase in frequent mental distress between 2014 and 2019, and an 8% increase in low birth rates between 2011 and 2018. Overarching strengths within the state are a low index score for economic hardship, relatively low frequency of multiple chronic conditions, and relatively low frequency of physical inactivity. Weaknesses include relatively low rates of graduation from high school, relatively low birthweights, and relatively high drug use for non-medicinal purposes.

The COVID-19 pandemic began in early 2020 in Colorado. Through October 29, 2021, there have been 740,000 cases of COVID-19 in the state, 42,000 people have been hospitalized, and 8,500 people have died, according to

PERCENT OF POPULATION 65 AND OVER, 2020



Source: Colorado Department of Local Affairs, State Demography Office.

the Department of Public Health and Environment. Over 3.6 million people have been fully immunized including individuals 12 and up, representing 72% of the eligible population. Immunization of children ages 5–11 began in early November 2021. Despite current vaccination rates and readily available vaccines, cases continue to rise in Colorado. The most recent surge represents the fifth wave of COVID-19 since the pandemic started.

Mental Health

The pandemic has exacerbated existing upward trends in the incidence of poor mental health days for Coloradans due to social distancing requirements, quarantine, and socioeconomic factors including access to stable housing and food. According to a paper published by Natarajan Kathirvel, "The long term impact is considerable and wide ranging including anxiety, anger, depression, post-traumatic stress symptoms, alcohol abuse, and behavioural changes such as avoiding crowded places and cautious hand washing." Poor mental health has been on the rise since 2015 based on findings from the 2021 Colorado Health Access Survey. The survey indicates that 23.7% of Coloradans ages 5 and older reported eight or more days of poor mental health in the past month. This is an 8.4 percentage point increase over the 2019 rate of 15.3% and a 13.8 percentage point increase over the 2015 rate of 9.9%. Some of the most impacted groups included 34.9% of young adults ages 19–29, 32.8% of adults ages 30-49, and 58% of individuals in the LGBTQ+ community—all of these groups had eight or more poor mental health days.

One positive trend in mental health is that many Coloradans have or are planning to seek support from a medical professional. About 1.4 million or 26.8% of people age 5 and older spoke to a health care professional about their mental health in 2021, and another 19.7% expect to need mental health support in the coming year, according to the Colorado Health Institute. It has also become much more socially acceptable to discuss mental health, and there has been a proliferation of digital and virtual mental health tools such as Sanvello that offer on-demand services and apps.

Health Services

The pandemic has caused fewer people to use health care services including both acute procedures, elective procedures, and preventative services. While the use of telemedicine services did become more prevalent during the pandemic, it was not offset by losses in in-person services. Utilization and spending remain below pre-pandemic levels through 2021. Spending is estimated at 7.1% below prior year trends through June 2021 and hospital admissions are 89.4% of the expected admissions through Q1 2021, according to the Peterson-KFF Health System Tracker. This decline in care could drive additional declines in overall health over time. For example, decreased cancer screenings mean that fewer cancers were detected. Even if screenings were just delayed, cancer is easier to treat in earlier stages and delays can mean that the cancer is caught later than it otherwise would have been, according to a study by the Dana-Farber Cancer Institute.

Health Insurance Coverage

The 2021 Colorado Health Access Survey published by the Colorado Health Institute indicates the uninsured rate has remained low at 6.6%. This is only an increase of 0.1 percentage points from 2019. However, many people lost jobs over the pandemic and coverage shifted from employer-sponsored coverage to Medicaid. Medicaid coverage increased from 18.7% in 2019 to 24.8% in 2021, or a 6.1 percentage point increase. Over that same period, employer-sponsored coverage fell from 52.7% to 49.8%, or 2.9 percentage points, and Medicare fell from 13.7% to 11.5%, or 2.2 percentage points. The individual market decreased from 7% to 6.3% of health insurance coverage.

Medicaid

Colorado's Medicaid program, known as Health First Colorado, covers approximately 1.5 million people, which represents slightly more than one of every four people in the state. Among the enrollees, approximately 537,000 are children, 767,000 are adults without disabilities, and 144,000 are seniors and people with disabilities. Colorado also covers another 62,000 higher-income children and pregnant women through a stand-alone Children's Health Insurance Program (CHIP), known in Colorado as the Child Health Plan Plus (CHP+). The Department of Health Care Policy and Financing, which administers the Medicaid and CHIP programs, is the largest state department by appropriation in Colorado, with expected expenditures of approximately $13.3 billion in state fiscal year 2021–22, including $3.3 billion from the State's General Fund.

Since the beginning of the COVID-19 pandemic, Medicaid caseload has changed rapidly. Between March 2020 and June 2021, Medicaid caseload increased by almost 300,000 people, an increase of over 25%. A significant portion of this change has been due to a change in federal law. The Families First Coronavirus Response Act (Section 6008) conditioned a temporary increase in Colorado's federal funds rate on a commitment by the state to maintain eligibility for every person on the program through the duration of the public health emergency, regardless of changes in income or circumstances. As a result, the state is generally unable to disenroll any person from Medicaid until the COVID-19 public health emergency ends. The public health emergency was most recently renewed on October 15, 2021.

Once the public health emergency ends, there will be a significant change in Medicaid caseload, which may have a disruptive effect in health insurance enrollment in Colorado. The state projects that almost 260,000 people will lose Medicaid coverage in the year immediately following the end of the public health emergency, as many people who are currently enrolled in Medicaid have only retained coverage due to the federal prohibition against disenrolling people until the public health emergency ends.

continued on page 100

Education and Health Services

continued from page 99

Individuals who lose coverage would need to seek coverage through employer-sponsored insurance, on Colorado's health care exchange, or through other options—or drop coverage entirely. The timing of this is uncertain; the Secretary of the federal Department of Health and Human Services may further extend the public health emergency in the future. Further, federal legislation in late 2021 or early 2022 may contain provisions that materially alter the continuous coverage requirements.

While the Medicaid caseload has increased, the caseload in the Children's Health Insurance Program (CHIP) has decreased; since the beginning of the pandemic, the caseload has decreased by approximately 23%. This is consistent with prior economic recessions; CHIP serves higher-income populations, and as people lose their jobs, their income can quickly fall to zero, which makes them eligible for Medicaid, not CHIP. In addition, the Medicaid continuous coverage requirements are preventing individuals whose income increases from moving from Medicaid to CHIP.

Technology in Health Care

COVID-19 had a significant impact on the utilization of telemedicine services. Prior to March of 2020, telemedicine was not a significant factor in the delivery of health care services. As a result of the pandemic, regulators at the state and federal level made it easier to receive reimbursement for telehealth services. In the 2021 Colorado Health Access Survey, 35.9% of respondents indicated that they used telemedicine services in the prior year. Of those receiving care through telemedicine, 51% received primary care, 21.2% received specialist care, 17.6% received mental health care, and the remaining 10.2% received some other service. Telehealth services are likely to remain a viable source of health care. Almost 63% of Coloradans indicated that they were at least somewhat likely to use telehealth services in the future. However, it is unlikely that utilization will remain at pandemic levels for many services. Coloradans primary concerns with telemedicine were that they may not receive the same quality of care or have their health needs met appropriately.

Photo courtesy of Ridofranz/iStockphoto.

The Health Care Workforce

Health care jobs are not restricted to doctors and nurses. The health care system is enormously complex and involves many support roles in IT and insurance. For every doctor in the United States, there are eight clinical professionals and eight nonclinical workers, according to one national estimate. Health care, therefore, drives employment across a wide range of occupations and skill levels. The primary employment segments in health care include ambulatory, hospitals, nursing and residential care facilities, and social assistance. In Q1 2021, the private health care workforce was 304,000, according to Quarterly Census of Employment and Wages (QCEW) from the Bureau of Labor Statistics.

Key occupations across these groups include:

- physicians,
- registered nurses,
- licensed practical and licensed vocational nurses,
- home health aides,
- reception/information/office services,
- dental assistants,
- substance abuse, behavioral disorder, and mental health counselors, and
- physical therapists.

Employment in the health care sector was significantly impacted by the COVID-19 crisis but has since rebounded to pre-pandemic levels. Across all health care segments, Q1 2021 showed growth of 1% over Q1 2019, but losses of 1% compared to Q1 2020. However, job recovery has not occurred evenly across the health care segments.

PRIVATE HEALTH CARE AND SOCIAL ASSISTANCE TRENDS Q1 2019 TO Q2 2021

	2019				2020				2021	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Average Quarterly Employment										
Health Care and Social Assistance	300,631	303,032	304,452	306,898	306,009	281,820	296,659	302,769	304,389	305,036
Ambulatory Health Care Services	137,626	138,728	139,863	141,349	141,081	127,004	138,245	142,890	143,917	145,346
Hospitals	60,605	60,726	60,842	61,227	61,005	58,592	58,497	59,106	59,267	58,826
Nursing/Residential Care Facilities	43,736	43,979	44,092	44,114	43,789	41,982	41,913	42,142	41,959	41,115
Social Assistance	58,664	59,600	59,655	60,209	60,134	54,242	58,004	58,631	59,246	59,749
% Change From Prior Quarter										
Health Care and Social Assistance	-0.2%	0.8%	0.5%	0.8%	-0.3%	-7.9%	5.3%	2.1%	0.5%	0.2%
Ambulatory Health Care Services	-0.1	0.8	0.8	1.1	-0.2	-10.0	8.9	3.4	0.7	1.0
Hospitals	-0.4	0.2	0.2	0.6	-0.4	-4.0	-0.2	1.0	0.3	-0.7
Nursing/Residential Care Facilities	0.3	0.6	0.3	0.0	-0.7	-4.1	-0.2	0.5	-0.4	-2.0
Social Assistance	-0.5	1.6	0.1	0.9	-0.1	-9.8	6.9	1.1	1.0	0.8
% Change Compared to Q2 2021										
Health Care and Social Assistance	1.5%	0.7%	0.2%	-0.6%	-0.3%	8.2%	2.8%	0.7%	0.2%	-
Ambulatory Health Care Services	5.6	4.8	3.9	2.8	3.0	14.4	5.1	1.7	1.0	-
Hospitals	-2.9	-3.1	-3.3	-3.9	-3.6	0.4	0.6	-0.5	-0.7	-
Nursing/Residential Care Facilities	-6.0	-6.5	-6.8	-6.8	-6.1	-2.1	-1.9	-2.4	-2.0	-
Social Assistance	1.8	0.2	0.2	-0.8	-0.6	10.2	3.0	1.9	0.8	-

Source: Colorado Department of Labor and Employment, Quarterly Census of Employment and Wages.

Ambulatory services had the most significant drop in employment in Q2 2020, losing 14,077 jobs between Q1 and Q2, equivalent to 10% of the workforce. The segment quickly rebounded in Q3 2020, growing 9%. Employment levels in Q1 2021 are 2% higher than they were in Q1 2020 and 5% higher than in Q1 2019.

Conversely, hospitals and nursing facilities saw a much less drastic initial impact from the COVID-19 crisis, dropping 3% and 4%, respectively, between Q1 and Q2 2020. These two segments also did not see a rebound in employment in following quarters. In Q1 2021, hospitals employed 2% fewer people than in Q1 2019 and 3% fewer people than Q1 2020. In Q1 2021, nursing and residential facilities employed 4% fewer people than Q1 2019 and Q1 2020.

Although jobs have rebounded in the health care sector, the workforce continues to face challenges. According to the State of the Union 2021 report by Advisory Board, 93% of clinicians are experiencing burnout and trauma related to the pandemic, and 39% have indicated that they are considering leaving the industry. The national turnover in registered nurses increased from 15.9% in 2019 to 18.7% in 2021, and nurse union membership has increased from 17% to 20% over the same period.

Health Care Delivery

Hospitals

Colorado hospitals are significant contributors to the state's economy, employing thousands of people in communities throughout the state each year. The Colorado Department of Labor and Employment estimates that 104,352 Coloradans were employed on average in

continued on page 102

Education and Health Services

continued from page 101

hospitals in the first quarter of 2021, or about 29% of the health care sector employment.

COVID-19 has had a significant financial impact on hospitals. Based on information provided by the Colorado Department of Health Care Policy and Financing, hospital systems had varying levels of financial preparedness prior to the pandemic. Rural hospitals could operate 99 days without revenue while urban hospitals could operate for 238 days without revenue, relying on existing cash reserves. Hospitals in Colorado received an estimated $1 billion through April 21, 2021, in non-repayable federal COVID-19 aid, and aid was not dependent on availability of financial reserves held by hospitals. Some hospitals are still struggling financially even after federal funds. However, all the major Colorado hospital systems (owning three or more hospitals) showed profits in 2020 and did not use reserves. These profits were attained by cost-cutting measures like staff reductions, according to the report, "COVID-19's Impact on Colorado Hospitals' Finances," published by the Colorado Department of Health Care Policy and Financing.

Pharmacy

According to the American Journal of Health-System Pharmacy, prescription drug spending in the United States was about $535.3 billion in 2020, increasing 4.9% from 2019; growth was 2.9% for utilization, 1.8% for new drugs, and 0.3% for pricing changes. The drugs adalimumab (rheumatoid and psoriatic arthritis), apixaban (blood clot prevention), and insulin glargine (diabetes) continued as three highest-cost drugs for 2020. Expenditures have historically been driven by specialty and cancer drugs. While this trend continues, prescription drugs associated with the COVID-19 pandemic will also impact expenditures. The forecasted increase in expenditure for 2021 is 4% to 6%.

Merck's drug, Molnupiravir, is the first oral anti-COVID drug in trials. It has shown to reduce hospitalization or death by 50% (Molnupiravir FDA Approval Status, Drugs.com). A Forbes article by William A. Haseltine notes the anticipated price of Molnupiravir is $700. This drug, and those like it, could continue to send drug expenditures up significantly over the coming years.

Public Policy

Colorado's 2021 legislative session saw a significant number of health care and services bills, covering a wide range of topics. Based on their most recent revenue projections, the FY 2021-22 budget included restoration or reversal of many of the budget balancing actions taken in the prior section. Legislators dedicated $800 million to a state stimulus package dubbed the "Colorado Recovery Plan." The money was doled out through nearly 30 bills focusing on education, employment, housing, and human services, with appropriations ranging from $15,000 to $65 million. In total, the State's General Fund budget is $2.3 billion larger than the previous year, and the overall budget includes the largest ever reserve fund, with further increases in the reserve being proposed by the governor in the FY 2022-23 budget.

A significant number of bills passed by the General Assembly focused on health and pandemic support and recovery. Bills include:

- emergency infrastructure programs and planning: HB 21-1281 and HB 21-1005;
- telehealth laws and broadband access to support such services: SB 21-139, HB 21-1256, SB 21-060, HB 21-1109, and HB 21-1289;
- a new Behavioral Health Administration and legislation supporting behavioral health services and access: HB 21-1097, HB 21-1085, HB 21-1119, SB 21-129, SB 21-154, SB 21-137, HB 21-1068, HB 21-1258;
- health care and prescription drug costs: HB 21-1232, SB 21-175, HB 21-1307,HB 21-1237, HB 21-1297, and SB 21-123;
- sexual and reproductive health: SB 21-193, SB 21-194, SB 21-016, SB 21-009, SB 21-025, SB 21-142, SB 21-255, SB 21-027, and SB 21-292;
- equity (including health): SB 21-181, SB 21-271, HB 21-1251 and HB 21-1250;
- gun laws: SB 21-256, HB 21-1299, and HB 21-1298; and
- education support for pandemic learning loss: HB 21-1234, SB 21-013, and HB 21-1259.

Conclusion

The COVID-19 pandemic continues to impact the sector, as Colorado is experiencing its fifth wave since March 2020, and health care workers are experiencing high rates of burnout and trauma 18 months into the pandemic.

Despite widespread availability of vaccines, Colorado and the nation have not reached vaccination rates high enough to reach herd immunity. This is in part due to age restrictions and in part due to vaccine hesitancy by some segments of the population. Children ages 5–11 have started receiving vaccinations in early November 2021, and children under age 5 may begin receiving vaccinations in 2022. A total of 42,000 Coloradans have been hospitalized for COVID-19, and 8,500 have died. Isolation, financial insecurity, and trauma has increased the need for mental health services. Additionally, fewer Coloradans are utilizing other health services including acute, elective, and preventative services. This could create additional long-term adverse health outcomes as existing health conditions may worsen and new health conditions such as cancer may take longer to detect.

Contributors:
Kristina Kolaczkowski, UnitedHealthcare (Co-Chair)
Richard Thompson, Northcentral University (Co-Chair)
Josh Block, Department of Health Care Policy and Financing
Joe Hanel, Colorado Health Institute
Mina Saadat, Kaiser Permanente

Leisure and Hospitality

Employment Overview

Over the course of the COVID-19 pandemic, policy and media attention has increased on employees across the service sector, including those in education, health services, and leisure and hospitality. These essential workers have dealt with tumultuous conditions and have adapted to new protocols to protect themselves and prevent the spread of COVID-19 around the communities where they live and work. As a result of these conditions, relatively low wages, health concerns surrounding COVID-19 risk in the workplace, and other issues exacerbated by the pandemic, many workers have left these jobs (and in some cases left the labor force entirely).

These effects have been felt particularly hard in the leisure and hospitality industry, as the labor market for the industry has seen both demand and supply shocks. At the onset of the pandemic, public health restrictions were enacted to reduce transmission of COVID-19, causing bars, restaurants, and hotels to be shut down, vastly reducing the demand for workers in these establishments. At that time, the supply of workers greatly outweighed demand for workers in the industry, leading to widespread layoffs across the industry. As vaccinations have risen and public health restrictions have eased (especially in late spring and early summer in Colorado), there has been a rapid return to demand for these services, which in some establishments and geographies has outpaced even pre-pandemic levels. As a result of the strong return to demand for leisure and hospitality services, job openings have spiked as employers attempt to hire workers. However, the conditions discussed above (including health risks, low wages, etc.) have decreased the number of employees in the leisure and hospitality labor force, thus causing a supply of labor that lags the elevated demand for employees.

The Leisure and Hospitality industry lost 73,300 jobs in 2020, or a 21.3% year-over-year decrease. The industry is projected to gain 33,100 jobs (12.2%) in 2021 and is expected to gain 31,700 jobs (10.4%) in 2022.

LEISURE AND HOSPITALITY EMPLOYMENT 2012-2022 (In Thousands)

Year	Arts, Entertainment, and Recreation	Total Accommodation and Food Services	Total Leisure and Hospitality[a]
2012	46.5	233.2	279.7
2013	47.3	242.1	289.4
2014	49.0	251.4	300.4
2015	50.8	262.0	312.8
2016	52.9	270.8	323.6
2017	55.4	277.8	333.2
2018	56.9	282.8	339.7
2019	59.1	286.3	345.4
2020[a]	43.9	228.2	272.1
2021[b]	48.9	256.3	305.2
2022[c]	54.0	282.9	336.9

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

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

Job Recovery vs. Sales

Grounding the broad story on employment levels and sales receipts in Colorado helps to clarify exactly the extent of the labor market difficulties present.

The employment recovery in Colorado within leisure and hospitality has lagged the employment recovery across all industries. While total state nonfarm employment in September 2021 was only 2.8% below September 2019 levels, employment in leisure and hospitality remains 8.2% below 2019 levels; the accommodation and food services portion (down 7.6%) is faring slightly better than total employment, and the arts, entertainment, and recreation portion (down 11%) is faring slightly worse than total employment. While these employment numbers still show significant recovery as compared to the employment levels in April 2020, which were down 48.8% year-over-year, there is still a considerable gap that exists as compared to pre-pandemic employment.

INDUSTRY SNAPSHOT LEISURE AND HOSPITALITY

Nominal GDP, 2020 ($ Billions)	15.5
Real GDP, 2020 ($ Billions, 2012 Dollars)	12.0
2020 Real GDP Growth Rate	-26.2%
Total Employment, 2020 (Thousands)	272.1
2020 Employment Growth Rate	-21.2%
Employment Growth National Rank	29
Share of Colorado Employment	10.3%
Share of National Employment	9.4%
Average Wage, 2020	28,424
Percent of Statewide Average Wage	42.2%
2020 Average Wage Growth Rate	4.8%

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

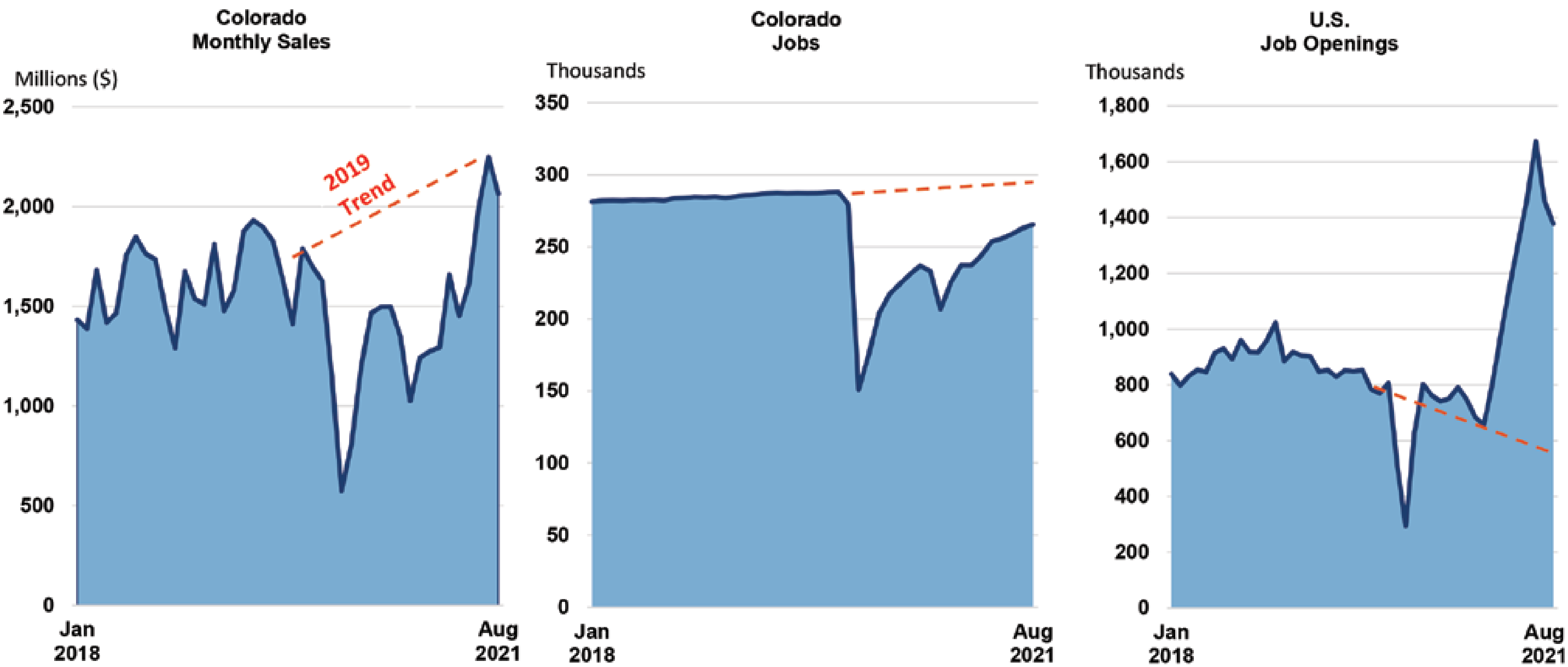
The employment story is in sharp contrast to the level of sales in leisure and hospitality. Colorado retail sales in leisure and hospitality in July 2021 were up 16.5% as compared to pre-pandemic levels in July of 2019. It is possible that a small portion of this increased sales volume is due to changes in the way that retail sales are booked (and sales revenue collected) by Colorado's Department of Revenue over the past two years, but this is not likely a major factor in the increased sales that we are observing. Comparing this statistic to the July employment numbers means that establishments in leisure and hospitality were handling 16.5% more sales volume, with fewer than 90% of the staff they had prior to the pandemic. This situation was particularly difficult in an industry that already struggled with long hours and overworked employees prior to the pandemic due to high turnover and shortage of labor supply. The result is a continuation of particularly strenuous working conditions that has the potential to further increase turnover in the industry and continue to

continued on page 104

Leisure and Hospitality

continued from page 103

ACCOMMODATION AND FOOD SERVICES: COLORADO RETAIL SALES, COLORADO JOBS, AND U.S. JOB OPENINGS



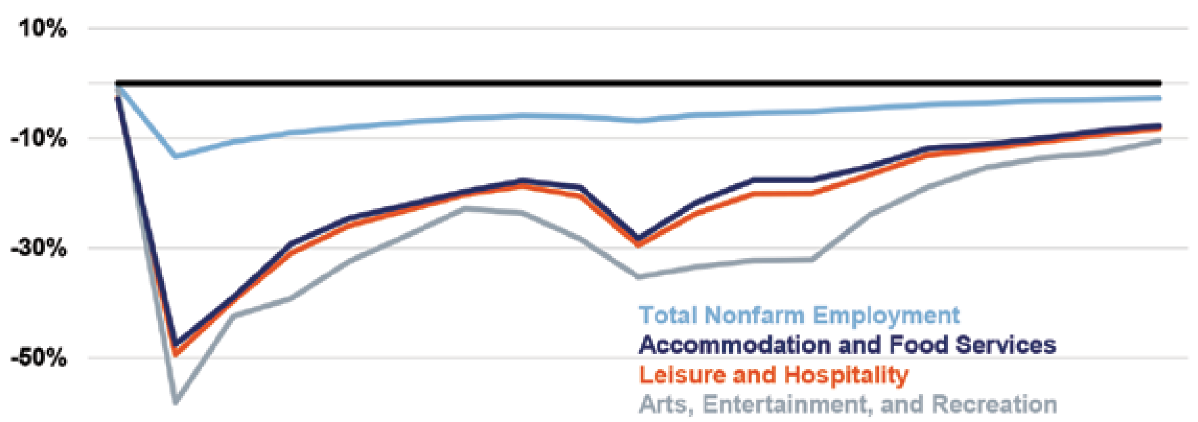
Sources: Colorado Department of Revenue; Bureau of Labor Statistics, CES and JOLTS.

weigh on the supply-demand imbalance. The upside to this scenario is that wages continue to rise quite strongly in leisure and hospitality, perhaps sufficiently enough to attract workers back from outside of the labor force, or from other industries.

Demographics

As businesses, individuals, and policymakers discuss and analyze these difficult employment trends in the industry and potential solutions, it is important to understand the demographics of the leisure and hospitality labor force in the state. Identifying the "who" of the leisure and hospitality industry enables businesses to more effectively appeal to employees and allows policymakers to more effectively design programs that support the hiring of these groups, each of which is critical to employment recovery. Accordingly, workers in leisure and hospitality are significantly more likely to identify as Hispanic than workers in other industries in the state, according to 2019 data from the Bureau of Labor Statistics, Current Population Survey microdata from IPUMS. That is, 31% of workers are Hispanic as compared to 21% across all industries. In addition, workers in leisure and hospitality are also much younger than the average worker in Colorado; the median age for a worker in leisure and hospitality is 32 years old as compared to 40 years old across all industries.

COLORADO EMPLOYMENT CHANGE COMPARED TO JANUARY 2020



National Trends in the Tourism Industry

After a volatile late summer, the national outlook for travel grew rosier in mid-fall, with traveler confidence making big gains. Arrivalist reported that October's road trip activity was surging 5.7% above 2019 levels and was up 21% over the same period in 2020. The long-awaited reopening of U.S. borders to international travelers on November 8 is expected to infuse new life into U.S. city destinations, where recovery has been lagging behind beach, outdoor, and small-town destinations. U.S. Travel continued to push Congress for measures to keep Brand USA solvent.

Though U.S. travel spending improved significantly over 2020 levels for the first eight months of 2021, Tourism Economics reported spending was down $177.8 billion from the same period in 2019. Business-related travel remained well below pre-pandemic levels, but the travel industry's biggest worry was centering around its vanished workforce. Of more than 10 million U.S. job openings in October 2021, roughly one in six are in leisure and hospitality, including accommodations, food, beverage, and entertainment. Lower hotel occupancies, limited restaurant hours, and rising customer service complaints all are being attributed to hiring difficulties.

Colorado Travel and Tourism

The Colorado Tourism Office's (CTO) mission is to drive traveler spending through promotion and development of compelling, sustainable travel experiences throughout the state. Starting in November 2020, the CTO pivoted its campaign strategy to focus on Destination Management, educating in- and out-of-state travelers about safe travel practices, including COVID protocols (Do Colorado Right) and backcountry safety. Custom marketing content was created for the ski industry and the Colorado Hotel and Lodging Association. Additional in-state messaging focused on economic recovery, promoting the areas and industries hardest hit by the pandemic, including CTO's Shop Local program. Collectively these campaigns educated travelers, drove spending, and exceeded industry benchmarks for engagement.

COVID-19 Impacts on Colorado Travel

Colorado tourism was heavily impacted in 2020 due to COVID-19. Highlighted impacts from the 2020 Longwoods Travel USA Colorado Report include:

- The state welcomed a combined total of 74.1 million overnight and day visitors, down 14.7% from 2019;
- Marketable trips in 2020 (trips influenced by advertising) fell 11% from 2019; visits to friends and relatives fell 28%;
- Total Colorado travel spending was $15.4 billion in 2020 compared with $24.2 billion in 2019, an $8.8 billion difference or 36.3% decrease;
- Travel spending in Denver County declined 56% in 2020, significantly higher than the statewide average of 36.3%. Denver County accounts for approximately a quarter of all travel-related spending in the state of Colorado;
- Statewide direct travel-related employment dropped to approximately 149,500 in 2020, a 20.3% decrease from 2019 levels of 187,700. In 2019, every $1 million in travel-related spending resulted in 7.5 jobs for the industry;
- Taxes directly related to travel declined by 31.5% from approximately $1.5 billion in 2019 to $1 billion in 2020; and
- Colorado received fewer than 300,000 international visitors in 2020, a 73% decrease from 2019. These international visitors spent around $306,000,000, an 81.3% decrease from 2019. This was due to the COVID-19 pandemic and subsequent travel restrictions.

A Rocky Mountain Lodging Report showed a statewide hotel occupancy rate of 68.9% in September 2021, down from 76.6% in 2019, but up from 50.8% in 2020. Denver

continued on page 106

Leisure and Hospitality

continued from page 105

had an occupancy rate of 70.2% in September 2021, up 23% from September 2020.

The Front Range travel sector has been hard hit primarily by the lost ability to attract and host conferences, meetings, events, cultural attractions, and sports events. Loss of these travelers has impacted not just hotels but devastated the food and beverage industry and created severe impacts for many retailers and attractions.

Research from U.S. Travel indicates a full recovery of domestic leisure travel spending in 2023, a full recovery of domestic business travel spending in 2024, and a full recovery of international spending and visitation in 2024.

CTO Recovery Response

Launched in October 2020, the Colorado Rural Academy for Tourism (CRAFT) Recovery Mentor program provided support for 20 Colorado tourism destinations and industry associations, assisting them with recovery projects during COVID-19 and the 2020 wildfire season.

The Colorado Tourism Office received a $2.4 million CARES Act Recovery Assistance grant in January 2021. Activities within the grant include the Colorado Tourism Roadmap to Recovery, a new five-year strategic plan for the Colorado tourism industry to drive near-term recovery and foster long-term industry resilience, and the Colorado Recovery Assistance For Tourism program—a new series of industry programs to support adoption of the Colorado Tourism Roadmap to Recovery through 2023.

In Spring 2021, the Colorado Tourism Office launched the Restart Destinations Program and the Restart Industry Associations Program as part of the Colorado Recovery Assistance For Tourism. Each program includes a mix of background research, community visioning, and action-planning workshops, free consulting from tourism experts, and direct marketing support from the CTO. In the coming year, the CTO will be working with 28 destinations and 19 industry associations across the state with these programs.

The 10 Colorado welcome centers utilized FY20's Colorado Department of Public Health and Environment approved protocols to reopen and continue keeping visitors safe with continued adjustments to operation hours and staff deployment.

Colorado Tourism Highlights

Colorado continues to be viewed as a leader in sustainability. CTO research continues to demonstrate that more travelers select a destination to visit based on its sustainability practices. Numbers demonstrate that about half of consumers consider a destination's sustainability practices when planning a trip. Surveys conducted by the CTO report that more than 80% of travelers indicate the state does a good job protecting and preserving its natural resources.

The CTO led a strategy for building Colorado's reputation as a low-impact travel destination. This work resulted in additional outputs including the compilation of a Low-Impact Travel Inventory that identified more than 300 existing Colorado tourism experiences that can be used in future promotions.

The CTO, the Colorado Department of Transportation, and the Colorado Energy Office partnered to create criteria for designation of individual Colorado Scenic & Historic Byways as ready for electric vehicle travel. As a result of this work, the Scenic & Historic Byways Commission approved seven byways (Collegiate Peaks, Flat Tops Trail, Grand Mesa, Lariat Loop, Silver Thread, Top of the Rockies, and Trail Ridge Road) as Colorado Electric Byways.

The CTO and the Colorado Energy Office partnered with the Electrification Coalition in fall 2020 to pilot a program securing electric vehicles for rent at the Eagle County Airport. The goal of this EV Rental Car Program is to build awareness of electric vehicle transportation opportunities in Colorado and support tourism industry adoption of electric vehicles. By June 30, 2021, Dollar Car Rental and Thrifty Car Rental agreed to include 10 vehicles in their fleet by December 2021, and Arapahoe Basin Ski Area agreed to provide a $40 gift card to visitors who rented an electric vehicle from the airport.

The CTO convened the Inclusivity in Travel Advisory Group for two listening sessions in December 2020 and February 2021 to recommend ways that Colorado can share a warmer welcome for all travelers, regardless of race or ethnicity, sexual orientation, or ability. Outcomes of this work were the creation of a new, online training chapter for Colorado Concierge titled Inclusive Colorado Culture, a new resource guide for DEI resources available on Colorado.com, and a first-of-its-kind partnership between the CTO and the Inclusive Guide.

In FY21, the CTO granted $424,250 to cultivate local tourism development and promotion across Colorado.

Colorado welcomed 782,092 guests in FY21 through the state's 10 welcome centers.

International Travel to Colorado

During the 2020-2021 fiscal year, U.S. borders remained closed to international visitors from all but a few countries. In-market representatives were retained in the top spending overseas markets of the United Kingdom, Australia, and Germany to keep awareness of Colorado in those countries for the time when travelers are able to book again.

International visitors have been the state's highest-value traveler, spending an average of $1,706 per person per trip while visiting the state in 2019. Overseas travelers remain Colorado's highest-value visitor, spending an average of $2,333 per person per trip in 2019. In 2020, the international traveler spent on average $1,105 (-29.7% year-over-year) and the overseas visitor spent $2,229 in 2020. U.S. borders were closed to overseas visitors in March 2020.

The CTO's International Tourism Program is now focused on keeping Colorado top-of-mind in preparation for the reinstatement of international flights and lifting of travel bans. The U.S. opened its borders on November 8, 2021, to vaccinated international travelers, with the expectation that the return of the international traveler will start

DENVER LODGING MARKET DATA

Year	Occupancy	Percent Change	Average Rate	Percent Change	RevPAR	Percent Change
2000	67.4%		79.68		53.70	
2001	62.0	-8.0%	79.09	-0.7%	49.04	-8.7%
2002	59.4	-4.2	75.1	-5.0	44.61	-9.0
2003	58.1	-2.2	74.22	-1.2	43.12	-3.3
2004	60.2	3.6	74.93	1.0	45.11	4.6
2005	62.4	3.7	80.68	7.7	50.34	11.6
2006	64.5	3.4	89.07	10.4	57.45	14.1
2007	65.6	1.7	99.21	11.4	65.08	13.3
2008	63.1	-3.8	105.53	6.4	66.59	2.3
2009	57.9	-8.2	92.97	-11.9	53.83	-19.2
2010	62.9	8.6	94.23	1.4	59.27	10.1
2011	65.3	3.8	97.53	3.5	63.69	7.5
2012	67.0	2.6	100.56	3.1	67.38	5.8
2013	70.8	5.7	103.18	2.6	73.05	8.4
2014	75.4	6.5	112.6	9.1	84.90	16.2
2015	75.6	0.3	120.78	7.3	91.31	7.6
2016	73.6	-2.6	127.48	5.5	93.83	2.8
2017	73.4	-0.3	131.29	3.0	96.37	2.7
2018	72.9	-0.7	131.78	0.4	96.07	-0.3
2019	73.9	1.4	135.67	3.0	100.26	4.4
2020	42.9	-41.9	94.88	-30.1	40.70	-59.4
Year-to-Date through August						
Aug. YTD 2020	43.7		99.8		43.61	
Aug. YTD 2021	57.8	32.3%	111.29	11.5%	64.33	47.5%
Compound Annual Growth Rate						
2000 to 2019		28.0%		2.8%		3.3%

Source: STR Global, STR Montly Hotel Review.

with the winter ski season. A full recovery of visitors from North America is expected in 2023, while overseas travel is expected to recover by 2024.

Lodging

Denver Area Lodging

The Colorado Convention Center (CCC), special event and sporting complexes, tourism, and major corporate office parks represent the primary sources of lodging demand in the greater Denver market. Both occupancy and average daily rate (ADR) grew from 2004 through 2007 as Denver gained popularity as a group destination, and both commercial and leisure demand increased; however, an increase in supply and the onset of the Great Recession resulted in revenue per available room (RevPAR) declines in 2008 and 2009. As the economy began to recover and Denver secured its position as a major group destination, both occupancy and ADR increased from 2010 through 2015. However, a significant increase in supply resulted in occupancy declines from 2016 through 2018; moreover, during this time, rate growth began to dissipate as hotel operators discounted rates in an effort to curtail occupancy declines, resulting in a slight decrease in RevPAR in 2018 for the first time since 2009. Despite the increase in supply, both occupancy and ADR registered growth in 2019, with RevPAR surpassing the $100 mark for the first time in the historical period illustrated, largely attributed to significant commercial growth throughout Denver, an increase in meeting and group activity, and record tourism levels.

The COVID-19 pandemic significantly affected the Denver lodging market, as illustrated by the nearly 60% RevPAR decline in 2020 when compared to 2019. Most notably, the downtown Denver market experienced substantial losses in demand given the large presence of full-service hotels that rely heavily on meeting and group demand generated both in-house and by the CCC. In April 2020, the City of Denver temporarily closed the

continued on page 108

Leisure and Hospitality

continued from page 107

CCC and converted it into an overflow patient facility; however, the facility was never utilized for overflow medical needs. In May 2021, the CCC resumed operations, welcoming its first large event with over 20,000 attendees; moreover, upon reopening, a two-year, $200-million renovation began on the facility, which is expected to bolster Denver's ability to capture large, citywide conventions. While COVID-19 had a profound impact on Denver's lodging industry in 2020 and through the first half of 2021, the long-term outlook remains positive, as capacity limits on meetings and events were lifted in June 2021. Furthermore, continued commercial development, coupled with the renovation and expansion of the CCC, should drive demand growth during the recovery period, while Denver's popularity as a tourist destination is expected to continue to support the lodging industry.

The table on the previous page shows the historical occupancy, average rate, and RevPAR data for the greater Denver market for 2000 through August 2021. The data reflect the historical performance of the market, including the impact of and recovery from the 2001 and 2008/09 downturns.

Mountain Resorts

Destination travel in winter 21/22 at Colorado mountain resort towns will look considerably different than it did in 20/21, with early booking volume indicating the season is already on track to set all-time high daily room rates and revenue records as summer momentum flows into winter, barring any significant disruptors. Twenty months of living through the highs and lows of the pandemic have provided consumers with a dramatically different mindset this year than last. Experience has provided some degrees of certainty, or confidence, and new habits such as social distancing and masking that were disruptors last year have shifted to lifestyle. But the biggest differentiator is the availability of vaccines ahead of this season, something that was still months away in October 2020. Increasing levels of vaccination in both source and destination markets are driving down caseloads and emboldening travelers and marketers alike. The lessons learned last winter, and further refined during the busy summer season, will allow for a travel experience more akin to pre-pandemic times. Many resorts are eliminating reservations requirements and lifting capacity constraints, providing at least the sense of a "normal" ski season on-hill. Off-hill, lodging, food and beverage, retail, and activity providers will continue following public health and safety guidelines that consumers have grown accustomed to and come to expect, a quantum leap forward from this time last year. Barring widespread emergence of new COVID-19 variants, the competitive differentiator between resorts will be—as usual—snowfall, though continuing pent-up demand may even help mitigate the impact of low snow if it occurs. Lastly, economic conditions are dynamic at best, with the impact of supply chain issues only surpassed by the challenges the travel industry is facing with staffing, which may hinder the ability of suppliers to deliver on quality, quantity, or both if the situation doesn't improve in the months ahead.

Summer

Summer 2021 closed out with a bit of a whimper as the Delta variant surge last July and August pushed many consumers toward winter arrival dates or halted their booking activity altogether. However, this slowdown did not impact the overall trajectory of the season, with summer occupancy up 50.2% versus last year, and 1% versus the prior record-high pre-pandemic summer of 2019. However, the real of story of summer was lodging room rates at mountain resorts. Pent-up demand and a decline in available inventory for short-term rentals combined for a 23% gain in the average daily rate compared to last year, and a 32.9% gain versus 2019. These dramatic gains in ADR were also supported by ongoing softness in the group travel category, meaning units that would normally be discounted for groups are being sold to leisure travelers for a higher price. The result of these occupancy and rate gains is a dramatic increase in revenue, both versus last year (up 85.4%) and versus 2019 (up 34.5%).

The continuing improvements in demand and room rate in the first half of 2021 have carried over to early winter season bookings, and the winter ahead is poised to outperform prior years and the economy as a whole.

Changes in Booking Patterns

An extended length of stay (LOS), first recognized shortly after reopening in 2020, continued through summer 2021, with guests staying on average 0.28 nights longer per stay. The effect of the extended LOS has been to smooth out the peaks and valleys of weekend/midweek travel, a long-sought goal of destination marketers.

Arrival date has also shifted from prior years, a pattern that first emerged following reopening in 2020. While Friday and Saturday arrivals remain dominant at mountain resorts, there have been surges in arrivals on Sunday, Monday, and Thursday. In addition to contributing the smoothing of the midweek and weekend peaks and valleys of occupancy, this higher volume for midweek stays is contributing to a higher midweek room rate, helping to support the record ADRs seen across the region.

The shift in arrival dates and increased LOS are both closely associated with the advent of online education last year as well as the dramatic increase in work-from-home policies. However, contrary to what might be expected, the return to classroom education has done little to shift either metric back toward pre-pandemic patterns, and ongoing standardization of work-from-home is supporting this new status quo.

Tourism and Conventions in Denver

While the tourism and hospitality industry suffered tremendous losses last year, 2021 has been a year of transition that will continue into 2022. Labor shortages across the U.S., including in Denver, are causing restaurants and hotels to close or limit operations, and car rental shortages are causing record high prices. At the same time, visitation at some national parks is setting new records and creating overcrowding, causing parks to implement reservation systems.

Denver has an outstanding image as an outdoorsy, healthy destination with a very high percentage of


Colorado Convention Center, Denver. Photo courtesy of Steve Crecelius.

residents being fully vaccinated. The fact that Denver was able to, in a very short time, host a full sellout of the Major League Baseball (MLB) All-Star Game in July 2021 with national coverage of the success, shows that the perception of the city is strong.

Looking back on 2020 (the latest figures available), research firm Longwoods International indicated that Denver welcomed 27.7 million total visitors, including 13.4 million overnight visitors, representing declines of 13% and 24% from 2019 levels, respectively. Total travel spending by visitors to Denver in 2020 was $5.3 million, a decline of nearly 25% compared to 2019, and overnight traveler spending declined by nearly 29% during that timeframe. A bright spot in 2020, day visitors to Denver were up slightly by 0.3% to 14.2 million compared to 2019, showing that Denver continues to be a desirable destination for Colorado residents and nearby regional visitors.

Forecasts for 2022 have every reason to expect that the early part of the year will see more transition as travel continues to improve. There are certainly challenges with labor shortages, a reduction of daily office workers in downtown, a slow return of business travel, and uncertainty about the impacts of the Delta variant. Despite these challenges, in 2022, Denver will start to return to the travel levels and economic impact of 2019 travel, and the industry will recover completely by 2023. In this sense, Denver is ahead of many regions of the country, which may still see an uncertain travel future in 2022 and beyond.

Despite the extreme challenges created by the pandemic, in 2021 Denver continued to receive awards and accolades specific to the tourism sector and for the city overall that point to positive progress and recovery:

- *Time* magazine included Denver in their list of the World's 100 Greatest Places for 2021;
- Resonance Consultancy named Denver the #8 destination on its America's Best Cities list;
- Outdoorsy called Denver the top "hottest summer destination;"
- Denver ranked as the eighth "most sustainable" city nationwide, according to Rocket Homes;
- Denver was named one of TravelPulse's Top U.S. and International Spring Break Travel Destinations;
- Denver International Airport was named the country's top large airport in USA Today's 10Best Readers' Choice 2021; and
- The *Wall Street Journal* featured Denver in its article titled "The Best Ways to Drive Across Country."

Denver Hotels and Lodgers' Tax

Hotel performance was hit very hard by COVID-19 in 2020. At one point or another, several hotels had suspended normal business operations, taking thousands of hotel rooms out of commission throughout downtown and the metro area. Denver hotel occupancy hit an all-time low of 14% in April 2020 and finished the year at 38.6%, which is a far cry from 89.1% in 2019. Through mid-2021, visitors were returning to downtown Denver hotels, but occupancy rates still lagged compared with pre-pandemic levels with year-to-date September occupancy of 57.7%. The average daily rate (ADR) in Denver fell from $159.97 in September 2019 year-to-date to $115.95 in September 2020 year-to-date and has since rebounded to $130.64 in September 2021 year-to-date. Looking ahead to 2022, Denver occupancy is expected to reach 63% with an ADR of $138. Across the metro Denver region, occupancy increased from 44% to 58.8% from 2020 to 2021, and ADR increased from $99.63 to $115.82.

Lodgers' tax in Denver totaled $47.1 million in 2020, down from the record $134 million set in 2019, a 64.8%

continued on page 110

Leisure and Hospitality

continued from page 109

decline. Year-to-date 2021 lodgers' tax is $66.9 million and is projected to total approximately $85 million by year-end. Forecasting for 2022 lodgers' tax indicate $110.6 million will be collected.

The pandemic has not severely impacted Denver's hotel growth, which continues at a healthy pace. There are already more than 12,000 downtown hotel rooms within walking distance of the convention center and nearly 51,000 rooms in the metro, with more on the way. Some projects include:

- The Sheraton Denver Downtown has spent $80 million on a refurbishment of their entire hotel, including their 1,238 rooms;
- The 176-room Rally Hotel opened in McGregor Square in spring 2021;
- The Clayton, the former Cherry Creek Inn and adjacent property, opened as a 63-room hotel and private club in May 2021;
- The Catbird, a 165-room boutique extended hotel with a rooftop pool, opened in RiNo in September 2021;
- The Hyatt Centric, a 263-room at 18th and Champa, opened in October 2021;
- Thompson Denver, at 1600 Market Street, will open in January 2022 and feature 224 rooms;
- The Slate Hotel, the reimagined Emily Griffith Opportunity School, will open in early 2022 with 251 rooms;
- Opening in RiNo in late 2021, the VIB by Best Western Hotel and Resorts, will include 140 rooms;
- Denver's Five Points neighborhood will welcome The Rossonian Hotel; opening date TBD. The boutique hotel will take up floors two through four, with a ground-floor restaurant and a basement jazz venue;
- Populus, the 250-room hotel planned adjacent to Civic Center, will feature a rooftop terrace. Opening date TBD;
- A 13-story, 187-room Fairfield Inn & Suites and 132-room TownePlace Suites is planned for 1320 Glenarm Place. Opening date TBD; and
- The World Trade Center complex in Globeville includes plans for a 240-room hotel. Opening date TBD.

Convention Highlights

The Colorado Convention Center (CCC) was converted into an alternate care facility (ACF) in 2020 and no business was held at the CCC from March 2020 through April 2021. By the end of 2020, due to meeting mandates, most meetings were canceled through June 2021, both at the hotels and the convention center. As of the end of July, Denver had lost $462.8 million in economic impact from canceled conventions in 2021 and more than $1.2 billion since the beginning of the pandemic. The first group to return to the CCC was the Colorado Crossroads volleyball tournament in May, and the MLB All-Star Game gave many residents a sense of return and something to cheer about. The excitement was short-lived with the surge in the Delta variant in late August—groups continued to meet at the CCC with the return of Outdoor Retailer and throughout the fall, albeit with less attendance. Several smaller to midsize groups also had successful meetings at hotels. After years of cancellations, wedding business gave hotels and venues much-needed occupancy throughout this year of transition.

Meetings with substantial attendance that require larger hotel properties or convention center space have unique issues; they need a long runway to effectively plan and execute a successful convention. Therefore, the planning process has begun for groups in 2022, and there are still a lot of uncertain projections, especially as it relates to attendance. Many groups are continuing to plan hybrid meetings for 2022. Individual company travel restrictions and budget constraints, along with fear, continue to impact decisions to attend conferences. There is also a need for more space so that groups can continue to provide some social distancing to help encourage attendance.

Recognizing the importance of meetings and events to the overall economy, the Colorado Legislature passed House Bill 1263 to provide incentives throughout the state. The program launched on July 1, 2021, and provides a 10% cash rebate against eligible hard costs for hosting meetings and events in Colorado that take place from July 1, 2021 through December 31, 2022. The minimum rebate is $3,500 and the maximum rebate is $100,000. The program's goal is to increase tourism recovery by incentivizing meeting and event planners to book new meetings and events in Colorado rather than in a competing state. This has been a great tool for sales teams to use to encourage more business for Denver and Colorado.

Certainly, a bright spot for conventions in Denver is the expansion of the Colorado Convention Center, which got underway with the rooftop expansion in mid-2021. The project includes a new 80,000-square-foot multipurpose room and 20,000-square-foot outdoor rooftop terrace with sweeping views of the city skyline and mountains. The project includes the largest ballroom in Colorado and expands one of the largest buildings in Denver. On the ground floor, there will be lobby renovations and seamless integration with the existing building, while offering attendees safe and easy access to an additional 150,000 square feet of meeting space, 600,000 square feet of exhibit space, and the 5,000-seat Bellco Theatre. The improvements will serve the needs of modern-day convention-goers and differentiate the facility from others, ensuring it remains an attractive and global competitor. When complete, the expansion will generate an additional $85 million in annual economic impact. The project is anticipated to be completed in late 2023, while ensuring it can continue to operate during construction.

Denver Tourism Highlights

Due to strict gathering limits, travel limitations, and other factors that constrain recovery of the meetings market, leisure tourism is currently leading Denver's recovery.

According to a report by Denver Arts & Venues, Colorado Creative Industries and Colorado State University, the city's creative community lost nearly 30,000 jobs and more than $1.4 billion in revenue between April 1 and July 31, 2020. However, arts and attractions have come roaring back in 2021 and are looking to approach normal attendance figures in 2022. Upcoming Broadway shows like "Lion King," "Riverdance," "Hamilton," and "Tootsie" should help drive attendance and Red Rocks Amphitheater is now at full capacity. Other notable openings and events include:

- The Denver Art Museum's Martin Building & Sie Welcome Center opened to visitors in October 2021 following a $150 million renovation;
- Convergence Station, Meow Wolf's third permanent installation, is an immersive storytelling experience that opened in September 2021. More than 300 creatives, including 110 from Colorado, have worked on this highly anticipated cultural experience;
- McGregor Square opened in time for the MLB All-Star Game in July and includes the Rally Hotel, a giant TV screen for viewing of sports events, new restaurants and bars, outdoor seating, and lawn style seating for events; and
- The National Western Center redevelopment is making progress on the 246-acre site that will preserve the National Western Stock Show & Rodeo as Denver's largest event for the next 100 years and add state-of-the-art spaces for the site to be activated throughout the year.

Local, regional, and national marketing campaigns were back on track in 2021 to lure visitors to Denver throughout various times of the year. A first-ever Spring Denver Restaurant Week was held to take advantage of outdoor seating while indoor dining restrictions were still in place. In addition, the spring/summer campaign—the largest of the year—ran in national markets, while Denver Arts Week and Mile High Holidays both ran regionally in the fourth quarter. VISIT DENVER also launched a "Basecamp Denver" video campaign that encourages people to "play in the mountains, stay in the city."

Denver is upgrading its infrastructure for the benefit of residents and visitors in many ways in the near- and long-term. These projects will also help drive Denver's recovery from the pandemic. Projects include:

- Denver voters supported four general obligation bond measures in the 2021 election to provide $260 million for facilities, housing and shelter, transportation, and parks;
- The widening of I-70 between I-25 and Chambers Road is well under way and estimated to be completed in 2023;
- Reconstruction of the 16th Street Mall has commenced and will be complete by the end of 2024;
- A newly remodeled Space Odyssey for the Denver Museum of Nature & Science;
- A new 5280 Trail that will connect neighborhoods and attractions surrounding downtown Denver with a beautiful pedestrian trail; and
- Improvements to Skyline Park and Civic Center Park.

Challenges to Denver's Tourism Industry

While progress and recovery are underway, the outlook for the tourism and hospitality sector, and the economy overall, continues to be uncertain for a variety of factors:

- The reduction of the downtown workforce due to people working from home has created a downturn of business for downtown restaurants, shopping, and others;
- Staffing issues and labor shortages have especially impacted the hospitality industry with the inability to hire staff for restaurants, hotels, and more;
- It seems as if hybrid meetings are here to stay. Clients are continuing to offer hybrid meeting options for several reasons: many attendees are still unable to travel due to company restrictions; associations are able to reach more attendees when offering a hybrid option; many attendees are unable to attend due to company financial restrictions; and some attendees are still unwilling to travel due to personal health and safety concerns;
- A 2021 Denver ballot measure to invest an additional $190 million at the National Western Center for a new 10,000 seat arena and to redevelop the 1909 stadium into a public market appears to have failed based on initial election results;
- The magnitude of the impact on Denver's tourism industry will not be known for some time as the city contends with the reality of closed businesses as well as the slow return of visitor numbers and spending; and
- Regaining international visitors, who are lucrative travelers due to longer length of stay and higher spend, will be a longer-term recovery dependent on reinstating international flights, easing quarantine restrictions, and other public health and economic factors.

Denver International Airport

COVID-19 has undoubtedly hurt inbound air travel in many ways. Air travel is still down relative to 2019, though improving. For the first half of 2021, Denver International Airport (DEN) served 24,701,027 passengers, a decline of 25% as compared to the first half of 2019. This also represents a 55% increase over the first half of 2020, which saw the airport's lowest passenger volumes of the pandemic.

DEN remains a central component of Denver's success in both the leisure and meeting markets. Throughout the recovery, DEN has been one of the busiest airports in the nation, as well as the world, as measured by TSA "throughput," due to its strong domestic network and connections, which should lead to a quicker rebound. DEN became the 3rd-busiest airport in the world through the first half of 2021, due largely to the fact that many of the world's largest airports rely more heavily on international flights, which are still impacted, while DEN's domestic

continued on page 112

Leisure and Hospitality

continued from page 111

**COLORADO CASINOS
2011–2021**

Year	Casinos Open	Devices	Adjusted Gross Proceeds[a] (In Millions) Black Hawk	Central City	Cripple Creek	Total
2011	38	14,841	554	67	133	754
2012	39	14,789	553	70	133	757
2013	40	14,647	553	68	128	749
2014	37	14,218	561	62	123	746
2015	36	13,823	596	66	128	790
2016	35	13,509	610	70	131	811
2017	34	12,958	621	72	135	828
2018	33	12,969	623	79	140	842
2019	33	12,848	613	80	141	834
2020	35	10,878	400	56	104	560
YTD. Sept. 2020	35	11,238	274	39	74	387
YTD. Sept. 2021	33	10,441	538	62	124	725

[a]AGP calculated on an annual basis, hence different from the state fiscal year.

Source: Colorado Division of Gaming.

network stayed more intact. Currently, DEN provides nonstop service to more than 200 worldwide destinations.

One of the silver linings of reduced travel and passenger traffic, however, is that DEN was able to accelerate its 39-gate expansion project, which now is expected to be complete in 2021 and operational in 2022, with all new gates already leased. And, at the end of October, DEN celebrated the completion of Phase 1 of the Great Hall project, which created a new and renovated space for check-in and other important passenger amenities.

Tourism in Colorado Springs

Tourism in the Pikes Peak Region exceeded expectations in 2021, especially over the summer. The tourism numbers—specifically hotel occupancy rates, VisitCOS.com web traffic, and the Lodging and Automobile Rental Tax (LART)—paint the picture for how successful this summer was, even exceeding 2019 in some areas.

According to travel research firm STR, Colorado Springs had the 3rd-highest hotel occupancy in the U.S. in July at 84.4%, only behind the Florida Keys and Gatlinburg/Pigeon Forge area. The Rocky Mountain Lodging Report showed positive data in Colorado Springs occupancy as well—70.3% in May (compared to a 58% state average), 85.2% in June (compared to a 70.2% state average), and 85% in July (compared to a 77.2% state average). Summer LART collections reached over $1 million, which is higher than the amount in 2019. Website traffic to VisitCOS.com in Q2 2021 was up 80% and 32% compared with Q2 2020 and Q2 2019, respectively.

The Colorado Springs Airport also saw higher traffic in 2021 than 2019. July 2021 passenger enplanements were 30.4% higher than in July 2019, and the number of passengers traveling through the terminal was 29.8% higher over the same period. The available seats also increased by 40.7% compared to July 2019. These increases are largely due to the new flights added by Southwest Airlines in March 2021.

Despite the challenges brought by the pandemic, the Pikes Peak Region was able to maintain plans for new openings, which generated great visitation to the region. These openings included the new Downtown Stadium, Weidner Field, the Broadmoor Manitou & Pikes Peak Cog Railway, the Summit Visitor Center atop Pikes Peak–America's Mountain, and the Robson Arena at Colorado College. After being delayed a year, the Tokyo Summer Olympic and Paralympic Games were held, generating excitement and events across Olympic City USA. The Trolley District of Downtown Colorado Springs continued to experience growth with new businesses like Kinship Landing, White Pie Pizzeria, The Garden, and a new location for Garden of the Gods Market & Café.

The Pikes Peak Region saw the return of events like celebrations for the city's sesquicentennial, the Space Symposium, and Colorado Springs Labor Day Lift Off, which reached record-breaking numbers this year. The meetings and events sector experienced incredible recovery this summer but is proceeding with more caution into fall and winter due to the unknowns of the pandemic.

Colorado Springs anticipates continued growth in 2022 with even more leisure travel and additional spikes in business, meetings, and events travel. International travel is expected to be the slowest to return and not reach pre-pandemic levels for another few years.

Casinos

Over the last three decades, Colorado casinos have paid over $2.5 billion in state gaming tax revenues on over $18.4 billion in adjusted gross revenues. The gaming industry is taxed on gross revenues rather than net revenues and continues to provide significant funding for the recipients of gaming tax revenues. Gaming tax revenues fund community colleges, state historical restoration projects, tourism, small business innovation, and mitigation of gaming impacts to state and local governments.

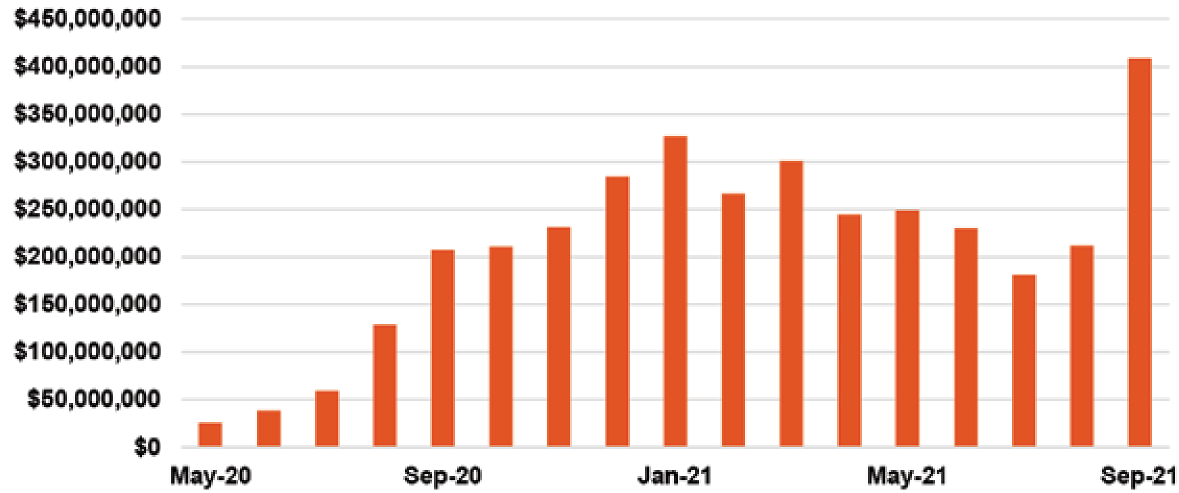
Like so many in the hospitality and tourism industry, the steady economic growth that Colorado casinos and the gaming sector had experienced was abruptly halted with their closure in 2020 due to COVID-19. Despite reopening with tight restrictions and heightened safety precautions, game closures, and occupancy limitations, customers have been excited to return to the mountain communities for entertainment. New ownership of properties and large investments in capital construction projects have increased the market, with additional improvements on the horizon. Colorado's gaming towns of Black Hawk, Central City, and Cripple Creek are moving forward with plans that increase visitation including nongaming amenities.

For the fiscal year ending in June 2021, Colorado casino adjusted gross proceeds (AGP), which is defined as the amount wagered by players less payout from the casinos to all players, were $560 million. Gaming taxes paid to the state were $71 million, reflecting a decline from last year due to the coronavirus.

Black Hawk continues to dominate the Colorado casino sector with 16 casinos, 6,162 devices, and a majority of the AGP. Cripple Creek has 12 casinos and 3,038 devices, and Central City has six casinos and 1,678 devices.

The inception of sports betting has proven to be an asset to the many Coloradans who avail themselves to sports and gaming as well as the many beneficiaries who enjoy the taxes paid by the casinos. Despite the slow rollout of sports betting due to the pandemic, over $1.1 billion was wagered in 2020, bringing in significant revenue for the state. Colorado collects a 10% tax on sports betting proceeds from operators. The state's water plan received $7.9 million this year from the new program. Colorado sportsbooks took $408.3 million in wagers during September 2021—a record monthly high. Revenues and tax collections in 2021 are looking to exceed those of 2020.

COLORADO SPORTS BETTING WAGERS



Source: Colorado Department of Revenue.

Despite the steady recovery from COVID-19, casinos continue to face obstacles including meeting adequate staffing numbers due to the labor shortage. Continued efforts 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 are ongoing.

In November 2020, voters across the state overwhelming approved Initiative 77, allowing local gaming towns to determine additional games and bet limits in the gaming communities. All three cities voted to remove the $100 maximum single bet with unlimited maximum single bets. Additional casino games of Baccarat, Pai Gow, Casino War, Big Six Wheel, and Keno were added to options for casinos to offer customers. Community colleges can use the additional tax revenues to improve student retention and increase credential completion.

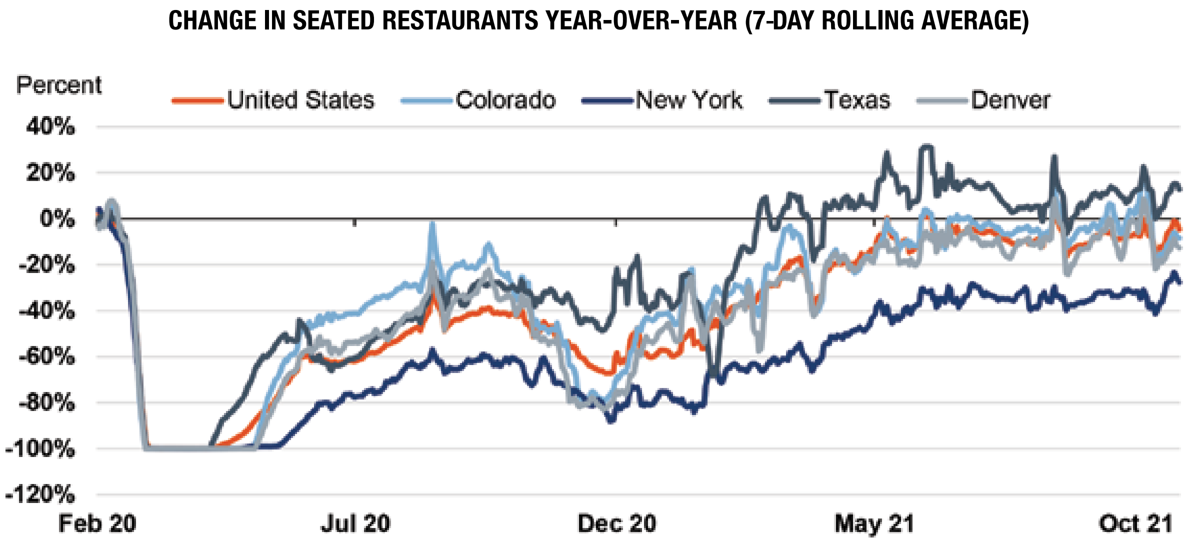
Colorado Restaurant Industry

The COVID-19 pandemic has wreaked havoc on the restaurant industry in Colorado—and across the nation—for almost two years now. After bringing in $14.5 billion in revenue and employing more than 280,000 workers in 2019, the Centennial State restaurant industry lost $3 billion in 2020 because of two separate pandemic-related indoor dining shutdowns, capacity restrictions, and other operational obstacles. After each months-long indoor dining closure, restaurants were required to operate under capacity restrictions that greatly hindered revenue rebounding. By the end of 2020, 55% of Colorado restaurants were anticipating closing their businesses at least temporarily until the pandemic passed—and hundreds did so.

continued on page 114

Leisure and Hospitality

continued from page 113



Source: OpenTable.
Notes: Year-over-year change in seated diners at restaurants on the OpenTable network. Includes online reservations, phone reservations, and walk-ins. Compared each day to the same day of the week in the same week in 2019.

This year (2021) has been a year of transition for the local restaurant industry, moving from the capacity and operational restrictions of 2020 and early 2021 into spring and early summer periods of loosening restrictions, industry-wide vaccinations, and an increase in consumer spending and confidence. In the first quarter of 2021, restaurant retail sales in Colorado were down on average 11% monthly as compared to the same quarter in 2019. Sales started to rebound during the spring, and accordingly, monthly sales in May through July 2021 were actually up on average 8% over 2019. If sales continue trending upward, 2021 could wrap up with higher restaurant retail sales than 2019 and with some growth in the number of eating and drinking establishments open across the state. But this has come at the cost of widespread industry burnout as operators struggle under significant amounts of debt, rising overhead, and a dire labor shortage. Together, these obstacles are hamstringing the industry's overall recovery from the effects of the pandemic.

Labor Crisis

By early 2021, two out of five restaurant workers in Colorado had lost their jobs; an estimated 94,000 restaurant jobs were lost statewide. By March 2021, Colorado Restaurant Association (CRA) impact survey responses showed that restaurant revenue was still down 40% on average, and 40% of Colorado restaurants were in danger of closing permanently within the next six months. Despite this troublesome data, Colorado has seen a slight uptick in the number of open eating and drinking establishments, from just below 12,400 in March 2020 to almost 12,470 by March 2021. That data does not, however, indicate how many restaurants closed temporarily in 2020 and have yet to reopen, nor whether those establishments are brick-and-mortar restaurants or other types of eating establishments, from caterers to food trucks to ghost kitchens serving delivery-only food from several brands.

Staffing in restaurants was an issue before the pandemic, and it has only worsened since. By May 2021, more than 90% of Colorado restaurant operators reported struggling to hire enough staff, and 95% of restaurants had increased wages to attract talent. In August 2021, more than 25% of Colorado restaurants were considering permanent closure in the face of mounting debt, increased overhead, and the severity of the labor shortage, despite loosened capacity restrictions and widespread worker vaccinations. More than 91% of operators were struggling to hire enough labor, and nationally, the restaurant industry shed 41,500 jobs in August. The National Restaurant Association estimates that the overall restaurant industry remained more than 900,000 jobs below pre-pandemic staffing levels in September, and Colorado data shows the industry is still almost 8,000 workers below pre-pandemic staffing levels.

The labor shortage in restaurants has led to operational changes at all levels. Compared to March 2020, Colorado restaurants have increased wages by 19% on average and more than 23% of operators have added benefits and other forms of compensation to attract and retain workers, including health and dental insurance, 401K plans, health and wellness programming, and educational assistance. One out of four operators are offering hiring and retention bonuses, and some operators are offering revenue sharing to back-of-house workers as retention incentives.

Increased Overhead and Debt

Operational costs have skyrocketed in 2021, with 100% of Colorado restaurants reporting that overhead has risen since the start of the pandemic. They cite labor, food, and supplies as the most significant increases, and national data supports that. Wholesale price data jumped 12.9% between September 2020 and September 2021, representing the strongest 12-month increase in more than 40 years. Restaurant profitability is down as a result, and almost 95% of Colorado restaurants have increased menu prices in the face of soaring costs; 55% are cutting hours of operation, and 51% are limiting menu items.

Colorado restaurant owners are also struggling under significant amounts of pandemic-related debt, with more than 67% of operators reporting taking on new debt since March 2020; the average debt level is $180,000. Operators estimate that it will take three to five years to repay those loans.

Government Funding and Assistance

To make matters more difficult, almost 60% of Colorado restaurants' applications for federal Restaurant Revitalization Fund (RRF) grants were not fulfilled during the summer of 2021, when the $26.8 billion fund was quickly drained by an overwhelming number of applicants, leaving 3,099 local restaurants without aid to a deficit of more than $697 million. Two RRF replenishment bills sit with Congress at the time of writing this report, offering the possibility of refilling the fund with a much-needed $60 billion.

There have been other forms of assistance for restaurants at all levels of government, in the form of sales tax relief, Employee Retention Tax Credits, free vaccine clinics for restaurant workers, and investment and support for new revenue streams, including expanded outdoor dining programs and alcohol-to-go legislation.

Outdoor dining expansions helped address capacity issues and were popular with consumers and tourists across Colorado, although these new al fresco spaces cost operators $12,400 on average to design, install, furnish, and maintain. Still, more than 50% of operators in an April 2021 CRA impact survey responded that they had expanded their patio seating during summer 2020 and would do so again in 2021. Approximately 73% of respondents supported expanded outdoor dining as a permanent or seasonal allowance (and, in fact, the City of Denver announced in October that it would work to make its outdoor patio expansion program permanent by fall 2022), and more than 30% of restaurants reported earning more than 50% of their revenue from patio seating during the summer.

Photo courtesy of Nikki A. Rae Photography.

The allowance and extension of HB21-1027, or alcohol-to-go, in Colorado was a huge win for the restaurant industry. In May 2020, at the height of the pandemic, 87% of Colorado restaurants reported making revenue through alcohol-to-go and delivery sales, so it was vital to continue the practice through 2021 and beyond. With the support of the governor, the CRA, and industry leaders, the 2021 legislature passed the bill into law, extending the ability of restaurants to sell limited amounts of alcohol beverages for off-premises consumption through July 1, 2025.

continued on page 116

Leisure and Hospitality

continued from page 115


Rocky Mountain National Park. Photo courtesy of Gurzick.

Additional direct aid will be critical if restaurants are to weather the cold-weather months of 2021 and thrive in 2022 and beyond. The Colorado Restaurant Foundation distributed more than $3 million in Angel Relief Fund emergency assistance grants to local restaurant workers during the pandemic, and in September 2021, began administering a $1 million hiring and retention bonus grant program for Denver restaurants to combat the labor shortage. This was done in partnership with the City and County of Denver's Economic Development & Opportunity (DEDO) office, the CRA, and the Colorado Hotel & Lodging Association and was funded with federal COVID-relief fund dollars.

The CRA also launched a hospitality job board (corestaurantjobs.com) to connect employers with local talent, bolstering the launch with a marketing, advertising, and public-awareness campaign centered on the career opportunities in the industry. The CRA was also awarded a Colorado Tourism Office Restart Industry Associations grant in September 2021, through which it will build out the workforce development resources on the job board and continue combating the labor crisis in hospitality.

It's important that more industry-specific aid comes from all levels of government, including refilling the Unemployment Insurance Trust Fund to offset high premiums for small business as they walk the road to pandemic recovery.

Outdoor Recreation

There is no doubt that the COVID-19 pandemic served as a catalyst for outdoor recreation. Throughout 2020 and the first half of 2021, many leisure activities were restricted or eliminated in Colorado. Outdoor recreation was the exception. People flocked to the outdoors in record numbers. Spurred on by marketing campaigns like Colorado Parks and Wildlife's (CPW) "Live Life Outside," Colorado Tourism Office's "Keep It Colorado," and Great Outdoors Colorado's "Generation Wild," outdoor recreation was encouraged, and responsible and sustainable recreation was promoted. In 2022, outdoor recreation trends will continue to increase, although those increases will fall back toward pre-pandemic trends.

Nationally, interest in the outdoors continues to grow at about 3% per year; however, the number of trips people take is declining. In other words, there are more casual outdoor users than avid users, and the gap between casual and avid users is growing. There also remains a gap in racial and gender diversity in the outdoors; nearly 75% of outdoor recreationists are white (60% of the population is white) and women represent 46% of outdoorists (51% nationally).

continued on page 118

COLORADO PUBLIC LAND VISITS
2012–2022
(In Thousands)[a]

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021[a]	2022[a]
Colorado State Parks[b]	12,200.0	11,500.0	11,900.0	13,200.0	14,296.0	15,398.0	14,924.0	14,891.4	19,474.4	15,763.7	18,079.2
National Parks and Sites											
Bent's Old Fort NHS	25.8	23.3	24.6	26.2	31.9	26.4	23.6	21.7	12.4	18.7	16.1
Black Canyon of the Gunnison NP	192.6	175.9	183.0	209.2	238.0	307.1	309.0	432.8	341.6	346.6	427.1
Colorado NM	454.5	409.4	419.9	588.0	391.1	375.0	375.5	397.0	435.6	499.0	412.0
Curecanti NRA	862.6	814.2	931.4	944.7	982.5	1,041.4	931.5	836.0	921.6	861.3	864.6
Dinosaur NM[c]	224.1	203.1	185.4	215.9	225.2	233.8	225.0	221.2	195.5	269.5	248.8
Florissant Fossil Beds NM	62.6	58.0	63.3	69.1	73.6	71.8	79.6	77.3	61.1	73.4	73.6
Great Sand Dunes NP	254.7	242.8	271.8	299.5	388.3	486.9	442.9	527.5	461.5	612.7	626.8
Hovenweep NM[c]	11.7	11.0	11.8	15.4	18.9	17.6	17.9	15.6	8.7	11.8	11.4
Mesa Verde NP	488.9	460.2	501.6	547.3	583.5	613.8	563.4	556.2	287.5	540.6	478.1
Rocky Mountain NP	3,229.6	2,991.1	3,434.8	4,155.9	4,517.6	4,437.2	4,590.0	4,670.1	3,305.2	4,529.7	4,459.1
Sand Creek Massacre NHS	4.4	4.8	7.4	5.9	6.8	6.5	6.0	5.7	4.2	6.0	4.1
Total Visitors to Parks and Sites	5,811.5	5,393.8	6,035.0	7,077.2	7,457.4	7,617.5	7,564.4	7,761.1	6,034.9	7,769.3	7,621.7
Bureau of Land Management	7,310.0	6,963.0	7,536.0	7,694.0	7,739.0	8,310.0	8,708.0	9,553.0	12,507.0	13,132.1	13,859.4
National Forest[d]	27,000.0	27,000.0	27,000.0	27,000.0	27,000.0	26,100.0	31,000	31,490.0	31,490.0	31,490.0	31,490.0
Total Public Land Visitation[e]	58,133.2	50,856.8	52,471.0	54,971.2	56,492.4	57,425.5	62,196	63,695.5	69,506.3	68,155.1	71,050.3

[a]2021 is esitmated with limited data and 2022 is forecasted based on trends.

[b] State parks managed by Colorado Parks and Wildlife.

[c]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.

[d]Yearly visitor numbers were not available; reported numbers based on limited data.

[e]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: Colorado Parks and Wildlife, National Park Service Visitor Use Statistics, Bureau of Land Management, National Forest Service and Colorado Business Economic Outlook Committee.

Leisure and Hospitality

continued from page 116

In Colorado, the outdoor participation trends tend to be higher. The 2018 public survey conducted as part of the 2019 Statewide Comprehensive Outdoor Recreation Plan (SCORP) shows that 92% of Coloradans participate in some form of outdoor activity at least once every few weeks, and 69% spend time recreating outside between one and four times per week.

Outdoor recreation contributes significantly to Colorado's economy, with economic contributions cutting across various sectors and supersectors. During 2017, outdoor recreationists in Colorado spent over $36.8 billion on trips and equipment (direct expenditures). When combined, hunting, fishing, wildlife watching, and state park visitation produce over $6.2 billion of economic activity in Colorado.

CPW manages 43 state parks throughout Colorado. Not unexpectedly, Colorado state parks saw more visitors in 2020 (19,500,000 visitors) than in 2021 (15,800,000)—a decrease of 19%. The decrease was likely due to more leisure-time activities available to people during the second half of 2021. As more leisure activities opened, people may have shifted their free time to other pursuits. Although 2021 saw fewer visitors to state parks than in 2020, the total number of visitors is higher than 2019, continuing the overall growth trend in state park visitation.

At the onset of the pandemic, many National Park Service (NPS) units were closed to all public visitation. As a result, overall NPS visitation was down in 2020 compared to 2019 (decrease of 1,700,000 visitors or 22%). A rebound in NPS visitation occurred in 2021, with total visits slightly higher than 2019 numbers. During the summer and fall of 2020, Rocky Mountain National Park (RMNP), Colorado's most-visited national park, implemented a timed-entry system, requiring visitors to reserve a time to enter the park. RMNP used this entry method as a tool to better manage crowds amid the COVID-19 crisis. Based on the overall success of the 2020 program, NPS reinitiated the timed entry during the 2021 "busy season." RMNP also required an additional timed entry to visit the Glacier Gorge/Bear Lake area. Despite these limits, RMNP visitation remained similar to pre-COVID numbers.

In October 2020, CPW opened the 42nd state park, Fishers Peak State Park, located near Trinidad, Colorado. Currently, only about 250 acres of the 19,200-acre park are open to the public. Over time, this park should provide an economic boost to Trinidad. In October of 2021, Governor Polis announced the creation of Colorado's 43rd state park, Sweetwater Lake, located northeast of Glenwood Springs. This 488-acre ranch park was purchased by the U.S. Forest Service from The Conservation Fund and will be managed by CPW as a state park. This cooperative management is a model of the power of partnerships. Plans are in place to open the area to boating by June 2022.

The CTO and Leave No Trace Center for Outdoor Ethics continued to broaden its partnership and bolster the Care for Colorado program into a Coalition of Stewardship Partners and Members. Beginning with six partners in 2020, this coalition currently encompasses 30+ other statewide organizations and agencies committed to spreading awareness of destination stewardship through materials produced by CTO.

Skiing Industry

U.S. ski resorts rebounded strongly in 2020/21 from the COVID-shortened 2019/20 season, recording 59 million downhill skier and snowboarder visits, the 5th-highest level on record and up from 50.1 million visits last winter (+15.5%). The industry benefited from a surge in interest in outdoor recreational activities as a safe alternative during COVID-19. At the same time, the industry wrestled with a variety of COVID-related operating challenges, including capacity limitations at many resorts, which kept visits lower than they otherwise would have been.

In Colorado, the state's 31 ski areas recorded 12 million skier visits in winter 2020/21, up from 10.8 million visits in 2019/20 (+11%), but down from the 2018/19 record of 13.8 million visits (-13%). Notwithstanding strong interest in outdoor activities, Colorado ski resorts experienced

Photo courtesy of VISIT DENVER.

significant headwinds in the form of daily capacity restrictions and other COVID-related operational challenges, a dramatic falloff in international visitation, poor early season snow, and travel hesitancy among some demographic groups and from some regions of the country. Still, with a focus on keeping guests, employees, and communities safe, resorts were able to remain open throughout the season, a victory given the circumstances.

Fortunately, taxable sales in resort communities have been less volatile than skier visits over the past three winters. Across a mix of eight resort communities (Aspen, Breckenridge, Frisco, Snowmass Village, Steamboat Springs, Telluride, Vail, and Winter Park), state taxable sales fell 3.5% from winter 2018/19 to winter 2019/20, before climbing 4.2% from winter 2019/20 to winter 2020/21. With COVID-driven out-migration from many metro areas and the expanded adoption of remote work, many ski resort communities have experienced an influx of second homeowners spending more time in their units, likely helping offset the softness in skier visits. Still, comparing winter 2020/21 to winter 2018/19, taxable sales in the resort communities (up 0.6%) significantly trailed taxable sales in the state as a whole (up 12% over the same period), an indicator of ski country's comparative economic challenges.

The summer period (May to October) is also important to ski resort communities, accounting for a lower, secondary peak in economic activity. Summer 2021 brought a boom in spending, with state taxable sales in the same eight communities up 37.6% in May through August from the same period in 2020, and up 31.6% from 2019. The state as a whole also experienced dramatic growth in summer 2021 taxable sales through August (up 17.8% year-over-year and up 16.7% from 2019), albeit trailing resort communities. Colorado ski resort communities, along with other outdoor destinations and activities, have continued to benefit from heightened interest in outdoor recreation and outdoor settings during the pandemic. The industry has also invested significantly in new outdoor recreational offerings since the passage of the 2011 Ski Area Recreational Opportunity Enhancement Act, which allows for more recreational uses on public land. In addition to helping resort economies, these offerings have likely helped redirect and relieve some of the growing recreational and visitation pressure that is impacting many areas of Colorado's mountains.

Looking ahead to the winter 2021/22 season, COVID-19 will continue to be an important focus as resorts take a variety of precautions to keep guests, employees, and communities safe. In contrast to last winter, there will not be overarching statewide COVID-19 guidelines this winter. Instead, protocols will vary from county-to-county and resort-to-resort and will be subject to change depending on the course of the virus. On-slope capacity limits and social distancing restrictions are expected to be eased, with fewer requirements for advance reservations and a return to the full loading of lifts and gondolas. Stricter protocols are expected for indoor settings, with continued masking guidelines and in some cases vaccine requirements.

COVID-19 is likely to continue to be a headwind for Colorado's ski industry this upcoming winter, albeit to a lesser extent than last winter. In other challenges, international visitation is expected to remain soft due to virus-related travel restrictions and hesitancy. Resorts are likely to experience challenges achieving full staffing, due to extremely tight resort housing markets and expected OSHA vaccine requirements, although H2B and J-1 visa workers may help ease the strain if planned numbers are realized. Airlines have also experienced some growing pains as they ramp back up from the depths of the pandemic, and resorts are hoping that they can maintain smooth operations through upcoming holiday periods and maintain skier confidence in air travel.

Headwinds aside, there is significant optimism that resorts will enjoy a good season as indicators of demand (such as pre-season pass sales and advance lodging bookings) are strong. Resorts also made a variety of virus-driven adaptions last season, which improved the guest experience, such as expanded digital communications with guests, online food and beverage ordering, reservation systems, and touchless transactions that will be continued in future years. Through early November, natural snow and favorable snowmaking conditions allowed several resorts to open. National economic conditions continue to improve, with continued recovery in employment and robust housing and stock markets. Locally, the recently opened I-70 westbound toll lane is expected to help relieve congestion getting to many resorts. Resort real estate and construction markets continue to be very strong, generating economic activity (while also exacerbating housing challenges for workers). Ski resorts also continue to improve and expand their infrastructure, enhancing the guest experience and increasing their operating capacity.

As always, weather and snow conditions can also provide positive or negative momentum to the season. In its October 22nd U.S. winter forecast, the National Oceanic and Atmospheric Administration (NOAA) noted that La Niña climate conditions have emerged for the second winter in a row. 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 COVID-19 has presented major challenges for the Colorado ski industry in the past two seasons, the longer-term prospects for the industry remain positive. Colorado maintains a preeminent position within the skiing industry, accounting for by far the largest number of visits, as well as being home to many of the largest and most renowned resorts. Colorado has benefited from a strong reputation for an outstanding combination of ski terrain, lift infrastructure, consistent and reliable snow conditions, guest service, scenery, community character and amenities, and travel accessibility, among other attributes. Colorado is also home to the headquarters of the continent's two largest resort operators—Vail Resorts and Alterra Mountain Company—further cementing the state's standing as the epicenter of the U.S. ski industry.

Even as it continues to cultivate its strengths, facing the challenges of COVID-19, evolving generational preferences, vigorous competition from ski resorts in other states and from other vacation and leisure options, climate change, concerns about the congestion and travel delays along the I-70 corridor, and maintaining staffing in challenging housing markets remain top of mind for Colorado resorts. ✤

Contributors:
Tony Gurzick, Grizzly Peak Consulting (Chair)
Carrie Atiyeh, Visit Denver
David Becher, RRC Associates
Alex Carlson, Colorado Office of State Planning and Budgeting
Jill Corbin, Colorado Tourism Office
Bethany Cronk, HVS
Tom Foley, Inntopia
Melanie Mills, Colorado Ski Country USA
Peggi O'Keefe, Colorado Gaming Association
Doug Price, Visit Colorado Springs
Cathy Ritter, Better Destinations
Richard W. Scharf, Visit Denver
Laura Shunk, Colorado Restaurant Association
Alexea Veneracion, Visit Colorado Springs

Other Services

The Other Services Supersector comprises establishments that provide services not specifically categorized elsewhere in the employment classification system. As a result, the businesses under this category are highly fragmented and diverse. Car washes, beauty salons, religious organizations, funeral homes, grantmaking foundations, and labor unions are some of the industries included in Other Services. In addition, the supersector includes businesses that provide maintenance and repair for agriculture, construction, mining, and forestry machinery and equipment. Industry growth is influenced by the economy, demographics of the Colorado population, disposable income, and consumer confidence.

OTHER SERVICES EMPLOYMENT, 2012-2022 (In Thousands)

Year	Repair and Maintenance Services	Personal and Laundry Services	Grantmaking, Civic, Professional, and Similar Organizations	Total
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	52.3	100.9
2015	24.7	26.3	53.2	104.2
2016	25.0	27.8	54.5	107.3
2017	25.5	28.7	54.4	108.6
2018	26.0	29.4	55.6	110.9
2019	26.7	30.3	57.7	114.8
2020[a]	25.3	25.9	55.1	106.3
2021[b]	25.6	28.0	56.5	110.1
2022[c]	26.7	29.1	57.6	113.4

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

The pandemic in 2020 had a heavy toll on the Other Services sector, with employment declining 7.4% year-over-year, a loss of 8,500 jobs. Many Other Services businesses were deemed non-essential during lockdowns in March and April and had to alter their operations to accommodate public health mandates in the months since. The sector has since rebounded as the economy has recovered and business has slowly returned back to normal. Employment in the sector totaled 112,800 in September 2021, up 5.4% from the year prior but still down 2.4% from January 2020. In the first quarter of 2021, approximately 17,580 businesses were classified in the Other Services supersector, a 6.7% increase year-over-year.

This strength is expected to continue into 2022 due to a few major factors: a positive outlook for donations will help nonprofits; a growing national consensus around workers' rights and that the economy should work for everyone could provide a historic opportunity for unions; record increases in used car prices and a shortage of new vehicles is causing car owners to hold their car for longer, increasing maintenance; and people are starting to visit face-to-face businesses again such as salons and pet care services. Employment in the Other Services sector is projected to increase 3.6% in 2021 year-over-year to reach 110,100 jobs, then increase 3% in 2022 to reach 113,400 jobs. Despite this healthy growth, employment in the sector is expected to still end 2022 down 1% from levels seen in 2019.

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. These organizations account for the largest portion of the Other Services supersector, employing 51.8% of the Other Services employees in 2020. Establishments in this subsector include various labor unions, nonprofits such as the Denver Dumb Friends League, the Boy and Girl Scouts organizations, and the United States Olympic Committee, as well as social advocacy and political organizations. The outlook for donations was grim in 2020, but social advocacy groups and giving services are now expressing positive expectations for the future, which bodes well for this sector. According to the Fundraising Effectiveness Project (FEP), the number of donors grew by 10% in Q1 2021 compared to Q1 2020, and the overall dollars given increased 6%; Q2 2021 saw a 0.7% increase in donors over Q2 2020 and a 1.7% increase in dollars given. While membership has been declining for decades, labor unions could start to gain ground heading into 2022, helping the sector. President Biden is a known powerful ally, pledging to be the "most pro-union president you'd ever seen," and the pandemic has appeared to have brought workers' rights, needs, and desires into the limelight, perhaps shifting the balance between the employer-employee relationship.

The sector was hit hard due to the pandemic, losing 4,700 jobs in April 2020 and ending the year down 4.5%. A strong rebound has been observed in 2021; however, with employment in the subsector reaching 57,600 in

INDUSTRY SNAPSHOT OTHER SERVICES

Nominal GDP, 2020 ($ Billions)	8.4
Real GDP, 2020 ($ Billions, 2012 Dollars)	6.5
2020 Real GDP Growth Rate	-10.9%
Total Employment, 2020 (Thousands)	106.3
2020 Employment Growth Rate	-7.4%
Employment Growth National Rank	18
Share of Colorado Employment	4.0%
Share of National Employment	3.8%
Average Wage, 2020	45,642
Percent of Statewide Average Wage	67.7%
2020 Average Wage Growth Rate	7.7%

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

September 2021, up 3,200 jobs (5.9%) from the beginning of the year and 1.4% above levels seen in January 2020. Through the end of 2021, the sector is expected to remain constant, ending the year with an average of 56,500 employees and year-over-year growth of 2.5%. Looking forward to 2022, the sector is projected to return to levels seen before the pandemic, averaging 57,600 employees and observing growth of 1.9%.

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 typically been buoyed by the increasing average age of vehicles, pushing up demand for vehicle repair and maintenance. Despite the hardships faced last year during the pandemic when few were commuting, business at auto repair shops in Colorado and nationally is booming in 2021. Factors driving this include the chip shortage for new cars, the lack of inventory for new cars, and the high prices of used cars—all contributing to car owners keeping their old cars for longer and going in for more tune ups. The future outlook for this sector is positive, with industry players saying there will be more cars on the roads out of warranty than ever before. Nationally, retail sales for motor vehicle and parts dealers in August year-to-date were up 30.6% compared to the same period in 2020, pointing to a record year, according to data from the Census Bureau. Repair and Maintenance employment was also hit hard from the pandemic, ending 2020 down 5.4%. The sector has rebounded healthily, with employment at pre-pandemic levels in September 2021 of 26,400. Given the subsector's speedy recovery and booming retail vehicle sales, employment is expected to average 25,600 in 2020 (a gain of 1.2% year-over-year) and 26,700 in 2022, for a gain of 4.3%.

Photo courtesy of izusek/iStockphoto.

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 and laundry (including coin-operated); pet care (except veterinary); photofinishing; and parking lots. This sector was the hardest hit within Other Services, with employment declining 14.7% in 2020 year-over-year, losing an astounding 53.5% of employment from March to April 2020. This was due to many of the subsector's notable industries, such as hair, nail, and skin care services, being deemed non-essential and forced to temporarily close, causing a major shock to the subsector's employment. As Colorado businesses have emerged from lockdowns, these services have been tasked with finding ways to effectively socially distance and bring back customers. Hair, nail, and skin care salons have welcomed customers back, but these services are heavily vulnerable to new government social distancing and vaccination requirements that are being enacted in the latter half of 2021. Pet care services are struggling to find workers, and the large increase in adoptions in 2020 (pet ownership in the U.S. rose from 67% to 70% of households—an all-time high) during the pandemic has made it difficult for these businesses to survive and keep up with demand. While the sector has recovered from the pandemic lows, employment in September 2021 remains around 8% below levels seen before the pandemic. With a healthy overall economy and consumer spending, the sector is projected to grow 8.1% in 2021 to average 28,000 jobs (still 7.6% below 2019 levels of 30,300) and then another 3.9% in 2022 to average 29,100 jobs.

Contributor:
Jacob Dubbert, University of Colorado (Chair)

Economic Resiliency

Institutions have been critical to the COVID-19 pandemic response and to facilitating the recovery process. Cities, counties, economic development corporations, downtown associations, tourism bureaus, nonprofits, and others have flexed in new ways and at lightning speeds to create paths for businesses that were shut down and at risk of closing. These responses have been essential to the continuation of the business communities that are woven into the fabrics of cities and towns.

But upon reflection of those involved in the tactical responses and program deployments that enabled reopening, recovery, and the current rebuilding to resiliency, a more profound theme emerges: the role of relationships. Institutions leaned on existing public and private partners and collaborating agencies, and new organizations were created to enhance the speed and efficacy of response. The ability of businesses, from small entrepreneurs to large corporate employers, to weather the unprecedented circumstances depended on the willingness of people to quickly align and contribute. Residents also took up the charge to "support local" to preserve their valued businesses.

Arvada, Boulder, and Louisville are three examples of communities where different organizations came together to create capacity and infrastructure to support businesses throughout the pandemic.

At 120,000 people over 40 square miles, Arvada is a moderately populated suburban first-ring city. As one of the region's oldest communities, founded in 1870 and incorporated in 1904, the City of Arvada boasts a rich history and healthy mix of primary industry, small businesses, retail and entertainment, as well as robust cultural and outdoor lifestyle amenities.

The Arvada Resiliency Taskforce organized to support the city's business and nonprofit community as challenges related to COVID-19 health orders and closures began to unfold in 2020. The Taskforce was built on an existing relational and strategic framework, which understands the value of rapid response through listening, evaluation, and timely decision-making with deployment of resources. Early in its lifespan, it became apparent that the Taskforce framework yielded tremendous value to the community—namely the sheer speed at which programs could be created and implemented, and rapidly assessed for the effectiveness and equity.

Arvada saw the benefits of innovative ideas come to successful fruition by way of the Taskforce, from rapid deployment of business grants and personal protection equipment (PPE) to patio expansions, downtown street closures, and common consumption areas that supported outdoor dining and retailing. Importantly, all of these programs were implemented within a matter of days after mandated business closures and restrictions by local health departments. Fast-paced evaluation allows decision makers to shift away from programs that are not working and to reinforce programs that are. This "speed to market" is made possible by the investment into communication systems allowing for listening, identifying and prioritizing needs, promoting programs, evaluating outcomes, and adjusting in real time.

When asking leaders of the Arvada Resiliency Taskforce what stands out in regard to its effectiveness, a common theme is the foundation of trust and credibility, made possible by way of existing relationships. Key partners of the Taskforce include the Arvada Chamber, Arvada Economic Development Association, the City of Arvada, Arvada Visitors Center, and Olde Town Arvada Business Improvement District, among many others. The existing relationships between leaders within these organizations facilitates a culture of true collaboration, the elimination of bureaucracy, and a strong level of humility pertaining to who gets credit for what. A key lesson to take forward is that communities can begin cultivating this relational infrastructure now, knowing that at some point it will be more efficient to assemble and manage a functional group when necessary.

Ultimately the Taskforce realized that, at its core, it is a component of community infrastructure. Its framework can live post-pandemic to address any challenges the community faces, such as supporting businesses through the tragedy that took the lives of Officer Gordon Beesley and Johnny Hurley in Olde Town Arvada in 2021. By cultivating relationships with strategic partners, and including key leaders and decision makers from those organizations, the Taskforce can pivot and respond incredibly quickly and help the community develop a resilient DNA, which enables it to better protect itself against external threats and disruptions, whether a pandemic or economic downturn. Furthermore, the framework can be scaled and replicated in other communities, leaning on their unique strengths and partnerships.

In Boulder, business and community organizations followed a similar collaborative approach. Boulder is an employment center, innovation and startup hub, and popular visitor destination with a strong economy supported by the University of Colorado Boulder, federal research labs, a broad range of businesses, and a wide array of dining, shopping, entertainment, and recreation choices. Like other communities, Boulder has been significantly impacted by a multitude of safety, health, and economic challenges caused by the COVID-19 pandemic.

The City of Boulder continues to work with public and private partners to address the needs of those impacted by the pandemic. Well-established relationships among Boulder's municipal and county governments, Boulder Chamber, Boulder Convention and Visitors Bureau, Boulder Small Business Development Center, Downtown Boulder Partnership, The Hill Boulder, Latino Chamber of Boulder County, and others have enabled the community to effectively understand and appropriately respond to the pandemic's impact on businesses and the local economy.

City staff surveyed Boulder businesses to help gauge the impact of the pandemic and identify unmet needs. Findings indicated nearly all businesses had been affected, with most experiencing negative financial impacts. Hardest-hit businesses included those in industries less conducive to remote work or requiring direct customer contact (hospitality; personal services; arts, entertainment, and recreation; non-grocery retail; and health care), minority-owned businesses, and nonprofit organizations. Most closed temporarily or reduced operations, spending, and staffing levels. Many increased the number of employees working remotely. Business needs included financial assistance; information on available resources; public health guidance; online commerce improvements; and business, legal, or insurance advice.

In addition to sharing information on available resources, such as funding and assistance navigating pandemic-related loan or grant programs and webinars on public health and business-related topics, the city has supported economic recovery by using a portion of its allocation of local Coronavirus Aid, Relief, and Economic Security (CARES) Act funding to:

- provide resources for impacted workers,
- offer curbside pickup and temporary outdoor expansion for restaurants and retailers,
- provide grants for impacted local nonprofits, small businesses, and venues,
- reduce delivery service costs for local restaurants,
- encourage local shopping through a matching gift card program, and
- promote safe visitation of Boulder.

While unemployment, sales tax revenue, and other local economic indicators have shown improvement, the COVID-19 pandemic and its impacts linger. The City of Boulder plans to use a portion of the American Rescue Plan Act (ARPA) funding it will be receiving to support small businesses and inclusive economic recovery while continuing to work with public and private partners to address ongoing impacts of the pandemic.

The City of Boulder and City of Louisville partnered on pandemic response through the Boulder County Economic Recovery Partners, but each community also developed and deployed unique resources.

Louisville, a community of about 21,000 residents, is adjacent to U.S. 36 and is home to the 3rd-largest business park in Boulder County. The community consists of small businesses, growing start-ups, and established primary employers. Louisville began 2020 developing an economic vitality strategic plan to guide its priorities and investments over the next three to five years. The COVID-19 pandemic that shuttered the majority of the City's 750 brick-and-mortar businesses was shocking and abrupt—initially diverting focus from strategy to response.

The City's economic vitality department, Louisville Chamber of Commerce, and Downtown Business Association were already collaborators, but with well-established definitions of which organization provided what service. Those boundaries collapsed early to launch responses such as the Outdoor Dining program. This program closed Louisville's Main Street between June 10 and December 5, 2020, to allow for expanded dining options. In addition, it created a streamlined approval process for restaurants throughout the City to obtain approval for expanded seating in parking lots, on sidewalks, and under temporary structures. Of the City's 75 food and beverage businesses, there were only two closures during an 18-month period. Main Street Louisville closed again in 2021—demonstrating the community support for this safe operating environment despite changes in parking, bus routes, and access that would normally be enjoyed.

The City and Chamber became relied-on information channels for the critical public health information. In 2020, rather than market Small Business Saturday, which focuses on in-person shopping on a single day, the Chamber and the City launched the "Keep it Local Louisville Prize Draw." The City does not normally engage in marketing campaigns, but both organizations needed to emphasize the importance of local spending over a season rather than a day.

But the network of partners and collaborators quickly expanded—allowing the City to reinvest in strategy rather than just react. An initial Emergency Solutions Grant Program provided immediate financial relief in May, but input from business leaders, Boulder County Economic Partners, and the Louisville Revitalization Commission helped refine and improve two later grant programs that more targeted those still in financial distress. Staff and City Council reevaluated strategic goals, some of which had become more urgent—especially those that engage the business community and gather robust feedback. Two COVID impact surveys and one outdoor dining survey were conducted over a year, in addition to numerous retention visits and webinars.

The other pivotal organizations in Louisville's story are the businesses themselves. COVID-19 had very disparate impacts on businesses—some thrived and some suffered. The City hosted two webinar series: Thriving in Business Uncertainty and Recovering with Resiliency (How to Reposition your Small Business for Success) exclusively for and by Louisville businesses. Relationships with businesses allowed the City to recruit owners and leaders to share their tactics, coping strategies, and lessons learned with peers. New relationships emerged as a result, allowing B2B connections on pivoting to offer a new product or transform a workplace that is safe for customers and employees alike.

Although resiliency has recently become a more familiar term to our businesses and communities, it is not one that will quickly lose meaning. These stories are a sampling of the partnerships, public/private investments, and relationships that were built or improved during a pandemic, but the lessons are ones that should continue to inform how stakeholders can build stronger networks that will endure public health crises, natural disasters, and community tragedies.

Contributors:
Megan Pierce, City of Louisville
Jennifer Pinsonneault, City of Boulder
Daniel Ryley, Arvada Economic Development Association

Government

The Government Supersector includes federal, state, and local workers and is the second-largest provider of jobs in Colorado, representing 16.4% or roughly one in six jobs in the state. Government activities include a variety of services ranging from space research and technology to public safety, program administration, and education.

Government employment fell 3.1% in 2020 year-over-year as the sector was uniquely hindered by the pandemic—as tax revenue fell, jurisdictions balanced budgets mid-cycle by cutting spending and implementing furloughs and layoffs. Much of the sector stabilized in 2021, but the decrease in federal workers related to the completion of the 2020 Census led to a net decrease in employment. In 2021, government employment in Colorado decreased to 0.5% but is projected to increase 1.6% in 2022 to total 445,900.

Federal Government

In 2020, total federal government employment in the state was 54,600, up 3% from the previous year. This increase was largely due to the 2020 Census, as well as the federal government's continued COVID-19 pandemic response through new and expanded federal programs to help weather adverse economic conditions, as federal employment expanded across the country in 2020. This increased spending to fight the impacts of COVID-19 continued into 2021 with the Coronavirus Response and Consolidated Appropriations Act (2021), which provided $900 billion in fast and direct economic assistance for American workers, families, small businesses, and industries. The Consolidated Appropriations Act continued many of the programs established in 2020, including the $2 trillion Coronavirus Aid, Relief, and Economic

INDUSTRY SNAPSHOT GOVERNMENT

Nominal GDP, 2020 ($ Billions)	48.7
Real GDP, 2020 ($ Billions, 2012 Dollars)	40.1
2020 Real GDP Growth Rate	0.2%
Total Employment, 2020 (Thousands)	441
2020 Employment Growth Rate	-3.1%
Employment Growth National Rank	23
Share of Colorado Employment	16.7%
Share of National Employment	15.4%
Average Wage, 2020	62,590
Percent of Statewide Average Wage	92.8%
2020 Average Wage Growth Rate	6.2%

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

GOVERNMENT EMPLOYMENT IN COLORADO, 2012–2022 (In Thousands)

Government Sector	2012	2013	2014	2015	2016	2017	2018	2019	2020[a]	2021[b]	2022[c]
Federal	54.1	53.0	52.1	52.8	53.5	53.5	52.9	53.1	54.6	53.1	54.1
State	97.6	107.8	109.6	112.8	116.5	121.2	125.9	130.2	126.6	124.1	125.3
State General	34.0	42.7	43.2	44.2	45.5	47.3	50.1	51.3	52.2	52.4	52.7
State Education	63.6	65.1	66.4	68.6	70.9	74.0	75.8	79.0	74.4	71.7	72.6
Local	242.7	242.4	246.3	250.9	258.2	261.9	266.8	271.8	259.8	261.7	266.5
Local General	117.3	115.2	116.4	118.1	122.8	125.4	128.3	130.7	125.4	128.7	131.6
Local Education	125.4	127.2	129.9	132.8	135.4	136.5	138.5	141.1	134.4	133.1	134.9
Government	394.3	403.2	407.9	416.5	428.1	436.7	445.6	455.1	441.0	438.9	445.9

[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.

Security (CARES) Act by adding new phases, new allocations, and new guidance to address ongoing issues related to the COVID-19 pandemic.

Additionally, the American Rescue Plan Act of 2021, also called the COVID-19 Stimulus Package or American Rescue Plan, was signed into law in March 2021. This provided $1.9 trillion in economic stimulus to speed up the country's recovery from the economic and health effects of the COVID-19 pandemic. The U.S. Department of Treasury has delivered over $450 billion directly to families under the American Rescue Plan. State and local governments have used Emergency Rental Assistance Program funds to make more than one million payments to low-income households and more than $5 billion to help families avoid evictions. They have also received over $240 billion in fiscal support to state, territorial, local, and tribal governments that is being used to fight the pandemic and accelerate local economic recovery. This program is also helping the businesses that were hit the hardest make it to the other side of the pandemic, keep their employees on the payroll, and return to growth. For example, the Employee Retention Tax Credit provides up to $28,000 per employee for 2021 to help small businesses that faced declining revenue or shutdowns retain their staff, preventing damaging turnover.

Government spending has increased significantly during the pandemic era as the government looks toward fiscal policy to help ease the effects of the economic downturn. According to the Congressional Budget Office's (CBO) Long-Term Budget Outlook, deficits were at historic highs in 2021, an estimated 10.3% of gross domestic product (GDP). This would be the second largest since 1945, exceeded only by the 14.9% shortfall recorded in 2019. In CBO's projections, deficits decline as the effects of the 2020–2021 coronavirus pandemic wind down but still remain large by historical standards.

By the end of 2021, federal debt is projected to equal 102% of GDP, with debt estimated to reach 107% of GDP in 2031. High and rising debt as a percentage of GDP boosts borrowing costs, slows the growth rate of economic output, and increases interest payments abroad. A growing debt burden could increase the risk of a fiscal crisis and higher inflation as well as undermine confidence in the U.S. dollar, making it more costly to finance public and private investments and spending. After the spending associated with the pandemic declines in the near term, spending as a percentage of GDP is projected to continue to grow.

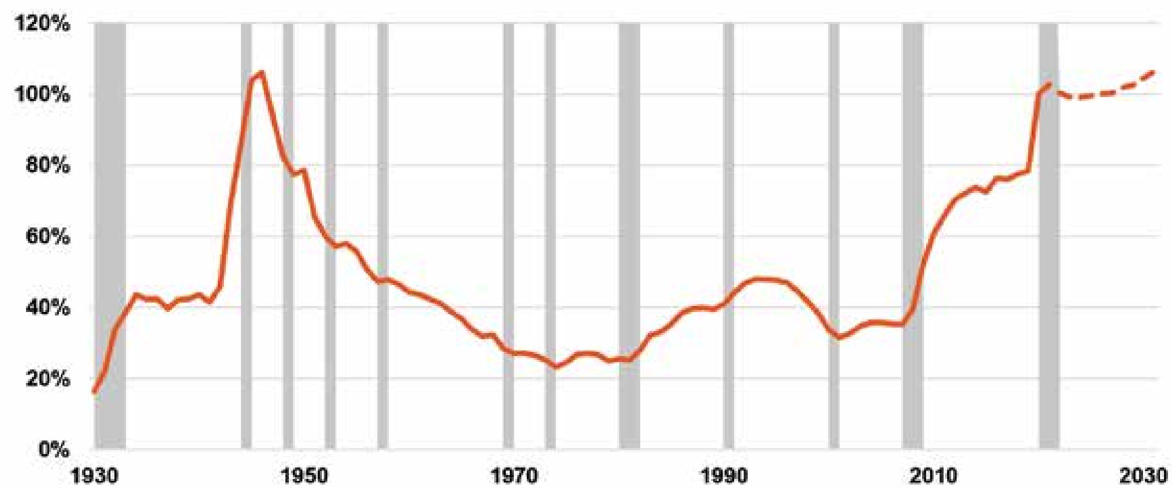
While there are many competing thoughts as to whether the historic COVID relief package was worth it, data suggests that it did its job. Stimulus checks appeared to have spurred the recovery, helping to keep household income on its pre-recession trend. This was not true after the Great Recession, as disposable income lagged behind for years.

Also contributing to growing deficits are rising health care costs per person and increased spending for Social Security, Medicare, and other major health programs for the aging U.S. population. Once the effects of decreased revenues associated with the economic disruption caused by the pandemic dissipate, revenues measured as a percentage of GDP are generally projected to rise. Much of this is due to scheduled changes in tax rules, including the expiration of nearly all the changes made to individual income taxes by the 2017 tax act in 2025.

The U.S. Government Accountability Office's (GAO's) America's Fiscal Future - Fiscal Outlook shows that the COVID-19 pandemic required a major federal financial response. It also created substantial damage to the global economy, stability, and security. Unemployment and those falling out of the labor force continue to put pressure on the employers to fill positions and manage upward pressure on wages. Until the virus is better contained, the pandemic threatens to remain a significant obstacle to more robust economic activity. This has added to the pressure of the federal government's unsustainable long-term fiscal path as debt continues to grow faster than the economy.

continued on page 126

U.S. FEDERAL DEBT AS A PERCENTAGE OF GDP

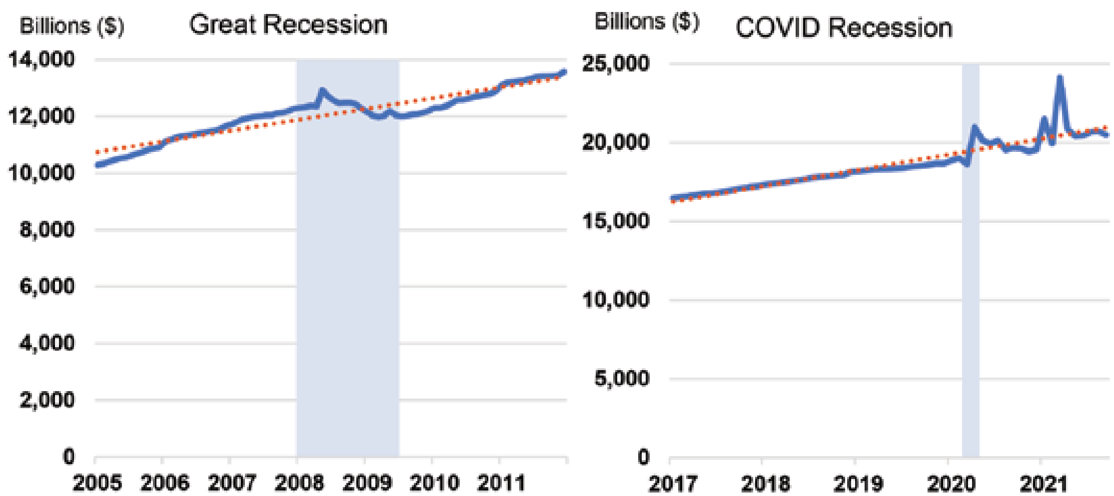


Source: Congressional Budget Office. Note: Shaded areas represent recessions.

Government

continued from page 125

DISPOSABLE PERSONAL INCOME: GREAT RECESSION VS COVID RECESSION



Source. Bureau of Economic Analysis. Note: Shaded area marks recession.

Focusing on a sustainable long-term fiscal path, the U.S. continues to face increasing levels of debt in 2021, with fiscal year 2020 debt held by the public at 100% of GDP, up from about 79% of GDP in fiscal year 2019. The country continues to move toward a scenario where debt levels keep growing faster than GDP. Outside of rising debt levels, major long-term threats to financial stability include increased spending on federal health care programs and Social Security. Key factors driving health care spending growth are an aging population, increased spending per beneficiary, and the rising cost of health care. Key factors driving net interest growth are the growth in debt and interest rates the Department of the Treasury must pay on the borrowing. While interest rates are currently historically low, they are expected to grow over the long term.

Total health care spending (public and private) in the United States continues to grow faster than the economy and is driven both by an increase in the proportion of the population enrolled in Medicare and by the increase in health care spending per beneficiary. GAO projects federal spending on major health care programs to grow from 5.9% of GDP to 8% of GDP in fiscal year 2050. Medicare's Hospital Insurance Trust Fund is projected to be depleted by 2026, with revenues sufficient to pay only 87% of scheduled benefits in 2027. Medicare spending is projected to reach $1 trillion per year by fiscal year 2023, while combined federal and state Medicaid spending is projected to reach $1 trillion by 2027.

For Social Security, demographic factors, such as longer lifespans, an aging population, and slower labor force growth are straining Social Security programs and contributing to a gap between program costs and revenues. GAO projects spending on Social Security will grow from 5.2% of GDP to 6.1% of GDP in fiscal year 2050. Spending on Social Security already exceeds $1 trillion per year. The combined Social Security Old-Age and Survivors Insurance and Disability Insurance trust funds are projected to be depleted in 2032 with revenues sufficient to support about 75% of scheduled benefits in 2033.

Federally funded science and research centers located in the state continue to generate significant employment and economic impacts. Colorado has 33 laboratories that receive significant federal funding—one of the highest concentrations of federally funded science and research centers in the nation. These laboratories employ 7,800 direct workers and 9,820 indirect workers who earn a total of $783 million in wages and benefits and generate approximately $2.6 billion in annual economic impact to Colorado. The National Renewable Energy Laboratory (NREL), for example, reported that in FY2019 it had an economic impact in Colorado of $875 million. These labs also contribute 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

The state government industry consists of a variety of public sector activities, such as higher education, law enforcement and security, road and other public infrastructure construction, and a range of government administrative services. In many communities across the state, state government is the largest employer with competitive wages and benefits. In 2020, total state government employment was 126,400, down 2.9% from the previous year and the first annual decline in employment since 2003. The decline stems from the loss of around 4,600 public higher education jobs. Excluding public higher education employment, state government employed 52,200 people in 2020, a 1.8% increase from the prior year. Minus the 2020 employment decline, state employment has been steadily increasing over the past decade, with a compound annual growth rate of 3.1% from 2010 to 2020, and employment typically grows with population growth.

The impacts of the COVID-19 pandemic resulted in significant state budget actions in 2020 that included furlough days for state government workers to help address the state's budget tightening and postpone any potential layoffs. The spending cuts were restored in May of 2021, and the proposed 2022-2023 state budget would increase the state's operating budget by 8% over 2020. In addition, the $1 trillion infrastructure bill that President Biden signed in November will pump $6.2 billion into Colorado state government that will be used for highway and public transportation and water infrastructure projects—this will be about four times the average annual Colorado Department of Transportation budget of between $1.4 and $1.6 billion. This additional funding looks to support and strengthen state government employment over the year ahead. State government employment, excluding higher education, is expected to increase 2.5% in 2021 and 2022.

Higher Education

Employment in Colorado's public higher education system accounts for almost 60% of total state government employment. These workers include both part- and full-time faculty and nonfaculty staff. Job growth in Colorado's public higher education sector declined by 5.8% in 2020 as the outbreak of the COVID-19 pandemic became a major disruption to colleges and universities and most had to cancel or significantly reduce in-person classes. This last year has been challenging for many community colleges across the United States, with consistent dips in enrollment. Public higher education institutions in Colorado have seen their budgets restored and increased above pre-pandemic levels, but state higher education employment is expected to continue to decline in 2022. Worker shortages for auxiliary services such as residence halls, dining services, and parking services will continue to impede job growth, and early data indicates that some institutional budgets will remain under pressure as a result of enrollment declines. In addition, the COVID-19 Delta variant will continue to create challenges for Colorado's public higher education institutions.

The forecast assumes a decline of nearly 3,400 higher education jobs, or 4.6% in 2022, as worker shortages for auxiliary services persist and institutions balance staff increases with the uncertainties of enrollment declines and the COVID-19 Delta variant. In 2023, job loss in Colorado's higher education system are expected to slow. Historically, employment in public higher education is countercyclical as the demand for new credentials increases when fewer job opportunities are available. However, the pandemic has posed unique challenges to higher education and may challenge workforce development given the uncertainties surrounding the pandemic's duration.

This last year has been challenging for many community colleges across the United States due to the COVID-19 pandemic, which has led to enrollment declines of various sizes at many of these institutions. According to Inside Higher Ed, total enrollment fell by 3.5% year-over-year from 17.5 million students to 16.9 million, the largest drop in a decade.

Community College of Aurora (CCA), one of 13 community colleges in the Colorado Community College system (CCCS), provides a local perspective. The college has strong partnerships with local high schools and a strong concurrent enrollment base (high school students taking both high school and CCA classes), which has helped offset some of the college's overall enrollment declines.

CCA has two campuses—one on the former Lowry Air Force Base and one in the CentreTech area near 6th Avenue and Chambers Road. It also has a nationally recognized, award-winning film school near the Lowry campus. Sixty-two percent (62%) of CCA's students are students of color, making CCA the most diverse community college in the state. CCA is also federally designated as a Hispanic Serving Institution (HSI) and a Minority Serving Institution (MSI). In July 2021, CCA welcomed a new president, Dr. Mordecai Brownlee. He is one of four new presidents in the CCCS system. The CentreTech campus will be home to a new STEM-focused building, with an anticipated opening of 2023 (CCA's first new building in 26 years). The college continues to develop and refine new formats of teaching and learning, including hybrid, hyflex, online, and in-person options. CCA also continues to focus on workforce partnerships, expanding programs, and offering classes in different timeframes.

The global pandemic continues to offer an opportunity to adapt and expand course offerings and modalities. The college has required vaccines for students in areas like health care; vaccine requirements in these areas mirror industry requirements and are required for clinical experiences. In 2022, the college will require some form of testing. The health and safety of the campus community is a top priority for CCA.

Local Government

County Government

The COVID-19 pandemic has tested the resiliency of all aspects of the economy, and counties are no exception. In the early days of the pandemic, counties moved rapidly to modify their delivery of public services to respond to the intense need and uncertainty in their communities. They took the lead on passing public health orders, repurposed county staff to support the frontline public health response, and adjusted their budgets to free up resources for an uncertain future.

As the COVID-19 pandemic continues on, counties find themselves in the lead on a number of societal crises. The use of illegal substances has increased, affordable housing and childcare options drastically lag demand, reports of abuse and neglect are on the rise as kids head back to school and workforce shortages make it challenging to deliver services. On top of this, counties must still keep the engine of basic governmental services going, which includes running elections, operating local jails, responding to natural disasters and emergencies, providing veteran services, maintaining thousands of miles of local roads and bridges, supporting the district attorney's office, and much more.

continued on page 128

Government

continued from page 127

The economic outlook for Colorado's 64 counties is as diverse as the state's vast geography. The colloquial saying among local governments of "If you've seen one county, you've seen one county" is the best counsel to keep in mind when making generalizations about economic trends.

From a revenue standpoint, counties fared much better than expected when compared with the initial projections of COVID-19's potential havoc. This local reality mirrors the state's reality. Assessed property valuations have increased in most parts of the state. However, due to the lag in the assessment cycle, much of this growth reflects pre-pandemic activity. It is not clear what will happen with assessed valuations in the next cycle when activity from the last one-and-a-half years dating back to June of 2020 is captured.

Additionally, high consumer consumption levels, coupled with the continued implementation of the Wayfair decision (which required internet retail sales to be subject to state and local sales taxes), meant counties with a sales tax saw increases well over projected amounts. Many counties also experienced an increase in fee revenue associated with development plan reviews and construction permits.

On the expense side of the ledger, federal spending packages like the Coronavirus Aid, Relief and Economic Security Act (CARES - March 2020) and the American Rescue Plan Act (ARPA - March 2021) helped cover many of local government's pandemic-related expenses. And for counties that can show a revenue loss under ARPA, spending flexibility opens up even more so between now and December 2024. Many communities are still determining how best to invest their one-time funds and have launched community engagement processes to identify the most pressing needs.

Similar to other parts of the economy, county budgets will be at the whim of supply chain constraints and inflationary pressures that may suppress consumer activity and limit sales tax growth. Increased construction costs will make promised community assets like road and bridge improvements and other capital expenditures more expensive to build. And the time capsule of depressed property values from the early months of the pandemic will soon be known. It is possible, however, that losses will be offset by the booming housing market, low vacancy rates in the industrial and warehouse sector, and growth in both the unincorporated and incorporated areas.

Municipal Government

Each year, the Colorado Municipal League (CML) conducts a statewide survey titled, "The State of Our Cities and Towns," to measure the economic outlook of Colorado's communities compared to previous years. CML groups the responses received into three categories according to a municipality's size (i.e., population of less than 2,000, between 2,000 and 24,999, and 25,000 or greater). It also does so regionally, providing a more realistic snapshot of what is happening on the eastern plains versus the Front Range or Colorado's mountain communities.

The COVID-19 pandemic brought an unprecedented level of uncertainty for municipalities across the state, and 2020 was fraught with fiscal challenges for Colorado's cities and towns. The results of this year's survey show that municipalities have quickly recovered from the fiscal hardships of 2020, with 64% of respondents reporting a better-than-expected fiscal outlook compared to last year. Of all responding municipalities, 59% reported having fully recovered or never being impacted by the negative fiscal impacts of the COVID-19 pandemic, and only 2% of municipalities reported expecting to not fully recover. These responses were consistent through cities and towns of all sizes, as well as different regions throughout the state.

A little over half of municipalities felt their overall economy was somewhat or much better in FY 2021 compared to FY 2020 and reported an increase in revenue rather than the shortfall that was expected. One main component of the higher revenue is an increase in sales and use taxes in 2021. Due to the watershed decision in South Dakota v. Wayfair, and the adoption of a new sales tax system in Colorado, out-of-state retailers began to pay regional and local sales tax in 2019. Through the COVID-19 pandemic, there was a dramatic increase in online shopping, bringing that out-of-state sales tax straight to Colorado's cities and towns. Two-thirds of Colorado's municipalities reported an increase in sales and use taxes in 2021, allowing for a quicker economic recovery from 2020.

Another component leading to the quick economic recovery was the federal investment in local governments through the Coronavirus Aid, Relief, and Economic Security (CARES) Act and the American Rescue Plan Act (ARPA). Most municipalities reported that the two federal stimulus bills sufficiently met their needs during the pandemic, allowing for a quick fiscal recovery. And a stark 71% of municipalities responding stated that the CARES Act and ARPA made it possible to replace lost revenue. Larger municipalities, in particular, found that replacing

HOW DOES YOUR MUNICIPALITY PLAN TO USE AMERICAN RESCUE PLAN ACT (ARPA) FUNDS?

13%	Supporting Public Health Infrastructure
25%	Addressing Negative Economic Impacts Caused by Public Health Emergency
20%	Replacing Lost Public Sector Revenue
7%	Providing Premium Pay for Essential Workers
56%	Investing in Water and Sewer Infrastructure
15%	Investing in Broadband Infrastructure
24%	Undecided

Source: Colorado Municipal League.

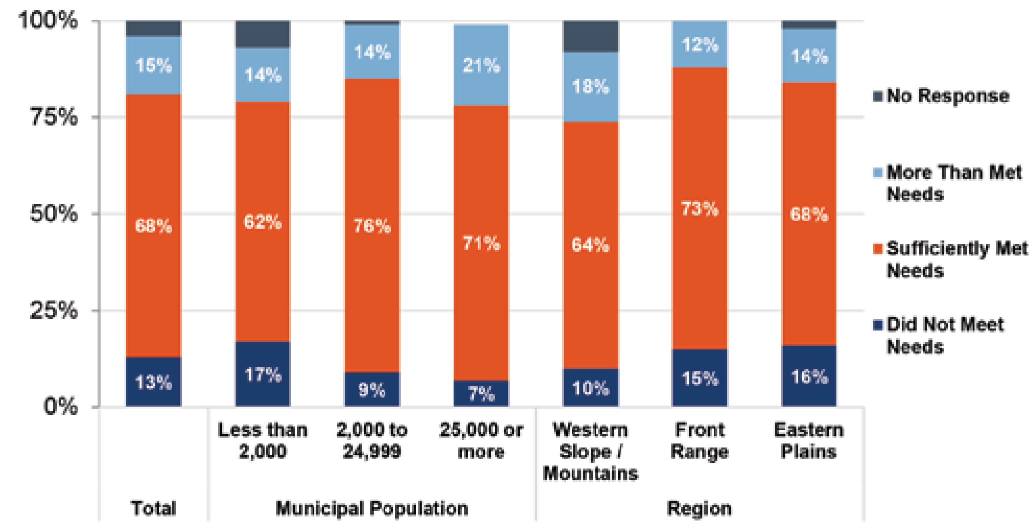
lost revenue was only possible because of federal stimulus funds. Larger municipalities also attribute the ability to invest in public health infrastructure and address negative economic impacts caused by COVID-19 were only made possible through federal stimulus. Smaller municipalities reported that stimulus funds made it possible to invest in water and sewer infrastructure.

Lack of affordable housing is the largest issue facing municipalities in 2022, followed by a tight labor market and unfunded street and road maintenance. Looking beyond 2022 and to the next five years, housing affordability remains among the largest challenges for municipalities. This was true across regions, showing that a lack of housing is impacting cities and towns across the Centennial state. Most municipalities report that housing supply and affordability issues have worsened over the past three years, and Western Slope and mountain communities are seeing the worst of this crisis, which can be largely attributed to the booming short-term rental market in mountain resort towns. Western slope cities and towns report that the lack of housing in their communities is also leading to a workforce shortage. Large municipalities on the Front Range reported that a lack of affordable housing has led to an increase in the unhoused population in their communities, with nearly three-quarters of these municipalities reporting homelessness as an issue. Only 16% of municipalities with a population of less than 2,000 reported homelessness as a cause of concern.

The next pressing issue for cities across the state looking toward 2022 is infrastructure costs, mainly unfunded street and road maintenance, with more than half of municipalities reporting that their current needs for streets are not being met. Large municipalities are more concerned about transportation funding than smaller towns and cities, with 86% of municipalities with populations of 25,000 or more noting this concern. However, a lack of sustainable transportation funding has been an ongoing issue throughout the state. And during the 2021 legislative session, the General Assembly passed

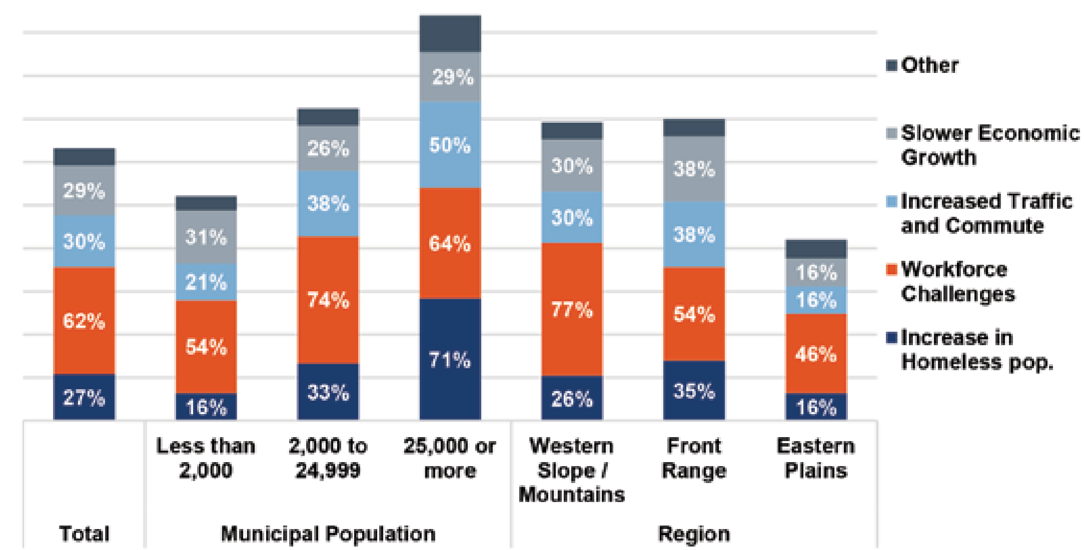
continued on page 130

DID CARES AND ARPA MEET MUNICIPALITIES' NEEDS?



Source: Colorado Municipal League.

WHAT IMPACTS HAS YOUR MUNICIPALITY EXPERIENCED AS A RESULT OF HOUSING SUPPLY AND AFFORDABILITY ISSUES?



Source: Colorado Municipal League.

Government

continued from page 129

Photo courtesy of Boulder Valley School District.

Senate Bill 21-260, functionally changing how the state funds transportation projects. Early estimates show that local governments will see a dramatic increase in funds earmarked for transportation projects and maintenance through a series of new and expanded enterprises, hopefully addressing the shortfall in funds available for road and streets in cities and towns.

Though 2020 brought great uncertainty and fiscal strife for cities and towns, 2021 was the bounce back year municipalities needed. Thanks to robust federal assistance and higher-than-expected revenue, Colorado's cities and towns have been able to stave off the worst of the pandemic's hardships. However, in 2022 and beyond municipalities will face housing and labor shortages. On top of that, local governments are beginning to see strains from increased construction costs, supply chain challenges, and labor shortages, making it more difficult to invest in much needed investments in housing and infrastructure. Municipalities' general funds may have recovered from the cuts they faced in 2020, but challenges still lie ahead.

Special Districts

Special districts are a form of local government in Colorado that date back to early mining communities when residents of such camps sought mechanisms to join together to efficiently and effectively provide essential services. Special districts of one form or another have been utilized since that time. The general source of statutory authorization (and limitations) is the Special District Act (Article 1 of Title 32 of the Colorado Revised Statutes). There are many types of special districts organized under the Special District Act, including, but not limited to, the following: Ambulance Districts, Fire Protection Districts, Health Service Districts, Metropolitan (Metro) Districts, Park and Recreation Districts, Sanitation Districts, Water Districts, Water and Sanitation Districts, Health Assurance Districts, Mental Health Care Service Districts, Tunnel Districts, and Forest Improvement Districts. Further, there are other types of special districts organized and operating under other statutory schemes, including Business Improvement Districts, Cemetery Districts, Conservation Districts, Downtown Development Authorities, Federal Mineral Lease Districts, Irrigation Districts, Library Districts, Local Improvement Districts, Pest Control Districts, Public Improvement Districts, Regional Transportation Authorities, Special Improvement Districts, Water Conservancy Districts, and Water Conservation Districts. Currently, there are 3,329 special districts in Colorado.

Many special districts in Colorado have non-tax sources of revenues, such as rates, user fees, and service charges. Some special districts, such as those providing water or sewer services, rates, or fees may comprise the majority of district revenues—and, as such, some of these districts may have been structured as government enterprises for which the voter-approval provisions of Taxpayer Bill of Rights (TABOR) do not apply. However, for most special districts, property tax is the primary source of tax revenue. Please note that a handful of districts may impose a sales tax (see, for example, C.R.S. §§ 32-1-1106, 32-19-112(1) and 39-26-729(1)(b)). While property tax is a relatively stable source of tax revenue, assessing, levying, and collecting the tax is a two-year process; therefore, for special districts, it can be very difficult to absorb new or unexpected expenditures. Further, as explained below, statewide tax policy changes in the property tax system may impact future property tax revenues.

Like their county and municipal counterparts, TABOR provisions apply to special districts and require voter approval for taxes and debt. Prior to voter approval of Amendment B at the 2020 statewide general election, a constitutional provision, referred to as the Gallagher Amendment, interacted with TABOR to maintain or reduce residential property tax revenue, commensurate with market increases. In a post-Amendment B Colorado (which repealed the provisions of the Gallagher Amendment that set a ratio calculation for residential property assessment), the Colorado General Assembly has authority to set property tax assessment rates in statute (the authority to make such statutory changes is also a constitutional power reserved for the people of Colorado under Article 5, § 1 of the state constitution). To that end, citizen proponents filed a proposed statutory measure in the spring of 2021, which appeared on the statewide 2021 ballot as Proposition 120. Proposition 120 would have reduced residential and commercial property tax assessment rates (from 7.15% to 6.5% for residential and from 29% to 26.4% for commercial). After the process for Proposition 120 commenced in 2021, the Colorado General Assembly later introduced and passed Senate Bill 21-293 (SB21-293), which further amended the same statutory laws as Proposition 120 proposed to amend, creating additional classifications or categories of property assessment rates by dividing the two general categories of property (residential and commercial) into multifamily residential, single-family residential, agricultural, commercial, oil and gas, renewable energy production, and lodging. The result was that SB21-293 blunted the potential negative fiscal impact of Proposition 120. Alone, Proposition 120 would have reduced statewide property tax revenues by $1.03 billion, based on the fiscal impact statement published by non-partisan legislative staff on May 17, 2021. After the changes in SB21-293, which will reduce property taxes by $193.1 million (according to the fiscal note), the impact of Proposition 120 would have been an additional reduction of $45.9 million, according to the 2021 State Ballot Information Booklet. On November 2, 2021, statewide voters rejected Proposition 120. Perspectives on Proposition 120 and SB21-293 may differ, but, in the future, both may portent volatility impacting local government property tax revenues resulting from statewide policy changes.

Looking into 2022, Colorado's special districts continue to face the fallout from COVID-19 impacts. Many special districts serve as first responders or health care providers, with employees acting as essential workers in the public health, welfare, and safety emergencies of the ongoing COVID-19 crisis. Many of the challenges that special districts faced early in the crisis have eased, such as supply chain issues and staffing challenges; however, these global supply or employment trends may reappear in 2022. Further, while an executive order in 2020 provided special districts with federal funding from the Coronavirus Aid, Relief, and Economic Security (CARES) by reimbursing special districts for the unanticipated expenditures (but not reduced revenues), no similar approach has yet been developed in 2021 for special districts to benefit from federal recovery funds from the American Rescue Plan Act of 2021.

There is good news to temper some of these downsides: local governments, including special districts, have risen to these unprecedented times. Special districts have used technology and other remote methods to communicate, meet, and provide information or training to their residents. The pandemic pushed special districts to be creative and flexible, and the innovations they deployed during the pandemic are likely to continue into the future. One final piece of good news is that 2021 provided a welcome, if temporary, respite from the devastating wildfires, giving communities an opportunity to heal from the devastating 2020 season.

PK-12 Education

Colorado public school districts educate nearly 900,000 students in preschool through 12th grade every year. Funding for public schools comes from three main sources of revenue: local property tax, state funding, and federal dollars. The state share is primarily from income and sales tax revenues flowing through the state and then to districts. While federal education law is well established and sets strong requirements for public education, federal dollars are typically a relatively small overall component of the annual funding of public schools. Since March of 2020, K-12 public education, like many sectors of the economy, has experienced dramatic changes in the delivery of services, labor force availability, and revenue fluctuations.

Overall funding of education in Colorado as compared to the national average has declined since 1992, despite such actions as Amendment 23 to the Colorado constitution in 2000 and the passage of cannabis sales taxes to support education. Colorado spent between $2,205 to $3,033 less per pupil than the U.S. average in FY2018, according to data from the Census Bureau, Quality Counts, and NCES. Many school districts have turned to increasing local property taxes to support education, but due to the wildly disparate property values within school districts, the ability to generate revenue is a function of property values as well as the local voters' willingness to support public education. The total revenue that 1 mill of property tax assessed in a district will generate ranges from $6,044 to $21.1 million. Or to look at it on a per student basis, 1 mill will generate $14 to $5,203 per student (based on data from the Colorado School Finance Project, Sept 2021). These disparities are a result of residential development, nonresidential development, oil and gas resources, and the number of students in a district.

2021 Impacts

The rapid economic recovery following the short economic crash in 2020 has impacted the K-12 public education system in unique ways. The necessary shift to virtual and hybrid learning in 2020-21, with some districts seeing upwards of 25% of families choose to continue remote learning for their children even when schools were fully open, indicated that trend might continue into 2021-22. Interestingly, there was a dramatic shift back to more traditional school settings as school schedules returned to more normal operations. In preparation, one suburban district set up a virtual school to allow families to continue in that remote learning structure, but saw that 25% of students decrease to 2% once schools had routines in place and regular teaching and learning was occurring. The

continued on page 132

Government

continued from page 131

demand for virtual or remote learning just did not continue once schools returned to more normal operations, although the local conditions varied widely across the state as a result of access to high-speed internet, devices, online instruction, and local choice.

An area of district operations greatly impacted by the shifting economy and widely reported in national news outlets is the labor shortages in nearly all of the operational support areas within school districts, including bus drivers, food service workers, childcare providers, custodians, maintenance workers, and substitute teachers. These shortages increase wage pressures and strain the system when community expectations for services remain at an all-time high.

2022 Outlook

The outlook for 2022-23 continues to improve; however, lingering fiscal and operational headwinds will persist. Statewide enrollment in 2022-23 is projected to increase by 889 students from 2020-21. This slight increase will continue a declining trend given the significant 3.3% enrollment drop recorded in October of 2020. Student enrollment growth across the state has dropped from growth of 2% in 2008 to 0.1% and 0.2% in 2018 and 2019. This trend of slowing growth, when combined with declining birth rates and rising housing costs, indicates overall declining enrollment within the state in the coming years.

Uncertainties regarding vaccine availability, parent choice with homeschooling and private schools, the overall comfort level of some families sending children to school during the pandemic, and the overall demographics of families will place greater variability in those enrollment projections, and thus greater uncertainty in funding projections. Certainly, enrollment projections vary by specific school district and region for similar reasons, with some areas seeing growth and others seeing declines, which are significant in some areas. Despite the uncertainties, the statewide projected enrollment growth from the

Photo courtesy of Boulder Valley School District.

2021-22 school year of approximately 0.1% remains in positive territory but is not recouping the student loss from the 2020-21 school year. Governor Polis' 2022-23 budget proposal, released on November 1, 2021, reduces (improves) the Budget Stabilization Factor by $150 million, bringing the reduction to $421.2 million. The Budget Stabilization Factor is a mechanism to reduce the state's obligation to PK-12 public education funding. The per pupil funding inflationary increase of 3.7% is based on the Office of State Planning and Budgeting (OSPB) September 2021 Economic Forecast. This proposal totals a funding increase of $475.6 million for K-12 education. This totals an average of $526 per pupil more than 2021-22 funding, or a 6% increase.

School district spending in the near term will be buoyed by the $1.05 billion in American Rescue Plan ESSER III funds allocated to Colorado school districts based on student poverty levels. This short-term funding allows districts to respond to student learning loss, the growing pediatric mental health crisis, continued health and safety protocols, as well as to address some demands of aging capital infrastructure like HVAC systems or minor facility improvements. With input from the local community, each district is required to develop a spending plan for a variety of specific spending categories as defined in federal guidelines. One challenge is that these non-recurring federal resources must be used by September 30, 2024, which limits their usefulness for the continued operational pressures and will create a funding cliff if allocated for ongoing expenditures or high-impact interventions that set a level of expectation with families for ongoing services.

While the funding outlook remains positive for the time being, the upcoming FY22 state revenue forecasts in December 2021 and March 2022 will determine where the legislature is able to set the budget for K-12 education in 2022-23. Within the confines of the resources allocated by the legislature, districts across the state will be contending with labor shortages, wage pressures, and inflationary costs outstripping the funding increases. However, within these constraints, an environment of high expectations remains for educators to prepare students for the 21st century economy.

Fixed Income Market – Local Governments

Local governments in Colorado experienced a compression of short-term fixed income rates throughout 2021. Many of the available investment options approved under C.R.S. 24-75-601 produced significantly lower yields than similar instruments at the end of 2020. For example, the local government investment pools, which are still a primary driver for local government investing, averaged returns of less than 0.06% annual yield throughout 2021. The longer-term fixed income instruments with maturities of less than five years for government notes, and less than three years maturity for corporate notes with a credit rating of AA- or above, also provided lower yields than captured in 2020.

Operating budgets for local governments related to interest earnings on investments were significantly lower than earnings experienced in 2020 and 2021. As a result, many local governments had to further restrict their discretionary funds available for projects. Staffing and capital projects were not impacted significantly by the reduced amount of interest earnings but the budgetary pressure from the lack of income from investments was evident.

Yields from allowable fixed income instruments are expected to remain low in 2022. Although many local governments in Colorado plan to forecast minimal interest earnings in 2022, budgets will still be impacted because of the loss of income due to low interest rates. As of October 2021, the Federal Open Market Committee (FOMC) is evenly divided about raising the Fed Funds Target Rate in 2022. The Fed Funds rate and duration are the primary drivers for yield realized by local governments. Nine of the eighteen voting members have signaled a modest 0.25% increase in the Target Rate while the other nine members have not signaled for a rate increase until 2023. All indications point toward little or no movement in short-term interest rates through the end of 2022. The more aggressive forecasts call for a small rate adjustment toward the end of 2022. This translates to local governments buying bonds longer out of the allowable yield curve to capture attractive interest rates. Yet, in doing so many local governments will take on principal risk, interest rate risk, and reinvestment risk. In addition, yields on daily liquid investment options such as local government investment pools are expected to stay unprecedentedly low in 2022.

Colorado Local Government Funding

Bond Issuance Landscape

The State of Colorado bond ratings from the primary rating agencies remained stable in 2021. The impact of COVID-19 on local government balance sheets was less than expected. As a result, local governments issuing debt maintained strong ratings with low borrowing costs. Due to the continued economic growth at the local government level, ratings are expected to remain strong through 2022. The potential for upgraded bond ratings is possible due to stable reserve funds, increasing tax-based revenues, and a boost in the state's financial health.

Although the outlook for debt issuances in 2022 remains strong, there are prevalent risks for local governments issuing debt in 2022. The potential for rising interest rates increasing the cost of borrowing for local governments in Colorado could spur demand to issue bonds to keep the cost to taxpayers low. Many local governments in Colorado are expected to issue bonds at an increased frequency compared to the last two years.

Stable reserve funds, increased tax revenues, demand for capital projects, increased voter acceptance, and strong leadership at the local government level all signal increased debt issuance in 2022. Based on the forecasted rise of interest rates in the second half of 2022, local governments could benefit from moving forward with proposed projects in 2022 rather than waiting.

Contributors:
Jennifer Pinsonneault, City of Boulder (Chair)
Dianne Criswell, Special Districts Association of Colorado
Justin Fazzari, National Telecommunications Information Administration (NTIA)
VA Hayman Barber, Community College of Aurora
Meghan MacKillop, Colorado Municipal League
Ben Mendenhall, Consultant
Meredith Moon, Colorado Office of State Planning and Budgeting
Megan Pierce, City of Louisville
Gini Pingenot, Colorado Counties, Inc.
Louis Pino, Colorado Legislative Council
Kara Skinner, City of Boulder
Bill Sutter, Boulder Valley School District

International Trade

The swift and broad monetary and fiscal interventions in advanced economies led to strong income, consumption, and output growth for most of the developed world as COVID restrictions eased from the second half of 2020 to Q3 2021. Trade followed in kind over this period, with national and state values experiencing their largest increases since the rebound from the Great Recession in 2010 and 2011 due to the extreme surge in demand and consumption driven by the interventions. Goods exports and imports are likely to finish 2021 above their recent 2018 record values, while services—stunted through Q3 2021 from continued restrictions in international travel—will likely finish slightly below, even as Q4 2021 is showing strong service export growth as these restrictions ease.

The following sections of this report discuss national and state trade performance from January to August 2021, the most recent month of data, before discussing the outlook for 2022.

National

At $1.6 trillion, national exports in goods and services were up 17% year-to-date through August 2021 from the previous year, while imports in goods and services, at $2.2 trillion, were up 21%. Trade in goods fared better throughout 2021 than trade in services. Services exports ($499 billion) were up 5% and imports ($341 billion) were up 12%, while goods exports ($1.1 trillion) and imports ($1.9 trillion) were up 24% and 23%, respectively. In 2018, goods accounted for 66% of exports and 82% of imports nationally.

The stronger growth in imports—especially in services—led to the trade deficit widening to new records in 2021. For Q3 2021, the Bureau of Economic Analysis (BEA) recorded seasonally adjusted annualized net exports of goods and services of -$939 billion. Adjusting for inflation with chained 2012 dollars, the real value of net exports was -$1.3 trillion. In 2020, this series reached a new record of -$943 billion, breaking the previous record of -$928 billion in 2006. Given this steep decline in net exports, the 2021 real annual trade deficit is likely to register between $1.2 and $1.3 trillion, about 30% larger than in 2020.

Seasonal Adjustments

Economic data is often adjusted to account for distorting factors and for easier interpretation and comparison. Seasonal adjustment reduces the impact of regularly occurring seasonal effects, such as extreme growth in sales during the holiday months, so that observers can compare growth from one month to the next. Inflation adjustment aims to mitigate the effects of price changes on data, such as GDP, so that the changes from period to period reflect the actual changes in units observed. Annualized data show the amount an observation of a shorter time interval would be if it were extrapolated over a full year. This is often more meaningful to observers than the daily, weekly, monthly, or quarterly observations because it could be compared to full years of data previously recorded.

While services exports year-to-date through August 2021 were up 5% nationally over the same period in 2020, they were 13% lower than they were through the same period in 2018. Almost three-quarters of this lost volume came from travel, which was down 30% year-to-date and down 70% from the same period in 2018. Over the previous expansion, travel accounted for between 22% and 25% of annual U.S. service exports. In 2020 it fell to 10%, and year-to-date in August 2021 it accounted for 8%. Note that for national accounting purposes "travel" exports are consumption expenditures within the physical boundaries of the United States attributable to people living abroad; this category is closely tied to tourism. The Biden administration announced that it will lift travel restrictions into the U.S. at the beginning of November, which may boost these exports through the closing months of 2021. Transport services and maintenance and repair services account for the remaining lost value from 2018, down 35% and 57%, respectively. The remaining eight major categories of services exports are up year-to-date over the same periods in 2020 and 2018. The largest contributors to growth were financial services and other business services, which were up 14% and 10%, respectively, year-to-date over 2020 and accounted for 73% of the gains from 2018. Telecommunications, computer, and information services; charges for the use of intellectual property; and insurance services also saw strong growth.

Goods exports year-to-date through August 2021 were up 24% nationally, but just 2% above the value over the same period in 2018. This is driven by a broad increase in exports across products and categories: most are up year-to-date by at least 10%, and many are up by at least 25%. Nonetheless, the majority of these products are still down when compared to year-to-date values in 2018. The strongest growth was seen in industrial supplies and materials. This group was led by natural gas, crude oil, liquefied petroleum gas, and precious metals except nonmonetary gold, with growth ranging from 22% to 103% year-to-date over 2020 and 42% to 199% over 2018. Semiconductors, pharmaceuticals, and corn also saw strong growth during 2021 and were above comparable 2018 values by at least 30%. Despite strong growth in 2021, automobiles and parts—especially those exported to Canada—jewelry and gems, coal, raw hides and furs, and tobacco were still well below 2018 values. Tobacco, alcoholic beverages, TVs, and video equipment, fuel oils, and civilian aircraft were down year-to-date over 2020 and 2018 values.

Of the nation's most important regional trading partners—which account for about 55% of service exports and 72% of goods exports—eight were down year-to-date in service exports and seven were up compared to last year. China, Brazil, Italy, Japan, and Canada led these losses, while Hong Kong, Mexico, Taiwan, South Korea, and Singapore led the gains. Only Saudi Arabia, Hong Kong, and Singapore's year-to-date values exceeded those of the same period in 2018— by 26%, 14%, and 13%, respectively— with all others except Taiwan down by double-digits. Brazil, China, and Italy were down furthest from 2018 levels, by 47%, 40%, and 37%, respectively. For goods exports, all but two countries were up year-to-date compared to last year, led by India, China, Mexico, Hong Kong, and South Korea. France and Saudi Arabia were down by 6% and 4%, respectively. Not surprisingly, these two countries were also furthest from their 2018 year-to-date values, both down 25%. Despite growth, four other countries were down against 2018: Hong Kong by 22%, the UK by 11%, Italy by 5%, and Canada by 3%. Taiwan, South Korea, and India were up furthest from 2018 levels, by 29%, 22%, and 17%, respectively.

Imports of services in all categories were up year-to-date, including travel, which measured 18% higher than 2020 values. This is not unexpected as other countries lifted international travel restrictions on vaccinated travelers before the U.S. did in 2021. Nonetheless, travel imports were 70% lower than in 2018 and accounted for 83% of the lost value. Virtually all goods imports were up year-to-date (and many by double-digits), except aircraft engines and parts and other transportation equipment. Gains were led by petroleum products (crude, fuel, natural gas), building materials and metals, and automobiles and parts—especially those not from Canada—and most durable goods (radio and stereo equipment, toys, sporting goods, bikes, furniture, household appliances, jewelry). Completed civilian aircraft, despite the losses in parts, were up by 46%. While most were also up against 2018 values, automobiles from Canada; petroleum products; and drilling, mining, and construction machinery were down by double-digits. Generally, service imports lagged in Europe, with Italy leading losses (17% down year-to-date from 2020 and 59% from 2018), while they surged in Asia, with Taiwan leading gains (37% from 2020 and 14% from 2018). Most were up in goods exports year-to-date, with the exception of Hong Kong, Saudi Arabia, and Singapore. Saudi Arabia and Hong Kong are furthest from 2018 values, by 49% and 43%, respectively.

MAJOR DESTINATIONS FOR COLORADO EXPORTS OF MANUFACTURED GOODS, MINERALS, AND AGRICULTURAL PRODUCTS, 2017-2021 YTD (In Millions of Dollars)

Country	2017	2018	2019	2020	Sep 2020 YTD	Sep 2021 YTD	Percent Change	Country Share of Total
Canada	$1,390	$1,447	$1,446	$1,283	$955	$1,183	24%	17%
Mexico	$1,316	$1,254	$1,059	$1,048	$706	$1,068	51.3	15.8
China	$586	$577	$524	$498	$333	$672	101.5	9.9
South Korea	$389	$494	$542	$521	$399	$445	11.7	6.6
Malaysia	$417	$392	$468	$526	$329	$403	22.6	6.0
Japan	$445	$456	$399	$400	$296	$335	13.0	4.9
Netherlands	$276	$305	$331	$300	$213	$219	2.6	3.2
Switzerland	$171	$191	$201	$183	$140	$209	49.2	3.1
Germany	$314	$301	$280	$305	$222	$203	-8.7	3.0
Taiwan	$208	$223	$232	$222	$162	$197	21.7	2.9
United Kingdom	$220	$220	$243	$202	$151	$176	16.7	2.6
Hong Kong	$234	$243	$202	$137	$100	$128	27.2	1.9
Belgium	$143	$153	$151	$139	$98	$125	26.8	1.8
Australia	$169	$146	$123	$152	$120	$112	-7.1	1.7
France	$128	$182	$170	$106	$82	$111	36.1	1.6
Total Top 15 Countries	$6,405	$6,585	$6,372	$6,022	$4,307	$5,584	29.7	82.5
All Other Countries	$1,649	$1,747	$1,726	$2,147	$1,726	$1,182	-31.5	17.5
Total All Countries	$8,054	$8,332	$8,098	$8,169	$6,033	$6,766	12.2%	100.0%

Source: U.S. Census Bureau.

Colorado

Official state trade estimates at this time do not include services trade values. Some unofficial third-party estimates would suggest that services exports in Colorado are about twice the size of goods exports. Given the importance of outdoor recreation and tourism to the state's economy, it is likely that a strong share—probably stronger than that of the U.S. as a whole—is travel. The most recent passenger traffic reports for Denver International Airport (DEN) from September show that the number of international passengers has grown substantially over 2021 but is still well below 2018. Through September, 1.3 million international travelers went through

continued on page 136

International Trade

continued from page 135

TOP 15 COLORADO EXPORTS, 2017-2021 YTD
(In Millions of Dollars)

Description	2017	2018	2019	2020	Sep 2020 YTD	Sep 2021 YTD	Percent of Total
Meat	$1,227	$1,238	$1,257	$1,357	$982	$1,360	20.1%
Electrical Equipment	1,213	1,170	1,145	1,207	788	976	14.4
Precision Instruments	1,170	1,282	1,313	1,168	874	933	13.8
Industrial Machinery	1,088	1,159	1,188	1,116	835	878	13.0
Articles Of Iron Or Steel	173	207	272	191	128	216	3.2
Aircraft/Spacecraft	202	278	336	866	796	201	3.0
Aluminum and Articles Thereof	187	203	147	200	129	198	2.9
Plastics	209	220	200	213	162	189	2.8
Mineral Fuel, Oil, Etc.	37	83	81	31	27	188	2.8
Organic Chemicals	96	92	98	103	73	170	2.5
Photo/Cinematographic Goods	241	225	191	122	85	139	2.1
Pharmaceutical Products	118	120	120	189	120	129	1.9
Vehicles	141	119	130	117	89	106	1.6
Misc Chemical Products	141	100	103	105	78	95	1.4
Raw Hides And Skins	178	139	93	61	42	84	1.2
Total Top Fifteen	6,419	6,635	6,673	7,046	5,207	5,861	86.6
All Others	1,636	1,696	1,424	1,123	826	905	13.4
Total All Commodities	$8,054	$8,331	$8,097	$8,169	$6,033	$6,766	100.0%

Source: U.S. Census Bureau.

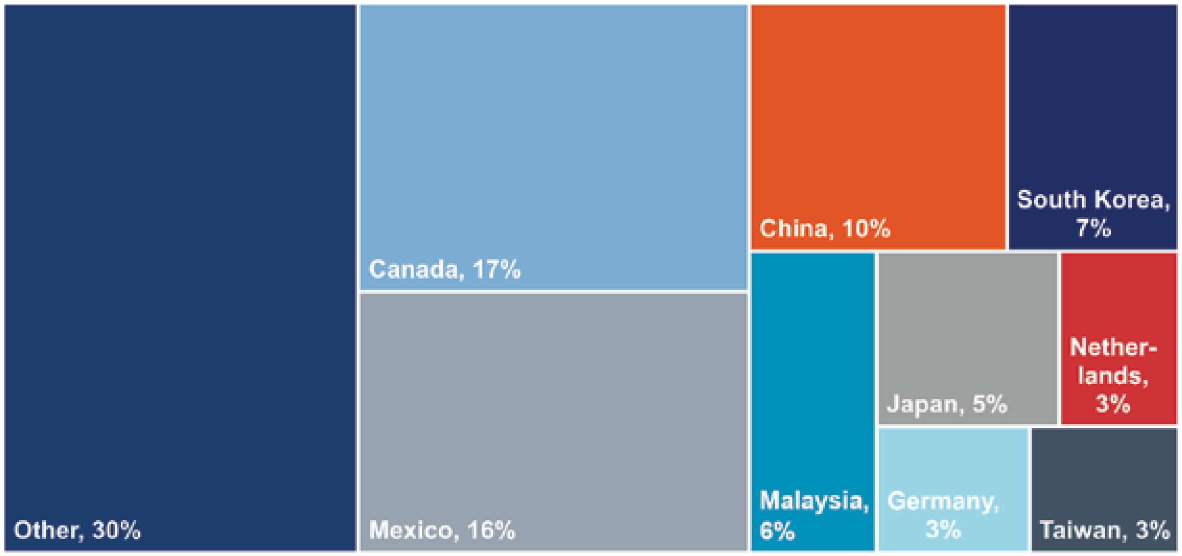
DEN in 2021, 74% more than the 742,000 that did so over the same period in 2020, but 43% fewer than the 2.3 million in 2018. As such, Colorado service exports and imports, while not officially recorded, are likely still lagging from the pre-pandemic trend. This downward pressure may have been partially offset by growth in financial, telecommunications, and other business services trade, all of which are strong sectors in the state.

For goods trade, the change in Colorado's import values exceeded that of the nation with a 33.6% increase year-to-date compared to the same period in 2020, but state exports seemed to have performed worse, recording only a 12.2% gain compared to the nation's 23.2%. This was due to a stronger state performance in exports over 2020, which grew by 1% from 2019 while the nation's exports declined by about 13%. This stronger performance was in part due to a satellite and spacecraft deliveries to French Guiana and United Arab Emirates, respectively, from Colorado-based entities in January and February 2020, which together summed to about $500 million—around 6% of typical annual value. Nonetheless, without these deliveries, Colorado exports would have still finished 5% down from 2019, substantially higher than the U.S. When adjusting for these deliveries, Colorado's performance in 2021 virtually matches the U.S., with year-to-date values up 22.3%. Should these trends hold, goods trade values for Colorado will exceed previous records, with imports set to pass $16 billion and exports $9 billion.

The top five products made up 64.5% of Colorado export value year-to-date and included (in order) meat (primarily beef), electrical machinery and equipment, precision instruments (optical, medical, or surgical instruments), industrial machinery including computers, and articles of iron or steel. Thus far in 2021, meat accounted for 20.1% of exports, while electrical equipment, precision instruments, and industrial machinery ranged between 13% and 14.4% each. These top four each accounted for between 14% and 17% of exports annually from 2016 through 2020. Articles of iron and steel accounted for 3.2% of exports year-to-date in 2021. It replaced aircraft and spacecraft, which held the fifth position in 2020 and accounted for 10.6% of exports, due to the increase from the deliveries discussed in the previous paragraph. Of the top five exports, articles of iron and steel, meat, and electrical machinery and equipment saw the largest increases in 2021, of 68.6%, 38.6%, and 23.9%, respectively. Precision instruments and industrial machinery increased by 6.8% and 5%. Compared to the same time period in 2018, precision instruments and industrial machinery were down, by 2.1 and 0.2%. Meat and articles of iron and steel were up furthest from 2018, by 45.1% and 39.7%, respectively.

Growth was widespread in 2021 and, for Colorado's most traded products, was strong enough to overcome the widespread losses of 2019 and 2020. Of the remaining 15 in the top 20 exports (which accounted for another 25.6% of total value), only one was down from 2020—aircraft and spacecraft, bolstered in 2020 by the deliveries previously discussed— and only five were

COLORADO EXPORT MARKETS SEPTEMBER 2021 YTD



Source: U.S. Census Bureau.

down from 2018—aircraft and spacecraft, photographic and cinematographic goods, raw hides and skins, textile articles, and printed books—all of which had followed a downward trend throughout most of the previous U.S. expansion. Among the largest gainers were minerals fuels and organic chemicals, which are up year-to-date by 607.9% and 134% from 2020 values, and 176.5% and 158.1% from 2018 values. Pharmaceutical products and food industry wastes are also up substantially (67.5% and 58.9%, respectively) from 2018 values after strong growth in 2020 and 2021.

The top five export destinations accounted for about 55.7% of Colorado value year-to-date, with the top two, Canada and Mexico, accounting for 33.3% alone. However, when taken as a bloc, the European Union was Colorado's 3rd-largest export destination, with 13.5%. Following Canada and Mexico, China, South Korea, and Malaysia completed the top five. All of the top five destinations were up by double-digits year-to-date from 2020 and all were up from 2018 values. The fastest growth in 2021 came from China and Mexico, which were up 101.5% and 51.3%, respectively. From 2018 values, China was up 3.7%, Malaysia 36%, South Korea 17.3%, Canada 7.5%, and Mexico—despite being up 51.3% from 2020—only 7.4%. The extreme increase to China was primarily driven by growth in meat exports, which were up 806% year-to-date from 2020 after two consecutive years of annual growth exceeding 200%. This trend was primarily the result of China lifting a 13-year ban on beef imports from the U.S. in 2017—which was initially imposed due to an outbreak of mad cow disease in the U.S. in 2003 and finally lifted as the U.S. lifted its own long-standing ban on chicken from China—but was likely also fueled in part by China's promise to purchase more American agricultural goods under the Phase One Agreement negotiated by the Trump administration in 2019. The growth in Mexico was driven by exports of articles of iron and steel, aluminum, meat, and food industry residues and wastes. For Canada, which had the 3rd-largest increase from 2020, at 23.9%, growth was primarily driven by mineral fuels and organic chemicals.

Of the remaining top 20 export destinations (which account for another 33% of total value), only Germany and Australia were down year-to-date from 2020, and 10 of the 15 were up by double-digits. Nonetheless, 11 of the 15 countries were also down compared to 2018 values. Those that fared the worst in this respect were the Philippines (-36.5%), Hong Kong (-28.1%), France (-15.8%), Germany (-15.2%), and Singapore (-14.3%). Switzerland, Taiwan, the UK, and Belgium were all up by double-digits from 2020 and up from 2018 values, ranging from 4.6% to the UK to 49.2% to Switzerland. The growth in value to Switzerland, which was greatest from 2020 and 2018 values, was primarily driven by increases in organic chemicals.

Colorado's top goods export products are typically skewed heavily toward meat, precision instruments, and air/spacecraft compared to the national profile. Electrical equipment, industrial machinery, articles of iron and steel, and aluminum products also have stronger representation than for the nation as a whole. Vehicles and mineral fuels, on the other hand, are typically much more important to the national profile than the state's; though part of this underrepresentation in fuel could be due to methods of transport and origin tracking procedures, which may lead to some of Colorado's fuel exports being attributed to coastal states. Colorado's top destinations are similar to the

continued on page 138

International Trade

continued from page 137

NOMINAL BROAD DOLLAR INDEX

Source: Board of Governors of the Federal Reserve System, Broad Dollar Index (Goods Only).

U.S. as a whole, but with slightly more emphasis toward Southeast Asia. Malaysia, South Korea, the Philippines, Hong Kong, and Taiwan are particularly important to Colorado relative to the national export profile.

The top five products made up 62.1% of Colorado import volume year-to-date and included (in order) electrical equipment, mineral fuels, industrial machinery, precision instruments, and wood and articles of wood. Of these, only precision instruments recorded year-to-date losses, which were down by 6.6%. Mineral fuels were up by 75.6% from 2020 and 12.4% from 2018 values. Consumer goods saw particularly strong gains, with many—like furniture, footwear, apparel, and jewelry—up by at least 50% from 2020 and at least 100% from 2018.

The top five import sources accounted for 60.7% of Colorado volume year-to-date, with the top, Canada, accounting for 29.6% alone. Canada was followed by China, Mexico, Taiwan, and Switzerland but when taken as a bloc, the European Union took the second spot, at 13.5%. Canada and Taiwan led the gains, up by 64.1% and 55%, respectively, from 2020 and 13.5% and 64.3% from 2018, respectively. Of the others, only Switzerland was down year-to-date from 2020 (-9.7%), but all were down from 2018 values. China was furthest from this benchmark, down 13.8%. Southeast Asia was a major driver for imports growth, with Vietnam, Malaysia, and Thailand ranging from 78.5% to 143.6% up from 2020 and 203.4% to 309.4% up from 2018.

Colorado Food & Agriculture Exports

Year-to-date through September 2021, Colorado exports in food and agriculture totaled $1.7 billion, up 34.6% from the same timeframe in 2020 and 16.7% from the same timeframe in 2018.

Top export commodities, which account for 91.8% of total food and agricultural export value, were (in order) meat, hides and skins, animal feed products, cereal grains, and value-added foods, and sugar and confectionary. Meat—which is overwhelmingly comprised of beef—accounted for 78.6% of agricultural export value, while hides and skins accounted for 4.8%, and animal feed products for 4.3%. The others of the top commodities just exceeded 1% each. Of these, hides and skins saw the greatest increase from 2020 year-to-date values (96.7%), though—as was previously discussed—it still lags 2018 values and has followed a long-term downward trend. Prepared animal feed and meat also saw strong growth exceeding 59%, while cereals and confectionary were down year-to-date from 2020.

The top five export markets for Colorado food and agriculture goods accounted for 89% of export value and were (in order) Mexico (25%), Canada (19.5%), South Korea (18.4%), China (15.2%), and Japan (11.1%). This was the first time since 2018 that Mexico has taken the top export destination rank from Canada due to strong growth of 77.1% from the same timeframe in 2020 and 17.9% from 2018. China's growth was the most dramatic, up 701% from 2020 and 2,078% from 2018. All five export markets saw growth from 2020, and only Canada was down from 2018 values, by 5.7%.

Interest Rates, Exchange Rates, & Commodity Prices

Changes in interest rates, the value of currencies, and the prices of commodities also have an effect on trade volumes for the nation and the state.

The Federal Open Market Committee (FOMC) in early November committed to holding rates at the near-zero target until the economy showed signs of a prolonged recovery from the crisis, which it had anticipated would happen in 2022 to 2023. In August 2020, the FOMC announced its intent to use a long-term inflation targeting scheme, through which it would allow longer periods of inflation above its 2% target before raising rates—a further accommodative policy designed to keep rates low for a longer time to entice consumption and economic activity. In the early November meeting, the members of the FOMC confirmed that they believe recent inflationary pressures were transitory in nature and that they would allow for inflation moderately above the 2% target for some time until the economy is nearer its maximum employment target. As such, they reversed previously discussed plans to begin tapering bond purchases, instead opting for additional accommodative monetary policy. As such, it is unlikely that rates begin to increase for some time.

In 2020, the real trade-weighted broad dollar index increased from 106.4 in January to 113.4 in April, before collapsing to 103.4 by January 2021, a low not seen since May 2018. The initial jump was comparable to similar early increases during the Great Recession (December 2007 through June 2009) and the crude oil price collapse (July 2014 through February 2016)—catastrophic economic events that roiled global markets and sent investors into the "safe haven" dollar. The drop coincided with the poor progression and building infection and death rates from COVID-19 throughout 2020, which appeared worse in the U.S. than in many other developed nations. Since January 2021, the broad dollar has again changed directions, primarily followed an upward path, and reached 108.1—nearing the pre-pandemic highs of late 2019.

From the beginning of January to the beginning of November 2021, the U.S. dollar's strongest appreciation came against the Japanese yen (10%), the Brazilian real (9%), and the euro (5%). Over the same period, its only major depreciation was against the Canadian dollar, by -3%. Against the Chinese yuan, British pound, Indian rupee, and Mexican peso, the dollar is within 2%, up or down, of its original January value. A strengthening dollar means that U.S. exports are more expensive for foreign markets and imports are relatively cheaper for U.S. consumers.

Surging demand, shipping misalignments, factory and port closures from COVID outbreaks, and labor shortages have come together to expose the vulnerabilities of global supply chains and led to sustained inflation throughout 2021. With the most recent release, the Consumer Price Index (CPI) for all items in October 2021 rose by 0.9% from September and recorded a year-over-year increase of 6.2% from October 2020—the largest increase in the series since November 1990. CPI less food and energy—known as "core inflation"—rose 0.6% over the month and 4.6% over the year, growth not seen since August 1991. While most of the goods tracked showed increases, the largest came from fuel oil and gasoline, which increased year-over-year by 59% and 50%, respectively, followed by used cars and trucks which increased by 26%. The West Texas Intermediate (WTI) crude oil benchmark price increased from around $48 in January 2021 to around $85 at the beginning of November.

Such price increases may have inflated gains in the trade data, which is not adjusted for price level. Increasing prices over 2021 also likely added to Colorado's crude oil, natural gas, and fuel oils production and export, as plays in the state require higher price points for producers to turn a profit.

Trade Agreements and Tariffs

The Trump administration, throughout its tenure, aggressively pursued an "America First" agenda, which, among other things, included: imposing protectionist tariffs to induce domestic growth of target industries like steel production; imposing punitive tariffs on allies and rivals alike as penalties for practices deemed unfair by the administration, like China's technology transfer practices and the EU's subsidies to Airbus; restricting the issuance of H-1 and L-1 visas; increasing the scope and powers of the Committee on Foreign Investment in the U.S. (CFIUS); blocking U.S. investments from foreign multinationals with real or perceived connections with China, like Broadcom; withdrawing from multilateral agreements and organizations or finding ways to make them ineffective, like the Paris Climate Agreement and the World Trade Organization; and pursuing individual bilateral trade and investment agreements with select partners. Such foreign policy shifts are thought to have contributed to the decline in international trade in 2019.

While the Biden administration was quick to reverse some of these foreign policy decisions—like rejoining the Paris Climate Agreement and increasing visa issuance along with proposing a bill to modernize the immigration system—for others it has been slow to act, and in some cases, appears to be building on their foundation.

Regarding China, the Biden administration has not removed the Section 301 tariffs on Chinese imports and continues to uphold the "Phase One Agreement," both legacies of President Trump. Rhetoric from the current U.S. Trade Representative Katherine Tai suggests that the administration still views China as an unfair trading partner and that it may pursue further tariffs or other punitive actions against the country. The Phase One deal was written with a two-year timeframe, which will end in December 2021, and included purchase promises by both sides that, according to a recent Peterson Institute for International Economics study, have been only about 60% fulfilled. The deal has likely been a positive force on trade between the two countries, even as both recover from the pandemic.

Regarding Europe, the administration took its first steps in reducing tariffs in October 2021. Through negotiations with the EU, the U.S. allowed for a limited quota of European-made steel and aluminum to enter the U.S.

continued on page 140

International Trade

continued from page 139

INTERNATIONAL STUDENT ENROLLMENT AT SELECT COLORADO INSTITUTIONS

Institution/Year	'13/14	'14/15	'15/16	'16/17	'17/18	'18/19	'19/20	'20/21	Percent Change
University of Colorado Boulder	2,163	2,614	2,951	3,424	3,654	3,789	3,886	3,174	-18.3%
Colorado State University	1,793	2,148	2,305	2,495	2,501	2,416	2,446	2,021	-17.4%
University of Colorado Denver	1,617	1,463	1,446	1,051	1,068	1,398	1,288	1,067	-17.2%
University of Denver	1,457	1,690	1,688	1,494	1,404	1,278	1,122	902	-19.6%
Colorado School of Mines	767	823	875	800	818	856	866	720	-16.9%

Sources: Institute of International Education, annual Open Doors report.

duty-free, while keeping the Section 232 global steel and aluminum tariffs in place. In return, the EU is removing the retaliatory tariffs that it put in place on iconic American-made goods such as whiskey, jeans, and Harley Davidson motorcycles. Nonetheless, there has still been no concrete development on a U.S.-UK or U.S.-EU trade deal, even though negotiations for each began under President Trump. In fact, the Trump administration removed tariffs on the UK—and vice versa—connected to the Airbus-Boeing subsidy dispute in December 2020 in order to more easily come to an agreement with the United Kingdom.

Perhaps the biggest trade accomplishment of the Trump administration was the ratification of the United States-Mexico-Canada Agreement (commonly referred to by its abbreviation USMCA), which became effective on July 1, 2020. USMCA is the renegotiated version of NAFTA and includes provisions that are meant to simplify customs procedures, reduce the power of investors to bring lawsuits against each of the countries, expand access to agricultural markets, protect environmental health and worker rights, expand protections of data use and intellectual property, and require additional value within the block for select products. Some of these provisions represent opportunities for U.S. and Colorado investors and traders, while others present additional challenges. It is likely that the agricultural provisions—which primarily raise tariff rate quotas on dairy, poultry, and eggs, but also include alignment of wheat grading and alcohol labeling system—could have a positive impact on Colorado exports, especially dairy products, wheat, and beverages (mainly beer). On the other hand, some of the regional and labor value content provisions, along with environmental and workers' rights protections, have the potential to raise production costs in Mexico, especially for automobiles and transport vehicles. It is uncertain how producers there will absorb these increases, but a not-improbable outcome is higher consumer prices in the U.S. and Colorado, which negatively affect consumers by eroding real income. In any case, most of the provisions of USMCA have multiyear phase-in periods to avoid major disruptions, and therefore have probably not yet impacted businesses or consumers dramatically beyond changing their expectations.

International Students in Colorado

International students play an important role in Colorado's economy. They are both a direct economic benefit and a contributor to the state's national and global competitiveness. Moreover, Colorado has always attracted top science and engineering students, many of whom contribute to the over $1.4 billion in innovative research at Colorado's institutions of higher education.

During the 2020/2021 academic year, Colorado hosted 9,569 international students and reported over $293 million in education exports, which supported over 3,500 jobs. While significant, this number represents a considerable decline in international student enrollments from previous years.

The number of international students studying in the United States and in Colorado had increased steadily in the decade leading to the 2019-2020 academic year. Beginning in 2016, the number of new students enrolling in Colorado and nationally began to decline, due in part to high cost and increasing competition from other English-speaking countries, and in part to perceived and actual barriers to studying in the United States. This decline in new enrollments, which led to the first overall decrease in students in 2019-2020, was significantly exacerbated by the COVID-19 pandemic. International education during the pandemic has been an acute challenge for colleges and universities. The travel restrictions, embassy closures, and related COVID impacts caused numbers of new students to plummet and many existing international students to return home and complete their studies virtually or elsewhere, leading to losses in tuition and other revenue.

With COVID-19 in full force in 2020, institutions across the state saw a decrease in international students in fall 2020; the statewide number of 9,569 was a 17.7% decrease from the previous year. The five institutions with the most international students (University of Colorado Boulder, Colorado State University, University of Colorado Denver, the University of Denver, and the Colorado School of Mines) together had an 18% decrease in international enrollments in fall 2020 (see table).

Institutions are cautiously optimistic that even though the pandemic persists, academic year 2021/2022 will see moderate increases as the strictest restrictions are lifted. Moreover, in July of 2021, President Biden called for a renewed U.S. commitment to international education, providing international educators with the first good news in some years.

Colorado institutions continue to work individually and jointly to counter the current challenges, including marketing Colorado as a higher education destination through StudyColorado, an initiative housed in the Colorado Department of Higher Education.

International Trade Outlook for 2022

As was the case in 2020 and 2021, the progression of the pandemic and governments' reactions to its spread continue to be the most difficult thing to predict that may affect trade volumes in 2022. The most recent data released by the World Health Organization showed four consecutive weeks of cases growing globally by about 5% each week, starting in the middle of October 2021. Deaths were showing an upward inflection as well. Europe was a major contributor to this recent rise, with Germany, the UK, France, the Netherlands, and Russia seeing strong increases in counts. The U.S. was also a contributor. Lockdowns have recently been re-imposed in Austria and the Netherlands, and others are being considered for countries like Romania, Bulgaria, and Latvia, where vaccination rates are low and death counts are mounting rapidly. Such restrictions, as were seen in the beginning of 2020, can have a strong negative effect on output and trade. With vaccinations widespread in the developed world, much of the rhetoric around containment has been focused on restricting the opportunities of the unvaccinated, but these can still represent large swaths of the population and disruptions can occur even if statewide lockdowns are not re-implemented. For example, in August 2021 a major container terminal at China's Ningbo-Zhousan Port—the third busiest in the country—was closed for almost two weeks due to the detection of a COVID-19 case, causing diversions, delays, and congestion in global shipping. Further, continued issues in developing countries, where vaccine deployment has been much weaker, threatens to exacerbate supply chain issues by causing supply shortages


Photo courtesy of TommL/iStockphoto

of raw materials or basic input parts for downstream production.

Another important factor that may negatively impact international trade in 2022 is the simultaneous labor shortage and the rapid rise of wages. In the U.S., the labor force participation rate dropped about 3 percentage points during the first two months of the pandemic before jumping back to its current level about 1.5 percentage points lower than the pre-pandemic trend. Such a drop took multiple years after the Dot-Com Crash and the Great Recession. The slow return of workers to the labor force—due to retirement, childcare, avoiding potential exposure to COVID, or pursuing more desirable work or other interests—has constricted global trade. Backups at international ports and cancellations of flights due to a lack of drivers and pilots has led shipping costs to double or even triple. As companies grapple with a labor market that is tighter than that of 2019 (a common complaint of the time was that talent was scarce), workers are gaining more bargaining power and are requiring more pay to come back to work. Companies can either stomach the cost, pass it on to consumers, or operate with reduced staff. Since costs in general are rising, businesses are choosing the latter two and accelerating inflation. Looking ahead, there is considerable uncertainty in the short and medium term. Demand and consumer spending remained robust throughout 2021, but the personal savings rate is falling, benefits are expiring, and federally mandated moratoriums and forbearance are ending. Advancing inflation, along with American households' reduced financial standings, could lead to a drop in consumer sentiment and consumption until employment gains bring them up again.

continued on page 142

International Trade

continued from page 141

As we move forward with the pandemic, and these new forces work themselves toward equilibrium, it is important to remember that many of the looming issues of the pre-pandemic trade environment remain.

Of utmost importance to the nation's and the state's international trade profile in 2022 is the continued strained relationship between the U.S. and China. As was discussed in a previous section, the Section 301 tariffs against most Chinese imports, along with the retaliatory tariffs on American imports to China, have not been reduced. Further, the U.S. has signaled that it expects China to meet its obligations under the Phase One Agreement, despite actual values being far beneath their targets and very little time to make up the gap. While the U.S. initially raised the Section 301 tariffs as a punitive measure against China's unfair trade and investment practices, it has also publicly decried Chinese actions that it has labeled as imperialistic, aggressive, and culturally oppressive, such as the expansion of military installations throughout the South China Sea, pre-mature dissolution of Hong Kong's autonomy, frequent show-of-force demonstrations in Taiwan's airspace, and internment of Uighur Muslims in the Xinjiang autonomous region. As the agreement ends in December 2021 and the rhetoric between the two nations over these issues continues to be contentious if not confrontational, it is not inconceivable to think that the opening of 2022 will see a resumption of the tariff brinksmanship that was commonplace during the Trump administration. Such a development would cause trade between the two nations to decline in 2022 and could further restrict output growth in the U.S.—along with exports—since many capital goods, raw materials, and basic input parts come from China. As a top three trading partner for the state, and considering the exponential growth in beef exports to China over the last few years, this would be a painful setback for Colorado businesses and ranchers.

On the other hand, supply chain risk and overreliance on Chinese manufacturing was already a consistent theme of discussion among business leaders since the imposition of the first tariffs under President Trump in 2018. These discussions have been rejuvenated and amplified by the global supply chain disruptions during the pandemic era. Part of the Trump administration's rationale for applying tariffs on steel and aluminum and Chinese imports (and almost on automobiles) was that they would incentivize the reshoring of production from China and other low-cost manufacturing countries to the United States. While there are some isolated examples of such developments, like the expansion of the Evraz steel plant in Pueblo, the shift in manufacturing of these products has mostly been from China to other low-cost producers in places like Mexico and Southeast Asia, rather than to the United States. Over 2022, Colorado trade with these regions, which has already seen strong annual growth over the last several years, should continue to grow in 2022 and offset some of the losses from the Chinese market. Mexico is especially poised to gain from these shifts, as it has low production costs and favorable access into the U.S. under the USMCA.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CP-TPP) will also impact Colorado international trade in 2022. The CP-TPP officially came into force in late December 2018, between Australia, Canada, Japan, Mexico, New Zealand, and Singapore. These countries have since been joined by Vietnam and Peru. Malaysia, Brunei, and Chile are also signatories of the agreement but have yet to ratify. The CP-TPP creates one of the world's largest free-trade areas, among some of

Colorado's strongest trading partners, including Mexico and Canada. In 2021, the UK, China, and Taiwan, all formally applied to join the agreement. The U.S., which was an initial signatory on to the agreement's predecessor before withdrawing in 2016, is considering once again joining the bloc, but has yet to make a formal application. As the prominence and use of this bloc grows, it will increase competition with Colorado in key markets, and may lead to declines, especially in agricultural products exported to Asia.

Brexit—the UK's exit from the European Union—finally occurred on January 1, 2021. Days before the formal departure, the UK and the EU avoided a "no-deal" Brexit by completing the Trade and Cooperation Agreement (TCA), which allows for tariff-free and quota-free access to each other's goods market. The UK is no longer subject to the EU's "free movement" rules, which allow for the free movement of residents among the bloc without going through customs or border patrol and were a major impetus of the original referendum in 2016. Several issues still remain undetermined, including the border between the Republic of Ireland and Northern Ireland (a part of the UK). Once a promising opportunity for the U.S. to secure a new trade deal, negotiations with the UK over such an agreement have seemed to fizzle out in 2021 due to COVID-19 and disagreements over several issues, such as agriculture, food standards, and even the Ireland-Northern Ireland border. While the avoidance of the "no deal" Brexit likely mitigated the divorce's negative impact on regional output—which in turn could have dampened trade with the U.S. and Colorado—the TCA, with its favorable trading terms, likely means the expected additional export volumes to these partners will be smaller than initially thought.

Finally, 2021 volumes have been pushed up by extreme growth in crude oil prices, as demand surged past supply. Colorado producers, like many others in the U.S., need higher prices to support their local plays, which require fracking, horizontal drilling, and other more costly processes than in other parts of the world. If energy prices continue to remain at their current levels or rise even further, production and trade of crude, natural gas, and other petroleum products will remain strong and contribute to gains in 2022. However, oil price volatility has been a consistent theme in U.S. history and especially in recent years. In 2014, surging prices created the perfect environment for a global oil glut that caused prices to collapse through 2016. In Colorado, production was slashed, real GDP faltered from its trend, and mineral fuel exports all but evaporated. Since then, there have been smaller tremors of the same phenomenon, as OPEC, Iran, Russia, and the U.S. jockey for global market shares and have difficulty in reaching production quotas. Demand is surging as the world reopens and tries to move past the COVID era, but if there is a negative demand shock, or supply overshoots demand again to the point that the world is in another glut, these exports can see massive declines in very little time.

Contributors:
Daniel Salvetti, Colorado Office of Economic Development and International Trade (Chair)
John Addison, Colorado Department of Agriculture
Bryce Cook, Office of State Planning and Budgeting
Denise Froning, World Trade Center Denver
Karen Gerwitz, World Trade Center Denver
Inta Morris, Colorado Department of Higher Education
Anthony Russo, TradeHub International
Ashley Warsh, Colorado Department of Agriculture

Summary

Employment in Colorado is estimated to have increased 3.3%, or 87,600 jobs in 2021, once data revisions take effect in March 2022, illustrating a strong recovery from the devastating pandemic-induced recession that struck the state last year. Colorado will mark job growth in 2022, increasing another 73,900 (2.7%), effectively recouping total jobs lost due to the pandemic recession. However, the recovery has been uneven across industries and communities.

In 2022, Leisure and Hospitality is projected to add the most jobs, followed by Professional and Business Services. The fastest pace of jobs growth (percentage terms) is projected in Leisure and Hospitality and in Natural Resources and Mining.

Agriculture—High production costs and drought concerns will remain a headwind for the Agriculture sector in 2022. Increased global demand and supply chain issues helped to push prices to highs for wheat and corn in 2021. Colorado farmers are benefiting from the increased demand, with exports on track to exceed 2020 levels by 30%, largely driven by beef, and continued strength is expected next year. Net farm income is estimated to fall by $1.1 billion in 2021 after significant government farm payments in 2020, but then grow $1.3 billion in 2022.

Natural Resources and Mining—Commodity prices, especially natural gas and crude oil, have eclipsed pre-pandemic levels and have helped the industry recover from the significant 2020 downturn. While employment remains down around 30% from 2019 levels and production has fallen, the value of Colorado's natural resources production is expected to increase more than 60% in 2021 year-over-year to $17.5 billion. Valuation is projected to grow further in 2022, largely bolstered by higher commodity prices, with the value of production expected to approach $20 billion or more to eclipse levels reached over the last 10 years. Colorado ranked fifth nationally for crude oil production, seventh in natural gas, and 13th in coal. Colorado is also a leading producer of renewable energy, including wind, solar, biomass, and hydroelectric energy sources.

Construction—The overall value of construction for residential, nonresidential, and nonbuilding increased an estimated 7% in 2021, largely due to a 19% increase in residential permits. Higher material prices and labor shortages within all construction sectors stand to dampen growth in the sector in the year ahead, but a further 4% increase is projected for 2022. More production is expected in residential projects and infrastructure compared to nonresidential buildings.

Manufacturing—Colorado's mix of manufacturing industries has contributed to the sector outperforming national industry growth. Manufacturing has weathered the pandemic better than most in the state, observing slight growth in 2021. While not expected to return to pre-pandemic employment levels next year, Colorado's manufacturing sector will continue to build upon industry strengths in renewable energy investments, breweries, cannabis products, aerospace, and health care.

Trade, Transportation, and Utilities—The uniqueness of this large sector covering a wide array of companies continues to bolster the industry. Changes in consumer behavior shifting purchasing habits to e-commerce and increased consumer spending have expanded warehousing and delivery needs. The continued strong retail trade sales and return of air travel will strengthen employment in 2022, but worker shortages will remain a headwind.

Information—Societal shifts toward digitization, automation, and data continue to hurt some companies within the industry and help others in the state. Demand for

ANNUAL EMPLOYMENT CHANGE IN NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT SECTORS 2012-2022 (In Thousands)

Sector	2012	2013	2014	2015	2016	2017	2018	2019	2020[a]	2021[b]	2022[c]
Natural Resources and Mining	2.4	0.3	3.5	-3.4	-7.0	2.1	2.8	0.2	-7.0	-1.9	0.6
Construction	3.3	11.7	14.7	6.6	6.5	8.4	9.5	5.9	-4.2	1.3	4.0
Manufacturing	2.8	1.9	3.8	4.4	1.7	1.6	3.2	3.0	-4.0	0.4	2.6
Trade, Transportation, and Utilities	7.9	10.6	12.6	13.0	8.2	7.4	9.1	7.5	-9.1	17.0	4.9
Information	-1.5	0.1	0.5	0.5	1.2	0.1	3.3	1.5	-2.1	0.4	0.6
Financial Activities	2.8	4.3	2.9	5.1	4.9	4.2	3.5	3.0	-2.2	5.3	5.1
Professional and Business Services	15.3	15.6	14.0	11.7	7.3	7.0	11.1	15.7	-8.7	19.9	8.2
Education and Health Services	8.9	4.1	12.1	15.3	12.5	8.3	6.6	6.9	-10.3	10.4	5.9
Leisure and Hospitality	8.3	9.7	11.0	12.4	10.8	9.6	6.5	5.7	-73.3	33.1	31.7
Other Services	2.3	1.7	3.2	3.3	3.1	1.3	2.3	3.9	-8.5	3.8	3.3
Government	1.9	8.9	4.7	8.6	11.6	8.6	8.9	9.5	-14.1	-2.1	7.0
Total[d]	54.4	68.9	83.0	77.5	60.8	58.6	66.8	62.8	-143.5	87.6	73.9

[a]Revised. [b]Estimated. [c]Forecast. [d]Due to rounding, the sum of the sectors may not equal the total. Sources: Colorado Dept. of Labor and Employment and Colorado Business Economic Outlook Committees.

connectivity and infrastructure has increased with the remote workforce, and data processing and hosting continue to be a large growth area for Colorado. Expanding broadband access across the state continues to be an ongoing mission that is important for increasing remote work, online education, and health care. The sector is expected to rebound in the year ahead due to easing of pandemic-related distortions.

Financial Activities—Many economic relief programs were administered by Colorado banks throughout 2020 and 2021 that have helped businesses weather the downturn. Employment growth in Finance and Insurance continued to increase in 2021, and Real Estate and Rental and Leasing employment rebounded healthily from the downturn. Record-low interest rates and high demand will continue to fuel the residential real estate market in the state; however, the changing work environment raises questions about the future commercial real estate market. Economic and geopolitical uncertainty, Federal Reserve actions, unprecedented capital flow, and general consumer behavior will heavily influence the sector's performance in 2022.

Professional and Business Services—The sector continues to be a strength within the Colorado economy—it is the largest private sector with 20% of total employment—and it recovered quickly from the pandemic-induced downturn. The highly skilled and highly educated workforce allowed the sector's employees to quickly adapt to remote work and boosted employment 4.6% in 2021. In 2022, staffing issues and COVID spikes could impact the sector, but Colorado's position as one of the most innovative, educated, and entrepreneurial states bodes well for continued growth in the sector.

Education and Health Services—Employment in Education and Health Services is recovering after the large shock during the pandemic has subsided that forced education institutions to operate online and health care providers to stop performing nonemergency procedures. Growth in private education services in the year ahead will be influenced by the ability of schools to adjust to the changing demands of online learning and closures related to legal and financial difficulties. While health care employment rebounded in 2021, the health sector continues to face headwinds from COVID-19, including shutdowns of medical services due to COVID-19 spikes and worker burnout.

Leisure and Hospitality—While a strong employment rebound has occurred in this industry from the pandemic lows as service-based businesses were forced to shut down and fear of the virus muted consumer activity, continued strength in the industry faces headwinds. Ongoing health concerns surrounding COVID-19, low wages, and a widespread worker shortage will hinder a return to pre-pandemic employment levels. However, booming retail sales, a return to Colorado travel and tourism, and increased outdoor recreation and skiing are bright spots within the industry. Industry employment is expected to post gains in 2021 and 2022, but Colorado's tourism industry is not expected to recover for years, and neither will overall leisure and hospitality employment.

Other Services—This industry has rebounded significantly from the pandemic recession as person-to-person interactions are increasing again. Businesses in this sector (e.g., hair and nail care, religious organizations) will continue to benefit from business and life getting back to normal in the year ahead.

Government—Stabilizing tax revenues has helped state and local governments recover from the pandemic in 2021 and this will continue into 2022. The proposed 2022-23 state budget, combined with $6.2 billion in infrastructure funds from the federal government, will bolster government employment in the state, helping it to recover from the pandemic budget shortfalls. However, continued layoffs in public higher education will persist in 2022 as institutions face enrollment uncertainties.

National and International

- With growth of 5.4% in 2021, the U.S. reached new records levels, surpassing the pre-recession level of output by growing at the fastest pace in nearly four decades. U.S. output will continue to record strong growth in 2022, increasing an anticipated 4%—the strongest growth since 2000.
- Personal consumption and investment are expected to post moderate gains as the economy heals, but supply chain issues and inflation pose real risks.
- Colorado goods exports and imports are likely to finish 2021 above their recent 2018 record values, while services—stunted through Q3 2021 from continued restrictions in international travel—will likely finish slightly below.

Colorado

- Colorado will likely fall out of the top 10 states for employment growth in 2021 and 2022 given the service sector impact.
- Employment growth is projected in all 11 industries in 2022.
- Biopharmaceuticals, cannabis manufacturing, warehousing and storage, delivery services, data centers and hosting, aerospace, and others look to be large drivers of growth in the year ahead.
- Changing consumer preferences, from housing to shopping, will continue to have disparate impacts on Colorado communities.
- Widespread worker shortages across all industries, inflation, and supply chain issues will continue to be headwinds in the state.
- Work-from-home behaviors will continue to impact commercial real estate, transportation, and workplace dynamics.
- A return to pre-pandemic levels of tourism and travel will help the state.
- A population growth slowdown will continue in 2022 and will return to pre-COVID growth levels by 2024. The state will still add an estimated 53,000 people, with just 30,000 coming from net in-migration according to the State Demography Office.
- For more information on each industry sector, visit colorado.edu/business/brd.

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 currently reported economic activity in these states and their top metropolitan statistical areas (MSAs) as measured by total employment, employment growth, unemployment rate, average annual pay, and GDP.

Every state in the region showed positive 10-year employment growth except for Wyoming. Utah and Arizona recorded the highest average 10-year employment growth rates of 2.9% and 2.1%, respectively. In September 2021, all of the regional states posted year-over-year job gains with Utah, Arizona, and Colorado posting the largest increases of 5.3%, 4.9%, and 4%, respectively. Wyoming saw the lowest employment growth of just 1.3%. Colorado was the leading state in the region in average annual pay, personal income, and GDP. Regarding MSAs, the Phoenix-Mesa-Scottsdale MSA, the Salt Lake City MSA, and the Denver-Aurora-Lakewood MSA posted the largest year-over-year employment increases of 5.8%, 5.7%, and 5.1%, respectively, in September 2021. The Cheyenne MSA saw the smallest annual increase of 0.6%.

In terms of real GDP growth, Wyoming, Montana, and Nebraska saw the largest annual increases of 26.0%, 22.2%, and 21.6%, respectively, year-over-year in Q2

REGIONAL STATES								
September 2021 Total Employees (In Thousands)	2,977.0 Arizona	2,745.7 Colorado	1,620.3 Utah	1,387.6 Kansas	1,018.7 Nebraska	812.4 New Mexico	481.1 Montana	273.9 Wyoming
Employment CAGR September 2011 - September 2021	2.9% Utah	2.1% Arizona	1.9% Colorado	1.0% Montana	0.6% Nebraska	0.3% Kansas	0.1% New Mexico	-0.6% Wyoming
Employment % Change September 2020 - September 2021	5.3% Utah	4.9% Arizona	4.0% Colorado	3.3% New Mexico	3.0% Nebraska	2.4% Kansas	1.5% Montana	1.3% Wyoming
Unemployment Rate September 2021[a] (Not Seasonally Adjusted)	6.9% New Mexico	5.7% Arizona	5.6% Colorado	4.5% Wyoming	3.9% Kansas	3.3% Montana	2.4% Utah	2.0% Nebraska
Average Annual Pay 2020	$66,649 Colorado	$58,426 Arizona	$54,890 Utah	$51,490 Kansas	$51,488 Nebraska	$50,986 Wyoming	$50,369 New Mexico	$48,443 Montana
Personal Income Q2 2021 (Millions of Dollars)	$390,046 Colorado	$379,522 Arizona	$176,104 Utah	$170,079 Kansas	$118,971 Nebraska	$101,665 New Mexico	$60,491 Montana	$37,142 Wyoming
Personal Income Q2 2021 (Per Capita)	$66,679 Colorado	$63,589 Wyoming	$61,289 Nebraska	$58,380 Kansas	$55,533 Montana	$53,539 Utah	$50,373 Arizona	$48,161 New Mexico
GDP Q2 2021 (Millions of Current Dollars)	$416,937 Colorado	$400,156 Arizona	$212,855 Utah	$193,139 Kansas	$150,507 Nebraska	$108,242 New Mexico	$57,919 Montana	$41,199 Wyoming
Real GDP Percentage Change Q2 2020 - Q2 2021	26.0% Wyoming	22.2% Nebraska	21.6% Montana	19.4% Kansas	19.3% New Mexico	16.7% Colorado	15.1% Utah	14.7% Arizona

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.

2021. Arizona's GDP saw the smallest increase in Q2 2021 (14.7%). The Denver-Aurora-Lakewood MSA led the MSAs in the region, with growth of 3.9% in 2019 (most recent available data), followed by the Salt Lake City MSA (3.5%) and the Phoenix-Mesa-Chandler MSA (3.3%). There were no MSAs that recorded year-over-year losses in 2019.

In 2020, Colorado's $66,649 average annual earnings exceeded all states in the region, followed by Arizona with $58,426. Boulder and Denver-Aurora-Lakewood led Colorado with above-average annual pay levels exceeding $73,000. This far surpasses other MSAs in the region, which all fall below $63,000. ✣

REGIONAL METROPOLITAN STATISTICAL AREAS

Total Employees September 2021 (In Thousands)	**2,234.2** Phoenix-Mesa-Scottsdale	**1,522.6** Denver-Aurora-Lakewood	**1,092.6** Kansas City	**778.1** Salt Lake City	**384.1** Albuquerque	**291.3** Wichita	**191.2** Lincoln	**46.9** Cheyenne
Employment CAGR September 2011 - September 2021	**2.6%** Salt Lake City	**2.6%** Phoenix-Mesa-Scottsdale	**2.2%** Denver-Aurora-Lakewood	**1.1%** Kansas City	**0.9%** Lincoln	**0.6%** Cheyenne	**0.3%** Albuquerque	**0.2%** Wichita
Employment % Change September 2020 - September 2021	**5.8%** Phoenix-Mesa-Scottsdale	**5.7%** Salt Lake City	**5.1%** Denver-Aurora-Lakewood	**4.5%** Kansas City	**3.4%** Lincoln	**3.1%** Albuquerque	**1.3%** Wichita	**0.6%** Cheyenne
Unemployment Rate September 2021[a]	**5.5%** Albuquerque	**4.8%** Denver-Aurora-Lakewood	**4.6%** Wichita	**3.8%** Phoenix-Mesa-Glendale	**3.5%** Kansas City	**2.5%** Cheyenne	**1.7%** Salt Lake City	**1.3%** Lincoln
Average Annual Pay 2020	**$73,823** Denver-Aurora-Lakewood	**$62,129** Salt Lake City	**$60,831** Phoenix-Mesa-Scottsdale	**$59,379** Kansas City	**$52,338** Albuquerque	**$50,829** Cheyenne	**$50,290** Wichita	**$49,984** Lincoln
Personal Income 2020 (Millions of Dollars)	**$262,363** Phoenix-Mesa-Chandler	**$208,853** Denver-Aurora-Lakewood,	**$126,169** Kansas City	**$71,932** Salt Lake City	**$43,819** Albuquerque	**$40,832** Colorado Springs	**$35,407** Wichita	**$26,059** Boulder
Personal Income 2020 (Per Capita)	**$79,649** Boulder	**$69,822** Denver-Aurora-Lakewoo	**$58,725** Fort Collins	**$58,057** Kansas City	**$58,008** Salt Lake City	**$55,094** Cheyenne	**$55,000** Wichita	**$54,166** Colorado Springs
GDP 2019 (Millions of Current Dollars)	**$272,114** Phoenix-Mesa-Chandler	**$227,396** Denver-Aurora-Lakewood	**$138,500** Kansas City	**$102,801** Salt Lake City	**$44,677** Albuquerque	**$38,390** Wichita	**$20,552** Lincoln	**$5,807** Cheyenne
Real GDP Percentage Change 2018 - 2019	**3.9%** Denver-Aurora-Lakewood	**3.5%** Salt Lake City	**3.3%** Phoenix-Mesa-Chandler	**2.0%** Albuquerque	**1.9%** Lincoln	**1.5%** Cheyenne	**1.4%** Wichita	**1.0%** Kansas City

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						
Total Employees September 2021 (In Thousands)						
1,522.6	303.9	193.1	168.8	107.6	62.9	62.9
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Fort Collins	Greeley	Pueblo	Pueblo
Employment CAGR September 2011 - September 2021						
2.7%	2.2%	2.1%	2.0%	1.5%	0.7%	0.6%
Greeley	Denver-Aurora-Lakewood	Fort Collins	Colorado Springs	Boulder	Pueblo	Grand Junction
Employment % Change September 2020 - September 2021						
5.1%	4.7%	4.1%	4.0%	2.2%	1.3%	1.3%
Denver-Aurora-Lakewood	Greeley	Boulder	Colorado Springs	Fort Collins	Pueblo	Pueblo
Unemployment Rate[a] September 2021						
7.0%	4.8%	4.8%	4.8%	4.8%	3.9%	3.6%
Pueblo	Greeley	Grand Junction	Denver-Aurora-Lakewood	Colorado Springs	Fort Collins-Loveland	Boulder
Average Annual Pay 2020						
$78,383	$73,823	$58,425	$56,291	$56,265	$48,223	$48,015
Boulder	Denver-Aurora-Lakewood	Fort Collins	Colorado Springs	Greeley	Pueblo	Grand Junction
Personal Income 2020 (Billions of Dollars)						
$209	$41	$26	$21	$17	$8	$7
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Fort Collins	Greeley	Grand Junction	Pueblo
Personal Income 2020 (Per Capita)						
$79,649	$69,822	$58,725	$54,166	$52,054	$48,435	$43,196
Boulder	Denver-Aurora-Lakewood	Fort Collins	Colorado Springs	Greeley	Grand Junction	Pueblo
GDP 2019 (Millions of Current Dollars)						
$227,396	$39,007	$30,177	$20,736	$19,890	$7,235	$7,097
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Fort Collins	Greeley	Pueblo	Grand Junction
Real GDP Percentage Change 2018 - 2019						
6.1%	3.9%	3.7%	3.4%	3.3%	2.6%	2.3%
Boulder	Denver-Aurora-Lakewood	Colorado Springs	Pueblo	Greeley	Grand Junction	Fort Collins

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 economy is fueled by businesses in diverse industries, a highly educated workforce, visionary entrepreneurs, global industry leaders, a desirable quality of life, a world-class research university, and several national research labs. The county often outperforms the state and national economies in areas such as job growth, educational attainment, capital investment, and commercial real estate absorption.

The COVID-19 global public health emergency continued to affect individuals, businesses, and institutions throughout Boulder County in 2021. Coordinated efforts by county and city officials, community and business leaders, institutions, and nonprofit organizations to provide information, guidance, technical assistance, and financial support continue to assist our local communities. While the extent and duration of the pandemic and economic disruption are not yet clear, Boulder County's underlying economic strengths, robust pre-COVID economy, and collaborative environment have aided its economic recovery.

Employment and Wages

Prior to the COVID-19 pandemic, Boulder County continued to post low unemployment rates and solid employment gains. After the coronavirus outbreak, the unemployment rate increased from 2.4% in February 2020 to a high of 10.3% in June 2020. In 2021, unemployment began the year at 6% and slowly decreased to 3.6% in September. This compares to the state unemployment rate of 4.7% and the national rate of 4.6% (both not seasonally adjusted).

Employment in the Boulder Metropolitan Statistical Area (MSA) fell 5.9% in 2020 year-over year. However, employment in September 2021 was up 4.1% year-over-year, representing a gain of 7,600 jobs, according to the Bureau of Labor Statistics CES data; however, employment remained down 4%, or 8,000 jobs, from the pre-recession peak in February 2020. The area's large concentration of jobs in sectors with higher-than-average wages contributes to above-average incomes for area residents. Census Bureau data show the 2020 average household income for Boulder County residents was $80,598, compared to $67,431 for Colorado residents and $64,247 for U.S. residents.

Real Estate

Commercial and industrial real estate vacancies in Boulder County increased in 2021. Office vacancy along the Longmont-Boulder corridor rose to 16.6% in Q1 2021 from 8.8% the year prior, according to Newmark Knight Frank research. During that same period, industrial/flex vacancy increased to 11% from 8.2%, and retail vacancy increased to 4.7% from 3.9%.

The Federal Housing Finance Agency All-Transactions House Price Index for the Boulder MSA increased 11.8% from midyear 2020 to 2021.

Financial Services and Venture Capital Investment

Boulder County continues to represent a significant share of the state's financial institution deposits and venture capital investment. Deposits in FDIC-insured institutions increased significantly, due in part to federal stimulus payments in 2020, and venture capital funding received by Boulder County companies increased through Q2 of 2021. From 2019 to 2020, deposits in Boulder County institutions rose $2.1 billion, or 20%, compared to an increase of 2.3% from 2018 to 2019.

The high concentration of advanced technology and entrepreneurial activity in Boulder County continues to fuel venture capital investment in local early-stage companies. According to data from CB Insights, Boulder County venture capital investments increased from $483 million in June of 2020 to nearly $970 million in June of 2021. Venture capital funding received by Boulder area companies represented 24% of the state total.

Leading Industries

The Boulder County economy continues to benefit from a high concentration of companies and employment in key industry sectors 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 startups and early-stage companies in these industries are based in Boulder County.

Aerospace— The Metro Denver EDC estimates that there are 290 aerospace companies in Colorado supporting over 33,000 employees. In 2020, this represented a 10% growth rate with an average wage of $143,000. Further, Colorado enjoys the highest concentration of private aerospace workers in the nation. Boulder County's aerospace presence represents nearly 23% of the state's aerospace resources.

Notable aerospace companies in Boulder County include Ball Aerospace, Blue Canyon Technologies (a subsidiary of Raytheon Technologies), Custom Microwave, EnerSys, Lockheed Martin, Northrop Grumman, Redstone Aerospace, Sierra Space Corporation, and Special Aerospace Services.

University of Colorado Boulder offers internationally recognized aerospace research and education programs and is the top public university for NASA research funding. Several federally funded labs in the area, including the Laboratory for Atmospheric and Space Physics (LASP), the National Oceanic and Atmospheric Administration (NOAA), and the National Center for Atmospheric Research (NCAR), conduct research in space.

Biotechnology—The Colorado Bioscience Association (CBSA) estimates that the state is home to over 700 life sciences companies and organizations, supports 117,000 direct and indirect jobs, and contributes over $3 billion in annual payroll. Boulder County supports 88 medical devices and diagnostic companies and 100 pharmaceutical and biotechnology companies, employing 1,700 people (over 2.5 times the U.S. average concentration) in the area.

Major employers include AGC Biologics, Agilient Technologies, Array BioPharma, Avista Pharma, ChromaDex, CordenPharma, Global Healthcare Exchange, Huvepharma, KBI Biopharma, Medtronic, Molecular Products Group, Pfizer, and Tecomet.

University of Colorado Boulder has a distinguished record in biotechnology research that attracts major research funding and generates numerous startups. The university is home to the BioFrontiers Institute, a program designed to facilitate interdisciplinary research and expand Colorado's leadership in biotechnology.

Cleantech—Roughly 35 renewable resources companies employ 800 people in Boulder County. Cleantech job concentration in the county is 4.8 times the U.S. average. The industry is well-supported by university programs, such as University of Colorado Boulder's Sustainability, Energy and Environment Community (SEEC), and the proximity of the National Renewable Energy Laboratory (NREL), a federally funded research lab located in Jefferson County. AlsoEnergy, Envision Energy, Namasté Solar, Scout Clean Energy, Siemens Energy, and Solid Power are among the Boulder County businesses in the cleantech industry.

Information Technology —Boulder County has a long history as a center for information technology, data storage, software development, and internet services and is home to approximately 1,000 IT companies employing more than 15,000 people, a concentration three times the national average. Major employers include Amazon, Apple, JumpCloud, Google, HP Enterprise, IBM, Intrado, LogRhythm, Microsoft, NetApp, Qualcomm, Seagate, Twitter, and VMware/Carbon Black. Longmont's municipal internet ranks as one of the nation's fastest internet providers. Boulder County also offers many tech accelerator and mentorship programs such as Boomtown, Catalyze CU, Cognizant Accelerator, TechStars, and Innovate Longmont, as well as TinkerMill, the largest makerspace/hackerspace in Colorado.

Natural and Organic Products—According to the 2020 Naturally Boulder Economic Impact Study done by CU-Boulder's Business Research Division, the natural and organic food industry in Colorado contributes $3.1 billion to the state's economy and supports 22,142 jobs. Many leaders in the natural and organic products industry nationwide got their start in Boulder, and the area remains an international hub for the industry.

Area companies include Aurora Organic Dairy, Bhakti Chai, Bobo's Oat Bars, Celestial Seasonings, Chocolove, Fresca Foods, Izzio Artisan Bakery, Functional Remedies, 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, education, and signature events.

Outdoor Products and Recreation—Widely recognized as an industry hub, Boulder County outranks innovation and peer communities more than twofold with 0.55 sporting goods, wholesalers and retailers, manufacturers, and sports instruction businesses per 1,000 residents.

continued on page 150

Around the State

continued from page 149

Boulder is home to the Outdoor Industry Association and International Mountain Bicycling Association. Area companies include Active Interest Media, Alchemy Goods, Brunton Outdoor, Dynafit, Fennix Outdoor, The Pro's Closet, Gaiam, HEAD USA, K2 Sports, La Sportiva, Newton Running, Pearl Izumi, Salewa, Sea to Summit, Skratch Labs, Spyder Active Sports, Tenkara, and Thule.

Tourism—Boulder County is a popular destination that receives national media attention for its recreational and cultural amenities and impressive array of shopping and dining choices. *U.S. News & World Report* named Boulder the #1 place to live in the nation for 2020-2021, and the city was recently recognized by *National Geographic* (Happiest City in the U.S. and one of America's Top Adventure Towns), Bon Appetit (America's Foodiest Town), Outdoor (#1 Sports Town), and Bicycling (Best Bike Cities). Longmont was recognized by Livability as the #7 Best Places to Get a Fresh Start and by Westword as the #3 Most Family-Friendly Community in Colorado. Louisville has been recognized as One of the Best Places to Live by Money and one of the 10 Best Towns for Families by *Family Circle.*

Contributors:
Scott J. Sternberg and Corine Waldau, Boulder Economic Council
Stephanie Pitts-Noggle, Longmont Economic Development Partnership
Megan Pierce, City of Louisville
Jill Mendoza, Town of Superior

Kit Carson County

Kit Carson County has experienced a dry year in 2021 as prices in commodities remain low with input costs increasing. Across the county, businesses post signs of "Help Wanted" and business owners work even harder themselves to stay open and viable after the pandemic. There are some good things that came from the pandemic: the awareness of broadband needs for all; improved technology skills as people learn to navigate Zoom and Google Meet sessions; and realizing the importance of family in our daily lives. Maybe we appreciate things and people differently or better now?

The current real estate market on the plains is a challenge as home availability is low and affordable homes are in high demand. Homes come up for sale one day and may have offers/bids within 48 hours and be sold just as quickly. The home prices are not affordable for the low-paying jobs in the region, so sales to urban families who move to the plains and commute into Denver or may work remotely are commonplace. In one instance, a family purchased a home in western Kit Carson County and commutes to Denver International Airport four days per week—a two-hour drive one way! In 2020, the median property value in Kit Carson County was $59,400, with a homeownership rate of a mere 67%. Kit Carson's Home Price Index increased by 6.3% from 2019 to 2020 and is on pace to exceed that growth rate in 2021.

County population decreased slightly from 7,035 in 2020 to 6,973 in 2021, with net outmigration of 62. The population over age 65 in 2019 reached almost 20% of the county. The population is aging in the county and individuals indicate a desire to "age in place." Therefore, maintaining health care services and other businesses are vital to keeping the elderly here as well as attracting new residents of any age.

After peaking at 4.3% in June 2020, the unemployment rate of 2.7% (not seasonally adjusted) in September 2021 remains much lower than the state unemployment rate of 4.7% and the national rate of 4.6%. According to the Bureau of Labor Statistics (BLS), Local Area Unemployment Statistics, there were 4,178 employees in the county in September 2021, an increase of 2.7% year-over-year, bringing employment back to levels observed before the pandemic. The labor force has also recovered to pre-pandemic levels. Burlington's economic development staff continues to work diligently to replace the 142 jobs lost in 2016-17 when the private prison closed.

Tourism has been robust in 2021 as people traveled to the county to be in the outdoors after being indoors so long. A survey of restaurants, hotels, and attractions in Kit Carson County showed that some lost revenue may be recovered as people provide more support to small businesses. Other small businesses feel they may never fully recover while a few have closed their doors. There are signs of growth, however, as local lenders receive inquiries each month about small business start-ups, with one lender reporting six calls in two months.

From 2019 to 2020, average annual wages increased 6.8% in Kit Carson County, spanning every major sector, according to the BLS, Quarterly Census of Employment and Wages. The Construction industry posted the largest year-over-year gain (20.8%) and is the highest paying industry in the county. Average annual wages in Kit Carson County were $41,858 in 2020, 37.9% below the state average of $67,431.

According to the Bureau of Economic Analysis, proprietor employment made up 40.2% of total jobs in Kit Carson County, compared to only 26.3% in the state. This is because the county relies heavily on jobs provided by farm and sole proprietor businesses each year. The county always welcomes new development in many business formations that would help the area be more resilient to the volatile economy and weather impacts.

The wind farm construction of Carousel, Rush Creek I & II, Cheyenne Ridge, Bronco Plains, and Crossing Trails are producing energy now. A new renewable energy project across the county line west is Arriba Wind Farm in Lincoln County. The temporary construction jobs give the area an economic boost to local businesses and property owners, so the development is usually appreciated. The restaurants, grocery stores, RV parks, and other establishments in Kit Carson County and Lincoln County will derive income from this construction.

Contributor:
Candace Payne, East Central Council of Governments

Mesa County

Mesa County, also known as the Grand Valley, is nestled between the snow-capped Rockies and the Moab desert on the Western Slope of Colorado. The county has a population of 155,703 people. Grand Junction is the largest metropolitan area in the region—and the largest city between Denver and Salt Lake City, Utah. Located on I-70, Grand Junction sits at the junction of the Colorado and Gunnison Rivers. Most residents work in Grand Junction, although they may live in one of the surrounding communities, which each have their own unique culture. The City of Fruita is situated on the western edge of the valley and the Town of Palisade sits at the base of the Grand Mesa on the eastern edge of the valley. These three municipalities, along with the smaller communities of DeBeque, Collbran, Mesa, Mack, and Loma, make up Mesa County.

COVID-19 Impact and Recovery—After being slammed in 2020 from a COVID-induced national recession, Mesa County has rebounded quickly, keeping pace with employment gains observed in the state and nationally. The Mesa County unemployment rate peaked in April 2020 at 12.8%, but has since fallen to 4.8% as of September 2021—slightly higher than the state (4.7%) and the national (4.6%) averages, all not seasonally adjusted. Total nonfarm employment for the Grand Junction MSA fell 5.4% in 2020 year-over-year to average 61,700. Employment declined by 8,700 (13.4%) from March to April 2020, but had recovered 75.9% of the jobs lost, or 6,600 jobs, by September 2021, according to the Bureau of Labor Statistics. Employment remains down 3.8% from January 2020. Based on the household survey of labor force and employment from the BLS Local Area Unemployment Statistics (which includes sole proprietors), the September 2021 labor force in Mesa County increased 0.3% from September 2020 and 0.5% from September 2019 levels.

Sales and use tax numbers from the city and county continue to be strong—state sales tax collections in Mesa county increased 16.4% in 2021 year-to-date through August, and collections from Grand Junction were up 19.2%. Lodging taxes continue to lag but are trending up sharply in the last two months. Mesa County business entity filings are up 40% from the same time last year, while business confidence for Colorado jumped 34.5% from last quarter. Newly released data from the Census Department shows that the Mesa County poverty rate estimate fell, dropping from 15.7% in 2018 to 14.2% in 2019 (most recent data available). This is good news and shows that the strong economy of 2017-2019 had an impact on reducing poverty.

Gross Domestic Product—Mesa County's real GDP grew 2.6% in 2019 year-over-year (most recent data available), building on the 5% growth in GDP observed from 2018 to 2019. Real GDP has observed a 5-year compound annual growth rate (CAGR) of 2.1%. The Real Estate and Rental and Leasing industry represented the largest share of GDP in 2019, with 18.1%, followed by Health Care and Social Assistance (11.7%), and Retail Trade (8.6%).

Wage Trends—Average annual wages in Mesa County increased 4.6% year-over-year to $48,015 in 2020, according to the Bureau of Labor Statistics. This is significantly lower than the state average of $67,431. The Management of Companies and Enterprises industry paid the highest wages in the county in 2020 with average annual wages of $101,030, followed by the Mining, Quarrying, and Oil and Gas Extraction industry ($86,865), and the Utilities industry ($83,375). The Finance and Insurance industry saw the highest average annual wage gain in 2020 of 17.1% year-over-year, followed by Educational Services (13.6%), and Retail Trade (12.4%).

Employment and Labor Force—As of September 2021, employment in the Grand Junction MSA totaled 62,800, an increase of 1.1% year-over-year, according to the Bureau of Labor Statistics Current Employment Statistics (CES). The largest employment sector (as of September 2021) in the Grand Junction MSA was Education and Health Services with 19.2% of employment, followed by Government (17.7%), Retail Trade (13.2%), Leisure and Hospitality (12.1%), Mining, Logging, and Construction (8.2%), Professional and Business Services (7.4%), Manufacturing (4.9%), Financial Activities (4.7%), Transportation and Utilities (4.2%), Other Services (4.1%), Wholesale Trade (3.6%), and Information (0.8%). Examining the Local Area Unemployment Statistics (LAUS) data based on the household survey, Mesa County's unemployment rate stood at 4.8% in September 2021 and the labor force was 76,666.

Business Community—While the pandemic greatly impacted the local economy, the business community has remained resilient. Businesses are still interested in relocating to the valley, particularly outdoor recreation companies and digital companies with remote workforces. GJEP worked with five businesses that moved to the valley since the pandemic started: one software and four outdoor recreation companies.

While new business entity filings in Q3 2021 are down 7.3% year-to-date compared to the same time period in 2019, entrepreneurs are still forming new businesses. The Grand Junction SBDC has assisted with 12 business starts that resulted in the creation of 76 jobs year-to-date.

Rural Jump-Start Mesa County—In 2021, the Office of Economic Development and International Trade (OEDIT) utilized recovery funds to enhance the Rural Jump-Start program with grant dollars to promote job creation and capital investment. Each new Rural Jump-Start business can now receive up to a $25,000 match on capital investments such as facility upgrades and equipment purchases. A payout of $2,500 for each net new employee will be made as well.

Since the program officially launched in 2016, GJEP has facilitated the approval of 22 companies in Mesa County for the Jump-Start tax credit (seven were removed due to inactivity). In 2021, one new business was approved for the Rural Jump-Start program and three additional businesses should be approved by year-end.

continued on page 152

Around the State

continued from page 151

Health Care—Health care is Mesa County's largest industry, making up 18.6% of the county's total employment in 2020 and proving to be one of the best industries to rebound from the recession. Of the top 10 employers in the county, five are in the health care industry: St. Mary's Hospital (2nd-largest county employer), Community Hospital (4th), VA Medical Center (7th), Family Health West (8th), and Hilltop Community Resources (9th).

Construction is underway for Community Hospital as workers break ground on the 130,000-square-foot James Pulsipher Regional Cancer Center and medical office building set for completion in 2023. This state-of-the-art regional cancer center is expected to cost $53 million and continue to develop Community Hospital's highly sought-after treatment program with the best possible medical and radiation oncologists in the region.

Education—Mesa County has strong higher education and technical training institutions. Mesa County Valley School District 51 is the largest school district on the Western Slope of Colorado and the 14th largest school district in the state. The District is also the largest employer in Mesa County. Each day, over 2,500 employees serve more than 22,000 students across 43 schools. District 51 had an 80.2% graduation rate for the class of 2020.

Colorado Mesa University (CMU) is the 5th-largest employer in Mesa County. CMU is a regional public higher education institution offering more than 225 academic programs in liberal arts, professional, and technical programs at the master's, bachelor's, associate, and certificate levels. The campus encompasses 141 acres in the heart of Grand Junction. Of the 11,000 students, 14% come from outside Colorado and 29% come from traditionally underrepresented groups.

Western Colorado Community College is the two-year division of CMU and serves the technical education needs of both college and area high school students. The college offers over 29 certificate and associate degree programs, plus 330 non-credit personal and professional development courses.

Tourism—Tourism is a major economic driver in Colorado and a significant source of sustained economic growth in Mesa County. The travel and tourism industry in the county provides more than 4,518 jobs, and the local economy experienced $308 million in direct travel spending in 2019. Direct visitor spending supported $464 million in business sales in 2019 when indirect and induced impacts are considered.

Data from 2019 illustrates the volume of visitors and the impact on the economy. Grand Junction welcomed approximately 900,000 overnight guests staying in lodging properties in 2019. Visitors generated over $14.3 million in local sales tax revenues in 2019 and $3.2 million in lodging tax revenues. The visitor economy accounts for about 30% of the City of Grand Junction's sales tax base, according to a report commissioned by Visit Grand Junction.

Mesa County attracts tourists because there is a diverse range of activities and sites. The county has a unique agricultural landscape that produces everything from award-winning wines to prime beef and the famous Palisade peaches. The Valley is an adventure hub with over 10,000 miles of trails. Powderhorn Mountain Resort, located on the Grand Mesa, has an average of over 250 inches of snow each season with 600 acres of groomed trails and another 1,000 skiable acres. In addition, the county is within a three-hour drive of three national parks, three national monuments, two national conservation areas, six national forests, and three scenic byways.

In 2020, with the arrival of COVID-19, Grand Junction experienced a severe downturn in occupancy, with April 2020 declining 61.2% compared to the same month in 2019. However, starting in the month of May and accelerating into the summer months, Grand Junction's occupancy rate started recovering. In September, the occupancy rate was down only 5.1% compared to the same month last year. Also, Grand Junction's occupancy rate has been consistently 10 to 20 percentage points higher than the national average during the pandemic. Recently, during the month of October, Grand Junction's weekly occupancy rate of 67% was 19 percentage points higher than the national average rate of 48%.

Agriculture, Forestry, Fishing and Hunting—Agriculture, forestry, fishing, and hunting industries make up less than 1% of Mesa County's total employment and are expected to grow by 5.6% in 2021, according to the Mesa County Workforce Center Q3 Report. The local agriculture industry was hit hard by a late-season hard freeze in April that significantly impacted peach crops and other fruit orchards. The full extent of the loss will not be clear until later this year. In April, Mesa County received a USDA Disaster Designation as a result, enabling farmers to apply for emergency loans and to access critical programs to ease the impact. In February, Grand Junction officially welcomed Violet Gro, an agricultural lighting company. The company provides patented LED lighting to promote plant growth in indoor environments and is among the companies participating in the Colorado Rural Jump-Start Program. Violet Gro hired two employees in 2020 and are expecting to ramp up hiring in 2021.

General Manufacturing—The manufacturing industry, with 3,012 employees, represented 5% of Mesa County's total employment in 2020. The number of manufacturing employees in Mesa County is expected to increase by 1.9% in 2021 year-over-year.

Timberleaf Trailers, a manufacturer of recreation teardrop trailers, relocated from 1,800 square feet in Denver to 4,800 square feet in Grand Junction. After three short years they are about to embark on another major expansion and build their own 9,500-square-foot manufacturing, nearly double its current size.

Phoenix Haus is a prefabricated passive home builder that relocated to Grand Junction from Detroit in 2017. Utilizing European technology and materials for their off-site building system they are able to produce net zero energy use homes that are constructed indoors in Grand Junction and assembled on-site throughout Colorado, Utah, Wyoming, and Idaho. Phoenix Haus recently purchased a new facility, doubling their size to accommodate their rapid growth. They were also recognized as a 2021 Colorado Companies to Watch winner.

Outdoor Recreation Economy—Mesa County's outdoor recreation economy is thriving. In 2020, four outdoor recreation businesses decided to relocate to the Grand Valley. In addition, Colorado Mesa University created a new, multi-disciplinary outdoor recreation industry studies program to help create the next generation of business leaders, which began with the fall 2020 semester. The Grand Valley Outdoor Rec Coalition is currently commissioning the county's first county-based economic impact study for the outdoor recreation industry in Mesa County. This study is being designed to be duplicated and used by other communities looking to measure the impact of this industry in their area.

QuikRStuff is a bike rack manufacturing startup that began their operations in 2020. Bike racks were and continue to be a hot commodity during the pandemic and this startup hit the ground running amidst supply chain woes. Materials for their racks are sourced in the U.S. and are fabricated in Grand Junction, so the company avoids paying tariffs imposed on companies that manufacture products overseas. QuikRStuff purchased two automated CNC machines that were acquired with the help of a $150,000 grant from Office of Economic Development and International Trade (OEDIT), which helped ramp up production to keep up with ever increasing demand.

Energy—Employment in the Mining, Quarrying, and Oil and Gas industry in Mesa County fell 46.7% in 2020 year-over-year to 1,120 employees. Oil and gas wages and employment in 2020 were at their lowest level since 2005. The industry fluctuates heavily and rising oil and natural gas prices in 2021 bode well for the industry.

Western Slope drilling activity has taken a hit, with total permits down 24% in Q3 2021 year-to-date compared to the same period in 2020, according to the Q3 2021 Mesa County Economic Update. As of September 2021, there were two active rigs on the Western Slope.

Aviation, Aerospace and Parts Manufacturing—The aviation, aerospace, and parts manufacturing industries make up 0.8% of Mesa County's total employment. Employment in these industries is expected to increase by 3% in 2021. Mesa County's newest addition to the aerospace industry comes in the form of parachutes used for vessel recovery in the commercial space and aerospace markets. Valkyrie Recovery Systems recently relocated into the Grand Valley and became the newest company to be accepted into the Rural Jump-Start tax incentive program. Full production of these aerospace-grade parachutes will soon go into place, which will entail hiring experienced sewers along with a team of engineers.

Technology/Software—The biggest shift to happen over the last year was the realization and acceptance that companies and employees could truly be located anywhere with a good internet connection. In 2019, Grand Junction began to see a growing population of professionals who can work from anywhere migrate into the area. The COVID-19 pandemic accelerated this trend, and today, Grand Junction boasts a number of cutting-edge tech companies and entrepreneurs who've chosen quality of life over the typical tech hubs.

Colorado Mesa University (CMU)—One of the few universities that actually increased enrollment during COVID, CMU boasts programs in mechanical and electrical engineering, computer science, and cybersecurity. Grand Junction is also home to a number of innovative companies such as Kaart, Cloudrise, Aspen Technology Group, and ProStar that are building a critical mass of GIS mappers, software developers, and engineers needed to support tech growth. CMU has invited many of these local companies to sit on an advisory board that helps shape future academic programming in support of the tech industry.

In 2021, Pax8 a cloud-based company headquartered in Denver, was approved by the State of Colorado for the Location Neutral Employee (LONE) incentive to ramp up to more than 150 employees over the next several years.

Real Estate—Local real estate and research institutions predict that, even though there are still many unknowns nationally, Mesa County real estate will remain strong for the foreseeable future. The COVID-19 pandemic caused builders to pause in the spring of 2020, but it's apparent that builders have returned with a renewed confidence. Homebuyers have also returned and the demand for new housing continues to outpace supply. The inventory for residential real estate was low in 2020, as homes for sale were down 47% in 2020 compared to 2019. That changed in 2021, where transactions rose 34.8% and dollar volume increased 58.1%. The median sales price in the county rose by 8.9% to $285,317 in 2020 and then another 9.8% in 2021 to $313,321, and the Freddie Mac house price index shows that Grand Junction home values increased faster than both the state and the nation—a continuation of a trend observed over the past three years. The September 2021 Bray Report shows that residential home sales were up 12%, foreclosure filings are down 22%, and building permits are up 4% year-to-date compared to the same period in 2020.

Development Opportunities—The City of Grand Junction invested over $14 million in a new river district located along the Colorado River. A key component is Riverfront at Las Colonias Park, a 140-acre city park with an embedded commercial business park geared toward the outdoor industry. Bonsai Design, which develops aerial adventure courses, and RockyMounts, a bike-rack manufacturer, are currently building new headquarters within the business park. The Las Colonias Development Corporation is developing a 20,000-square-foot plaza with restaurants and retail adjacent to the business park.

A little further west, the City of Grand Junction is reinvigorating the grounds of a former auto salvage yard with a mixed-use commercial and residential park. The

continued on page 154

Around the State

continued from page 153

Aerial photo of the Riverfront at Las Colonias business park (photo credit: 14k Media).

Riverfront at Dos Rios is a 58-acre mixed development that consists of 15.8 acres of parks and open space, 9.5 acres of light industrial/commercial, and 10.2 acres of mixed-use development—all with access to the river, trail system, greenspace, and historic downtown Grand Junction.

The entire riverfront district falls within Mesa County's federal Opportunity Zone tracts. The redevelopment of the riverfront has resulted in a number of Opportunity Zone projects in the area, mostly in residential housing. The City of Fruita has more than 68 acres of shovel-ready sites for businesses, ideally those seeking land equipped with fiber or direct rail and highway access. The Fruita Commercial & Industrial Business Park offers lakeside sites complete with a cable wakeboard park, views of the nearby Colorado National Monument, and a multiuse bike path connecting downtown Fruita and the world famous Kokopelli mountain bike trail system.

Airport—The Grand Junction Regional Airport (GJT) is the premier Class I airport serving western Colorado and eastern Utah, with eight nonstop destinations and an average of 16 flights per day. GJT maintained most pre-pandemic routes—only the weekly seasonal service to Chicago on United Airlines and the chartered service to Centennial stopped due to the pandemic. The airport is optimistic both will return eventually.

In 2019, for the first time ever, more than half a million (511,000) passengers traveled through GJT. The direct economic contribution of GJT is estimated to be over $710 million (based on the economic impact study released by CDOT in 2019). Numbers dropped off significantly in 2020 due to the pandemic with only 241,600 passengers, but through July 2021, passenger traffic is trending back up, with 197,447 passengers year-to-date.

The Grand Junction Regional Airport (GJT) was awarded the 2021 Airport of the Year by CDOT. The airport was found to have a large impact, providing 3,399 jobs, $189.72 million in annual payroll, and $710.96 million in business revenue.

Other Community Highlights—The Palisade Plunge is a 32-mile mountain bike trail starting atop the Grand Mesa (10,700') and ending at the Colorado River in Palisade (4,700'). The trail—built for highly skilled riders—descends over 6,000 vertical feet and is a much-anticipated destination that is expected to join the infamy of Colorado's Monarch Crest and Utah's Whole Enchilada, as well as bring as much as $5 million a year to Mesa County. Federal and state agencies, local communities, mountain bikers, and private landowners have been negotiating and planning this much-anticipated trail for 10 years.

Summary—Prior to the coronavirus pandemic, Mesa County was on track to have an exceptional year. While the pandemic has had an impact on all aspects of the community, the county is recovering and outperforming other counties and the state. The community in the Grand Valley is resilient and will continue to forge ahead in the face of adversity.

Contributors:
Steve Jozefczyk, Grand Junction Economic Partnership
Dr. Nathan Perry, Colorado Mesa University
County Workforce Center
Grand Junction Regional Airport
Visit Grand Junction
Bray Commercial Real Estate

Northern Colorado

Summary—Northern Colorado continues to nurture technological innovation and entrepreneurship supported by its increasingly diverse and highly educated population. The region's stability and resilient economy may be attributed to industry and employment diversity.

Northern Colorado's historically high level of patent assignment and the strong presence of research institutions illustrate the regional passion for investment in ideas and innovation.

Talent, innovation, and opportunity continue to define Northern Colorado, a region that lies directly north of the Denver Metro area and south of Wyoming between the western Rocky Mountains and eastern Great Plains and encompasses Weld and Larimer counties. In Northern Colorado, prominent universities and community colleges attract companies searching for the next generation of talent. Northern Colorado's growing industry clusters include bioscience and medical devices, food processing and manufacturing, information technology and computer services, manufacturing (production tech and heavy machinery), and plastics. These clusters have strong ties to the region's agricultural production, energy extraction, strength in animal science and translational medicine, and boost Northern Colorado's status as a regional distribution hub for agricultural and industrial products.

Northern Colorado features rich cultural and recreational opportunities. The region has three state-designated creative districts, Fort Collins, Greeley, and Loveland, where the arts and creative industries are celebrated.

Population—Northern Colorado's population continues to grow, with a 2020 population of over 688,000 (1% year-over-year growth) for Weld and Larimer combined, according to the Colorado State Demography Office. Fort Collins and Greeley are the area's two largest cities, with a combined population of 278,605.

The median age in Northern Colorado is approximately 35, younger than Colorado's median age of 37 (2019, ACS 1-Year Estimates). The continued in-migration of talented college students and professionals seeking work opportunities in the region drives this metric.

Industry and Employment—From 2015 to 2020, job growth in two Northern Colorado metropolitan statistical areas (MSAs) (Greeley and Fort Collins) posted gains of 5.9% (even with the pandemic), significantly outpacing the national growth rate of 0.3% during the same period. Employment in the Greeley MSA fell 6.9% in 2020 year-over-year but was up 4.7% in September 2021 over September 2020; employment remains 5.5% below January 2020 levels. Similarly, employment in the Fort Collins MSA fell 5% in 2020 year-over-year but increased 2.2% in September 2021 over September 2020; employment remains 4.4% below January 2020 levels.

Northern Colorado's top industries by employment are Retail, Manufacturing, Health Care, Construction, and Accommodation and Food Services. While the private sector is an economic driver, there is significant public investment through public health care providers, public universities, and local school districts. Northern Colorado's real GDP rose by 2.9% between 2018 and 2019 (most current available data). Strong population and job growth, along with an aligned and motivated labor force, have contributed to the economic success in the region.

As of August 2021, the combined unemployment rate in Larimer and Weld counties was 5.2% (not seasonally adjusted). The labor force has declined since January 2021 by approximately 1% (not seasonally adjusted), similar to Colorado as a whole. The region's diverse industry mix has been helpful for weathering the impacts of the COVID-19 pandemic.

Over the previous six years, Northern Colorado observed a tight labor market, which led to strong regional collaborative public-private partnerships to address local workforce issues. These existing collaborations have helped the region mobilize a strong economic development and workforce response to the pandemic. The region's educational institutions have focused on industry-relevant training and experienced-based learning programs to ensure that the workforce is skilled and prepared and has adjusted well during this uncertain year.

Partnership, collaboration, and alignment are embedded in the cultural DNA of Northern Colorado. The region has two thriving sector partnerships: the NoCo Manufacturing Partnership and the Northern Colorado Health Sector Partnership. These organizations bring together industry stakeholders to create local alignment and collaborate on issues facing industry.

Education—Northern Colorado is home to Colorado State University in Fort Collins and the University of Northern Colorado in Greeley, as well as two community colleges, Aims Community College and Front Range Community College. Over 64,000 students are enrolled in Northern Colorado's colleges and universities. These public community colleges and universities produce over 18,300 postsecondary credentials per year. A variety of traditional and certificate programs help prepare the region's labor force for current and future employment.

A total of 7,600 students from 36 public high schools across Larimer and Weld counties participated in dual enrollment programs in partnership with 11 universities and community colleges during the 2020-2021 school year. Northern Colorado's K–12 and higher education institutions help develop the region's talent into a highly productive and innovative workforce. Weld County is further supporting education and the employment pipeline by providing workforce stipends to every graduating high school senior. ✥

Contributors:

Rich Werner and Cassidy Stubblefield, Upstate Colorado Economic Development
Lucas Workman, Town of Erie
Rachel Rogers, City of Fort Collins

Pueblo County

Economic indicators for Pueblo County showed impressive strength prior to the COVID-19 pandemic. The countywide unemployment rate (not seasonally adjusted) averaged 3.9% in 2019 and was 4.1% in February 2020. However, during the pandemic the countywide unemployment rate hit a record-high 11.4% in June 2020; it has since fallen to 7% in September 2021—the highest of all metropolitan statistical areas in the state.

continued on page 156

Around the State

continued from page 155

Employment in the Pueblo MSA fell 2.5% in 2020 year-over-year. Employment totaled 62,900 in September 2021, a 1.3% increase year-over-year, but is still down 3.7% from the pre-pandemic high in March 2020, according to data from the Bureau of Labor Statistics Current Employment Statistics (CES). Education and Health Services (20.9%), Government (federal, state, and local) (18.9%); Trade, Transportation, and Utilities (17.2%), and Leisure and Hospitality (13.3%) continue to be the four largest sources of jobs in the local economy. However, Pueblo has a heritage of manufacturing and metal fabrication, with those segments providing many of the primary jobs that support other employment in the community. Average wages in the Pueblo MSA in 2019 totaled $45,111 and personal income per capita was $39,511 in 2018 (most recent available data).

New and Existing Industry Clusters—Pueblo has seen significant success in attracting new, high-tech industries during 2020. The year also brought the start of construction on EVRAZ's $500 million expansion of its new long-rail steel mill. These industries add to the success Pueblo enjoys in manufacturing and metal fabrication. In addition, Pueblo is actively recruiting companies in the aerospace and defense, chemicals manufacturing, construction-related manufacturing, food and beverage manufacturing, outdoor recreation, and professional and scientific sectors.

Pueblo is proud of the companies that it keeps. Examples of companies that have located in Pueblo and continue to enjoy tremendous success are United Launch Alliance, Collins Aerospace, L3 Doss Aviation, EVRAZ, Vestas, Trane Corp., Professional Bull Riders, KMG Electronic Chemicals, Atlas Pacific, indieDwell, Target Distribution, and many others.

Pueblo enjoys a tremendous transportation advantage with highways and rail. Pueblo County sits on I-25, a north-south interstate, and Highway 50 running east-west. A large portion of Pueblo is served by rail, ranging from a mix of heavy, light, and shortline rail depending on the area of town. The two rail lines servicing the region are Union Pacific and BNSF. This transportation allows easy access to numerous cities within 500 miles, such as Denver, Wichita, Cheyenne, and Albuquerque. In 2020, Pueblo expanded its rail-served industrial parks by an additional 450 acres.

Photo courtesy of milehightraveler/iStockphoto.

Pueblo is very focused on talent. Talent goals are to focus on talent retention, development, and recruitment initiatives by aligning programs and partners. Pueblo enjoys a reputation as having the best customized training programs in the region. Pueblo continues to support skilled workforce education programs such as Pueblo County High School's Manufacturing, Agriculture, and Construction (MAC) Academy, which has over 300 students enrolled.

Energy and the HARP Project—In addition to these existing and developing clusters, other projects are in place. This year brought the start of construction by Light Source BP of a 240-megawatt solar facility which will supply power to EVRAZ Steel Mill, making EVRAZ the only solar-powered steel mill in the United States. This will provide electric price certainty for the mining and steel-making company through 2041.

Pueblo is a leader in clean energy. The Light Source BP project, combined with the solar panel facility owned and operated by Community Energy Solar, make Pueblo a leader in the United States in the generation of solar power. Pueblo is also home to Vestas Wind Towers, with Pueblo's facility being the largest wind tower manufacturing facility in the world.

A driving force for much of the development in the downtown area is the expansion of the Historic Arkansas Riverwalk Project, also known as HARP. The city recently completed work on an ambitious complex that includes an expanded convention center with a multiuse arena for the Professional Bull Rider's University bull-riding school. Future phases will result in expansion of the Riverwalk, an amateur athletic swimming complex, and a potential indoor/outdoor water park. In addition to the tourist and convention visitors, the HARP project is expected to attract professional offices to locate in the city center area. ✤

Contributor:
Jeff Shaw, Pueblo Economic Development Corporation

Southern Colorado

Employment—The unemployment rate in El Paso County was 4.8% on a non-seasonally adjusted basis at the end of September 2021 compared with 6.5% in September 2020 and 3.3% in February 2020. The labor force increased from 350,164 to 360,659 from September 2020 to September 2021, a 3% increase. Over the same period, employment increased 4.9% from 327,378 to 343,348 for a gain of 15,970 employed. El Paso County unemployment during the COVID-19 pandemic peaked in April 2020 with a 12.5% unemployment rate and 40,622 people unemployed. As of September 2021, the number of people unemployed has fallen by more than half to 17,311. This number of unemployed is still higher than pre-pandemic levels (e.g., 11,534 in February 2020), but the labor market recovery thus far is one of the strongest in the state. This is primarily due to high presence of professional and technical jobs, which are conducive to remote work, including many Department of Defense contracting jobs.

Having said this, the jobs lost in the region during 2020 were significant. From 2019 to 2020, there were 8,093 fewer jobs in El Paso County. This is in sharp contrast to pre-pandemic years where El Paso County met or exceeded the number of new jobs needed to match population growth (5,600 new jobs). Since 2013, the region has had stellar job growth with a peak in 2015 of 8,004 new jobs. The region does appear to be on a pathway to positive job growth again but it is difficult to say how long it will take to completely recover.

Specific Sectors—Eight of the 21 industry sectors in El Paso County saw job gains in 2020. The most significant gains were in Health Care and Social Assistance; Professional, Scientific, and Technical Services; Public Administration; Finance and Insurance; and Transportation and Warehousing. These are indeed industries that are reflective of pandemic trends. Health Care and Social Assistance, combined with Professional, Scientific, and Technical Services, represented 72% of the 3,574 new jobs in the county. The 13 industry sectors that experienced a combined loss of 11,668 jobs in 2020 were led by Accommodation and Food Service; Educational Services; and Arts, Entertainment and Recreation.

Average annual pay increased in all but three industry sectors in El Paso County, with an increase in the average annual wage from $52,619 in 2019 to $56,577 in 2020. This 7.5% wage increase was lower than the national average (8.1%) and the Colorado average (7.8%). In 2020, the average wage in El Paso County was 15.1% below the 2020 state average of $66,649 and 11.6% below the U.S. average of $64,021. This ongoing discrepancy in average wages is likely due to several factors. One, up until around 2015, the region was underperforming economically and had been doing so since the early 2000s. This depressed wages, and since wages are "sticky," it has been difficult to reverse that trend. Two, there is a large contingent of retired military in the region who have pensions but do some consulting work. Since they have a steady income stream through their pensions as well as health care benefits, they may be willing to work for relatively low wages. Three, working military spouses often have had to move various times throughout their careers, thus interrupting longer tenure in higher paying positions. Finally, there is a large hospitality sector in Colorado Springs because of its natural attractions. These are not typically high-paying jobs although they do help the relatively young workforce in the earliest years of their work lives.

It is challenging for the region that wages continue to be lower than the state and nation, especially considering the large increases in housing costs, as discussed below. Either wages will have to increase materially, or in-migration will likely slow due to the discrepancy between wages and housing costs. It is true that the large presence of (even quite young) military retirees with pensions does provide an added income source for the roughly 84,000 veterans in the region. However, there is significant population growth outside the military and those wages will need to have sustained upward pressure to begin to ameliorate the wage discrepancies.

Per Capita Personal Income—Per capita personal income for El Paso County was $51,117 in 2019 (most current data available), 84% of the state average ($61,157) and 90% of the national average ($56,490). El Paso County's per capita personal income was ranked 24th in the state in 2019, which is the same ranking as it had in 2009.

Although there are legitimate concerns about the lower average wages in the region as previously mentioned, it is also important to remember that the per capita personal income will be skewed somewhat by the lower median age in El Paso County. The region had a median age of 34.6 in 2019, which is younger than both the state (37.1) and nation (38.4). All individuals, including children, are in the denominator of the calculations for per capita personal income.

Residential Real Estate—From October 2020 through September 2021, a total of 5,267 single-family permits were issued in the region. This is an increase of 741 permits issued (up 16.4%) compared to the same period in 2019. Through September 2021, permits for 135 multifamily projects and 2,502 units were pulled in 2021. As of Q2 2021, average monthly rents for apartments were $1,430. Colorado Springs rental rates are no longer significantly lower than Denver. For Q2 2021, Denver's average monthly rent for apartments was $1,651.

continued on page 158

Around the State

continued from page 157

There were permits for 6,808 dwelling units (both single-family homes and multifamily units) pulled in 2020 in the Pikes Peak region. The UCCS Economic Forum has estimated that for the population size and the demographic composition of the county, approximately 7,000 permits for dwelling units (both single-family homes and multifamily units) were appropriate in 2020, which is a significant revision due to COVID-related growth and extremely low existing home supply.

The growth of multifamily construction in the region is unprecedented. According to the Pikes Peak Regional Building Department, in the fall of 2021 there were 4,554 open permits for apartments. Some of these dwelling units represent projects that are under construction, and some represent projects that have approved permits, but that have not yet broken ground. Another 4,421 permits for multifamily units were under review at that time. This represents a total of another (likely) 9,000 multifamily units that will come to market in the next one to two years. It might appear that the region is over-building multifamily units. However, according to the Department of Housing and Urban Development, the Colorado Springs multifamily market is still "tight," with high absorption rates and low vacancy rates. Commercial real estate experts also state that the region had under-built multifamily for many years so some of this construction is catch up. Capitalization rates are falling, however, and currently stand at about 4%, so it is likely that permit requests may cool in the medium term.

Home prices in the Pikes Peak region continue to increase. In Q2 2021, the median price for a single-family home in Colorado Springs was $439,200, a 24.3% increase from Q2 2020. By way of comparison, the U.S. median home price was $357,900, with a 22.9% increase over the same period. Colorado Springs' median home prices are 22.7% higher than the U.S.

Foreclosures decreased 66% in 2020 to 281, representing the 11th consecutive year foreclosures declined in El Paso County. Through September 2021, foreclosures totaled 83 compared to 258 through September 2020.

Photo provided courtesy of SWKrullImaging/iStockphoto.

Commercial Real Estate—Average commercial office vacancy rates in Colorado Springs declined slightly to 8.3% in 2020 from 8.4% in 2019. Through September 2021, the vacancy rate rose to 10.1%. This stands in sharp contrast to national office vacancy rates, which are hovering around 18.5%. At the same time, average triple net lease rates increased from $17.55 per square foot in 2019 to $21.26 per square foot in 2020. They continued to rise to $24.10 per square foot in Q3 2021. The UCCS Economic Forum uses the CoStar Group and Olive Real Estate Group to compile this commercial real estate information.

The average industrial vacancy rate declined to 3.7% in 2020 from 4.7% in 2019. Through September 2021, the rate continued to decrease to 3.1%. Average rents rose from $7.46 per square foot in 2019 to $8.67 per square foot in 2020. They continued to rise to $9.08 per square foot in Q3 2021. The Colorado Springs region has become a hub for distribution centers, with Amazon building out almost 4 million square feet (with 6,000 robots) for its new fulfillment center as part of the Peak Innovation Park at the Colorado Springs Airport. United Parcel Service (UPS) is also building a fulfillment center in northern El Paso County.

Average retail vacancy rates rose from 4.6% in 2019 to 5.8% in 2020. Rates fell slightly to 5.6% through September 2021. Average rents increased from $13.39 in 2019 to $14.09 in 2020. They continued to increase to $14.78 per square foot in Q3 2021.

Average medical office vacancy dropped slightly from 7% in 2019 to 6.9% in 2020. Through September 2021, vacancies rose to 8.7%. Average rents increased in this property type, from $20.31 in 2019 to $23.95 in 2020. In Q3 2021, they continued to increase to $26.32.

As of Q3 2021, retail space was 30.7% lower in Colorado Springs and office space was 26.5% lower. Industrial spaces and medical offices are now more expensive in Colorado Springs.

Sales and Use Tax—City sales and use tax collections increased 0.4% to $186.3 million in 2020. Despite COVID-19, sales and use tax collections are up 21.9% in September 2021 compared to September 2020. The stability of sales and use tax revenue during the height of the shutdown in 2020 and the inconsistent recovery of 2021 is mostly due to the robust residential construction and increase in e-commerce. More than 50% of the city's budget dollars come from taxable retail sales.

Education—In 2020, 10 of the 17 school districts in the Colorado Springs MSA exceeded the state of Colorado's average high school graduation rate of 81.9%. The U.S. high school graduation rate in 2019 was 86%. In 2019, 8 of the 17 school districts surpassed this national graduation rate.

According to the most recent data available (2019), 35.2% of the Colorado Springs MSA's population age 25 and older had some college or an associate degree, which is higher than the state (28.7%) and the United States (28.6%). In addition, 39.2% of this population had attained a bachelor's degree or higher, which is lower than the state (42.7%) but significantly higher than the nation (33.1%) according to U.S. Census Bureau data on educational attainment.

Where Is the Economy Heading?

There are still many headwinds for the Colorado Springs region, the state, and the nation. There are persistent labor shortages that are significantly hindering business growth, supply chain and delivery bottlenecks, and inflationary pressures. There also continues to be uncertainty around the persistence of COVID-19 and potential new variants during the winter months. However, the region has some very promising indicators. First, Colorado Springs leads the state in terms of jobs regained. As of August 2021, Colorado Springs had regained 106% of the jobs lost in March and April of 2020 , according to Local Area Unemployment Statistics (LAUS) data which includes self-employed, or "gig" workers. This compares favorably to the U.S. jobs regained (81%) and Colorado jobs regained (90%). This suggests a high probability that Colorado Springs will resume its high level of new jobs during 2021 due to the regional dynamic of business growth, but also the continued in-migration of workers. It is also likely that the number of self-employed individuals within the region is increasing. Second, almost 70% of El Paso County residents are fully vaccinated. While it is true that vaccination rates need to be higher with more transmissible variants such as Delta, the region continues to increase the overall vaccination rates, albeit slowly.

Contributors:
Tatiana Bailey and Rebecca Wilder, UCCS Economic Forum in the University of Colorado Colorado Springs College of Business

Southwest Colorado

Home to Colorado's Two Sovereign Nations

The Southern Ute and Ute Mountain Ute Tribes are the only two Indian tribes in Colorado and have the distinction of being the largest regional employers. They embrace a rich cultural heritage that underlies their economic ingenuity and sustains their populations in good and troubled times. The tribes' history, tribal governance systems, and economic strategies add to Colorado's diverse and resilient character.

Region 9, in the southwest corner of Colorado, includes Archuleta, Dolores, La Plata, Montezuma, and San Juan Counties, as well as the Southern Ute and Ute Mountain Ute Tribes. The region encompasses 6,584 square miles, or 6.3% of the total land area in Colorado. Publicly managed lands make up 45% of the district; 38% is in private ownership and 17% are tribal lands.

The regional population was estimated at 97,659 in 2020, averaging 0.6% annual growth since 2010. In 2020, collective employment across the five counties averaged 49,133, a decline of 5.1%, according to the Bureau of Labor Statistics LAUS data. Employment in the region rebounded strongly from the pandemic, with September 2021 employment levels 3.6% above February 2020 levels. The collective unemployment rate stood at 4.1% in September 2021, still higher than the February 2020 rate of 3.6% but much lower than the 12.8% seen in April 2020. Regionally, tourism provides the largest share of employment (21%). Top employment sectors vary by county: in Archuleta it is retail trade; in Dolores it is agriculture; in La Plata and Montezuma Counties, local governments provide the greatest employment share; and in San Juan it is accommodation and food services.

History of the Ute Indian Tribes

The Ute people are the oldest residents of Colorado, inhabiting the mountains and vast areas of Colorado, Utah, Wyoming, Eastern Nevada, Northern New Mexico, and Arizona. According to tribal history handed down from generation to generation, Ute people have lived here since the beginning of time. Ancestors of the Utes were the Uto-Aztecs, who spoke one common language, possessed a set of central values, and had a highly developed society.

The Mouache and Caputa bands comprise the Southern Ute Tribe, which is headquartered near Ignacio. The Southern Ute Reservation is located in La Plata and Archuleta Counties. Unlike some Indian reservations that are all contained within one boundary, some of the Southern Ute lands are not contiguous.

The Ute Mountain Ute Tribe has acreage on its reservation in La Plata and Montezuma Counties in Colorado, in San Juan County in New Mexico, and in satellite ranching operations. The Ute Mountain Utes are the Weeminuche band of Utes, one of the seven original Ute bands that

continued on page 160

Around the State

continued from page 159

inhabited the entire state of Colorado. Their tribal headquarters is in Towaoc.

The Southern Ute Indian Tribe

The Southern Ute Tribal enrollment is currently about 1,500, with most of the members living on the reservation. The present-day Southern Ute Reservation forms a rectangle 75 miles east to west by 15 miles north to south and is slightly more than 681,000 acres in total area. Often referred to as a "checkerboard" for its irregular pattern of land ownership, the reservation lands are divided among many interests, including primarily tribal trust lands, allotted trust lands, U.S. Forest Service and Bureau of Reclamation lands, and fee simple lands. Much of the tribe's lands, with the exception of the Pine River Valley, are rugged, upland and foothill areas, while non-Indian fee lands occur on the arable mesas within the reservation. U.S. Forest Service lands are those of the San Juan National Forest, while reclamation lands are those immediately surrounding Navajo Reservoir.

Seven rivers run through the reservation—the Piedra, San Juan, Florida, La Plata, Animas, Navajo, and Los Pinos. Water ownership became a central issue between the Ute people and non-Indians who lived on fee lands on the checkerboarded Southern Ute Reservation and for the Ute Mountain people who were surrounded by non-Indians who deprived them of water for their people. The conflicts were settled by the 1988 Ute Water Rights Settlement Act.

Tribal Governance

The Southern Ute Indian Tribe (SUIT) is a sovereign governmental entity with no sales tax, property tax, or income tax. However, the Southern Ute Indian Tribe provides the same governmental services as any other state, county, and city governmental entities. The SUIT is governed by a seven-member Tribal Council elected by the membership. Principal officers include the chairman, vice-chairman, and treasurer, with all council members serving three-year staggered terms. Tribal government is based on a tribal Constitution adopted November 4, 1936, that was revised in September 1975. Tribal government offices are located at the center of the reservation adjacent to Ignacio, Colorado. Tribal government includes the executive staff (Tribal Council, executive officers, and support staff), administrative personnel, natural resources, education, utilities, judicial branch, health and social services, a culture department, and many more departments.

Southern Ute Indian Tribe Economy

The tribe is the largest employer in La Plata County, Colorado. Tribal government and other enterprises currently employ about 1,500 people. The tribe's economic success comes from its land, mineral estate (the reservation straddles the northern third of the San Juan Basin with its gas-bearing geological formations including coalbeds), the extraordinary vision of its leaders, and the efforts and achievements of its employees.

Early efforts to develop minerals under the supervision of the Bureau of Indian Affairs provided moderate economic benefits to the tribe. However, beginning in the 1980s, the tribe assumed an active role in managing its own resources, creating its own Department of Energy to audit and manage the royalty and severance taxes paid by other operators within the reservation. In 1992, the tribe started its own exploration and production company, Red Willow Production Company, and later, its own midstream company, the Red Cedar Gathering Company (a joint venture with Kinder Morgan).

In the late 1990s, the tribe estimated that on-reservation gas production would peak within the next decade and determined that other sources of revenue were necessary to sustain the tribe's future. Actual production in the San Juan Basin peaked in 2004.

In 1999, the tribe adopted a financial plan that was unique in Indian Country. The plan separated the government functions of the tribe (a quasi-sovereign nation) from the business functions. The governmental division was named the Permanent Fund and was set up to receive a portion of the royalties and severance taxes to fund an endowment to operate off of interest earned on the endowment. The Growth Fund was formed in 2000 to operate tribal for-profit businesses both on and off the reservation. It is a substantial, but quiet, economic driver for southwest Colorado, serving the membership of the Southern Ute Indian Tribe.

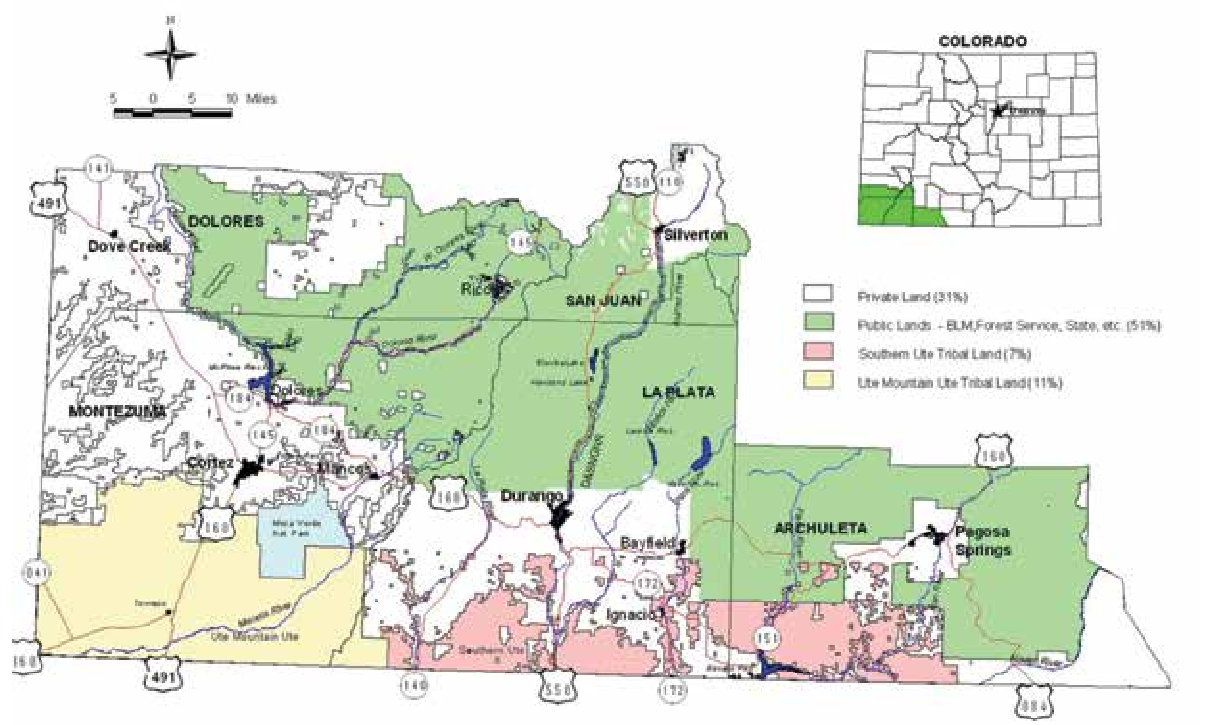
The Growth Fund is charged with managing SUIT businesses effectively, building new businesses prudently, paying dividends and elders' pensions while reinvesting money to grow the businesses to provide for future prosperity for the tribal membership. The Growth Fund started small but has grown over the past 20 years, with holdings and/or operations in 10 states and the Gulf of Mexico. The Growth Fund now consists of companies operating in oil and gas exploration and production on the reservation, in the Permian Basin, the Powder River Basin, and the deep water Gulf of Mexico (Red Willow Production Company); gas gathering on reservation (Red Cedar Gathering Company) and gas gathering and treating off-reservation (Aka Energy); real estate investment in hotel, apartments, industrial buildings, office buildings, and horizontal and vertical development (GF Properties Group); and private equity fund investment (GF Private Equity Group).

Enterprises include the Sky Ute Casino Resort opened in 2008, which offers casino gaming, as well as other family amenities and entertainment. In addition, the resort offers full convention and banquet facilities and can host many mid-size conferences (500+). The concert venue can seat 1,350 and offers various genres of musical talent.

A portion of the Casino Resort's net gaming proceeds help fund the tribe's governmental operations. While purchasing requirements are so large that local vendors cannot compete, the Casino Resort uses local vendors to the greatest extent possible for such needs as printing and advertising, equipment rental, cleaning services, electrical needs, and vehicle purchases.

The Casino Resort's impact on the surrounding community is often under-estimated. As the region's

OVERVIEW OF REGION 9



Source: Map courtesy of Donna Graves.

only sizable conference center, the property can attract events to the area that would otherwise have to find accommodations outside of the region.

The tribe has prepared a Comprehensive Economic Development Strategy (CEDS 2018 – 2022), providing a roadmap that will diversify and strengthen the tribal and regional economy.

More information regarding the SUIT can be found at https://www.southernute-nsn.gov/.

The Ute Mountain Ute Tribe

Today, the homelands for the Weeminuche, or Ute Mountain Ute Tribe (UMUT), are slightly less than 600,000 acres. The Tribal lands are on what is known as the Colorado Plateau, a high desert area with deep canyons carved through the mesas. The Ute Mountain Ute Tribe is headquartered in Towaoc, Colorado, and White Mesa, Utah, in an area known as the Four Corners Region, where the states of Arizona, Colorado, New Mexico, and Utah come together. Towaoc is southwest of Mesa Verde National Park and northeast of scenic Monument Valley.

In addition to the land in Colorado and New Mexico, the Ute Mountain Ute Tribe also has a presence in southeastern Utah on allotted trust land. These lands, or allotments, cover 2,597 acres and are located at Allen Canyon and the greater Cottonwood Wash area as well as on White Mesa and in Cross Canyon. Some of the allotments in White Mesa and Allen Canyon are individually owned and some are owned by the Tribe as a whole. The tribe also holds fee patent title to 41,112 acres of land in Utah and Colorado.

The Ute Mountain Ute Tribe has an enrolled membership of about 2,100. The majority (969) of UMUT Tribal members live on the reservation in Towaoc, with a smaller population (242) in the White Mesa community. The remaining members live off the reservation.

This is a harsh, isolated land, with no nearby cities to provide specialty health care or other services for the residents. For residents of Towaoc, the nearest city with a population of more than 50,000 is more than 175 miles away. For those in White Mesa, the nearest city with a population of 50,000 or more is about 200 miles away.

Tribal lands also include the Ute Mountain Tribal Park, which covers 125,000 acres of land along the Mancos River. Hundreds of surface sites, cliff dwellings, petroglyphs and wall paintings of Ancestral Puebloan and Ute cultures are preserved in the park. Native American Ute tour guides provide background information about the people, the culture, and the history of those who lived in the park lands. *National Geographic Traveler* chose it as one of "80 World Destinations for Travel in the 21st Century," one of only nine places selected in the United States.

Tribal Governance

The Ute Mountain Ute Tribe is a federally recognized tribe. The UMUT Tribal constitution was adopted in 1940. The Tribe is governed by a seven-member elected

continued on page 162

Around the State

continued from page 161

council and the position of Chairman is selected by its members. One council member represents White Mesa, and the other members are elected at-large. The council selects a vice-chairman, treasurer, and secretary-custodian from its membership. Government administration is headed by a tribal council–appointed executive director. Government offices and facilities are concentrated in and around the community of Towaoc, although there are some government offices in White Mesa. According to tribal officials, White Mesa operates as a semi-autonomous government in many respects.

The Tribal Administration Department provides for the administrative support services for the executive branch of the tribal government. This branch includes the tribal chairman, the Tribal Council, and the executive director. It is the responsibility of the Tribal Administration to be completely informed of both internal and external issues that will affect the Ute Mountain Ute Tribe and its membership.

The fact that the Ute Mountain Ute Reservation lies in different states usually complicates the political geography; however, all tribal lands are trust lands and the Ute Mountain Ute Tribal Council has full authority and jurisdiction regarding all issues in the political geography. The tribe is listed by the Internal Revenue Services in Revenue Procedure 2002-64 as an organization that may be treated as a governmental entity in accordance with Section 7871. As such, the tribe's income is not subject to federal income tax. UMUT also does not have sales tax or property tax. The only tax on tribal lands is an oil and energy possessory and severance tax. Yet despite these financial limitations, the Ute Mountain Ute Tribe provides residents with the same governmental services as any other state, county, or city governmental entities. The governmental services on the Ute Mountain Ute Reservation are primarily funded by the tribe's natural resource development.

Ute Mountain Ute Tribe Economy

The Tribal economy has seven sources of revenue listed in order of amount received: Grants and Contracts; Tribal Enterprise Profits; Natural Resource Royalties; Tax (Severance and Possessory); Rental Income and Other Fees; Interest Income; and Other Income.

Each revenue source contributes to the Tribe's ability to function as a Tribal government. Any increase in revenues results in an increase in services and improves the quality of life for Tribal members. On the other hand, any decrease in revenues severely limits the Tribe's ability to provide Tribal members with adequate services and social programs, basic living assistance, and improved living conditions.

For the last six years, UMUT has been highly successful in securing government grants to support a wide range of programs and initiatives. Grants and contracts make up for more than one-third of tribal revenues. With the support of its external grants team, UMUT has won more than $95 million in grants since 2015, and more than $25 million in 2021 alone to support activities including:

- Infrastructure,
- K-16 education,
- Culture and language,
- Broadband,
- Renewable energy,
- Housing improvements,
- Youth development,
- Intergenerational filmmaking,
- Public safety and crime prevention,
- Domestic violence and suicide prevention,
- Health improvement and maintenance,
- Recreation opportunities for youth and families, and
- Environmental improvements.

The Ute Mountain Ute Tribe is a major contributor to the regional economy. In 2019, the Tribe was one of the largest employers in Montezuma County with approximately 1,300 jobs in all aspects of tribal government and operations, and at their Ute Mountain Casino and RV Park. The Colorado Ute Water Settlement Act of 1988 mandated, through the building of the Dolores Project and McPhee Reservoir, that drinking and irrigation water be provided to the reservation. This has dramatically expanded farming and ranching operations. Other tribal resources include income from oil and gas wells and tribal enterprises that revolve around tourism such as the Tribe's Ute Mountain Ute Tribal Park and the Ute Mountain Indian Trading Company & Gallery. The Tribe has prepared a Comprehensive Economic Development Strategy (CEDS 2019 – 2024) detailing its strategic roadmap for success.

Culture and language preservation have been at the heart of many of the tribe's recent programs producing award-winning intergenerational filmmaking and book publishing. Last year the UMUT won 21 Telly Awards for its film called "Our Culture is Our Strength," aimed to prevent substance abuse and teen suicide. This year an equally promising film was produced called "We are Nuchu," which will also be nominated for multiple Telly Awards. The films can be viewed at:

Our Culture is Our Strength PSA (https://vimeo.com/521216390)

We Are Nuchu Short Film (https://vimeo.com/617401273/6cb4761591)

More information regarding the UMUT can be found at (https://www.utemountainutetribe.com/).

Contributors:
Donna Graves, Information Services, Inc.
Laura Lewis Marchino, Region 9

Steering Committee

Mr. Jacob Dubbert
Research Economist
University of Colorado Boulder
Leeds School of Business
Business Research Division
303-492-3182
jacob.dubbert@colorado.edu

Mr. Chris Eisinger
Senior Research Scientist
Colorado Oil and Gas Conservation Commission
303-894-2100 x 5111
chris.eisinger@state.co.us

Ms. Elizabeth Garner
State Demographer
Colorado Department of Local Affairs
303-864-7720
elizabeth.garner@state.co.us

Mr. Tony Gurzick
Grizzly Peak Consulting
970-799-0052
tony.gurzick@hotmail.com

Mr. David Hansen
Economist
Colorado Legislative Council
303-991-0072
david.hansen@state.co.us

Ms. Katharine Jones
Economist
U.S. Dept. of Housing and Urban Development
Denver Regional Office
303-672-5060
Katharine.Jones@hud.gov

Ms. Kristina Kolaczkowski
Principal Data Analyst
UnitedHealthcare
303-249-2572
kristina_kolaczkowski@uhc.com

Mr. Brian Lewandowski
Executive Director
University of Colorado Boulder
Leeds School of Business
Business Research Division
Brian.Lewandowski@Colorado.EDU

Ms. Glenda Mostek
Executive Director
Colorado Nursery and Greenhouse Association
gmostek@yahoo.com

Mr. Ron New
Consultant
970-306-7435
rnew1@msn.com

Ms. Jennifer Pinsonneault
Sr. Program Manager, Economic Vitality
City of Boulder
Community Vitality Department
303-441-3017
pinsonneaultj@bouldercolorado.gov

Mr. Penn Pfiffner
Consulting Economist
Construction Economics, LLC
303-233-7731
penn@constecon.com

Mr. Brian Pool
Partner
Government Performance Solutions, Inc.
303-884-8646
brian@governmentperformance.us

Mr. Daniel Salvetti
Manager - Strategy and Analytics
Colorado Office of Economic Development and International Trade
303-892-3830
daniel.salvetti@state.co.us

Mr. Tim Sheesley
Chief Economist
Xcel Energy
303-294-2662
tim.sheesley@xcelenergy.com

Dr. Richard Thompson
Professor
Northcentral University
School of Business
720-839-3890
richardthompson@ncu.edu

Ms. Kate Watkins
Chief Economist
Colorado Legislative Council
kate.watkins@state.co.us

Mr. Joseph Winter
Program Manager CES
Colorado Department of Labor and Employment
303-318-8857
joseph.winter@state.co.us

Dr. Richard Wobbekind
Faculty Director
Associate Dean Business and Government Relations
University of Colorado Boulder
Leeds School of Business
Business Research Division
303-492-1147
Richard.Wobbekind@Colorado.EDU

Estimating Groups

Agriculture

Ms. Glenda Mostek (Chair)
Executive Director
Colorado Nursery and Greenhouse Association
gmostek@yahoo.com

Dr. Tyler Cozzens
Agricultural Economist
Livestock Marketing Information Center
303-716-9934
tyler.cozzens@lmic.info

Ms. Rhonda Dinan
Agricultural Statistician
USDA/NASS Colorado Field Office
Rhonda.Dinan@usda.gov
Rhonda.Dinan@usda.gov

Mr. Brad Erker
Executive Director
Colorado Wheat Administrative Committee
970-449-6994
brad.erker@coloradowheat.org

Dr. Stephen Koontz
Professor
Colorado State University
Department of Agricultural & Resource Economics
970-491-7032
stephen.koontz@colostate.edu

Mr. Tom Lipetzky
Director, Marketing & Strategic Initiatives
Colorado Department of Agriculture
303-869-9172
tom.lipetzky@state.co.us

Ms. Leslee Lohrenz
Deputy Regional Director
USDA/NASS Colorado Field Office
720-787-3150
leslee.lohrenz@usda.gov

Ms. Katelyn McCullock
Director
Livestock Marketing Information Center
303-716-9936
katelyn.mccullock@lmic.info

Mr. Bill Meyer
Regional Director
USDA/NASS Colorado Field Office
720-787-3150
bill.meyer@usda.gov

Mr. Rodger Ott
Deputy Regional Director
USDA/NASS Colorado Field Office
720-787-3150
rodger.ott@usda.gov

Ms. Julie Schmidt
Agricultural Statistican
USDA/NASS
National Agricultural Statistics Service
720-787-3150
julie.schmidt@usda.gov

Ms. Casey Toyne
Farm Loan Program Specialist
Colorado Farm Service Agency
casey.toyne@co.usda.gov

Around the State

Dr. Tatiana Bailey
Director
UCCS Economic Forum
College of Business
719-255-3661
tbailey6@uccs.edu

Ms. Donna Graves
Information Services, Inc.
970-385-4897
dkgraves1956@gmail.com

Mr. Steve Jozefczyk
Deputy Director
Grand Junction Economic Partnership
970-245-4332
steve@gjep.org

Ms. Jill Mendoza
Economic Development Manager
Town of Superior
303-499-3675
jillm@superiorcolorado.gov

Ms. Laura Lewis Marchino
Executive Director
Region 9 Economic Development District of SW Colorado
970-247-9621
laura@scan.org

Ms. Candace Payne
Executive Director
East Central Council of Local Governments
719-348-5562
cpayne@prairiedevelopment.com

Ms. Megan Pierce
Economic Vitality Director
City of Louisville
303-335-4531
mpierce@louisvilleco.gov

Stephanie Pitts-Noggle
Economic Development Specialist
Longmont Economic Development Partnership
303-651-0128
stephanie@longmont.org

Mr. Jeff Shaw
President and CEO
Pueblo Economic Development Corp
719-544-2000
jshaw@pedco.org

Ms. Rebecca Wilder
Assistant Program Director
UCCS Economic Forum
719-255-3061
rwilder2@uccs.edu

Dr. Nathan Perry
Associate Professor of Economics
Colorado Mesa University
970-248-1888
naperry@coloradomesa.edu

Mr. Scott J. Sternberg
Executive Director
Boulder Economic Ccouncil
303-547-7624
scott.sternberg@boulderchamber.com

Ms. Cassidy Stubblefield
Community Support Coordinator and Operations Manager
Upstate Colorado Economic Development
CStubblefield@upstatecolorado.org

Mr. Richard Werner
President and CEO
Upstate Colorado Economic Development
970-356-4565
rwerner@upstatecolorado.org

Mr. Lucas Workman
Town of Erie
(303) 926-2767
Lworkman@erieco.gov

Rachel Rogers
City of Fort Collins
(970) 416-4276
rrogers@fcgov.com

Construction

Ms. Katharine Jones (Co-Chair)
Economist
U.S. Dept. of Housing and Urban Development
Denver Regional Office
303-672-5060
Katharine.Jones@hud.gov

Mr. Penn Pfiffner (Co-Chair)
Consulting Economist
Construction Economics, LLC
303-233-7731
penn@constecon.com

Mr. Craig Fimple
SVP
TCF Bank
720-200-2416
CFimple@tcfbank.com

Mr. Michael Gifford
President
Associated General Contractors of Colorado
303-388-2422
mgifford@agccolorado.org

Mr. Tony Milo
Executive Director
Colorado Contractors Association
303-290-6611
tmilo@ccainfo.org

Mr. Daniel Page
Principal Facilities Cost Estimator
University of Colorado Boulder
303-492-1331
Daniel.Page@colorado.edu

Mr. Michael Rinner
Consultant
720-352-7244
wmrinner@gmail.com

Education and Health Services

Ms. Kristina Kolaczkowski (Co-Chair)
Principal Data Analyst
UnitedHealthcare
303-249-2572
kristina_kolaczkowski@uhc.com

Dr. Richard Thompson (Co-Chair)
Professor
Northcentral University
School of Business
720-839-3890
richardthompson@ncu.edu

Mr. Josh Block
Budget Director
Department of Health Care Policy and Financing
303-866-4116
joshua.block@state.co.us

Mr. Joe Hanel
Director of Communications
Colorado Health Institute
hanelj@coloradohealthinstitute.org

Ms. Mina Saadat
Senior Consultant
Kaiser Permanente
303-489-7006
Mina.a.saadat@kp.org

Financial Activities

Mr. Ron New (Chair)
Consultant
970-306-7435
rnew1@msn.com

Mr. Sean Breeze
Broker Associate
Your Castle Realty
303-916-7503
sean.breeze@yourcastle.org

Mr. Scott Earl
President/CEO
Mountain West Credit Union Assoc.
720-479-3201
searl@mwcua.com

Mr. Brandon Knudtson
Director of Membership
Colorado Bankers Association
303-825-1575
brandon@coloradobankers.org

Mr. Richard Morgan
Senior Vice President
Academy Bank
303-531-1188
rmorgan@academybank.com

Ms. Jessica Ostermick
Director
CBRE
303-264-1927
jessica.ostermick@cbre.com

Ms. Frances Padilla
District Director
U.S. Small Business Administration
SBA Colorado District Office
303-844-4293
frances.padilla@sba.gov

Mr. Mark Robey
Senior Vice President of Regulatory Affairs
Mountain West Credit Union Association
720-479-3200
mrobey@mwcua.com

Jenifer Waller
President
Colorado Bankers Association
303-825-1575
jenifer@coloradobankers.org

Mr. Steve Levine
Senior Vice President
Moreton & Company
303-385-2119
slevine@moreton.com

Government

Ms. Jennifer Pinsonneault (Chair)
Sr. Program Manager, Economic Vitality
City of Boulder
Community Vitality Department
303-441-3017
pinsonneaultj@bouldercolorado.gov

Ms. Dianne Criswell
Attorney
Special Districts Association of Colorado
General Counsel, Colorado Special District Property & Liability Risk Pool
303-863-1733
dianne@sdaco.org

Dr. Justin Fazzari
Manager of Broadband Data Analytics
National Telecommunication and Informtion Administration
Office of Internet Connectivity and Growth
571-338-3272
jfazzari@ntia.gov

Ms. VA Hayman Barber
Dean of Academic Affairs & Workforce Partnerships
Community College of Aurora
303-340-7520
Virginia.HaymanBarber@ccaurora.edu

Ms. Meghan MacKillop
Legislative and Policy Advocate
Colorado Municipal League
303-831-6411
mmackillop@cml.org

Mr. Ben Mendenhall
Consultant
303-887-3938
ben5280@gmail.com

Ms. Meredith Moon
Deputy Director of Budget
Office of State Planning and Budgeting
469-323-3096
Meredith.Moon@state.co.us

Ms. Megan Pierce
Economic Vitality Director
City of Louisville
303-335-4531
mpierce@louisvilleco.gov

Ms. Gini Pingenot
Director of External Affairs
Colorado Counties Inc.
303-861-4076
gpingenot@ccionline.org

Mr. Louis Pino
Economist
Colorado Legislative Council
303-866-3556
louis.pino@state.co.us

Mr. Daniel Ryley
Executive Director
Arvada Economic Development Association
720-898-7018
dryley@arvada.org

Ms. Kara Skinner
Assistant Director of Finance
City of Boulder
303-441-4027
SkinnerK@bouldercolorado.gov

continued on page 166

Estimating Groups

continued from page 165

Mr. Bill Sutter
Chief Financial Officer
Boulder Valley School District
303-641-9658
bill.sutter@bvsd.org

Information

Ms. Kate Watkins (Chair)
Chief Economist
Colorado Legislative Council
kate.watkins@state.co.us

Mr. Brian Lewandowski
Executive Director
University of Colorado Boulder
Business Research Division
303-492-3307
brian.lewandowski@colorado.edu

Ms. Kelly Baug
Deputy Film Commissioner
Colorado Office of Film Television & Media
303-892-8769
Kelly.Baug@state.co.us

Mr. Jacob Dubbert
Research Economist
University of Colorado Boulder
Business Research Division
jacob.dubbert@colorado.edu

Mr. Tad Johnson
Program Analyst
Colorado Office of Film Television & Media
303-892-3840
tad.johnson@state.co.us

Ms. Hasti Soltani
Colorado Office of Film Television & Media
hasti.soltani@state.co.us

Mr. Donald Zuckerman
Film Commissioner
Colorado Office of Film Television & Media
303-892-3896
donald.zuckerman@state.co.us

International Trade

Mr. Daniel Salvetti (Chair)
Manager - Strategy and Analytics
Colorado Office of Economic Development and International Trade
303-892-3830
daniel.salvetti@state.co.us

Mr. John Addison
Marketing Specialist
Colo Dept of Agriculture
Markets Division
303-869-9189
john.addison@state.co.us

Mr. Bryce Cooke
Senior Economist
Office of State Planning and Budgeting
703-447-0347
bryce.cooke@state.co.us

Dr. Denise Froning
Trade Policy Committee Chair
World Trade Center Denver
denise.froning@gmail.com

Ms. Karen Gerwitz
President
World Trade Center Denver
303-592-5760
karen@wtcdenver.org

Ms. Inta Morris
Chief Operating Officer
Colorado Department of Higher Education
303-862-3009
inta.morris@dhe.state.co.us

Mr. Anthony Russo
President
TradeHub International
843-452-6309
ARusso@TradeHubInternational.com

Ms. Ashley Warsh
Colorado Department of Agriculture
International Markets and Business Division
303-869-9181
ashley.warsh@state.co.us

Leisure and Hospitality

Mr. Tony Gurzick (Chair)
Grizzly Peak Consulting
970-799-0052
tony.gurzick@hotmail.com

Ms. Carrie Atiyeh
Director, Government and Community Affairs
Visit Denver
303-571-9466
catiyeh@visitdenver.com

Mr. David Becher
Director of Research
RRC Associates
303-396-1611
david@rrcassociates.com

Mr. Alexander Carlson
Senior Economist and Budget Analyst
Colorado Office of State Planning and Budgeting
518-522-4534
alex.carlson@state.co.us

Ms. Jill Corbin
Deputy Director of Destination Stewardship
Office of Economic Development and International Trade
Colorado Tourism Office
303-534-5225
jill.corbin@state.co.us

Ms. Bethany Cronk
Senior Vice President
HVS
720-837-8328
bcronk@hvs.com

Mr. Tom Foley
Senior Vice President Business Operations and Analytics
Inntopia
tfoley@inntopia.com

Ms. Melanie Mills
President/CEO
Colorado Ski Country USA
303-837-0793
mmills@coloradoski.com

Ms. Peggi O'Keefe
Executive Director
Colorado Gaming Association
peggi@clearstrategies.biz

Mr. Doug Price
President and CEO
Visit Colorado Springs
719-685-7633
doug@VisitCOS.com

Ms. Cathy Ritter
Founder and CEO
Better Destinations, LLC
847-774-0106
Cathy@BetterDestinations.us

Mr. Richard W. Scharf
President and CEO
Visit Denver
303-571-9415
rscharf@visitdenver.com

Ms. Laura Shunk
Communication Director
Colorado Restaurant Association
303-830-2972, ext. 117
lshunk@corestaurant.org

Ms. Alexea Veneracion
Communications Manager
Visit Colorado Springs
719-685-7639
Alexea@visitcos.com

Manufacturing

Mr. David Hansen (Chair)
Economist
Colorado Legislative Council
303-991-0072
david.hansen@state.co.us

Mr. Peter Doyle
CEO
Hirsh Precision Products, Inc.
303-530-3131
peter.doyle@hppi.com

Mr. Jake Dubbert
Research Economist
University of Colorado Boulder
Business Research Division
303-492-3182
jacob.dubbert@colorado.edu

Mr. Bart Taylor
Founder and Publisher
CompanyWeek
303-888-2832
btaylor@companyweek.com

Ms. Rebecca Wilder
Assistant Program Director
UCCS College of Business
UCCS Economic Forum
704-756-3305
rwilder2@uccs.edu

Natural Resources and Mining

Mr. Chris Eisinger (Chair)
Senior Research Scientist
Colorado Oil and Gas Conservation Commission
303-894-2100 x 5111
chris.eisinger@state.co.us

Ms. Karen Berry
State Geologist and Director
Colorado Geological Survey
303-384-2640
kaberry@mines.edu

Ms. Alexandra Evans
Policy Analyst
Center for the New Energy Economy
Alexandra.I.Evans@colostate.edu

Mr. Matt Morgan
Assistant Director/Senior Research Geologist
Colorado Geological Survey
303-384-2647
mmorgan@mines.edu

Mr. Alexander Papp
Consultant
Coalgeo, LLC
apapp5@comcast.net

Mr. Todd Ohlheiser
Executive Director
Colorado Stone, Sand and Gravel Association, and Colorado Ready Mixed Concrete Association
303-882-6879
todd@coloradocaa.org

Mr. Mike O'Keeffe
Geologist
Colorado Geological Survey
303-384-2637
okeeffe@mines.edu

Dr. Suzanne Tegen
Assistant Director
Center for the New Energy Economy
720-231-6182
Suzanne.Tegen@colostate.edu

Mr. John Tobin
President
Natural Reources Education Program
303-674-7083
jtobin3es@gmail.com

Other Services

Mr. Jacob Dubbert (Chair)
Research Economist
University of Colorado Boulder
Business Research Division
303-492-3182
jacob.dubbert@colorado.edu

Population and Employment

Ms. Elizabeth Garner (Co-Chair)
State Demographer
Colorado Department of Local Affairs
303-864-7720
elizabeth.garner@state.co.us

Mr. Joseph Winter (Co-Chair)
Program Manager CES
Colorado Department of Labor and Employment
303-318-8857
joseph.winter@state.co.us

Ms. Monicque Aragon
Economist
Colorado Department of Labor and Employment
monicque.aragon@state.co.us

Ms. Cindy DeGroen
Projections Demographer
Colorado Department of Local Affairs
303-864-7752
cindy.degroen@state.co.us

Mr. Jacob Dubbert
Research Economist
Leeds School of Business
Business Research Division
Jacob.Dubbert@Colorado.EDU

Mr. Lucas Ericson
Student Research Assistant
Leeds School of Business
Business Research Division
Lucas.Ericson@Colorado.EDU

Mr. Ryan Gedney
Supervising Economist
Colorado Department of Labor and Employment
303-318-8858
ryan.gedney@state.co.us

Mr. Trevor Hall
Student Research Assistant
Leeds School of Business
Business Research Division
Trevor.Hall@Colorado.EDU

Ms. Shannon Kerr
Statistical Analyst III
Colorado Department of Labor and Employment
303-318-8893
shannon.kerr@state.co.us

Mr. Brian Lewandowski
Executive Director
Leeds School of Business
Business Research Division
Brian.Lewandowski@Colorado.EDU

Dr. Robert McNown
Economist
JTC Econometrics
mcnownr@gmail.com

Mr. Max Olson
Student Research Assistant
Leeds School of Business
Business Research Division
Maxfield.Olson@Colorado.EDU

Ms. Jessie Ryce
Student Research Assistant
Leeds School of Business
Business Research Division
Jessie.Ryce@Colorado.EDU

continued on page 168

Estimating Groups

continued from page 163

Professional and Business Services

Mr. Brian Pool (Chair)
Partner
Government Performance Solutions, Inc.
303-884-8646
brian@governmentperformance.us

Ms. Ashley Cawthorn
Marketing Director
Berg Hill Greenleaf Ruscitti LLP
303-402-1600
adc@bhgrlaw.com

Mr. Mark Hamouz
Engineering Consultant
jmhmah@aol.com

Mr. David King
Management Consultant
303-888-4068
david.king5280@gmail.com

Mr. Michael Yeadon
Business Intelligence Consultant
Keysight Technologies
303-662-2681
michael.yeadon@keysight.com

Trade, Transportation, and Utilities

Mr. Tim Sheesley (Chair)
Chief Economist
Xcel Energy
303-294-2662
tim.sheesley@xcelenergy.com

Mr. Jacob Dubbert
Research Economist
University of Colorado Boulder
Business Research Division
303-492-3182
jacob.dubbert@colorado.edu

Mr. Gregory Fulton
President
Colorado Motor Carriers Association
303-433-3375
greg@cmca.com

Ms. Laura Jackson
Senior Director, Research and Market Intelligence
Denver International Airport
303-342-2282
laura.jackson@flydenver.com

Mr. Tim Jackson
President
Colorado Automobile Dealers Association
303-282-1448
tim.jackson@coloradodealers.org

Mr. Bill Kendall
Economist
303-472-7835
bill@cbef-colorado.com

Mr. Jason Peuquet
Principal Consultant, Electric Transportation
Xcel Energy
484-947-7383
Jason.J.Peuquet@xcelenergy.com