

F I F T Y - S I X T H A N N U A L

C O L O R A D O

BUSINESS ECONOMIC
OUTLOOK

2021



Leeds School of Business

UNIVERSITY OF COLORADO **BOULDER**

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Leeds School of Business



Dear Business Colleagues,

It's been an unprecedented year. The outbreak of COVID-19 caused a very dramatic disruption to higher education; within a matter of days, we transformed the delivery of our curricula to remote learning and reimagined the traditional business school experience at the Leeds School of Business.

Over the summer, we worked very hard with our own campus experts to develop and implement strategies for a healthy and safe fall experience. This semester, our students have been able to continue their degree progress through a variety of in-person, distance, and hybrid courses. While we do not yet know what 2021 will bring, we are continuing to do everything we can to ensure the quality and consistency of our business education and lead our faculty, staff, and students through this uncertain time.

Despite the challenges presented by the pandemic, our undergraduate business program was recently named #21 among public universities in *U.S. News & World Report's* 2021 Best Undergraduate Business Programs, and our undergraduate class of 2020 achieved more than 85% career placement—a remarkable feat in the current, highly uncertain economic climate. This was possible because of the many ways the Leeds community came together to lift up our new graduates, helping them identify opportunities and navigate the process of landing a position in this new reality.

These achievements are the result of our unique combination of academic excellence and connection to one of the nation's most vibrant business communities. In terms of academic excellence, we have continued to attract top faculty talent from universities such as Stanford, Berkeley, Duke, and Northwestern to inspire and educate our students and create impactful research that is helping businesses like yours.

Strong partnerships with our nationally recognized, innovative business community are mission-critical to us. Our goal is providing high-quality talent to be your organization's next generation of leaders. For example, our Career Impact initiative works with key business leaders, locally and globally, to understand the essential skills and attributes that future business professionals need. The insights we've learned have informed new innovations in our curriculum and programs. Additionally, we have made great momentum in our End the Gap initiative, aimed at achieving 50% female enrollment across all programs, which helps us contribute the finest, diverse candidates to drive your organizations forward.

Our joint building expansion and partnership with the College of Engineering and Applied Sciences is another example of our efforts to deliver the talent our region needs. This first-of-its-kind physical connection between Business and Engineering, and the direct link it facilitates to our dynamic business community, positions us to better prepare future generations of leaders to drive meaningful change in the world. This unprecedented partnership will shape interactions between the worlds of business and technology in a way that will differentiate us and elevate our schools and campus for decades to come. We opened spaces in the new Tandean Rustandy building this fall, and the grand opening will be in spring 2021.

We are delighted to share this 56th annual economic outlook with you as part of our commitment to provide you with important access to our world-class research. We hope the forecast is positive for your business in the year ahead.

Best regards,
Sharon Matusik, Ph.D., *Dean*, Leeds School of Business



#1 Business School
in Colorado



#15 in Entrepreneurship
Full-Time MBA Program
Bloomberg Businessweek
(2019-20)



#21 Best Public
Undergraduate Business
Program *U.S. News &*
World Report (2021)



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



Our freshman class:
29.63 ACT average,
46.17% women,
30.05% students of color



77% 4-year graduation
rate (undergraduate)



Launched new Executive
MBA program (2020)



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 our 56th annual Colorado Business Economic Outlook. This 2021 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 56th annual Colorado Business Economic Outlook Forum in Denver, followed by approximately 50 forecast speeches that are held throughout the state during the year, ranging from presentations to industry associations and nonprofit organizations to the Federal Reserve Bank of Kansas City.

Methodology

We are fortunate to have more than 100 individuals from the business, education, and government communities who serve on 13-sector estimating groups. These groups convene at a kickoff meeting in September where members discuss trends and issues that are likely to affect economic growth during the upcoming year. During the second half of September and into October, the committees apply this information to their industries. 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 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; Kristin Weber, graphic designer; Denise Munn, senior manager of print production management; and James Donahue, Max Olson, Rachel Long, and Anna Sernka, student research assistants, for their help in assembling and presenting the 2021 Colorado Business Economic Outlook Forum. The assistance provided by Leeds School staff member Laurel Page, 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, Tiffany Harbrecht, Brad Haynes, Erik Jeffries, Danica Johnson, and Jennifer Schuman—contributed marketing and promotion assistance.

I also appreciate the help provided by Andrew Sorensen and Julie Poppen with CU Boulder Strategic Media Relations.

Colorado Economic Forecast for 2021

The sections that follow provide a summary of 2020, a forecast for 2021, 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, Ph.D.
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Faculty Director, Business Research Division
Leeds School of Business
www.colorado.edu/business/brd

Colorado Then and Now

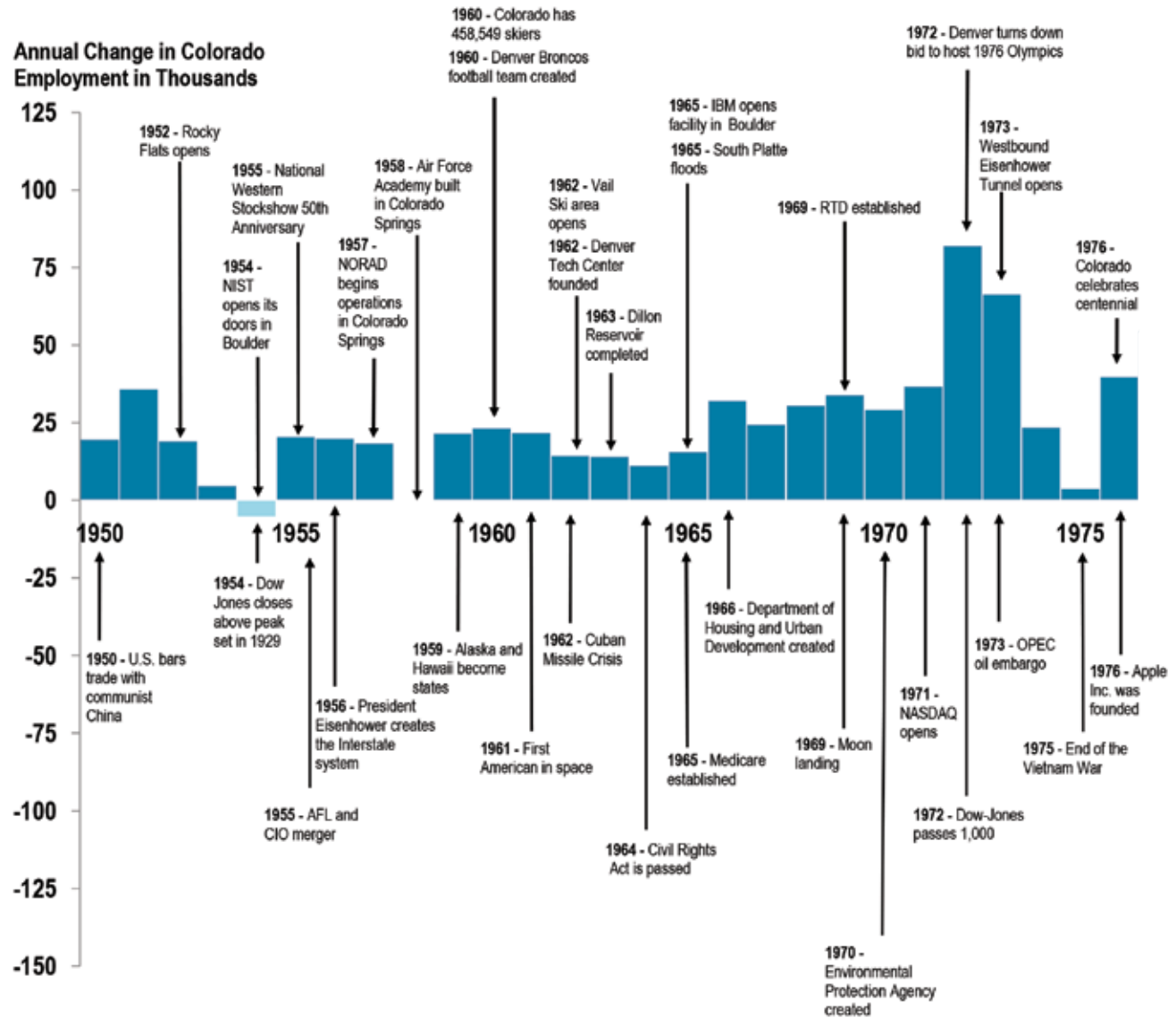
The timeline to the right provides a glimpse into the past, showing the annual change in state employment. Changes in employment have been accompanied by numerous social, economic, educational, and political changes. Colorado events are listed above the line; national events are noted below.

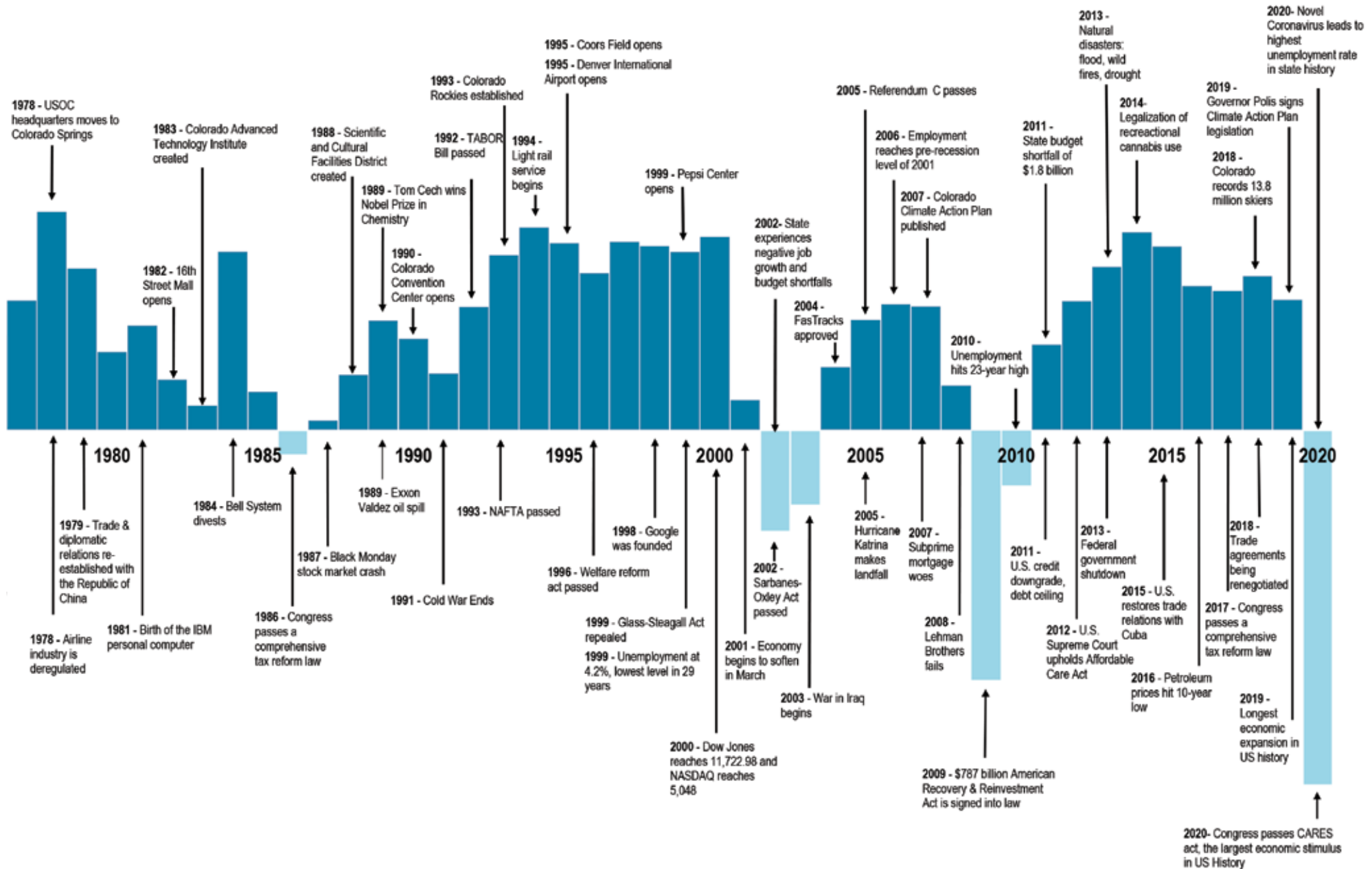
Over the past five decades, Colorado has experienced numerous economic booms and busts, dynamically changing industries, and (mostly) unrelenting population growth. The timeline puts the current COVID-19 recession into perspective, comparing the job losses in 2020 to those of prior economic recessions 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 (prior to the COVID-19 pandemic) at almost 2.8 million, not including proprietor employment in the state, and average annual pay for covered wage and salary earners grew to \$61,820.

Goods-producing industries accounted for 24% of jobs and made up 26.7% of the Colorado GDP. By 2019, those sectors accounted for 13.8% 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 26.2%. 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 as both industries experienced peak employment for the time. 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% today. 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. ❖





U.S. Economic Outlook

After the onset of the COVID-19 pandemic and the ensuing recession it created, the United States ended its longest economic expansion in post-WWII history, which exceeded the record set during the technology boom of the 1990s. Real gross domestic product (GDP) is estimated to have fallen 3.7% in 2020—down from increases of 2.2% in 2019 and 3% in 2018—marking the first annual decrease in GDP after 10 consecutive years of positive economic growth in the United States. Prior to the economic decline witnessed in 2020, the economy had begun to decelerate in 2019 as the labor market tightened, business investment tapered, and the fiscal stimulus from the 2017 tax cut waned. The slowdown eventually cascaded into a recession when businesses were mandated to temporarily shut down and consumer spending declined 6.9% in Q1 2020 and 33.2% in Q2 2020.

The halted pace of economic activity decreased upward pressures on prices despite the Federal Reserve's massive injections of liquidity in the banking system. Consumer prices rose only 1.2% in 2020 compared to 1.8% in 2019. Core personal consumer expenditure (PCE) price inflation also ticked up modestly to 1.5%, well below the Federal Reserve's 2% target pace. Employment costs rose 2.5%, a rate commensurate with prior years. Personal income rose 5.9% in 2020, a product of the stimulus payments that many Americans received in the early months of the pandemic.

The pace of economic activity in 2020 fell relative to 2019, with year-over-year decreases in GDP expected for all four quarters. Personal consumption growth grew 40.7% in Q3 2020 after the sharp declines in the first half of 2020; fixed business investment grew 20.3% in

Q3 2020 compared to a fall of 27.2% in Q2 2020. These components of GDP all fell heavily relative to the first three quarters of 2019.

The forecast for 2021 anticipates real GDP growth increasing to 3.8% as the pace of the U.S. economy recovers from its largest percent decline in GDP since 1946. This level of U.S. GDP growth can be attributed to several factors: first, the behavior of consumers since the onset of the pandemic has led a disproportionate amount of dollars to be allocated to goods rather than services; for context, services account for nearly half of total GDP. Growth in consumer spending on services in a post-vaccine environment will likely buoy total consumer spending and aggregate GDP. Second, equity markets that have been effectively backstopped by the balance sheet of the Federal Reserve will lead to

REAL GROSS DOMESTIC PRODUCT, 2011-2021 (In Billions of Chained 2012 Dollars)

Economic Indicator	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 ^a	2021 ^b
Real Gross Domestic Product	\$15,840.7	\$16,197.0	\$16,495.4	\$16,912.0	\$17,432.2	\$17,730.5	\$18,144.1	\$18,687.8	\$19,091.7	\$18,385.3	\$19,083.9
<i>Percentage Change</i>	1.6%	2.2%	1.8%	2.5%	3.1%	1.7%	2.3%	3.0%	2.2%	-3.7%	3.8%
Personal Consumption Expenditures	\$10,843.8	\$11,006.8	\$11,166.9	\$11,497.4	\$11,934.3	\$12,264.6	\$12,587.2	\$12,928.1	\$13,240.2	\$12,697.4	\$13,268.7
<i>Percentage Change</i>	1.9%	1.5%	1.5%	3.0%	3.8%	2.8%	2.6%	2.7%	2.4%	-4.1%	4.5%
Gross Private Domestic Investment	\$2,362.1	\$2,621.8	\$2,801.5	\$2,959.2	\$3,121.8	\$3,074.8	\$3,183.4	\$3,384.9	\$3,442.6	\$3,267.0	\$3,371.6
<i>Percentage Change</i>	8.7%	9.5%	4.1%	7.2%	2.3%	0.5%	3.7%	6.9%	2.9%	-5.1%	3.2%
Government Expenditures	\$3,203.3	\$3,137.0	\$3,061.0	\$3,033.4	\$3,088.2	\$3,144.4	\$3,172.3	\$3,229.8	\$3,303.9	\$3,350.2	\$3,356.9
<i>Percentage Change</i>	-3.1%	-2.1%	-2.4%	-0.9%	1.8%	1.8%	0.9%	1.8%	2.3%	1.4%	0.2%
Net Exports	-\$568.1	-\$568.6	-\$532.8	-\$577.2	-\$719.5	-\$763.6	-\$816.8	-\$877.7	-\$917.6	-\$872.0	-\$990.0
<i>Percent of Real GDP</i>	-3.6%	-3.5%	-3.2%	-3.4%	-4.1%	-4.3%	-4.5%	-4.7%	-4.8%	-4.7%	-5.2%

^aEstimate. ^bForecast. Note: Excludes changes in inventories.

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

expanded business investment as the capital markets remain accessible to large firms. However small businesses (defined by the Small Business Administration as having fewer than 500 employees) account for roughly half of all private employment in the United States. They do not enjoy this level of capital market accessibility and will likely dampen the recovery in private investment. Third, government spending will likely fall as lawmakers hope to wrangle a record \$3.1 trillion budget deficit in 2020, the product of multiple stimulus bills aimed at aiding American consumers and businesses alike struggling from the economic ramifications of the pandemic. Finally, the rise in consumer spending will likely be a boon for foreign producers that supply goods to individuals in the United States. A slow recovery in domestic business investment and manufacturing will likely fuel growth in net exports in 2021 after they fell in 2020 due to the aforementioned decline in U.S. consumer demand.

Total Output

The pace of U.S. economic activity fell in 2020, with a real GDP decline of 3.7%. Most components of aggregate demand contributed to the fall. Gross private domestic investment was especially hit, falling 5.1% (compared to an increase of 2.9% in 2019), though real government spending grew 1.4% in 2020 (compared to an increase of 2.3% in 2019). Net exports continued to be a drag on economic growth in 2020 as key trade partners experienced significant declines commensurate with that of the United States.

Consumer Expenditures

Consumer spending on goods and services generally accounts for nearly 70% of total GDP, and it declined an estimated 4.1% in 2020, a fall from the increase seen in 2019. The sharp decline in consumer spending can be attributed to consumers' adjustments in their spending habits as demand for services fell at an annualized rate of 41.8% in Q2 2020 (before increasing 38.4% in Q3). Demand for goods also fell at an annualized rate of 10.8% in Q2 2020 (before rebounding 45.4% in Q3). Expenditures on services account for roughly two-thirds of all consumer spending, and restrictions on many public activities has contributed to the fall in the component.

With respect to labor income, the pandemic drove unemployment to high levels not seen since the Bureau of Labor Statistics began reporting data in 1948; April 2020 recorded an unemployment rate of 14.4%, which has since improved to 6.6% in October. The United States marked its 113th-straight month of job growth in February 2020, a feat that was promptly halted after a decrease of 22.2 million in March and April 2020; the U.S. added back 12.1 million jobs from May through October.

Investment

The pace of investment spending fell in 2020 by an estimated 5.1%. Even prior to the pandemic, investment spending had begun decelerating like virtually every other variable in GDP. Through the first half of 2020, residential housing investments decreased 4%. Corporate default rates, which had picked up from their March 2019 lows, grew to over 8% in September 2020; this level was nearly double that of the corporate default rate in the

European Union. High levels of corporate defaults are the product of record corporate debt that became unserviceable for many U.S. firms once demand dried up.

Government Expenditures

Government spending grew at an estimated 1.4% in 2020, slower than in 2018 and 2019. Much of the increase came from record stimulus aimed at keeping consumers and small businesses afloat. Spending by the federal government is forecasted to increase modestly in 2021. These unprecedented surges in federal spending, along with substantial tax cuts passed in 2017, have appreciably widened the federal budget deficit, growing from \$984 billion in 2019 to over \$3 trillion in 2020.

Net Exports

Net exports continued to be a drag on U.S. economic growth, though the trade deficit declined in 2020 relative to 2019 as a product of decreased consumer demand. As of Q3 2020, the trade deficit was 5.4% of real GDP. Exports fell 0.1% in 2019 and imports increased 1.1%, a pace that was much slower than previous years. The effects of trade tension and a looming global slowdown have led to a deceleration in trade across both imports and exports.

Looking ahead, the trade deficit will likely increase to nearly \$1 trillion by 2021. Trade forecasts are especially challenging to make given the volatile nature of the trade relations and rapid shifts in consumer behavior from the pandemic; a change in rhetoric from either China or the United States would significantly alter the outlook on trade. ❖

Colorado Economic, Employment, and Population Outlook

Economy

The COVID-19 pandemic has caused a historic economic downturn in both Colorado and the nation, with record GDP and employment declines. While the economy has bounced back from the depths of the recession, much uncertainty remains around the pandemic and its recurring effects on the economy.

Despite the downturn, a review of economic metrics reveals Colorado continues to outperform the nation in many areas; however, it has fallen behind in others. Real GDP declined 6.3% in Q2 2020 year-over-year, ranking Colorado fourth among the 50 states for the lowest decline, and the state's five-year compound annual growth rate (CAGR) ranks fifth, at 1.5%. Employment declined 4% year-over-year in October, ranking the state

16th overall, and the unemployment rate of 6.4% ranked the state 30th. Personal income grew 9.4% year-over-year in Q2 2020 in the state, ranking Colorado 36th in the nation. Likewise, per capita personal income grew 8.1%, ranking Colorado 40th. In 2019, the state's population added 67,000 people, ranking Colorado seventh for pace of growth. The labor force declined by 36,300 year-over-year, or 1.1%, in October 2020, ranking Colorado 25th

STATE AND NATIONAL ECONOMIC COMPARISON, 2010-2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Q2 2019	Q2 2020
Colorado												
Real GDP Growth (Percent Change)	1.1	1.2	1.9	3.3	4.3	4.8	2.2	4.0	4.4	3.9	3.5	-6.3
Personal Income Growth (Percent Change)	3.3	8.7	6.3	5.1	8.8	5.0	2.1	7.4	7.4	5.1	5.3	9.4
Per Capita Personal Income (PCPI) (\$)	40,689	43,575	45,669	47,311	50,711	52,254	52,475	55,604	58,896	61,157	60,879	65,816
PCPI Growth (Percent Change)	1.8	7.1	4.8	3.6	7.2	3.0	0.4	6.0	5.9	3.8	4.0	8.1
Employment Growth (Percent Change)	-1.0	1.7	2.4	3.0	3.5	3.2	2.4	2.3	2.5	2.1	1.9	-8.6
Unemployment Rate (Percent)	8.7	8.4	7.9	6.9	5.0	3.9	3.3	2.8	3.2	2.8	2.8	11.0
Labor Force Participation Rate (Percent)	70.4	69.7	69.1	68.1	67.7	66.8	67.0	68.0	68.9	69.3	69.1	67.3
CPI-All Items (Percent Change)	1.9	3.7	1.9	2.8	2.8	1.2	2.8	3.4	2.7	1.9	1.3	2.7
Core CPI (Percent Change)	1.4	2.3	2.0	3.2	2.9	3.3	4.0	3.1	2.5	2.5	1.9	3.1
Shelter (Percent Change)	0.5	1.7	2.7	4.5	5.0	5.7	7.3	5.1	2.7	3.6	2.3	4.3
United States												
Real GDP Growth (Percent Change)	2.6	1.6	2.2	1.8	2.5	3.1	1.7	2.3	3.0	2.2	2.0	-9.0
Personal Income Growth (Percent Change)	4.1	6.2	5.1	1.3	5.7	4.9	2.8	4.9	5.3	3.9	4.1	10.4
Per Capita Personal Income (PCPI) (\$)	40,547	42,739	44,605	44,860	47,071	49,019	50,015	52,118	54,606	56,490	56,307	61,842
PCPI Growth (Percent Change)	3.2	5.4	4.4	0.6	4.9	4.1	2.0	4.2	4.8	3.5	3.6	9.8
Employment Growth (Percent Change)	-0.7	1.2	1.7	1.6	1.9	2.1	1.8	1.6	1.6	1.4	1.3	-11.2
Unemployment Rate (Percent)	9.6	8.9	8.1	7.4	6.2	5.3	4.9	4.3	3.9	3.7	3.6	13.0
Labor Force Participation Rate (Percent)	64.7	64.1	63.7	63.3	62.9	62.7	62.8	62.8	62.9	63.1	62.9	60.8
CPI-All Items (Percent Change)	1.6	3.2	2.1	1.5	1.6	0.1	1.3	2.1	2.4	1.8	1.7	1.2
Core CPI (Percent Change)	1.0	1.7	2.1	1.8	1.7	1.8	2.2	1.8	2.1	2.2	2.1	1.8
Shelter (Percent Change)	-0.4	1.3	2.2	2.3	2.8	3.1	3.4	3.3	3.3	3.4	3.4	2.9

Sources: Bureau of Labor Statistics and Bureau of Economic Analysis. Note: "Core CPI" is defined as All Items less Food and Energy

for labor force growth. Reflecting both the young workforce and economic opportunity, Colorado's labor force participation ranked fifth-highest nationally, at 67.6% in October. Home values continued to appreciate, but at a slower rate, growing 3.7% in Q2 2020 year-over-year, ranking the state 35th.

While benchmarking to the other 49 states shows Colorado is still performing relatively well compared to other states, the fact remains that the economy is observing a large shock from the pandemic. The 6.3% year-over-year decline in real GDP in Q2 2020 compares to 2.7% growth in Q1 2020 and 3.5% growth in Q2 2019. Average job growth from January through October 2020 fell 4% compared to the same period in 2019. The average labor force from January through October 2020 fell 1.1% (36,300) compared to the same period in 2019, and the labor force participation rate stands at 67.6% in October 2020, compared to 69.5% in October 2019. Inflation in the Denver-Aurora-Lakewood metropolitan area has outpaced price growth nationally for the past seven years but is slightly below national inflation in September. Home price growth slowed from 11% year-over-year in Q2 2016 to 10.1% in Q2 2017, 8.9% in Q2 2018, 5% in Q2 2019, and 3.7% in Q2 2020—the slowest rate since Q4 2012.

Meanwhile, the unemployment rate has risen to 6.4% in October 2020 from a historical low of 2.5% a year ago. Initial and continued jobless claims skyrocketed this year due to the COVID-19 pandemic, with initial claims reaching a record high 104,572 in April. While they have observed a continued decline since April, they still remain around 7,000 per week—much higher than the average for 2019. Net migration slowed to 43,000 in 2019 and is projected to slow further in 2020 and 2021. Personal income increased substantially in Q2 2020 year-over-year, with growth of 9.4%; per capita personal income grew similarly, with an increase of 8.1%.

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. The previous editions of this book serve as a chronicle of the changing issues and opportunities facing people and industry in Colorado for 55 years. 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 the each of the NAICS supersectors by providing an overview of labor force and wage and salary employment totals.

Employment

Colorado has demonstratively been an employment growth state, recording 80 growth years and only eight years of job losses between 1940 and 2019. The COVID-19 pandemic in 2020, however, has brought nine consecutive years of job growth to an abrupt halt, impacting every industry in the state.

After growing by 58,400 jobs (2.1%) in 2019, employment declined significantly in Colorado in 2020, with total employment year-to-date through October down 4.1% compared to the same period in 2019, or a loss of 115,100 jobs. October employment is 125,700 jobs (4.5%) below levels observed in January and 134,300 jobs (4.8%) below October 2019 levels. While the decline from the pandemic-induced recession is significant, the state is on the mend, with 63% of the 342,300 jobs lost in March and April recovered as of October, according to preliminary estimates from the Colorado Department of Labor and Employment. After data revisions, losses are projected to average 148,800 in 2020, a decrease of 5.3%, before growing by 40,500 jobs, or 1.5%, in 2021. However, the upper and lower bounds of the forecast illustrate the economic uncertainty in the year ahead that could erase any job growth or could accelerate the rebound.

Year-over-year employment growth was recorded in all of Colorado's seven metropolitan areas in 2019: Greeley (3.5%), Fort Collins (2.5%), Colorado Springs (2.2%),

Denver-Aurora-Lakewood (2.2%), Boulder (2%), Grand Junction (1.2%), and Pueblo (1%). However, every metropolitan statistical area (MSA) with the exception of Grand Junction has observed steep year-over-year declines in employment in October 2020: Greeley (-6.7%), Boulder (-6.2%), Fort Collins (-5.8%), Denver-Aurora-Lakewood (-3.2%), Pueblo (-3%), and Colorado Springs (-2.6%). Grand Junction employment was up 0.5% according to the preliminary data.

Most businesses in the economy are small businesses—96.2% of wage and salary establishments have fewer than 50 employees (compared to 95.7% nationally). These small businesses represent 49% of jobs in Colorado (compared to 43.7% nationally).

Labor Force and Unemployment

After seven years of consecutive declines, the unemployment rate increased from 2.8% in 2017 to 3.2% in 2018. However, the labor market tightened in 2019, averaging 2.8% for the year. In 2020, the unemployment rate stood at 6.4% in October, ranking the state 30th, after falling from a record high 12.2% in April due to the pandemic. The unemployment rate is estimated to average 7.1% for 2020 and is projected to average 6.7% in 2021.

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

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COLORADO RESIDENT LABOR FORCE 2011-2021 (Not Seasonally Adjusted) (In Thousands)

Labor Force	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^a	2020 ^b	2021 ^b
Colorado Labor Force	2,736.1	2,757.2	2,767.2	2,802.5	2,825.1	2,891.7	2,986.5	3,080.7	3,148.8	3,128.1	3,165.6
Total Employment	2,507.3	2,539.9	2,577.6	2,662.4	2,714.8	2,797.0	2,902.7	2,983.5	3,062.1	2,906.5	2,955.1
Unemployed	228.8	217.3	189.6	140.1	110.3	94.7	83.8	97.2	86.7	221.6	210.5
Unemployment Rate	8.4%	7.9%	6.9%	5.0%	3.9%	3.3%	2.8%	3.2%	2.8%	7.1%	6.7%

^aEstimated. ^bForecast. 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 2011-2021 (In Thousands)

Sector	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 ^a	2021 ^b
Natural Resources and Mining	27.9	30.3	30.6	34.1	30.7	23.7	25.8	28.6	28.9	22.0	22.4
Construction	112.5	115.8	127.5	142.2	148.8	155.3	163.7	173.2	178.8	175.0	175.0
Manufacturing	128.1	130.9	132.8	136.6	141.0	142.7	144.3	147.5	150.1	149.3	151.6
Trade, Transportation, and Utilities	401.6	409.5	420.2	432.7	445.7	454.0	461.3	470.4	477.4	466.8	481.5
Information	71.4	69.8	69.9	70.3	70.7	71.9	71.9	75.2	76.0	74.5	73.4
Financial Activities	143.9	146.7	151.0	153.9	159.0	163.9	168.1	171.6	173.9	170.5	173.0
Professional and Business Services	341.5	356.9	372.6	386.6	398.4	405.7	412.8	423.9	440.0	431.6	436.0
Education and Health Services	272.9	281.8	285.9	298.0	313.3	325.8	334.1	340.7	347.6	334.3	338.8
Leisure and Hospitality	271.4	279.7	289.4	300.4	312.8	323.6	333.2	339.7	344.6	273.4	292.6
Other Services	93.7	96.0	97.7	100.9	104.2	107.3	108.6	110.9	113.1	106.0	106.5
Government	392.4	394.3	403.2	407.9	416.5	428.1	436.7	445.6	455.3	433.6	426.6
Total ^{c,d}	2,257.3	2,311.7	2,380.8	2,463.6	2,541.1	2,602.0	2,660.5	2,727.3	2,785.7	2,636.9	2,677.4

^aEstimated. ^bForecast. ^cNonagricultural self-employed, unpaid family workers, and domestics are excluded from the total.

^dDue to rounding, the sum of the individual sectors may not equal the total.

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

AVERAGE ANNUAL PAY BY SECTOR COLORADO AND UNITED STATES (Q1 2020)

NAICS	Sector	Colorado	1-Year Growth	United States	1-Year Growth
11	Agriculture, Forestry, Fishing, Hunting	\$40,892	5.7%	\$37,638	4.4%
21	Mining	131,713	7.4	108,287	2.8
22	Utilities	111,957	5.4	113,440	2.1
23	Construction	65,452	4.4	65,337	3.6
31-33	Manufacturing	74,073	3.0	70,134	2.0
42	Wholesale Trade	91,209	4.8	80,729	2.9
44-45	Retail Trade	34,311	5.0	33,957	4.1
48-49	Transportation and Warehousing	59,346	3.2	54,288	1.3
51	Information	112,509	8.2	121,634	5.3
52	Finance and Insurance	104,333	7.5	114,526	4.2
53	Real Estate and Rental and Leasing	61,905	3.1	62,067	3.8
54	Professional and Technical Services	103,788	5.2	101,771	3.8
55	Mgmt of Companies and Enterprises	146,731	5.0	126,613	2.4
56	Administrative and Waste Services	45,927	2.1	43,402	4.6
61	Educational Services	42,859	2.5	53,050	3.0
62	Health Care and Social Assistance	53,213	3.1	52,195	3.1
71	Arts, Entertainment, and Recreation	38,309	-0.4	40,309	3.2
72	Accommodation and Food Services	25,165	6.0	22,677	4.3
81	Other Services	42,701	3.3	40,279	3.8
	Government	59,469	3.8	59,637	3.0
	Federal	85,547	2.0	84,353	1.3
	State	68,198	4.0	63,321	3.7
	Local	50,841	4.3	53,524	3.2
	Total, All Industries	62,513	4.8	59,714	3.5

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

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 LFPR was 65% over the past 43 years. In October 2020, it was 61.7%, which is 3.3 percentage points below the long-term average. In Colorado, the average LFPR from 1976 to 2019 was 70.6%, and the state’s LFPR has been above 69% consistently since June 2018. However, turbulence in the labor market has been the story of 2020, with Colorado’s LFPR sitting at 67.6% in October—up from a low of 66.4% in April. Colorado ranked sixth in the nation in terms of the highest LFPRs, sitting behind Nebraska (68.9%), North Dakota (68.2%), South Dakota (68%), Utah (67.9%), and Kansas (67.8%).

Nationally, labor force participation rates for all age groups observed large declines in October 2020 year-over-year. Adults age 20 to 24 observed the largest decrease in participation (-1.9 percentage points) followed by adults age 25 to 54 (-1.6 percentage points). Adults age 20 to 24 participate at a rate of 70.6%, while adults age 25 to 54 participate at a rate of 81.5%, and adults age 65 and over participate at a rate of 19.3%. Additionally, the labor participation rate for women fell to 55.9% in October 2020—the lowest participation rate for women in 34 years—as women represented a disproportionate share of the jobs lost due to the pandemic.

Labor Data Sets

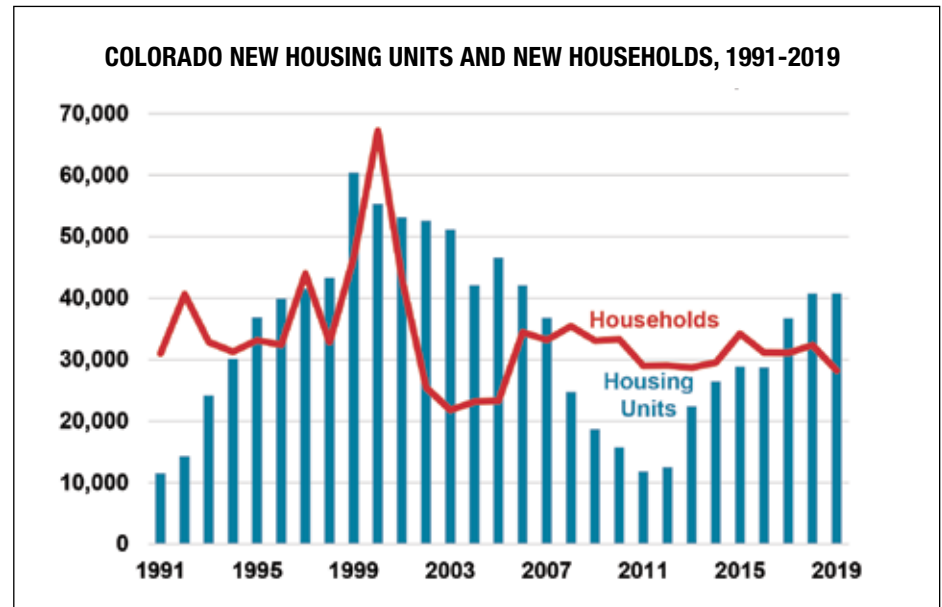
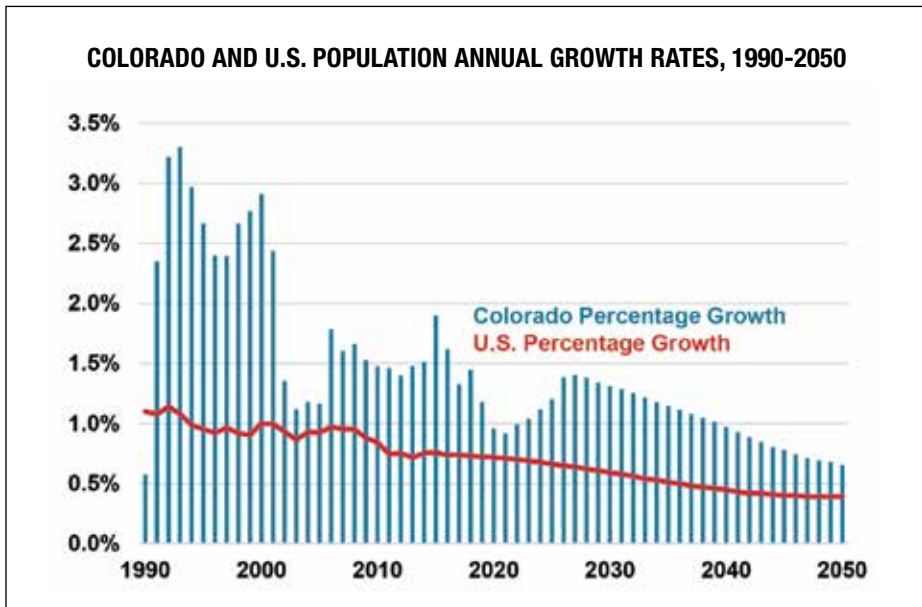
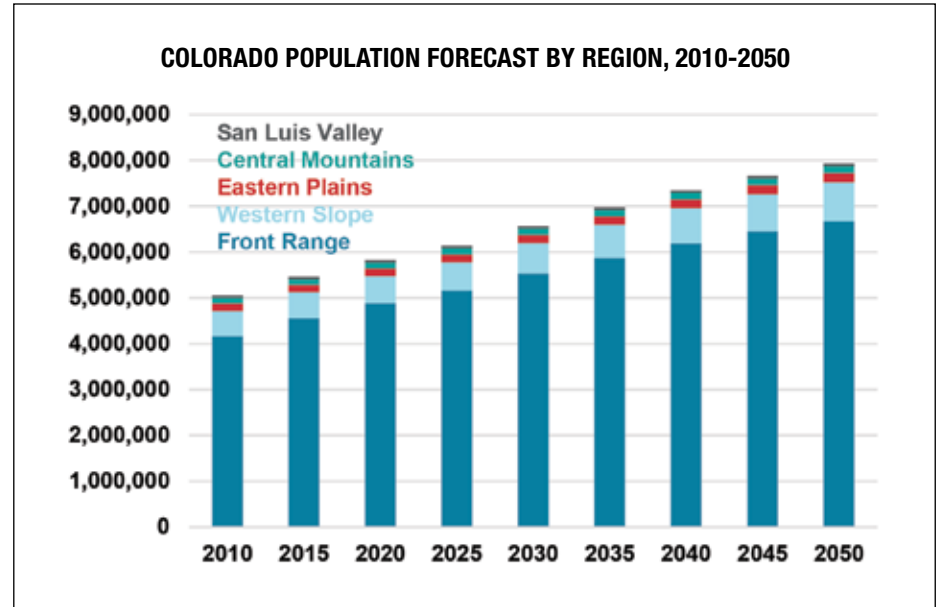
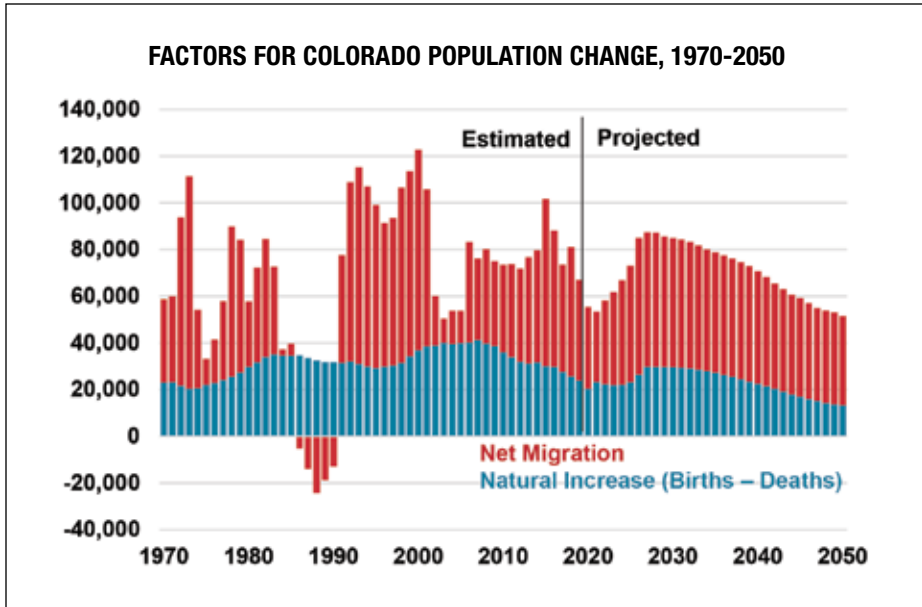
The data for this forecast are derived from two U.S. Bureau of Labor Statistics (BLS) sources: Current Employment Statistics (CES) and Local Area Unemployment Statistics (LAUS).

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

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

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year—based on the Quarterly Census of Employment and Wages (QCEW) that all firms are required to submit.

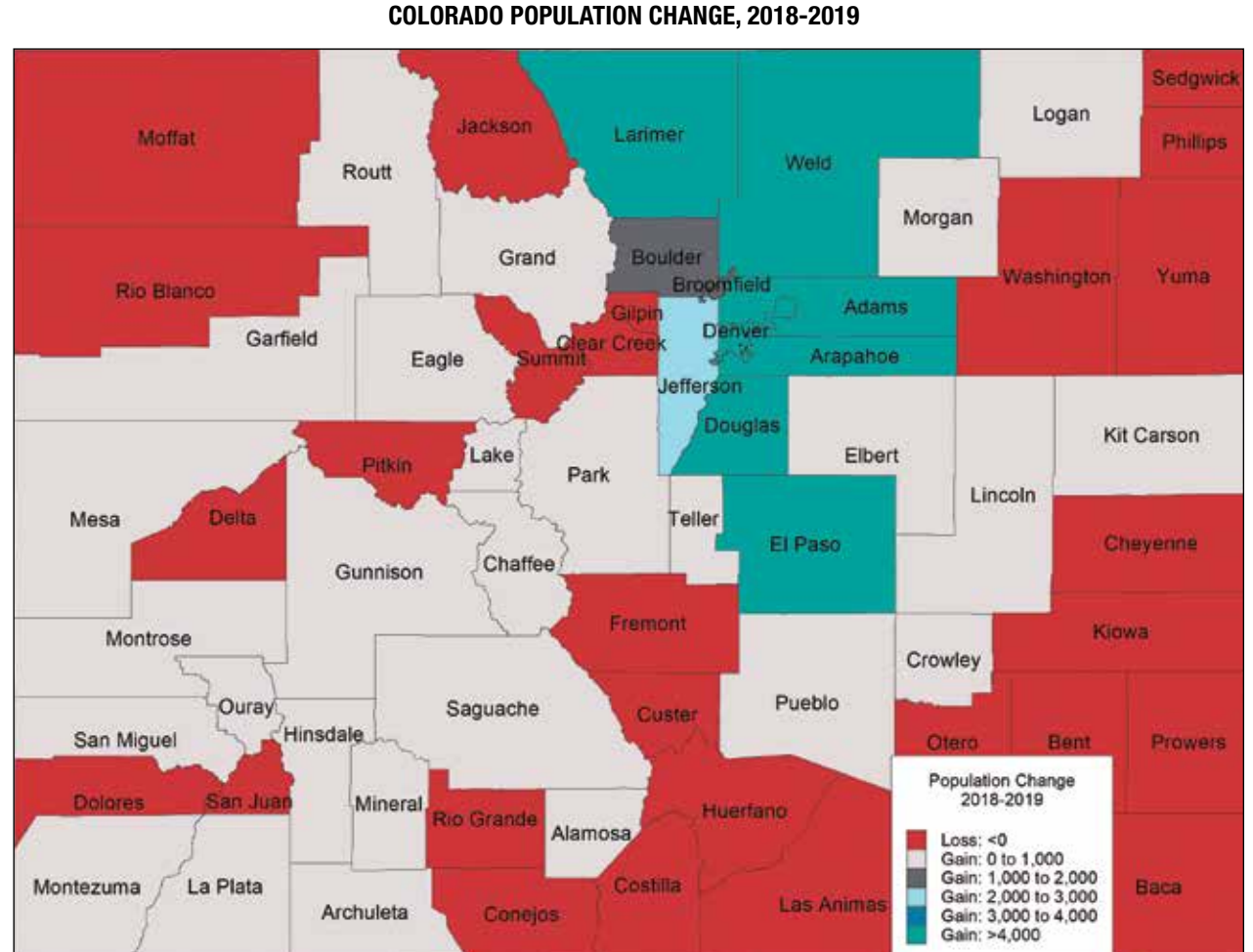
The LAUS labor series provides an estimate of the size of the total labor force and is used to calculate the unemployment rate. The LAUS data considers the labor force as everyone of working age who is actively employed or looking for a job. Students, retirees, stay-at-home parents, institutionalized 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

The population in Colorado reached 5,764,000 in 2019, an increase of 67,000 from 2018. This was slower than expected and represents a continued slowdown in growth driven by fewer births, increased deaths, and lower net-migration. Net migration slowed to 43,000, and natural increase (births minus deaths) slowed to 23,000, almost 20,000 fewer than when it peaked in 2007 at 41,000.

Births continue to slow in both Colorado and the U.S. even though the population of women of childbearing age is increasing. Both the U.S. and Colorado hit their recent peaks for births in 2007. Nationally, there were 525,000 fewer births in 2019 than in 2007. The slowing in births will have long-run impacts on K-12 and higher education, as well as the labor force. COVID-19 is expected to have a slight negative impact on births, as historically, recessions and pandemics tend to put downward pressure on births. Monthly birth data starting in November will inform us as to the impacts from COVID-19. The State Demography Office is expecting births rates to be slightly lower in 2020 and 2021 and then return to rates observed in 2019. Some forecasters are expecting a mild baby boom after the



Source: Colorado Demography Office, U.S. Census Bureau, and the Business Research Division.

recovery from COVID-19, making up for any postponements during the pandemic.

Over time the number of deaths in Colorado have increased, reflecting an increased number of older adults. COVID-19 has caused an additional increase in deaths in 2020, with a continued increase in deaths expected in 2021 until there is a viable vaccine or treatment.

Migration to the state is uncertain during the pandemic. Colorado was already experiencing slower net-migration primarily due to its higher costs of housing and slower growth in the U.S. Mobility tends to slow during a crisis, and international migration has all but halted. International migration has been 20-25% of Colorado's total

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LARGEST AND SMALLEST POPULATION BY COUNTY, 2019					COMPONENTS OF COLORADO RESIDENT POPULATION CHANGE, 2011-2021 (In Thousands)							
Rank	County	Total Population	County	Population Change	Year	Births (Resident)	Deaths (Resident)	Natural Increase	Net Migration	Population Change	Total Population	
Largest	1	Denver	729,239	Denver	11,055	2011	65.9	32.0	33.9	39.9	73.8	5,124.1
	2	El Paso	722,493	Weld	9,594	2012	64.7	32.8	32.0	39.9	71.8	5,196.0
	3	Arapahoe	656,822	Douglas	8,202	2013	64.7	33.6	31.1	45.6	76.7	5,272.7
	4	Jefferson	583,081	El Paso	8,107	2014	65.7	34.0	31.7	47.9	79.6	5,352.3
	5	Adams	517,885	Adams	6,178	2015	66.3	36.2	30.1	71.6	101.7	5,454.0
Smallest	1	San Juan	726	Fremont	-244	2016	66.6	36.8	29.7	58.5	88.2	5,542.2
	2	Mineral	764	Pitkin	-191	2017	65.3	37.7	27.6	46.0	73.5	5,615.7
	3	Hinsdale	819	La Plata	-99	2018	63.8	38.2	25.6	55.6	81.2	5,696.9
	4	Jackson	1,383	Otero	-96	2019	62.5	38.6	23.8	43.3	67.1	5,764.0
	5	Kiowa	1,395	Alamosa	-44	2020 ^a	62.9	42.5	20.3	35.1	55.4	5,819.3
					2021 ^b	62.6	39.3	23.3	30.0	53.3	5,872.7	

Source: Colorado State Demography Office.

^aEstimated. ^bForecast. Source: Colorado Department of Local Affairs, State Demography Office (November 2020 estimates).

annual net-migration. Alternative data sources like residential real estate sales, school enrollment, moving-van data, and U.S. Postal Service (USPS) change of address forms are being analyzed to gauge changes in mobility until more reliable IRS data is available. The USPS change of address forms indicate that many of the moves are temporary, not permanent. Some of these alternative data sources are indicating mobility has remained fairly steady during the pandemic and subsequent recession, which is actually unusual as mobility typically slows during recessions. Even with the projected slower growth, Colorado's population is forecast to top 5.8 million in 2020.

Change by County

The counties observing the highest increase in population continued to be along the Front Range, led by Denver increasing by 11,055 (1.5%), followed by Weld (9,594, 3.1%), Douglas (8,202, 2.4%), El Paso (8,107, 1.1%), and Adams (6,178, 1.2%). The fastest-growing counties (percent growth) were some of the state's mountain counties, as well as some of the Front Range counties. Although Colorado's population has increased by 700,000 since 2010, 19 counties, or 30% of all counties in the state, have observed declines over this period. In the last year, 16 counties shed population. Most of the

counties shrinking in population are from the Eastern Plains or mountain counties, and many are some of the smallest population counties in Colorado. However, both Fremont County, at over 47,000 people, and La Plata County, at over 56,000 people, both recorded slight losses.

Age

Population growth by age group continues to be a defining factor for Colorado. Due to the slowing in births, the under 18 population has started to shrink from a high of 1,265,800 in 2017 to 1,260,300 in 2019. The age group that has observed the highest growth from 2010 to 2019

in Colorado has been the 65+ population—an increase of almost 292,000 or 41%.

Housing

Housing unit growth slowed slightly between 2018 and 2019 to approximately 39,500 from 40,100 the previous year. Household growth is remaining fairly steady, with the resulting demand for housing staying strong, putting upward pressure on home prices. Colorado housing unit growth has surpassed household formation for the last two years. The ratio of housing units to households is still close to 35-year record lows 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. In the short run there may be some slight slowing due to COVID-19 and the recession, but initial anecdotal evidence indicates that migration and home sales have remained steady. 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 may create more

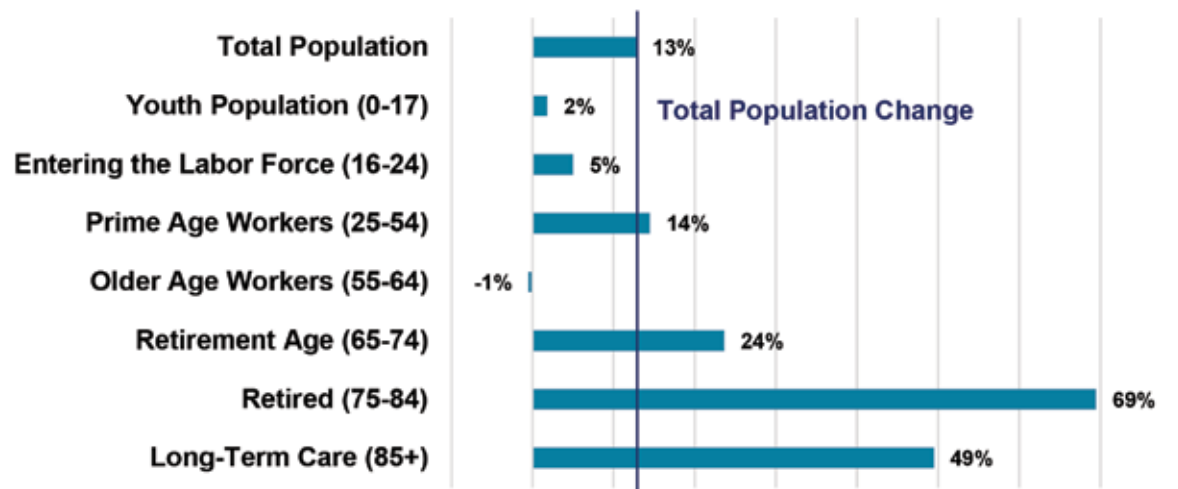
turnover in larger, single-family homes as the boomers look to downsize. Of course, there are several factors like location, availability, cost, and health needs that will also factor into these decisions.

Forecasts

COVID-19 will slow 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 and it has all but come to a standstill. Population growth in 2020 is projected to slow to 55,000 from 67,000 in 2019. Growth is projected to continue to slow further to 53,000 in 2021 and then return to pre-COVID-19 levels by 2024. 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 retirements of baby boomers and the need for replacement workers. After 2030, population growth is expected to slow 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 2019 to 2% by 2050.

The largest population growth by county continues to be along the Front Range. Between 2020 and 2030, the state’s population is projected to increase by 743,000, with 87% of this increase, or 644,000 people, projected for the Front Range and 370,000 for the Denver Metro area. The North Front Range is expected to observe the fastest growth, at an annual average of 2%, or 149,000 people. The 2050 forecast for the state is 7.9 million, with 6.6 million along the Front Range, or 84% of the total population.

PROJECTED CHANGE IN SPECIFIC AGE GROUP POPULATIONS IN COLORADO, 2020-2030

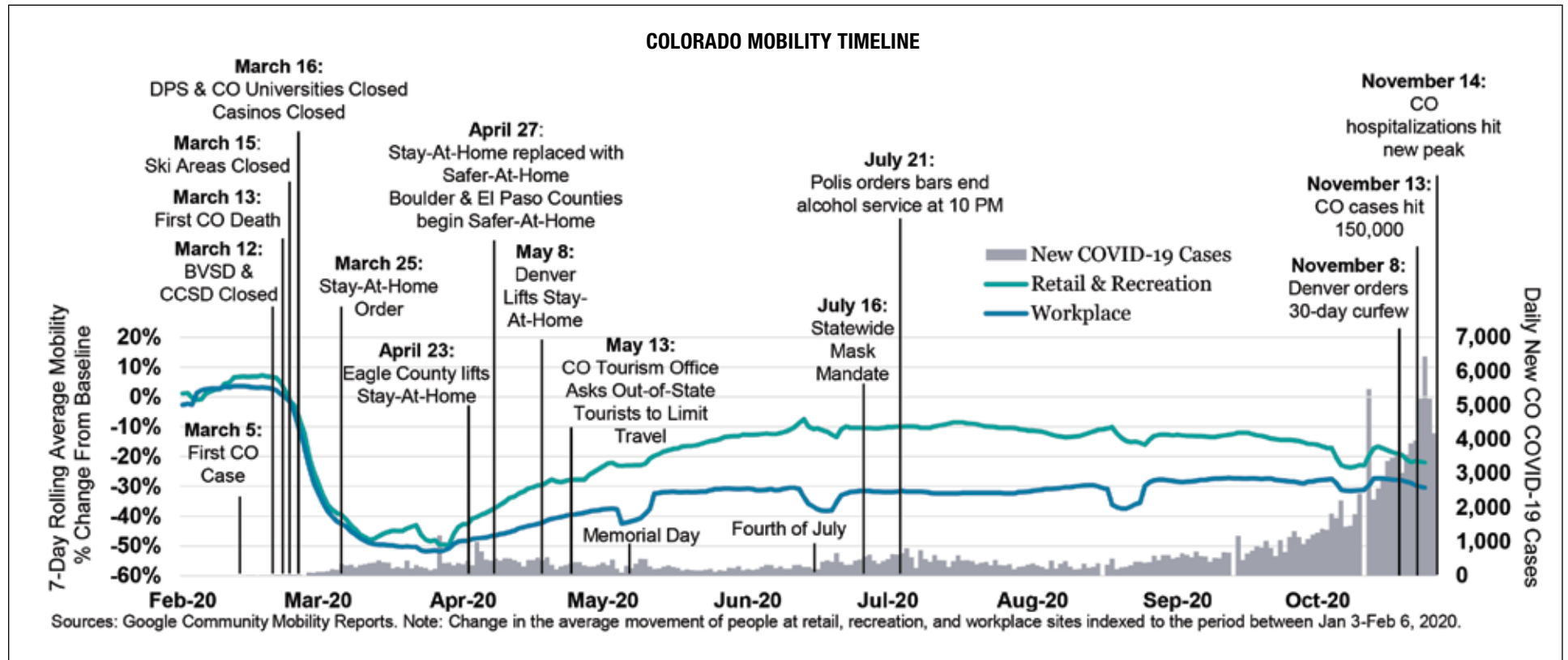


Source: Colorado Department of Local Affairs, State Demography Office.

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COVID-19 Timeline

In late December 2019, the World Health Organization was alerted to a number of pneumonia cases that had emerged out of Wuhan, a large city in Central China. By January 7, 2020, the cause was later determined to be a novel coronavirus. Within a month of the first report of the cluster of pneumonia in Central China, the unknown virus had spread en masse to Europe and the rest of China's neighboring East Asian nations. China was forced to take unprecedented measures in curbing the spread

of the virus by mandating lockdowns in Wuhan and surrounding cities. As a result of the lockdowns, China's manufacturing base, which had already been decelerating in the months prior to the shutdown, decreased dramatically. China's Purchasing Managers' Index (PMI) fell from a reading of 50.0 in January 2020 to 35.7 in February 2020.

It was discovered fairly quickly that the disease, which by late January had been named Coronavirus Disease 2019, or COVID-19, disproportionately affected individuals with pre-existing conditions as well as those older than

65. As a result, Italy, which has the fourth oldest population in the world based on median age, was especially impacted in the early months of the disease's spread. It is also crucial to note that other cultural forces were at play in the European spread; Italy has the highest proportion of individuals aged 15-29 that live with their parents of any country on the globe (81%, compared to the United States at 67%) in addition to the highest proportion of individuals aged 30-49 that live with their parents (23%, compared to the United States at 6.4%). As a result, younger people who would have been socially active in the weeks leading

up to the Italian lockdown were more likely than any other nationality to be in close proximity to their parents, and the result was deadly. As such, it provided the globe with a preliminary view of the coronavirus spread and lethality outside of Mainland China.

The incendiary spread of the coronavirus in the United States began shortly after. Dense metropolises such as New York were originally hit first, where there were nearly 50,000 cases within a month of the first confirmed case on March 1. As cities began to triage the spread over the summer months, new cases of the virus emerged in Florida, which became the virus' hotspot through July and August.

Colorado's Governor Polis enacted a stay-at-home order in late March 2020 that prohibited most activities with exceptions to take-out dining, outdoor activities (such as hiking), and grocery shopping. March and April saw organizational maelstrom, where states were competing with fellow states and the federal government for large orders of personal protective equipment.

Additionally in March, Governor Polis created a Council on Economic Stabilization and Growth to "explore the full scope of economic impacts of COVID-19 in Colorado and make recommendations to mitigate the uncertainty faced by households and their communities." The Council is focused on three aspects of the virus' economic impact: relief, restart, and recovery. In order to maneuver around an already challenging predicament, states across the country will need to lobby for increased federal aid and relief. A restart process will be predicated on an easing of business regulations and a recalibration of all business models so that small, medium, and large businesses can exist in a post-COVID environment. A recovery process will be dependent on synthesizing relief and restart elements to provide businesses and consumers with a runway to future stability.

The virus' initial spread in Colorado was concentrated in late April, when daily new cases peaked at 994, then resurging in late July, when daily new cases peaked at 809. In October, COVID-19 cases started to tick up again

around the nation and in Colorado, as a second wave of the virus appears to be imminent going into the winter season. Total daily cases of the virus across the nation have surpassed 100,000 a day, and hospitalizations and deaths are on the rise once again. Colorado cases now top over 130,000 as of November 8, and cases per day have risen exponentially—from under 700 per day to over 2,000 each day in November. Through November 9, 2020, Colorado had the 27th highest case count, 26th highest death count, and the 39th highest cases per 100,000 individuals. The positivity rate in the state also surpassed 11% in early November, prompting a new, "Home by 10" public health order in Denver. Further restrictions and a new statewide stay-at-home order are yet to be seen but could be a possibility in the coming months.

Economic Impact

COVID-19 first emerged out of Wuhan, China, in December 2019. After an expeditious global spread over 10 weeks, the majority of Western economies were forced to lock down in mid-March 2020. This shutdown, which impacted virtually all businesses not deemed essential work, caused the worst post-war decline in GDP, employment, and consumer spending since the Bureau of Economic Analysis and its predecessor began recording quarterly data in 1947.

Nearly all variables of GDP fell year-over-year in Q2 2020. Overall GDP declined 9% from Q2 2019 to Q2 2020, driven in large part by a 10.5% decline in consumer spending over the same period. Given the shutdown of retail stores and the largest recorded decline in employment, consumers were left with both less cash to spend and fewer places to deploy their discretionary spend. Investment experienced a similar fall, decreasing 16.8% from Q2 2019 to Q2 2020, its largest decline since Q4 1982. Both exports and imports fell 23.2% and 22.4%, respectively, over the same period. Government spending was the only variable of GDP that rose year-over-year, increasing 2.1% given heightened government spending after the CARES Act, the largest stimulus bill in U.S. history, was passed in March 2020.

A record 342,300 jobs in Colorado were lost in March and April this year, which brought employment to levels not seen since 2014. While the state has recovered 63% of the losses, or 217,000 jobs, employment is still down 4% in October from the year prior. Jobless claims in the state reached historical highs in May, with initial weekly claims through October still much higher than the 2019 average.

Many other indicators observed unprecedented declines as well, and these high frequency indicators have served as an important bellwether of the economy in real time over the course of 2020. In Colorado, passenger traffic at Denver International Airport was down 94.4% in April, as the virus and lockdowns swept through the nation, and remained down 53.7% in August. Retail and recreation, grocery and pharmacy stores, and workplace visits in Colorado were down substantially in April as well, and remain down 15%, 3%, and 30% in October, respectively, according to Google Mobility reports. Restaurant reservations were nonexistent in April due to the lockdowns, and while they have recovered gradually from April, they still remained down over 15% in October from 2019, according to OpenTable.

A significant result of the pandemic-induced recession is the disproportional effect it has had on the poor and less well off. The industries that observed the largest declines in employment were those of lower wages and service-based. Comparatively, high paying industries observed a smaller decline, and many have almost fully recovered in October. Additionally, while many white-collar employees were able to seamlessly switch to working from home, those in the hardest hit industries, which were mainly blue-collared jobs, didn't have this option. Equity markets have also fully corrected from their April lows, now higher than where they started for the year. However, only slightly over 50% of Americans own stocks, with the majority that do being in better financial positions.

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NATIONAL UNEMPLOYMENT RATE, 2020

Group	Peak		
	Feb.	(Apr./May)	Oct.
White	3.1%	14.2%	6.0%
Asian	2.5	15.0	7.6
Black or African American	5.8	16.8	10.8
Men	3.6	13.5	7.0
Women	3.4	16.2	6.7
Hispanic or Latino	4.4	18.9	8.8
Less than a High School diploma	5.7	21.2	9.8
High School grad., no college	3.6	17.3	8.1
Bachelor's degree and higher	1.9	8.4	4.2
16 to 19 years	11.0	31.9	13.9
20 to 24 years	6.4	25.7	10.8
25 to 34 years	3.7	14.5	7.3
35 to 44 years	2.8	11.5	5.8
45 to 54 years	2.5	12.3	6.0
55 years and over	2.6	13.6	5.4
Total	3.5	14.7	6.9

Source: Bureau of Labor Statistics, Current Population Survey.

Data seasonally adjusted.

Nationally, the unemployment rate among women spiked from 3.4% in February to 16.2% in April (compared to the increase from 3.6% in February to 13.5% in April for men). By October, rates among men and women decreased to 7% and 6.7%, respectively, with the female unemployment rate notably lower than the male rate, reflecting the shift in industries suffering and recovering from the pandemic.

Additionally, a record number of women have left the labor force in 2020, with 2.2 million fewer women in the labor force in October 2020 than in October 2019 (compared to 1.3 million fewer men), and the labor

participation rate for women fell to 55.9% in October 2020 compared to 57.8% in October 2019 (compared to a drop from 69.1% to 67.8% for men)—the lowest level since the 1980s. The impact was even more dire for women with children, with the share of women working or looking for work falling 3.2% in September from the beginning of the year, compared to only a 1.8% drop for men with children, a 1.7% drop for women without children, and a 1.1% drop for men without children. In Colorado, there were 228,100 initial unemployment claims filed by women between the weeks of March 14 and June 27, 2020—11.6% more than men. However, beginning in July, the tide shifted and 13.1% more men than women filed claims.

Differences, too, were present by race and ethnicity. Nationally, the unemployment rate among the white population increased from 3.1% in February to 14.2% in April, and back to 6% in October. The Asian unemployment rate rose from 2.5% in February to 15% in May, and back to 7.6% in October. However, the Black or African American unemployment rate increased from 5.8% in February to 16.8% in May but only dropped to 10.8% in October. The initial jobless claims in Colorado show a similar trend of higher claims among minorities.

There is a long-run inverse correlation between the unemployment rate and educational attainment; the higher level of educational attainment, the lower the unemployment rate. The national unemployment rate for individuals with a bachelor's degree or higher peaked at 8.4% in April and dropped to 4.2% in October. The rate for a high school graduate peaked at 17.3% and dropped to 8.1% in October. It is important to note who has college degrees—in 2019, 55.6% of the national Asian population (25 and over) had a bachelor's degree or higher, compared to 36.9% of the white population and 22.5% of the black population. Many of the work-from-home professional jobs tend to also demand a college degree, thus, favoring some populations over others.

By age, higher unemployment rates are afflicting young working adults. This may be partially due to jobs lost in tourism industries that tend to recruit young workers (e.g., restaurants, lift operators, etc.).

Summary

While the economy has observed a healthy bounce back from the unprecedented lows in Q2 2020, the months ahead present large challenges, uncertainty, and many factors that could influence the direction of the recovery. A second wave of COVID-19 cases appears to be presenting itself as the U.S. heads into the winter season, again threatening hospital capacities and new government restrictions. Additional mandated lockdowns could present a blow to the already fragile economy. Restaurants that have managed to get by during the summer months due to outdoor seating could be severely impacted as the weather gets colder and indoor capacity remains muted. Other companies that have been surviving may not be able to withstand many more months of recessed demand. ❖

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Agriculture

Circumstances Beyond Control: Agriculture in 2020

“No bad news is actually fairly good news,” may sum up the 2020-2021 economic picture for Colorado farmers and ranchers. Colorado agriculture was faced with bad news more often than not in 2020, lending additional brilliance to the moments of good news—great harvests and good prices for some, while others faced challenges in both areas. Amid cancellations and changes, drought and fires, early snow and late freezes, Colorado agriculturalists persevered to keep Colorado citizens fed through the pandemic.

Agriculture came through the first months of the pandemic-caused economic crisis better than many other

COLORADO FARM INCOME AND PRODUCTION EXPENSES 2011-2021 (In Millions of Dollars)

Year	Gross Value of Farm Revenue	Total Farm Production Expenses	Net Farm Income
2011	\$8,487.1	\$6,650.0	\$1,837.1
2012	8,345.4	7,006.8	1,338.6
2013	8,610.5	7,216.0	1,394.5
2014	9,176.2	7,954.1	1,222.1
2015	8,924.4	7,310.5	1,613.9
2016	7,622.5	6,358.2	1,264.3
2017	8,266.2	7,226.9	1,039.3
2018	8,283.1	7,035.8	1,247.3
2019 ^a	8,714.0	6,782.0	1,932.0
2020 ^b	8,536.0	6,800.0	1,736.0
2021 ^c	8,619.0	6,800.0	1,819.0

^aRevised. ^bEstimated. ^cForecast.

Source: Colorado Business Economic Outlook Ag Committee.

sectors. While consumers couldn't go to their favorite restaurants and students were no longer eating in cafeterias, Americans still had to eat, and they increased their spending at grocery stores. Most agricultural operations were deemed essential, maintaining the functioning of the supply chain of food to the state and nation. Farms and ranches were not disrupted in the same way as other establishments because their operations weren't closed. Stay-at-home orders affected them differently because their businesses generally are their homes. However, COVID-19 caused supply chain disruptions and uncertainty around exports, which rippled through the industry and created economic disorder throughout agriculture.

Estimated net farm income for 2020 will decrease by almost \$200 million to \$1.7 billion. This is despite an increase in government payments by \$202 million, to an estimated record-high \$480 million. These government payments range from disaster relief and crop insurance to COVID-19 programs, and are estimated to account for 28% of 2020 net farm income. Net farm income for 2021 is forecast to rebound slightly to \$1.8 billion, with government payments forecast to drop slightly to \$400 million.

Recently released 2019 numbers from USDA for Colorado agriculture were surprisingly favorable. Net farm income was a record \$1.9 billion, which would probably be a surprise to most farmers and ranchers. There was not a sudden rash of new tractor and truck sales or land purchases in farm country. Commodity prices in general remained low. The record income was fueled by a \$300 million decrease in expenses and a \$49 million increase in government payments. Farms derived net income not from cash receipts in the marketplace, but from cutting expenses and from the federal payments such as crop insurance and the Market Facilitation Program (MFP), which compensated farmers for losses due to disruptions in trade.

Despite net income numbers significantly better than the last several years, it is unlikely that most farmers and ranchers would say this was a good, or even profitable, year. Many of them would say that it was a crazy

INDUSTRY SNAPSHOT AGRICULTURE

Nominal GDP, 2019 (\$ Billions)	3.0
Real GDP, 2019 (\$ Billions, 2012 Dollars)	4.2
2019 Real GDP Growth Rate	21.3%

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

year. Besides the complications created by COVID-19, Colorado agriculture faced the usual challenges plus some new ones: the weather—including late freezes, early snow and cold and drought—fires, and uncertainty regarding the fate of farm programs following the election. Other unknowns following the election are the possibility of a new tax plan, immigration reform, protections for farm workers, climate initiatives, and environmental initiatives.

The ag economy of Colorado is centered in rural areas, and so many were less affected by COVID-19 quarantines and shutdowns than the urban centers. Farmers and ranchers are already fairly socially distanced, and planting went on mostly as usual this spring. Meetings, other businesses transactions, and school work moved online and further revealed the disparity in rural and urban broadband availability.

Meat processing plant shutdowns caused by COVID-19 outbreaks among employees created a disruption in the cattle market, but that disruption has passed and plants have taken precautions to prevent additional shutdowns. With so many food service and restaurant purchasers shutting down, ranchers were forced to auction their cattle at significantly reduced prices. Some ranchers pivoted and moved to direct-to-consumer marketing. This direct buying created a backlog at small meat processors that stretched out for months, with some waiting lists surpassing a year. Meanwhile, due to the constrained supply of beef at the retail level, increased panic buying during the first months of the pandemic caused retail

prices of beef to hit an all-time high of \$7.38 per pound in June (a 26% year-over-year increase).

Meat processor JBS purchased the Mountain States Rosen lamb processing plant in Greeley in a bankruptcy auction, with the intent of switching the facility from lamb to beef production and increasing the variety and amount of value-added beef products available from JBS Greeley. The Rosen plant formerly processed as much as one-fifth of all U.S. lamb. A new lamb plant, Colorado Lamb Processors, opened in Brush in September, and this new facility will help offset the loss of capacity from the Rosen plant.

Colorado's dairy industry continues to grow, mostly to feed cheese production, as domestic consumption of fluid milk continues to decline while cheese consumption increases. To continue to expand, the dairy industry

will need to see increased exports, but those exports have been affected by both the COVID-19 pandemic and by President Trump's trade policy. If Colorado sees drought continuing into next year, the cost of high-quality dairy hay will increase, and that may limit milk producers' capability for expansion and increased production.

Weather continued to have a large impact on farm and ranch operations. Following a winter with much less snowfall than 2018-2019, rainfall in summer of 2020 was also lacking. By the fall, the entire state of Colorado was under drought conditions. With a La Nina weather pattern that typically brings warmer, dryer weather predicted for the winter of 2020-2021, little relief is expected. Cattle producers have not yet started to noticeably thin their herds, holding on to see how much moisture they get this winter on their grazing pastures for next year.

Following a very strong production year of 98 million bushels in 2019, Colorado wheat farmers saw a reduction of more than half, with 2020's crop down to 41 million bushels. An early September 2020 snow storm helped the 2021 winter wheat crop get established, but the La Nina weather pattern predicted for this winter will make growing conditions difficult. Wheat prices have been held lower by world stocks of wheat remaining high.

Corn production in Colorado is forecast at 142 million bushels in 2020, down 11% from last year's 160 million bushels. Corn producers planted an estimated 1.2 million acres in 2020, down 9% from last year. Cash receipts for corn are expected to dip in 2020 to \$547 million, from \$577 million in 2019, and are forecast to sink lower in 2021 because of reduced production due to drought and no forecasted improvement in prices.

Sugar beet growers in Colorado experienced hard freezes in October 2019. While most were able to harvest their crop, the quality was diminished. Other sugar beet growers in Wyoming and North Dakota experienced total losses. This disaster triggered government disaster aid to growers, and the loss of the crop in North Dakota and Montana increased prices. All sugar beet production in Colorado is contracted through a co-op system, and acreage is not likely to increase.

Hay producers have bright prospects for 2021 if they have irrigation water to maintain their production. Demand for the summer of 2020 was high as dry conditions limited grazing. Hay stocks are expected to be tight going into 2021, and prices will continue to increase if the drought continues through this winter.

Colorado continues to be a leader in industrial hemp production, and hemp is a key priority for Governor Jared Polis. Colorado was one of the first states to pilot a hemp program, and the Colorado Department of Agriculture continues to head up a cross-agency coalition to define a well-structured supply chain for hemp in order to establish a strong market for the state's farming

VALUE ADDED BY COLORADO AGRICULTURAL SECTOR, 2011–2021 (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
2011	\$4,322.0	\$2,740.6	\$7,062.6	\$1,189.1	\$235.4	\$8,487.1
2012	4,487.2	2,577.2	7,064.4	1,065.3	215.7	8,345.4
2013	4,705.7	2,320.3	7,026.0	1,345.5	239.0	8,610.5
2014	5,357.7	2,479.7	7,837.4	1,052.9	285.9	9,176.2
2015	5,551.8	2,224.7	7,776.5	929.3	218.6	8,924.4
2016	4,431.3	2,050.1	6,481.4	907.2	233.9	7,622.5
2017	4,732.2	2,207.0	6,939.2	1,058.3	268.7	8,266.2
2018	4,707.8	2,166.3	6,874.1	1,179.1	229.9	8,283.1
2019	4,974.9	2,512.1	7,487.0	948.5	278.5	8,714.0
2020 ^c	4,823.0	2,333.0	7,156.0	900.0	480.0	8,536.0
2021 ^d	5,058.0	2,211.0	7,269.0	950.0	400.0	8,619.0

^aIncludes sales of forest products, custom feeding fees, custom harvest fees, and other farm income. ^bIncludes farm program payments directly to producers. ^cEstimated. ^dForecast.

Source: Colorado Business Economic Outlook Ag Committee.

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Agriculture

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communities. This coalition is also working to develop a state hemp management plan acceptable to the USDA. While there continues to be tremendous interest in the hemp market in Colorado, producers are challenged for lack of markets beyond CBD oil. Numerous projects are in the works at the Colorado Department of Agriculture to develop additional viable products and markets. Some of Colorado's production was damaged by the September 10, 2020, snowstorm and freeze, which hurt outdoor-grown hemp crops.

Small, socially disadvantaged and new farmers and ranchers were some of the first affected by the COVID-19 disruption. Many fruit and vegetable farmers benefited from citizens' desire to "Buy Local" as some growers pivoted to switch sales from shuttered restaurants to delivery and pick-up from people under lockdown,

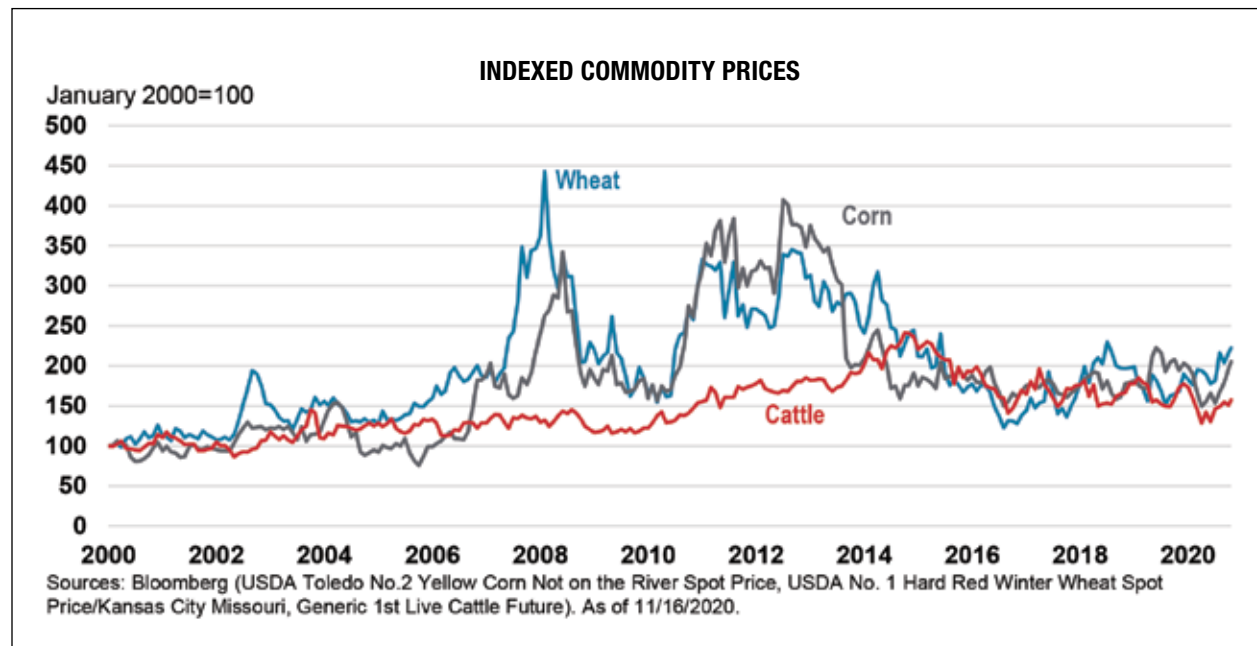
and some farmers' markets shifted to offer delivery and socially distanced in-person events. In March 2020, Colorado State University and the Colorado Food Systems Advisory Council estimated that there would be a \$3.9 million decline in sales due to COVID-19 from key local and regional food markets such as farmers' markets, farm-to-school, food hubs serving other institutions, and restaurants. This was anticipated to lead to a payroll decline of up to \$585,000 and a total loss to the economy of up to \$6.7 million from March to May 2020. Since then, the federal government has provided assistance through the Coronavirus Food Assistance Program (CFAP) I and II, and the State of Colorado has helped through the Colorado Farm & Food Systems Respond & Rebuild Fund. Estimated payments to Colorado farmers under the CFAP I were \$170 million, and \$44 million

from the CFAP II program has been distributed through mid-October.

Potato growers in the San Luis Valley saw food service demand for their product drop when lockdowns began. This drop was somewhat countered by stronger demand from retail outlets when consumers switched their eating habits to cooking at home. Potato warehouses saw a 30% increase in shipments of potatoes for retail sale. Colorado may have been better off than other potato-producing states because most Colorado potatoes are destined for fresh consumption rather than conversion into French fries sold by restaurants and food service. This means Colorado potatoes will face competition from other U.S. potato-growing states, as other potatoes, normally destined to be French fries, are suddenly available nationwide for fresh consumption.

San Luis Valley farmers also continue to see their aquifer diminish despite conservation efforts and removing acreage from production. If sufficient water supply to restore flows in the Rio Grande river is not saved over the next several years, farmers in the valley could face significant shutdown of their irrigation wells. This would devastate agriculture, which is the major employer in the area. Farmers were making progress rebuilding the aquifer from 2012 to 2017, but drought in 2018 forced increased irrigation, causing a loss of 70% of the gains they had incurred over the previous six years. San Luis Valley farmers continue to look for alternative crops. Barley has been a long-term staple as an alternative for potatoes, and now growers are looking to hemp and quinoa as possibilities.

Colorado's Western Slope fruit producers had their worst year in recent history, as an April freeze destroyed 100% of the peach crop in some areas. The value of Colorado's 2020 peach crop is estimated at just \$6 million, down from \$31 million last year. Other producers, depending on their location and the varieties they grow, saw about a 50% loss. Some peach varieties can tolerate colder temperatures. Additionally, the Palisade Peach Festival was



canceled because of the COVID-19 pandemic. The April freeze also affected Colorado's cherries and apricots.

Another of Colorado's banner crops, the Rocky Ford melons, had a good year, with retail sales up 20% to 30%. Although the Olathe Sweet Corn Festival was canceled due to the COVID-19 pandemic, grocery sales were strong this year, with grocery giant Kroger increasing its order by 4 million ears. The Pueblo chile crop had an abundant year because of the high temperatures, and the Pueblo Chile and Frijole Festival was able to go on in a modified fashion with limited attendance and social distancing.

Colorado wine grapes, also almost entirely grown on the Western slope, had a rough year in 2020 and may be in for a worse one in 2021. Wine makers suffered a grape crop freeze last fall and again in April 2020. They saw severely diminished business because of COVID-19 and the cancellation of wine festivals in summer 2020. Colorado Mountain Winefest and Fruita Fall Fest were both canceled. A very hot summer brought grapes to early ripening in fall of 2020, with some being harvested five weeks earlier than usual. Then, in late-October 2020, and for the third time in 18 months, the Grand Valley was hit with temperatures as low as 5 degrees, accompanied by

heavy wet snow. Grape harvest for 2021 is anticipated to be hit hard by this unseasonal cold weather, as the buds already forming for next year's growth were damaged by the frigid temperatures.

Colorado's nurseries and greenhouses were declared as essential businesses, and many saw high levels of interest from consumers who couldn't leave their homes. Under lockdown, many new gardeners appeared and planted gardens or renovated landscaping, providing high levels of demand for plants and trees. Nurseries and greenhouses reported running out of plants and seeds much earlier than usual.

Drought is affecting the nursery and greenhouse industry as well, as growers are reliant on a variety of water sources such as city water, private wells, and irrigation ditches. At least one grower was forced to discard plants that could not be watered after a call was made on their irrigation ditch, where the senior water rights holder receives priority on the available water. Businesses also face the concerns of cities declaring water restrictions and limiting new plantings.

Exports are Colorado's wildcard. Colorado has seen relatively strong exports to China in the last year, including a ramp up in beef exports. There is potential for more beef exports to China, but that potential could be limited by the drought looming on the horizon. The best opportunities for U.S. export growth to China are in pork and soybeans, commodities which are not a huge part of Colorado's ag picture.

Colorado food and ag exports for January through August 2020 were down about 1.5%, totaling \$1.13 billion. Beef and beef variety meats were about 1% lower, totaling \$670 million. Beef exports to Mexico and Hong Kong were down 24% and 18%, respectively. Luckily, there has been solid growth in exports to Canada (21%) and Taiwan (15%). Colorado has also seen a doubling of beef exports to China, with beef exports totaling \$15.2 million for the



Photo courtesy of Brandee Gillham.

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January through August period. Overall, Colorado exports to China were \$48 million through August, or about 10% less than the same period last year. While beef exports are up, exports of hides and skins continue to fall.

Farming and ranching will persevere, but COVID-19 added another layer of difficulty for agriculturalists already faced with labor issues, variable prices, drought, freezing temperatures, wildfires, and the uncertainties of government regulations and programs. It remains to be seen whether Colorado's latest crop of new and beginning farmers make it through the storm. But people need to eat, and Colorado farmers and ranchers will be there, providing a safe and reliable food supply, pandemic or not. ❖

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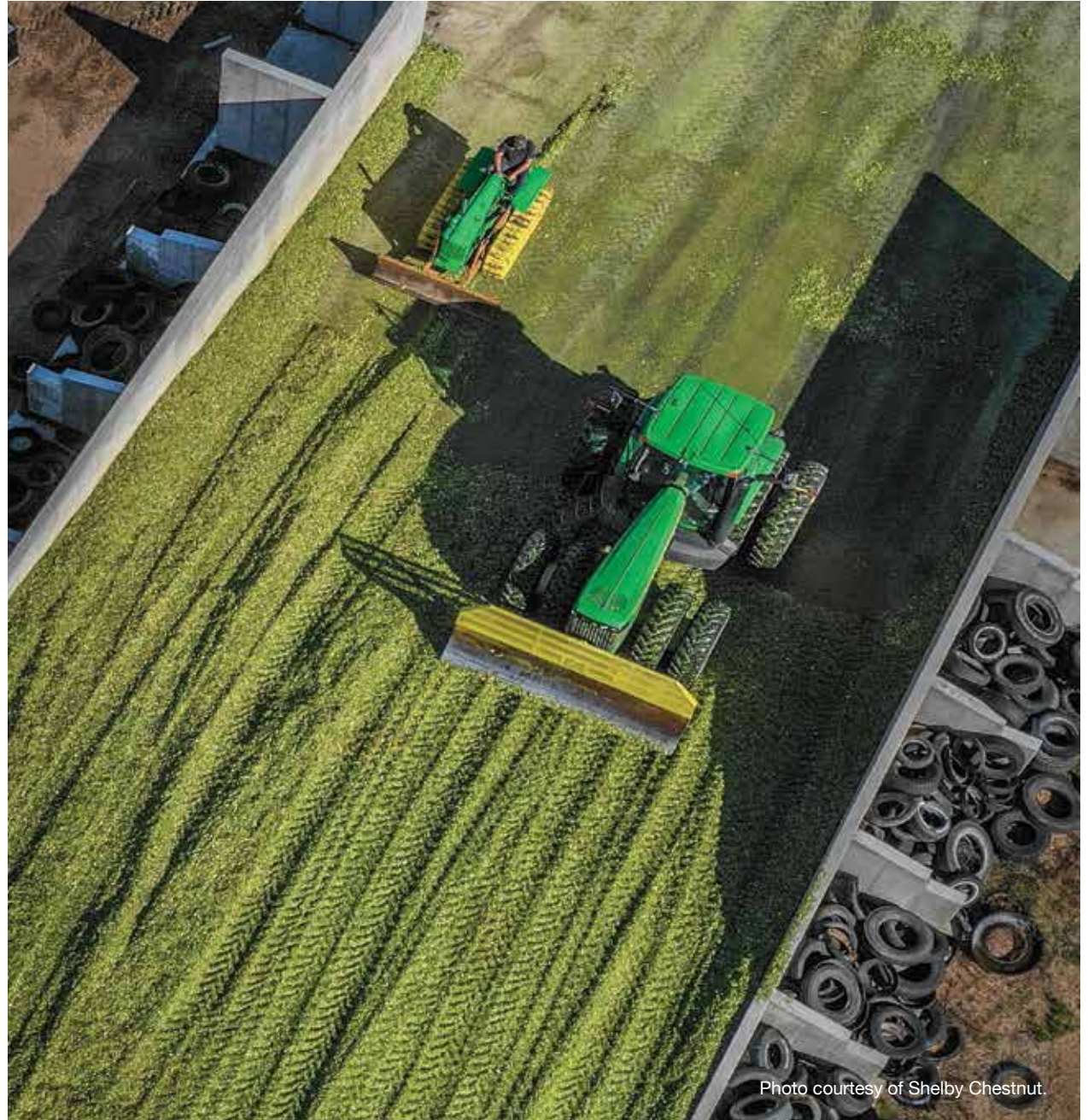


Photo courtesy of Shelby Chestnut.

Natural Resources and Mining

Colorado's abundant energy and mineral resources are instrumental to its economic success and growth. 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 2018 proved reserves, Colorado ranked seventh for petroleum liquids and sixth for wet natural gas. For coal, the state was eighth in recoverable reserves and 13th in production in 2019. This same year, Colorado ranked 17th in total value of produced nonfuel minerals.

In addition to traditional energy resource development, Colorado is also one of the nation's leading renewable energy states, developing a portfolio mix of wind, solar, biomass, and hydroelectric energy resources. Colorado law now mandates that investor-owned utilities (IOUs) generate 30% of electricity from renewable energy by 2020. Cooperatives must achieve a 20% standard by that

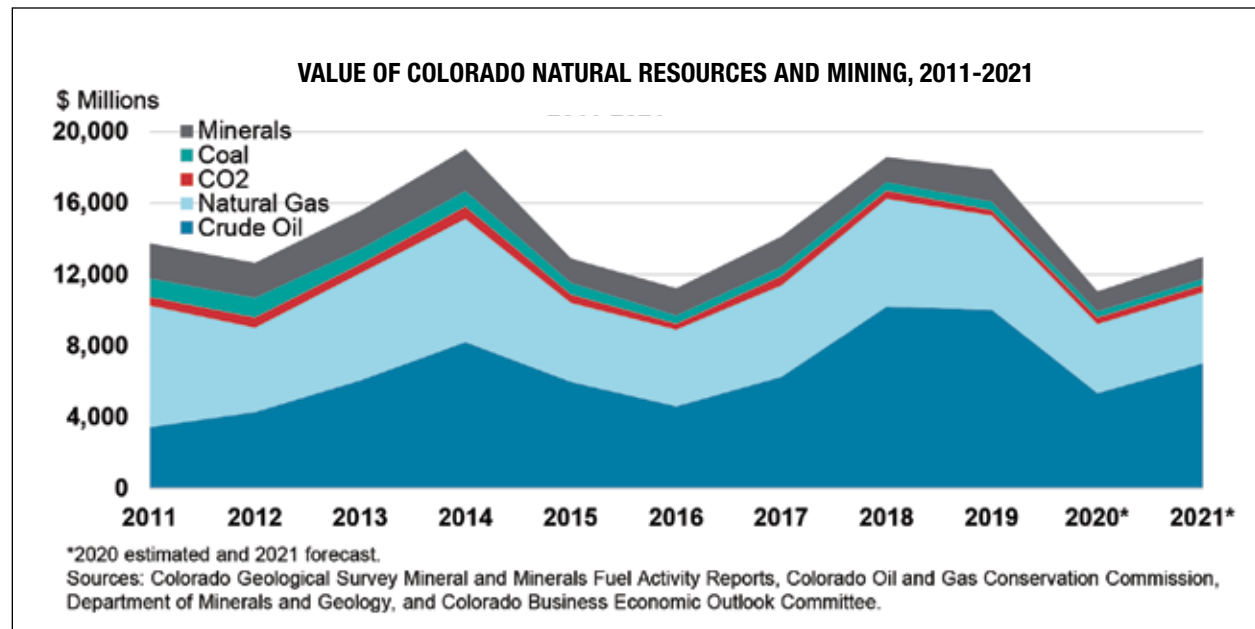
same year. Colorado's current governor has made a target goal of 100% renewable energy by 2040, and Xcel Energy, Colorado's largest utility, is aiming for 100% of its electricity generation to be carbon-free by 2050.

As with nearly every aspect of Colorado's economy, the ongoing COVID-19 pandemic has had a significant impact on the NRM sector. Down nearly 40% from 2019, the value of the overall NRM sector will be roughly \$11 billion in 2020, with only a modest rebound expected in 2021. Additionally, a multiyear shift toward lower hydrocarbon prices and overall changes in attitudes regarding environmental concerns may be amplifying this impact. In 2018, Colorado's NRM average employment totaled 28,600 jobs, and in 2019, employment totaled 28,900, an increase of 1% year-over-year. However, employment was starting to decline at the end of 2019, totaling 27,900 at year end, 4.8% lower than where it began the year. Employment has further declined in 2020, exacerbated by the pandemic, with total

INDUSTRY SNAPSHOT NATURAL RESOURCES AND MINING

Nominal GDP, 2019 (\$ Billions)	12.1
Real GDP, 2019 (\$ Billions, 2012 Dollars)	20.4
2019 Real GDP Growth Rate	6.5%
Total Employment, 2019 (Thousands)	28.9
2019 Employment Growth Rate	1.0%
Employment Growth National Rank	13
Share of Colorado Employment	1.0%
Share of National Employment	0.5%
Average Wage, 2019	90,328
Percent of Statewide Average Wage	144.9%
2019 Average Wage Growth Rate	2.1%

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



employment down 12.8% in October year-over-year. The expectation for 2021 is for employment to average around 22,400 following steep declines in 2020.

Looking to 2021 and beyond, there are countless factors to consider when forecasting the state of the natural resource industry in Colorado. These include the state of the national and global economies; the possibility of a prolonged pandemic and a potential double-dip recession; the outcome of the 2020 election; new state and local regulations; and new price wars or other geo-political wrangling.

Oil and Gas

Colorado's total oil production is valued at an estimated \$5.3 billion for 2020—47% lower than 2019. The value of the state's natural gas production in 2020 is roughly \$3.9 billion compared to \$5.3 billion the previous year. Combined, this represents a 43.2% decrease in value from

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Natural Resources and Mining

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VALUE OF COLORADO NATURAL RESOURCES AND MINING, 2011–2021 (In Millions of Dollars)

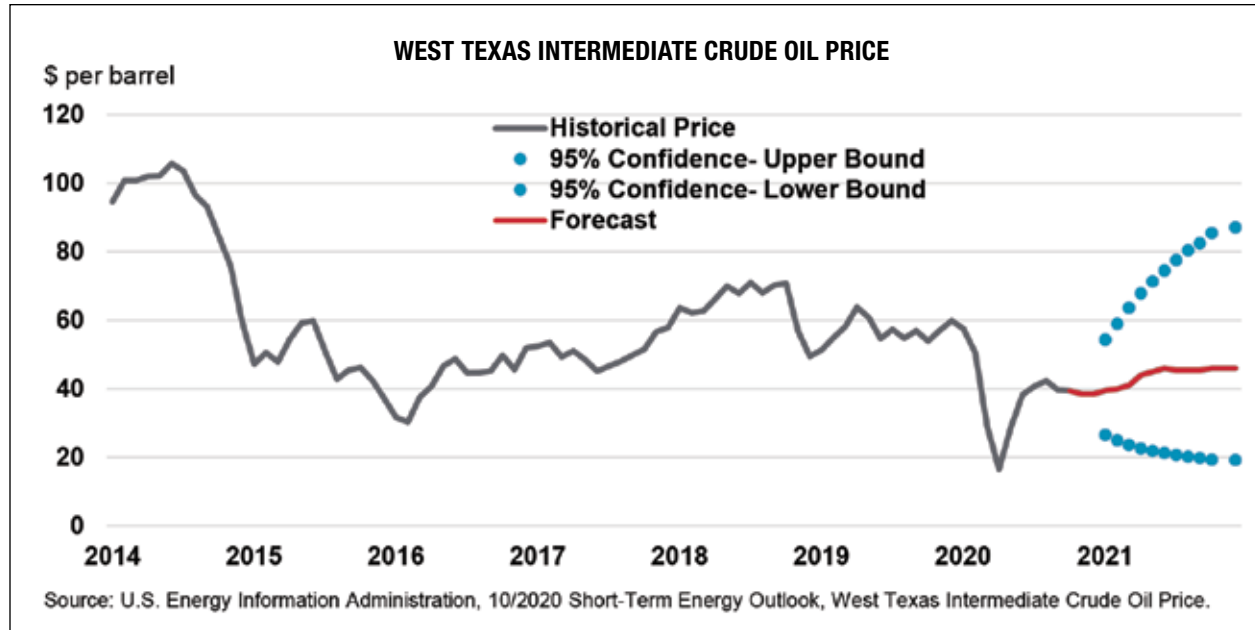
Year	Oil and Gas Extraction					Mining				Total
	Crude Oil	Natural Gas	Carbon Dioxide	Subtotal	Percent Change	Coal	Minerals	Subtotal	Percent Change	
2011	3,438.0	6,828.0	475.0	9,691.8	30.7%	1,061	1,940	3,133	10.0%	12,825
2012	4,278.0	4,745.0	560.0	9,583.0	-1.1	1,129	1,930	3,059	-2.4	12,642
2013	6,057.0	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	10,198.7	6,051.8	437.4	16,687.9	40.1	512	1,380	1,892	-14.7	18,579
2019	10,035.8	5,269.3	299.6	15,604.7	-6.5	490	1,790	2,280	20.5	17,885
2020 ^a	5,343.3	3,883.6	350.0	9,576.9	-38.6	374	1,100	1,474	-35.4	11,051
2021 ^b	7,000.0	4,000.0	400.0	11,400.0	19.0	374	1,200	1,574	6.8	12,974

^aEstimated. ^bForecast. 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, 2011–2021

Year	Coal Millions of Short Tons	Crude Oil Millions of Barrels	Natural Gas Billions of Cubic Feet	Carbon Dioxide Billions of Cubic Feet	Index (Base Year: 2011 = 100)			
					Coal	Crude Oil	Natural Gas	Carbon Dioxide
2011	27.0	38.8	1,648	469	100.0	100.0	100.0	100.0
2012	28.8	48.7	1,658	439	106.7	125.5	100.6	93.6
2013	24.2	65.1	1,567	268	89.6	167.8	95.1	57.1
2014	22.8	94.7	1,581	355	84.4	244.1	95.9	75.7
2015	18.7	122.8	1,691	409	69.3	316.5	102.6	87.2
2016	12.8	119.9	1,708	444	47.4	309.0	103.6	94.7
2017	15.2	134.8	1,721	464	56.3	347.4	104.4	98.9
2018	14.3	169.5	1,903	427	53.0	436.9	115.5	91.0
2019	13.6	192.7	2,057	453	50.4	496.6	124.8	96.6
2020 ^a	10.4	177.8	2,068	331	38.5	458.2	125.5	70.6
2021 ^b	10.4	175.0	2,000	419	38.5	451.0	121.4	89.3

^aEstimated. ^bForecast. Sources: CO Geological Survey Mineral and Minerals Fuel Activity Reports, COGCC, Dept. of Minerals and Geology, and the Colorado Business Economic Outlook Committee.



Colorado's 2018 peak. For 2021, expectations are for a 20% increase in value over 2020, largely dependent on economic stability and health. The Colorado Office of State Planning and Budgeting (OSP) September 2020 economic outlook is estimating severance tax collections at \$131.7 million for FY2019–20 (July 1, 2019–June 30, 2020), falling significantly in FY2020–21 to \$20 million, and then rebounding modestly to \$39.9 million in FY2021–22 and \$61.0 million in FY2022–23.

Fallout from the pandemic, coupled with ongoing struggles in the oil and gas price environment, has made 2020 one of the most challenging in recent years for the Colorado oil and gas industry. Not surprisingly, the spud rate and rig count have dropped precipitously since April, and new drilling permits received by the Colorado Oil & Gas Conservation Commission (COGCC) in 2020 are on track to be down by more than 50% from 2019 and 80% from 2018. While some operators have been able to create an economically viable production environment

at \$40 per barrel in prime Wattenberg areas, economic and regulatory uncertainties will likely keep development depressed into 2021 and possibly further.

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 COGCC's 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. During the second half of 2020, the COGCC's new professional commission held extensive rulemakings to implement key parts of Senate Bill 19-181. If passed, these new rules will go into effect in early 2021 and have far-reaching implications with a greater regulatory burden for oil and gas operators in the state.

Prior to 2020, employment in the Colorado oil and gas industry had grown roughly 25% since a mid-2016 low.

Like with many sectors of the economy, this year has been tough for oil and gas. Jobs are down more than 11% since January, with a number of companies having declared bankruptcy. Additionally, mergers and acquisitions (M&A) activity, such as Chevron acquiring Noble Energy in July, will likely result in more layoffs in the coming months. Employment is likely to decrease further in early 2021, before potentially stabilizing in the second half of the year.

Oil

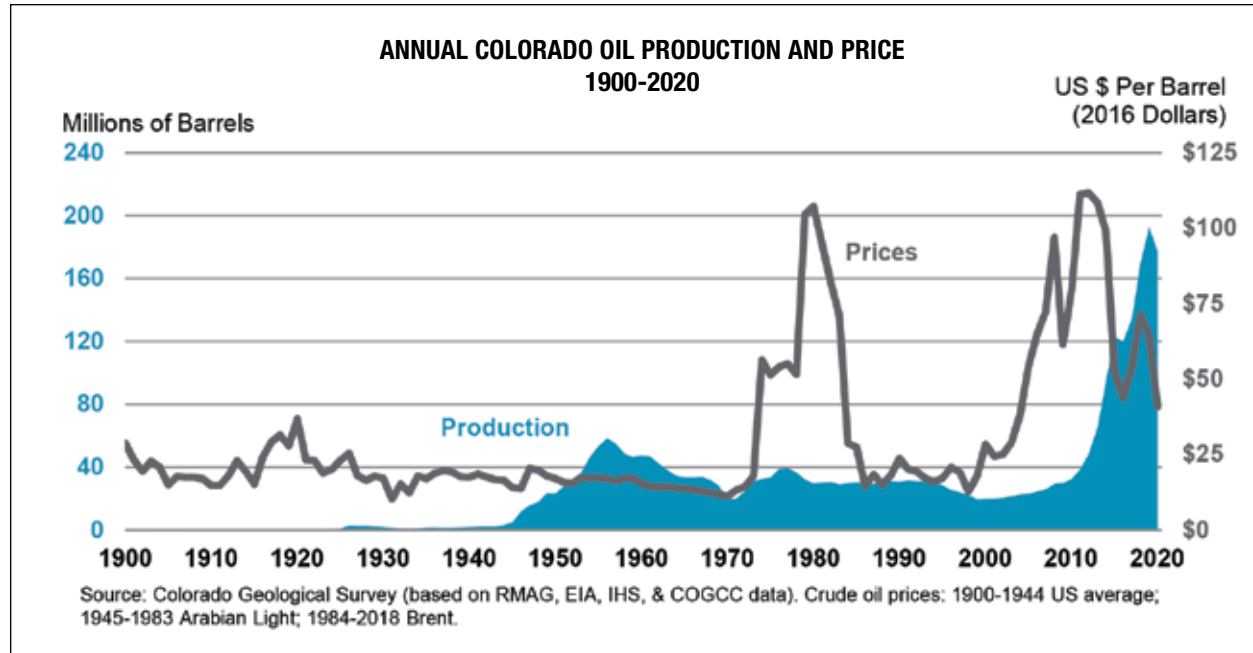
Colorado crude production hit an all-time high in 2019 of nearly 193 million barrels. For 2020, the oil output is expected to fall to just under 178 million barrels—the first significant drop in nearly a decade. According to the EIA, Colorado accounts for over 4% of the total crude produced in the United States and ranks fifth among states in production as of July 2020. Development of the prime Niobrara shale assets in the Greater Wattenberg Area continue. 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). In the longer term, estimates of the Niobrara shale resource are as high as 2 billion barrels of oil, with the Wattenberg field being the fourth largest in the nation based on proved reserves.

The U.S. petroleum benchmark, known as West Texas Intermediate (WTI), started the year at \$63 per barrel, dropped dramatically in early March and had an unprecedented day of negative prices in late April, then rose into the \$20s during the first half of May, and finally stabilized in the mid-\$30s to \$40 for the remainder of the year through late-October. The 2020 average price of \$38 per barrel is 33% less than the 2019 WTI mean daily price of \$57 per barrel. Denver Basin regional pricing is typically at a 15-20% discount relative to WTI prices due to market demand and supply-chain network constraints. For 2020, the average mean Denver Basin sales price sits

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at \$30 per barrel through mid-October. Looking toward 2021, the forecast is for pricing to remain similar to 2020, with a range of \$30–\$60 per barrel most probable. Confidence in this forecast, however, is lower than in recent years with volatility surrounding the COVID-19 recovery and the persisting national and global political/economic uncertainties.

The International Energy Agency's (IEA) *October Oil Market Report* forecasts global oil demand of 91.7 million barrels per day (mb/d) for 2020, a drop of 8.4 mb/d from 2019. For 2021, the IEA is forecasting an increase of 5.5 mb/d to 97.2 mb/d. Second and third waves of COVID-19 can certainly slow this demand growth. The global oil supply is also down from 2019, hovering just above 91 mb/d in September. Libyan output, combined with OPEC producing to its target, will likely increase supply in the fourth quarter of 2020 to 92 mb/d mb/d in

2019. Regarding consumption in the United States, EIA calculated 20.5 mb/d in 2019 and estimates 18.2 in 2020 and 19.9 in 2021. For production, the U.S. was at a two-and-a-half year low of 10 mb/d in May. Operators shut in wells in response to low prices but have since been bringing them back online as prices have rebounded. EIA estimates that production will rise to 11.2 b/d in November and then decline to 11.0 million b/d in the second quarter of 2021 as new drilling activity will not fully offset declines from existing wells. Drilling activity may rise later in 2021, however, increasing production yet again. On an annual average basis, EIA expects U.S. crude oil production to fall from 12.2 million b/d in 2019 to 11.4 million b/d in 2020 and 11.1 million b/d in 2021. EIA currently estimates that WTI will average \$38 per barrel for calendar year 2020 and \$44 per barrel for 2021.

Retail Gasoline

The Colorado average retail price of automotive gasoline of all grades in 2020 (through October) was \$2.26, a 15% decrease from the 2019 average price. Nationally, EIA expects the average for regular grade to be \$2.15 per gallon in 2020 and \$2.22 in 2021. Regional prices for diesel (averaging \$2.52 for 2020) have been at a roughly 12% premium compared to the price of unleaded gasoline. Expectations are for Colorado gasoline to remain at a similar or slightly lower average price in 2021 (between \$2.05 and \$2.25 per gallon average for all grades).

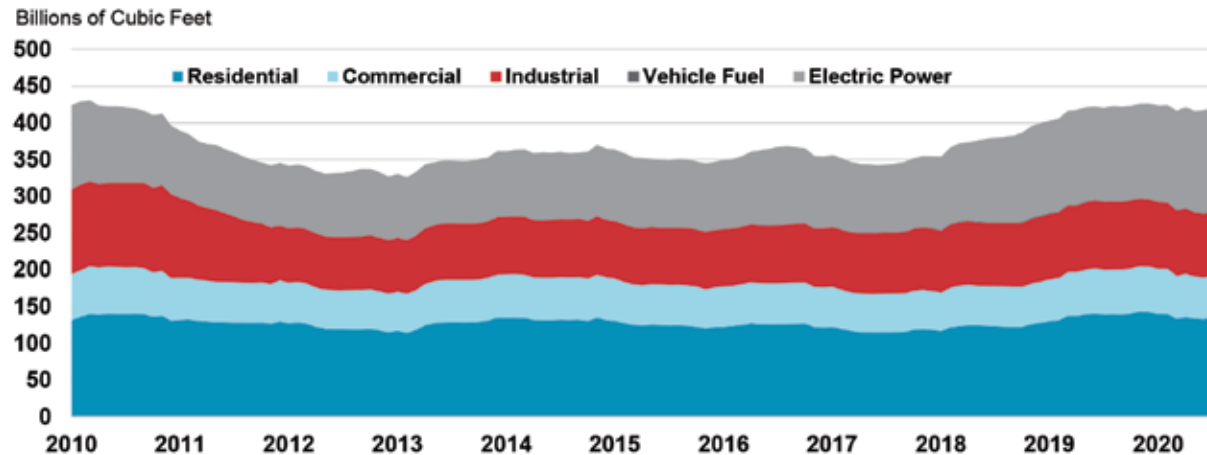
Natural Gas

In 2019, 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 5.5% 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.

Natural gas provided 30% of the electric power in Colorado in both 2018 and 2019 versus just over 18% a decade ago. Residential consumption accounted for another quarter (27%) of the state's total 520,139 million cubic feet consumed in 2019. Other significant end-uses include industrial consumption (18%), lease and plant fuel (16%), and commercial consumers (12%). For 2020 (through August), the average monthly residential gas price in Colorado was \$8.95 per thousand cubic feet—the fifth lowest in the country.

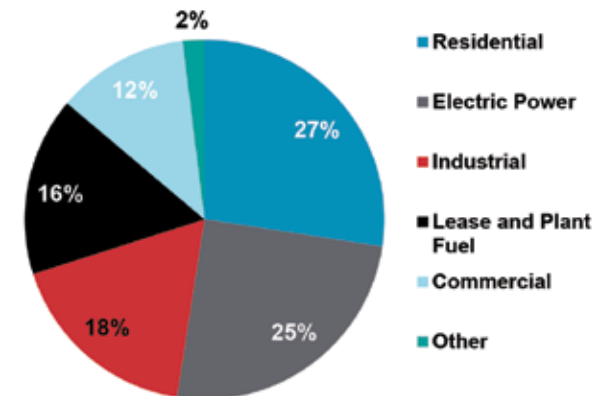
For 2021, the expectation is that Colorado natural gas spot prices will range between \$2.50 and \$3.50 per thousand cubic feet. EIA is currently forecasting the Henry Hub spot price average to be \$3.14 per thousand cubic feet in 2020—a dollar higher than the \$2.14 average price estimate for 2020. Rising domestic demand for space heating, increasing U.S. Liquefied Natural Gas (LNG)

COLORADO NATURAL GAS DELIVERED TO CONSUMERS BY END USE, 12-MONTH ROLLING SUM, 2010-2020



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, 2019



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

exports, and decreasing production will all contribute to this price increase, especially over the winter. EIA notes that the U.S. total working natural gas storage is currently 5% above the five-year average and the second highest level ever observed at the end of October.

EIA forecasts suggest the average U.S. household using natural gas for heating will see a total winter 2020–21 (October through March) household expenditure increase of 15% over winter 2019–20 assuming a 10% colder-than-forecast scenario and decrease 2% with a warmer-than-forecast scenario. Regionally, the West is forecast to see residential gas prices 4% higher (~\$0.30/Mcf) than last winter. The National Oceanic and Atmospheric Administration (NOAA) estimates that the total heating degree days for winter 2020–21 in the Mountain Region will be 4,821, nearly identical to last winter’s 4,828.

Just under half of all households in the United States depend on natural gas as a primary heating fuel; for Colorado, this number is more than 69%.

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 slightly greater than 2.0 trillion cubic feet (Tcf) in 2020. For 2021, production is forecast to be about the same.

Carbon Dioxide

Colorado’s carbon dioxide production is marketed almost exclusively for enhanced oil recovery (EOR) operations. In 2020, an estimated 331 billion cubic feet of CO2 will be produced in three counties (Montezuma, Dolores, and Huerfano), with the total production value grossly estimated at \$350 million.

Drilling Permits and Rig Activity

The COGCC has received 1,506 Applications for Permit to Drill (APDs) in 2020 (as of November 1)—a 49% decrease in the number of APDs received for the same period in 2019, and 81% less than the same period in 2018. For 2020, the commission has approved 680 permits as of November 1 versus 1,213 for the same period in 2019. In 2020, 78% of the approved well permits were located in Weld County. As of October of this year, the COGCC had a backlog of approximately 4,500 APDs and over 400 location permits to process.

The COGCC has recorded 646 well starts in 2020 through the end of October 2020. This is a notable 56% decrease from the 1,477 well starts in 2019. The

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COLORADO NATURAL RESOURCES AND MINING EMPLOYMENT 2011–2021 (In Thousands)

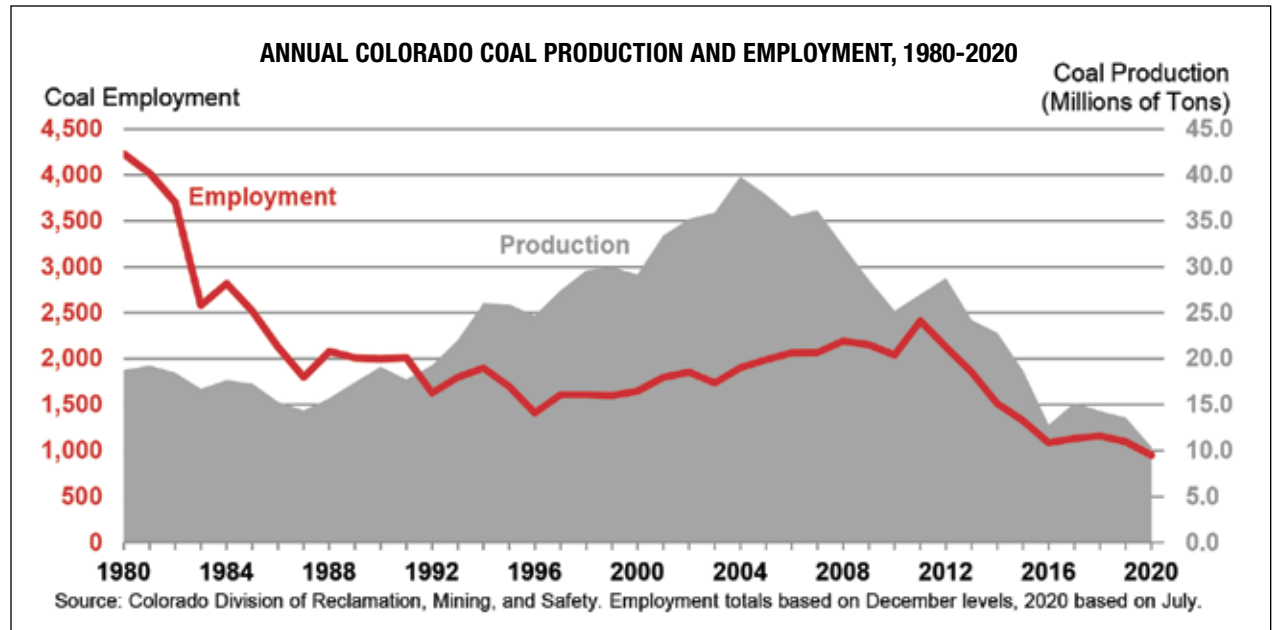
Year	Employment	Percentage Change
2011	27.9	14.3%
2012	30.3	8.6
2013	30.6	1.0
2014	34.1	11.4
2015	30.7	-10.0
2016	23.7	-22.8
2017	25.8	8.9
2018	28.6	10.9
2019 ^a	28.9	1.0
2020 ^b	22.0	-23.9
2021 ^c	22.4	2.0

^aRevised. ^bEstimated. ^cForecast.

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

2020 average weekly rig count for Colorado stands at 11 through the first week of November. Since May, this average has been just five rigs. As a comparison, the average weekly rig count in Colorado for all of 2019 was 30 rigs. Responding to lower prices and the economics of drilling, activity has been anemic, and expectations for any near-term rebound in Colorado should be tempered. Not until the second half of 2021, or early 2022, is there a marked uptick in the forecast.

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 2020, that number reached greater than 87% of all issued permits; of these, an estimated 88% are located in Weld County. Horizontal well starts totaled 565 through the beginning of November—87% of the state’s total spudded wells in 2020.

Coal

Coal mining in Colorado dates back to 1864. Colorado’s clean, high-quality coal reserves help utilities meet the stringent requirements of the Clean Air Act. Production peaked at 40 million tons in 2004. Data provided to the Colorado Mining Association (CMA) indicate that in 2014, when 23 million tons were produced, the industry accounted for \$900 million in sales. With reduced production of 13.6 million tons and lower prices, sales fell to an estimated \$490 million in 2019 and are expected to drop to \$374 million in 2020 and in 2021, with production falling to 10.4 million tons. Federal royalties on

Colorado coal production in FY2019 totaled \$28 million, about half of which is returned to Colorado to support public education and other activities. Coal mines also paid property taxes, state royalties, and severance and sales taxes of \$12 million in 2019.

According to EIA, coal is the fastest-growing major source of electricity worldwide. 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% (0.5 million tons) in 2019. 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 13.6 million tons in

2019. Colorado coal production is expected to fall to 10.4 million tons in 2020 and 2021.

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 annual production losses of up to 4 million tons. New Environmental Protection Agency regulations will also significantly curtail future production. Low natural gas prices in 2018 and 2019 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 sub-bituminous coal for electricity generation at power plants, and to a lesser extent, cement and coking operations. In 2019, coal was produced in five Colorado counties: Routt, Moffat, Rio Blanco, Gunnison, and La Plata. Gunnison County was the leading coal-producing county between 2001 and 2019, producing 186 million tons, followed by Routt County with 152 million tons, Moffat County with 123 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 4.2 million tons in 2019, making it the highest-producing mine in Colorado. Early in 2020, it was announced that Tri-State Generation and Transmission would close their Colowyo mine in Moffat County by 2030.

Value

Coal production decreased in 2019 while price remained stable. 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 average price of coal in 2019 was

COLORADO ELECTRIC POWER INDUSTRY GENERATION BY PRIMARY ENERGY SOURCE, 2010-2019 (In Millions of Megawatt Hours)									
Year	Coal	Natural Gas	Hydroelectric ^a	Wind	Solar	Biomass	Petroleum	Other ^b	Total
2010	34.6	11.1	1.6	3.5	0.042	0.060	0.017	0.070	50.7
2011	34.0	10.2	2.1	5.2	0.105	0.062	0.022	0.063	51.4
2012	34.5	10.5	1.5	6.0	0.165	0.058	0.011	0.055	52.6
2013	33.7	10.7	1.2	7.2	0.248	0.084	0.010	0.046	52.9
2014	32.5	12.0	1.8	7.4	0.253	0.126	0.010	0.047	53.8
2015	31.6	11.8	1.5	7.4	0.251	0.081	0.007	0.052	52.4
2016	30.0	12.7	1.6	9.4	0.538	0.162	0.007	0.053	54.4
2017	29.2	12.5	1.6	9.3	0.954	0.166	0.007	0.057	53.8
2018	26.4	16.4	1.6	9.8	1.062	0.164	0.012	0.059	55.4
2019	25.3	17.1	1.6	10.9	1.218	0.162	0.008	0.060	56.3

^aIncludes pumped storage.

^bIncludes 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.

\$35 per ton. The value of coal sold by Colorado mines fell from \$1.1 billion in 2012 to less than \$500 million in 2019.

Employment

The Colorado Division of Reclamation, Mining and Safety tracks coal production and the employment of coal miners on a monthly basis. In 2011, employment at Colorado's coal mines was at a 25-year high of 2,411 miners in December. This was due, in part, to the employment of coal miners at the New Elk Coal Mine in Las Animas County. In December 2013, employment slid to 1,857 miners, due primarily to layoffs at the Elk Creek Mine. According to the Colorado Division of Reclamation, Mining and Safety, the number of people employed at Colorado coal mines was 1,160 at the end of 2018 and 1,098 at the end of 2019. At the end of July 2020, employment was reported as 951.

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 2019, 42% of the coal produced in Colorado was shipped to 10 other states. In 2019, Utah took 2.2 million tons followed by Illinois and Mississippi, which took 517,043 and 379,016 tons, respectively. The Deserado Mine 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.

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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.

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 2019, 13.9 million tons were delivered while the percentage that came from Colorado mines was 35%. According to the EIA Electricity Data Browser, coal-fired power plants in Colorado consumed 13.9 million tons of coal in 2019, supplying the state with 45% 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 25.3 MWhs in 2019. Electricity generated from natural gas increased from 11.1 MWhs to 17.1 MWhs between 2010 and 2019. Wind-generated electricity increased from 3.5 MWhs to 10.9 MWhs. The reduction in coal-fired generation from 26.4 MWhs in 2017 to 25.3 MWhs in 2019 was offset by natural gas, which increased from 16.4 MWhs to 17.2 MWhs. Wind increased from 9.4 MWhs to 10.9 MWhs while solar increased from 1.06 MWhs to 1.21 MWhs.

Minerals and Uranium

Nonfuel mineral resources include metals, industrial minerals, and construction materials (e.g., aggregate, cement, etc.). The United States Geological Survey (USGS) estimates that the total U.S. 2019 nonfuel mineral production value was \$86.3 billion. In 2019, Colorado produced primarily gold, cement, sand and gravel, molybdenum, and crushed stone with an estimated production value of \$1.79 billion, or approximately 2.1% 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 2019 production value of gold and molybdenum was about \$780 million. This is approximately a 10.9% decrease compared to the 2018 production value of \$875 million. This decrease in value was primarily due to the decrease in production at Freeport-McMoRan Inc.'s (Freeport) Climax and Henderson mines. Freeport is the world's largest producer of molybdenum, and in 2019, their Colorado operations account for about 32% of their North America molybdenum production.

The combined molybdenum production at the Henderson Mine and Climax Mine decreased from 35 million pounds in 2018 to 29 million pounds in 2019. Estimated average prices for molybdenum decreased from \$11.93 in 2018 to \$11.37 per pound in 2019. Colorado was one of the largest producers of molybdenum in the United States in 2019. In 2019, Freeport estimated proven reserves of 55 million metric tons with 0.18% molybdenum at the Henderson Mine, and 152 million metric tons with 0.15% molybdenum at the Climax Mine. During the first quarter of 2020, Freeport announced a 50% reduction of molybdenum production at the Climax Mine for the remainder of the year in response to COVID-19 and the resulting global market conditions.

In 2019, Newmont acquired Goldcorp Inc. making it the largest gold-mining company in the world. Their corporate headquarters remains in Greenwood Village, Colorado. Production of gold at Newmont's Cripple Creek and Victor (CC&V) mine located in Teller County decreased from 360,000 ounces in 2018 to 322,000 ounces in 2019, likely due to lower-grade ore milled and lower leach production. The estimated average gold price increased from \$1,272 in 2018 to \$1,400 per ounce in 2019, and prices spiked further in 2020. Colorado was the third-largest producer of gold in the United States in 2019, following Nevada and Alaska. As reported by Newmont, gold production at CC&V decreased by about 18% in the first six months of 2020 when compared to 2019,

VALUE OF COLORADO NONFUEL MINERALS AND URANIUM PRODUCTION 2011–2021 (In Millions of Dollars)

Year	Nonfuel Minerals	Uranium	Total
2011	1,930	0.0	1,930
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 ^a	1,100	0.0	1,100
2021 ^b	1,200	0.0	1,200

^aEstimated. ^bForecast.

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

primarily due to timing of leach recoveries and lower ore grades milled.

In 2019, Colorado produced and consumed approximately 52 million tons of aggregate (sand, gravel, and crushed stone). The production of construction aggregate was approximately equal to the previous year's levels. Previous to that, the general aggregate production trend between 2012 and 2018 has been increasing, especially regarding crushed stone. Forecasts for 2021 suggest similar levels of production in Colorado, as all 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.

As reported for many years, there was no uranium mining in Colorado in 2019. As reported by the EIA, the total 2019 U.S. production of uranium continued its decline and was 89% less than in 2018. Most of the uranium used by U.S. civilian nuclear power reactors over the last several decades was imported from foreign countries. In 2019, approximately 8.7% of the total uranium purchased by these domestic reactors originated in the U.S. In 2019, uranium concentrate was produced from six facilities mostly located in Wyoming and Nebraska.

Renewables

Colorado's abundance of renewable energy resources includes wind, solar, hydroelectric, geothermal, and biomass. These additional electricity resources accounted for nearly 25% of Colorado's net generation in 2019, a two percentage-point increase from 2018. At least nine Colorado cities have their own renewable energy goals.

Colorado's clean energy sector employs nearly 60,000 workers (40% of all the state's energy workers), including 34,000 in energy efficiency, nearly 3,000 in energy storage, 2,000 in renewable fuels, and more than 3,000 in electric transportation. About 17,000 of those jobs are in renewable energy. Colorado's windy plains, high mountains and rivers, active subsurface heat flow, agricultural and forest production, and abundant sunshine give it a high potential for renewable energy growth in the United States. In terms of overall renewable energy technical potential, the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) ranked Colorado sixth nationally in 2012.

Colorado 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 is 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 have already 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 2020, residential electricity rates in Colorado were 12.84 cents per kWh. This falls below the national average of 13.30 cents per kWh and is the second highest in the eight-state Mountain West Region, which averages 10.16 cents per kWh. As of August 2020, Colorado commercial rates are 10.94 cents per kWh, essentially equal with the national average of 10.95 cents per kWh. Colorado's industrial rate averaged 7.59 cents for August 2020, which is slightly higher than the national average of 7.09 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, Polis laid out a roadmap that includes growing renewable energy sector jobs, modernizing the Colorado Public Utilities Commission (PUC), increasing the push toward zero emission vehicles and buildings, and supporting local governments and citizens in reaching 100% renewable energy through improved-energy efficiency. In striving toward these goals, Colorado lawmakers passed seven climate and energy bills and seven electric vehicle (EV) bills during the 2019 legislative session. The legislation aims to reduce carbon emissions to 90% below 2005 levels by 2050, including a formal goal that Xcel Energy reach 100% carbon-free electricity production by that same year. Additionally, these bills expand Colorado's energy efficiency and EV programs. In addition, Tri-State Generation and Transmission Association—Colorado's

largest electric cooperative—created their Responsible Energy Plan that goes beyond the RPS, promising 50% renewable energy by 2024 and to close all of its coal plants in Colorado by 2030.

Wind Energy

As of year-end 2019, Colorado ranks 15th nationally for total MWs of installed wind capacity, ninth in the nation for share of wind electricity generation at 19.4%, and third for wind industry employment. The Clean Jobs Colorado 2019 report announced that wind generation supported 7,318 jobs (at wind farms) and more than 6,000 employed at manufacturing facilities. Cumulative wind power generating capacity has more than doubled since 2010 to reach more than 4,000 MW. Colorado installed 59 new MW of wind in 2019, 299 MW in the first half of 2020 (all from the new Bronco Plains wind farm by NextEra), and an additional 775 MW are currently under construction (as of mid-2020). Colorado wind farms include more than 2,250 wind turbines. Through September 2020, Colorado produced 19.4% of its electricity from wind.

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 provide Colorado workers 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 new 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 Wind

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Energy Association found that total capital investment through 2019 was \$7.6 billion with annual land lease payments to landowners of \$14.3 million in 2019, and property tax revenue for Colorado's rural communities was \$11 million.

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. Coloradans get 3.7% of their electricity from solar. In terms of cumulative installed solar electric capacity, Colorado ranks 12th nationally, with over 1,514 MW of installed capacity as of June 2020. Over the next five years, the Solar Energy Industries Association (SEIA) estimates the annual installed capacity will increase by another 3,329 MW, the eighth-fastest growth rate in the nation. A total of 348 solar companies currently operate in Colorado, employing more than 7,000 people. According to SEIA, the total investment in Colorado solar is more than \$3.8 billion, and installation prices have dropped 38% 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.

According to the Lawrence Berkeley National Laboratory (LBNL) report, *Tracking the Sun*, Colorado had 50,920 individual photovoltaic (PV) installations that generated nearly 67 MW of power in 2018. Like many states, the rooftop solar community in Colorado has been thriving, with installation costs dropping more than 60% since 2010. In 2019, Colorado had an estimated \$3.90 per watt install price for residential PV systems by LBNL. According to a 2016 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 terawatt-hours 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 2019, nearly 3% of the state's total electrical output came from more than 60 hydroelectric generating stations. 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.

Geothermal Energy

Neither biomass nor geothermal energy provide 1 percent 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 are built before January 2021. Biomass and geothermal energy facilities can both take advantage of these credits (as can other renewables).

Direct-use geothermal resources in the state continue to contribute to local economies on a 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).

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. ❖

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Construction

The construction industry was designated an essential business in early 2020 during the Coronavirus pandemic, allowing activity to continue. Even so, divergent trends emerged. Single-family residential construction carried the industry in the past year, as large non-residential and non-building projects were more limited compared to prior years. Sector activity will total nearly \$16.8 billion in 2020 but decrease 7.5% in 2021 to \$15.5 billion.

Emerging challenges in the industry include regulatory and political uncertainty, supply chain problems created from the disruption in manufacturing production and imports caused by countermeasures to slow the spread of COVID-19, and fewer projects in the planning pipeline. Warehouse inventory was used up, and new shipments of appliances, steel, lumber, and other inputs do not appear to be keeping up with demand. In addition, many publicly funded projects may be delayed or canceled because of reduced tax revenue.

Companies involved in construction currently are busy, but many are reporting fewer projects being added to their backlogs, with specific concerns about a lack of planned projects beginning in mid-2021. These problems add to existing challenges, including a shortage of skilled and unskilled labor, unease regarding trade policy, and the “silver tsunami” of baby boomers retiring.

Construction employment in 2020 was supported by the continuation of large multiyear projects, as there were fewer new projects starting. The lack of new megaprojects, coupled with a dearth of projects filling in the backlog of future projects, will present headwinds for construction employment. Construction employment fell by 16,600 jobs (9.1%) from January through April, but the industry added back 7,600 jobs from April to October. The committee expects total construction employment in 2020 to decline by 2.1% from 2019 and remain unchanged in 2021 at around 175,000 workers. Employment will continue to be supported by the continuation of multiyear projects. By comparison, construction jobs have increased an average of nearly 5% annually from 2015 through 2019.

A key factor in this forecast is how the demand for additional construction activity, particularly in housing, will respond in large part to household formation. The State Demography Office expects net in-migration of 35,000 in 2020 and 30,000 for 2021. These numbers are considerably lower than recent years, which is expected to result in subdued demand for additional housing.

Residential

Single-Family Housing

The number of single-family permits issued in Colorado will total 26,000 in 2020, up 5% from 2019. The after effects of the COVID-19 recession and slower migration will result in a 7.7% decline to 24,000 single-family permits in 2021. Record-low mortgage-interest rates and trillions of dollars in U.S. economic stimulus spending have propped up the general economy, with particular benefit to the housing industry in 2020, following the pandemic shock; those cannot be expected to continue through 2021.

In 2020, homes built along the Front Range accounted for 84% of Colorado’s single-family permits. Although single-family construction has increased in the past year, it was affected during the early months of the pandemic. A strong 31% increase in Q1 2020 permit activity for the state was followed by a sharp 16% decline in April-May as the pandemic lockdowns sharply curtailed activity. Housing demand bounced back quickly with cumulative single-family permits for June-September 2020 that were 16.8% higher than the same months in 2019. Many potential homebuyers merely delayed their purchase until after the pandemic lockdowns.

Several social and economic trends resulting from the COVID-19 pandemic affected the single-family housing market in 2020, some of which will continue in 2021:

- Federal supplemental unemployment income and stimulus checks helped people avoid mortgage defaults and missed rent payments. The additional income also helped some households save for down

INDUSTRY SNAPSHOT CONSTRUCTION	
Nominal GDP, 2019 (\$ Billions)	22.8
Real GDP, 2019 (\$ Billions, 2012 Dollars)	17.0
2019 Real GDP Growth Rate	0.2%
Total Employment, 2019 (Thousands)	178.8
2019 Employment Growth Rate	3.2%
Employment Growth National Rank	22
Share of Colorado Employment	6.4%
Share of National Employment	5.0%
Average Wage, 2019	64,603
Percent of Statewide Average Wage	103.6%
2019 Average Wage Growth Rate	3.5%

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

payments or pay down debt. This helped to support home prices and rental rates despite the recession.

- Many people forced to spend weeks at home were motivated to reassess their housing situation to accommodate home offices, learning spaces, or more room to spread out.
- There appears to be a shift away from dense housing with nearby entertainment and restaurants that made living in small units in urban multifamily buildings attractive. At least for the short term, this may benefit the single-family market. As of fall 2020, the inventory supply level for downtown Denver condos is much higher than for all property types at less dense locations elsewhere.
- The market for second homes is doing well due to the attraction of Colorado’s outdoors, remote office workers not being tied to a short commute, and the desire of having a place to “cocoon” with families in mountain areas.

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Construction

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RESIDENTIAL BUILDING PERMITS BY TYPE 2011–2021

Year	Single Family	Multifamily	Total Housing Units
2011	8,723	4,779	13,502
2012	12,617	10,684	23,301
2013	15,772	11,745	27,517
2014	17,104	11,594	28,698
2015	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 ^a	24,756	13,877	38,633
2020 ^b	26,000	13,900	39,900
2021 ^c	24,000	12,500	36,500

^aRevised. ^bEstimated. ^cForecast.

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

The severely limited availability of resale homes for purchase is the major housing story of 2020. Existing Front Range homes for sale in September 2020 dropped to a historical low of one month of supply, down from the abnormally low 2.1 months of supply a year earlier. The undersupplied resale market and changing preferences have benefited new housing. While resale activity increased in the Front Range by 1.2% to a total of 67,600 closings, new home closings increased by 4% through the third quarter of 2020 to a total of 16,300.

Housing markets continue to be boosted by low mortgage rates. According to Freddie Mac, the rate for a 30-year mortgage had fallen to a historically low average of 2.9% for September 2020.

The average single-family permit value declined 2.5% through September 2020 year-to-date compared with

the same period a year earlier. The modest decline can be attributed to homebuilders' shift to smaller and lower priced single-family attached products (townhomes and duplexes) versus traditional single-family detached homes. The expectation for calendar year 2020 is for a permit value of \$309,000 per home.

Lumber prices continued to rise in 2020 as wildfires erupted across the West from Colorado to California, and homebuilders are anticipating that supply chain disruptions will affect other construction components such as plumbing, lighting fixtures and appliances. These factors will put upward pressure on construction costs next year, and we forecast an increase of nearly 3% in permit value to \$318,000 per unit for 2021.

Multifamily Housing

Multifamily construction was essentially unchanged during the past year despite balanced rental markets and slowing in-migration. By year's end, 13,900 multifamily units are expected to be permitted. Since 2010, an average of 95% of multifamily permits were located between Colorado Springs and Fort Collins; however, a shift in the past year indicates increased construction in smaller metropolitan areas.

Apartment construction following the Great Recession has been strong, complementing growth of single-family construction and fulfilling the demand 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 surged to more than 40% from 2012 through 2017. The trend appears to be reversing; in 2019 and 2020, multifamily permits comprised approximately one-third of the total.

Multifamily permits are expected to decline in 2021, as units already underway are completed and in-migration slows further. The committee forecasts 12,500 multifamily units will be permitted in 2021, a 10% decrease from 2020. Multifamily permitting has declined from an average of 16,750 units started annually from 2016–2018,

CONSTRUCTION EMPLOYMENT, 2011–2021 (In Thousands)

Year	Employment	Percentage Change
2011	112.5	-12.3%
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 ^a	178.8	3.2
2020 ^b	175.0	-2.1
2021 ^c	175.0	0.0

^aRevised. ^bEstimated. ^cForecast.

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

when net in-migration was stronger and many markets had low vacancies. Multifamily activity remains elevated compared with the fewer than 10,000 units a year 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. Developers may be hesitant to build for-sale condominiums due in part to concerns about defects litigation with related insurance costs. Despite recent legislation intended to alleviate litigation, condominium construction is slow to return. Except for units subject to government-income restrictions, most new condominiums offer high-end, luxury units. In addition, builders report that financing for apartments is easier to obtain than for condominiums.

New units have been absorbed rapidly, largely attributed to continuing in-migration. Slower absorption during the spring of 2020, when people were sheltering in place and may have been reluctant to move, was offset by strong absorption over the summer, which likely included some pent-up demand. Apartment markets across the state are balanced, with an average statewide vacancy rate of 4.9% in early 2020, unchanged from 2019. Vacancy rates in Colorado ranged from 5.1% in the Denver-Boulder metro area to 2.0% in Grand Junction.

Rent growth moderated throughout the state, from an average of 4% annually during 2017–2019, to decreasing slightly this year—less than 0.5%. Areas across the state that experienced modest rent growth were offset by a decline of nearly 1% in the Denver-Boulder area and in Greeley. The strongest increases were 13% in Grand Junction and 8% in Pueblo, where vacancies were lowest.

Surveys indicate that late rent payments during the second quarter of 2020 were similar to previous years, indicating that disruptions from the pandemic did not have an immediate impact on households' abilities to pay rent. Concerns are increasingly voiced that high unemployment rates and the end of federal stimulus and enhanced unemployment payments will lead to decreased financial stability. Vulnerable households may double up to save money, which could soften the rental market and further suppress rent growth in the near future.

The construction value per unit is expected to decrease in part because of a trend toward smaller units, particularly in Colorado Springs and Denver, and also because of the shift in construction away from the Front Range to areas of the state with lower labor costs.

The average value per multifamily unit is projected to decrease about 8%, to \$132,200, in 2020. Reflecting continued increases in construction costs, and construction outside of the Northern Colorado metropolitan areas, the value per unit is expected to rise only 2% in 2021, to approximately \$134,800.

VALUE OF CONSTRUCTION IN COLORADO BY TYPE 2011–2021 (In Millions of Dollars)

Year	Residential	Nonresidential	Total Building	Nonbuilding	Total Construction
2011	\$3,363.1	\$3,932.1	\$7,295.2	\$2,289.2	\$9,584.4
2012	5,368.2	3,675.2	9,043.5	3,329.2	12,372.7
2013	7,089.2	3,609.7	10,698.9	3,679.9	14,378.8
2014	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	10,178.8	5,989.0	16,167.7	2,705.6	18,873.3
2017	10,361.8	6,159.6	16,521.4	2,974.8	19,496.2
2018	11,796.8	8,140.3	19,937.1	4,514.5	24,451.6
2019 ^a	10,642.6	5,038.3	15,680.9	2,861.1	18,541.9
2020 ^b	9,871.6	4,800.0	14,671.6	2,100.0	16,771.6
2021 ^c	9,317.0	4,000.0	13,317.0	2,200.0	15,517.0

^aRevised. ^bEstimated. ^cForecast.

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

Nonresidential Building

The nonresidential building sector tracks both commercial and institutional projects, including new and renovated offices, medical facilities, colleges, retail outlets, churches, schools, and government buildings. Pre-pandemic estimates for nonresidential sector starts in 2020 were expected to reach as high as \$6 billion, but project delays and cancellations that resulted from economic uncertainty and reduced revenues have pushed that number much lower.

New project starts in Colorado this year will total \$4.8 billion, down 4% from the previous year. That figure would be worse, but most commercial contractors report having enough projects to sustain the industry through the end of 2020. In 2021, however, as the backlog of projects dwindles, project starts are expected to be down 16%, with new work continuing to decline through at least the

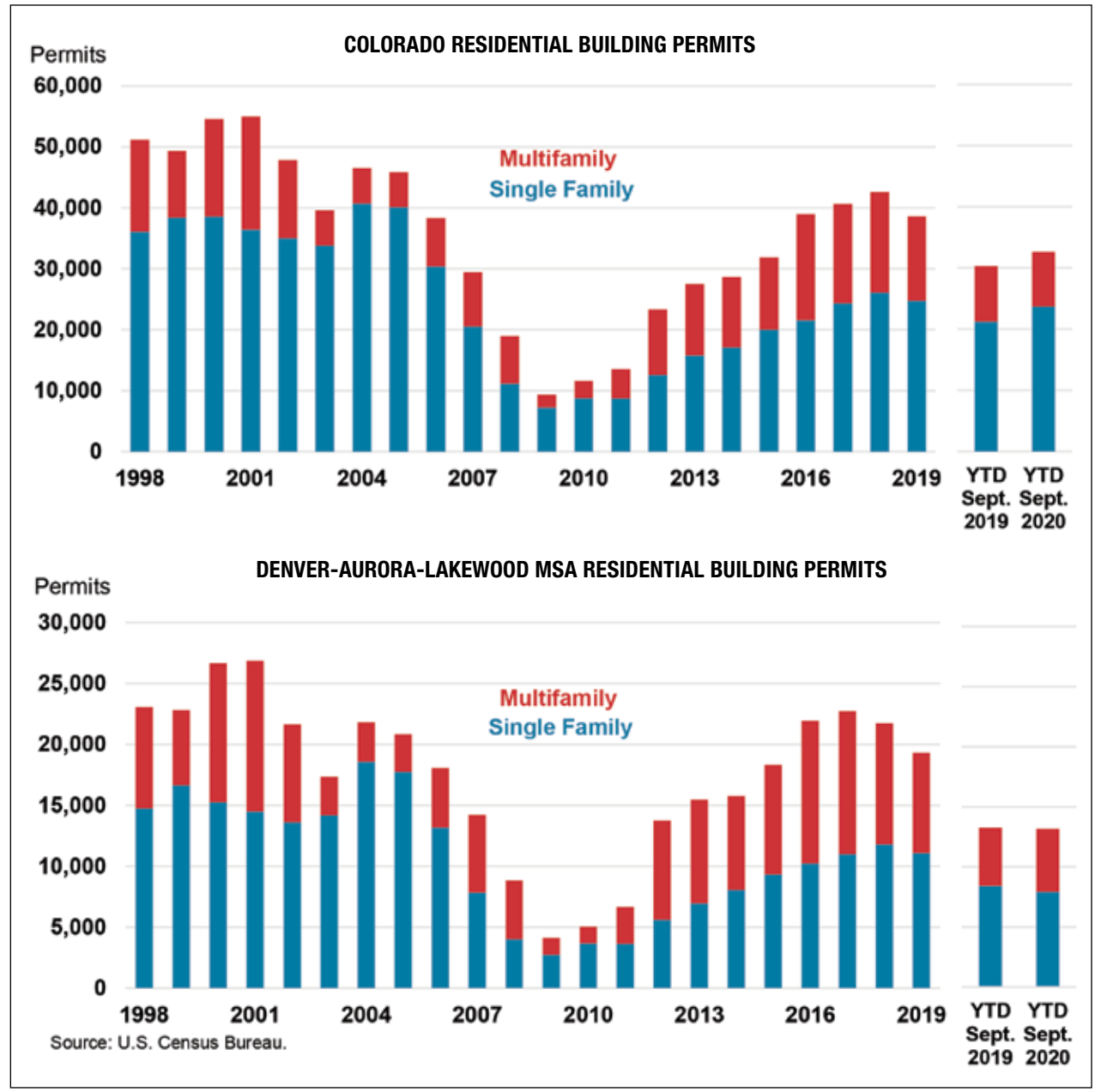
second quarter. The nonresidential sector is projected to finish 2021 at \$4 billion. That number could decline even further if new virus restrictions are put in place and private investment retreats further in a weakened economy. Most contractors say they expect only modest increases in construction costs, while labor costs will remain in check.

Other factors fueling the 2021 decline are greatly reduced budgets at the local and state levels, causing public entities to slash capital spending in the face of dwindling tax revenues. Fearing voter caution, many school districts opted not to ask for new bonds in 2020. Successful school bond elections in November totaled little more than \$1 billion, lower than in previous presidential election years. The two largest measures were

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Construction

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\$795 million in Denver and \$150 million in the Cherry Creek District. Concern over proposing tax increases in a pandemic is one reason for the lower bond amounts in the election, but another is that the State nearly zeroed out the issuance of Building Excellent Schools Today (BEST) grants, as part of its budget balancing for FY21. Districts count on those matching grants to supplement local bond elections to build new schools or undertake major remodels, so expect delays and a weaker K-12 school construction activity for a couple of years.

A few megaprojects will go forward, but fewer than in years past. Molson Coors is planning a major retrofit of its plant and equipment in Golden, which will cost hundreds of millions of dollars, but that work is unlikely to get underway next year. SCL Health will begin work on a \$300 million to \$500 million replacement hospital for the Lutheran Medical Center in Wheat Ridge. The construction start date is scheduled for May 2021.

Positive trends for the nonresidential sector include the state's continuing in-migration and relocation of many new companies here. Economic development agencies across the state report that corporate relocation inquiries are still robust to date, even during the pandemic.

Building sectors most affected by the pandemic for the near future will be hospitality, sports and entertainment, retail, and offices, although post-pandemic remodels could deliver more work as companies remake their office environments into safer, more efficient workplaces. Construction of manufacturing facilities, distribution centers, and warehouses is expected to increase over the next two years.

Nonbuilding

Non-building 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 usually 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.

This correlation is relevant now because of the potential impact of the COVID-19 pandemic on the revenue streams that matter most to public works projects. Less traffic led to lower gasoline sales, and gas tax revenue decreased by 5.8% for the Colorado Highway User Trust Fund in the past state fiscal year. The impact on the current fiscal year was still being assessed as this report went to print, but estimates are for a decrease of 6% or 7%.

In addition to dislocations from the pandemic, a major impact for both 2020 and 2021 statistics is the lack of megaproject awards. The last non-building award to exceed \$1 billion was in 2018. The size of projects awarded in 2020 have been more modest, and the timing of awards on projects on the horizon valued even between \$400 million and \$600 million is uncertain.

Without any megaproject starts, total new starts are lower than recent years. Expect the 2020 value of non-building construction to be around \$2.1 billion.

Road and bridge construction spending will likely decrease in 2021. The decrease will be modest if the state legislature issues the next \$500 million tranche of bonding for CDOT projects in March 2021, but will be severe if that funding is significantly delayed. On the other hand, a federal stimulus bill could lead to an uptick in transportation project awards of “shovel-ready” projects. Projects for which a contractor has been selected, but for which significant-sized construction packages remain to be awarded as of mid-October, include CDOT’s I-25 Express Lanes Segments 5+6 project in Weld County and CDOT’s Military Access project in El Paso County. Additional CDOT projects are currently in planning, but although selection of contractors is possible before the end of 2021, awarded construction packages will probably not occur until 2022.

Decreases in transportation awards will be partially offset by non-transportation projects. Construction on the Thornton Water Project is scaling up, with \$31 million awarded in 2020 and an additional \$139 million budgeted for construction in 2021. Preconstruction on Northern Water’s \$485 million Chimney Hollow

Reservoir project was awarded at the end of 2019, and construction could begin in 2021. Denver Water’s \$464 million Gross Reservoir expansion project received final federal approval in July 2020 and is now engaged in a land-use review process with Boulder County. The project must receive county approval before proceeding; the timing and outcome of that decision will determine when construction may begin. No major wind farm project awards are expected in 2021.

For 2021 totals, expect \$2.2 billion in non-building awards if (1) construction on one of the two large water projects is formally awarded and (2) the next \$500 million tranche of CDOT bonds proceeds as planned. Those caveats represent just under \$1 billion. Totals for next year could be that much lower if those two projects are not awarded. ❖

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Manufacturing

Manufacturing in Colorado was a \$26.5 billion industry in 2019, representing about 6.7% of the state's nominal GDP despite the sector comprising just 5.4% 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 industry-wide growth in the state since 2010 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.

The factors that have supported Colorado's manufacturing sector during the economic expansion continued to support the sector during the pandemic. From January to April, industry employment fell 12,200 jobs (8.1%) in Colorado but increased 13,600 jobs from April to October. Through October 2020, Colorado's average employment year-to-date was down less than 1% compared with a 4.6% national contraction. Data indicate that Colorado's manufacturing employment has already rebounded from the initial job losses from the pandemic. In September, Colorado's manufacturing employment was up 1.2% year-over-year compared with a 4.6% national contraction. Despite the rapid recovery and growth over the latter half of the year, by year-end 2020 Colorado's manufacturing sector is expected to average 149,300

INDUSTRY SNAPSHOT MANUFACTURING

Nominal GDP, 2019 (\$ Billions)	26.5
Real GDP, 2019 (\$ Billions, 2012 Dollars)	25.5
2019 Real GDP Growth Rate	3.1%
Total Employment, 2019 (Thousands)	150.1
2019 Employment Growth Rate	1.8%
Employment Growth National Rank	13
Share of Colorado Employment	5.4%
Share of National Employment	8.5%
Average Wage, 2019	73,935
Percent of Statewide Average Wage	118.6%
2019 Average Wage Growth Rate	4.6%

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

COLORADO MANUFACTURING EMPLOYMENT BY INDUSTRY, 2011-2021 (In Thousands)

Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^a	2020 ^b	2021 ^c
Food	19.4	19.3	19.9	20.6	21.6	22.2	22.8	23.3	23.8	23.9	24.3
Beverage and Tobacco	5.4	5.6	5.9	6.4	7.0	7.8	8.3	8.7	8.9	8.9	9.0
Printing and Related	5.3	5.3	5.3	5.4	5.5	5.5	5.5	5.3	5.0	4.8	4.6
Other Nondurables	<u>15.2</u>	<u>15.5</u>	<u>15.7</u>	<u>16.0</u>	<u>16.7</u>	<u>17.1</u>	<u>17.4</u>	<u>17.9</u>	<u>18.5</u>	<u>18.4</u>	<u>19.3</u>
Subtotal, Nondurable Goods	45.3	45.7	46.8	48.4	50.8	52.6	54.0	55.2	56.2	56.0	57.2
Nonmetallic Minerals	6.8	6.9	7.3	7.7	8.1	8.1	8.5	8.6	8.4	8.3	8.0
Fabricated Metals	13.3	14.1	14.8	15.7	15.4	14.8	14.7	15.2	15.2	15.1	15.4
Computer and Electronics	22.1	22.4	21.9	21.5	21.6	21.4	21.8	22.4	22.8	23.0	23.4
Transportation Equipment	8.9	8.8	8.8	8.8	9.4	9.6	9.8	10.1	10.7	10.9	11.1
Other Durables	<u>31.8</u>	<u>33.0</u>	<u>33.2</u>	<u>34.5</u>	<u>35.8</u>	<u>36.2</u>	<u>35.5</u>	<u>36.0</u>	<u>36.8</u>	<u>36.0</u>	<u>36.5</u>
Subtotal, Durable Goods	82.9	85.2	86.0	88.2	90.3	90.1	90.3	92.3	93.9	93.3	94.4
Total, All Manufacturing	128.1	130.9	132.8	136.6	141.0	142.7	144.3	147.5	150.1	149.3	151.6

^aRevised. ^bEstimated. ^cForecast. 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.

employees, a 0.5% contraction from 2019. However, momentum in the sector is expected to fuel job gains in 2021, with employment increasing by a projected 1.5%. Employment in manufacturing is expected to top 151,600, its highest level since 2004.

Despite the positive outlook, there are downside risk factors for Colorado's manufacturing sector. While demand for Colorado products is expected to remain strong during the nascent recovery, the pandemic presents risks to workers and companies. The committee has noted several companies that have suspended operations due to outbreaks of two or more confirmed COVID-19 cases among employees. Closures can lead to long-term impacts on business activity depending on duration, lost revenues, and increased costs. The sector has also been impacted by global and domestic supply-chain disruptions, a factor that could worsen with ongoing outbreaks among countries and suppliers. Other risk factors that could directly or indirectly influence Colorado's outlook include drought, political risk, oil and gas contractions, and sluggish health care demand.

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, led by steady growth in food manufacturers, a stable beverage sector, and the increasing influence of cannabis manufacturing. However, positive growth in these subsectors was offset by contractions in printing and plastics and rubber products manufacturing. In 2019, nondurable goods manufacturing accounted for more than 37% of manufacturing employment. Nondurable goods employment contracted by 0.4% in 2020 and is estimated to average about 56,000 workers for the year. It is expected to return to growth in 2021, increasing by 2.1%, an addition of about 1,200 jobs.

Food Manufacturing

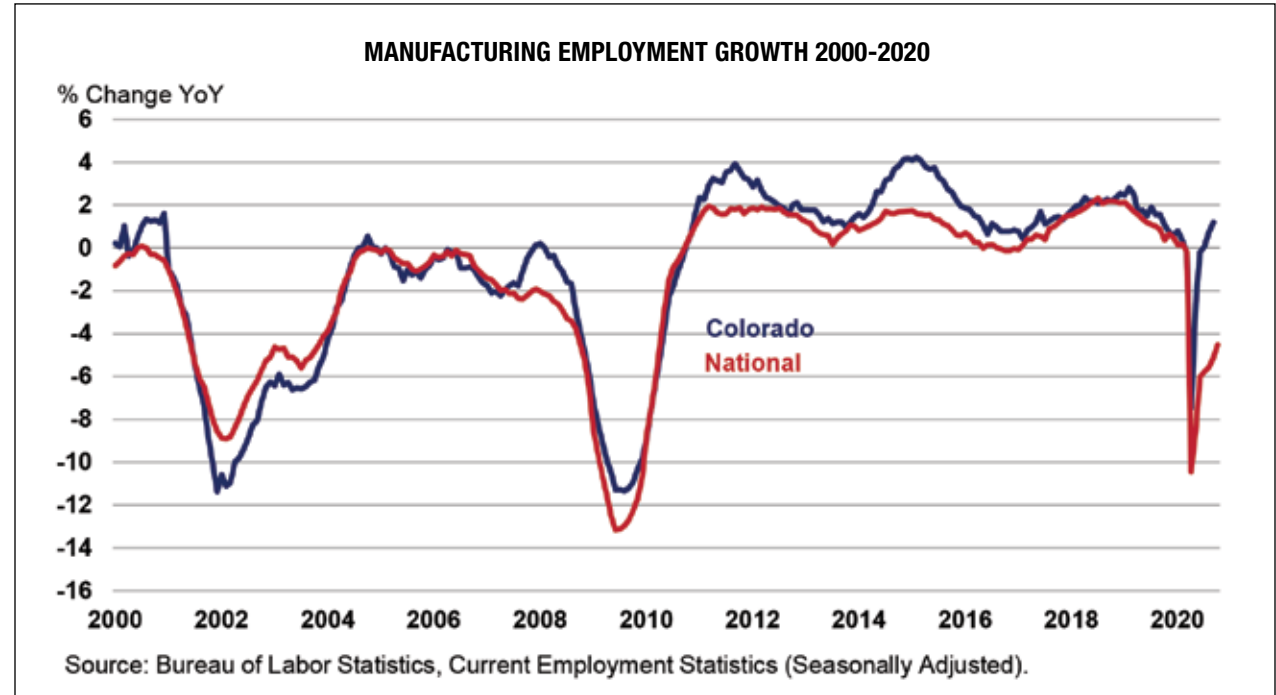
The largest nondurable goods subsector in Colorado is food manufacturing. Colorado food brands and copackers manufacture candies, baked products, tortillas, burritos, coffee, and animal feeds. They also process meat, grains, sugar, milk, cheese, and other dairy products. Beyond large food manufacturers, Colorado is home to many boutique manufacturers, often specializing in niche natural and organic products.

Food manufacturers have faced significant hurdles getting their food processed safely and to markets, and demand has shifted from larger businesses and restaurants to direct sales to people needing food at home due to the pandemic. Manufacturers have had to be creative in how to safely process and provide their products to customers, and many have moved to socially distanced purchases online and deliveries to curbsides and homes.

According to preliminary data, food manufacturing is one of the sectors in Colorado that is contributing to the relatively good economic performance during the COVID-19 downturn.

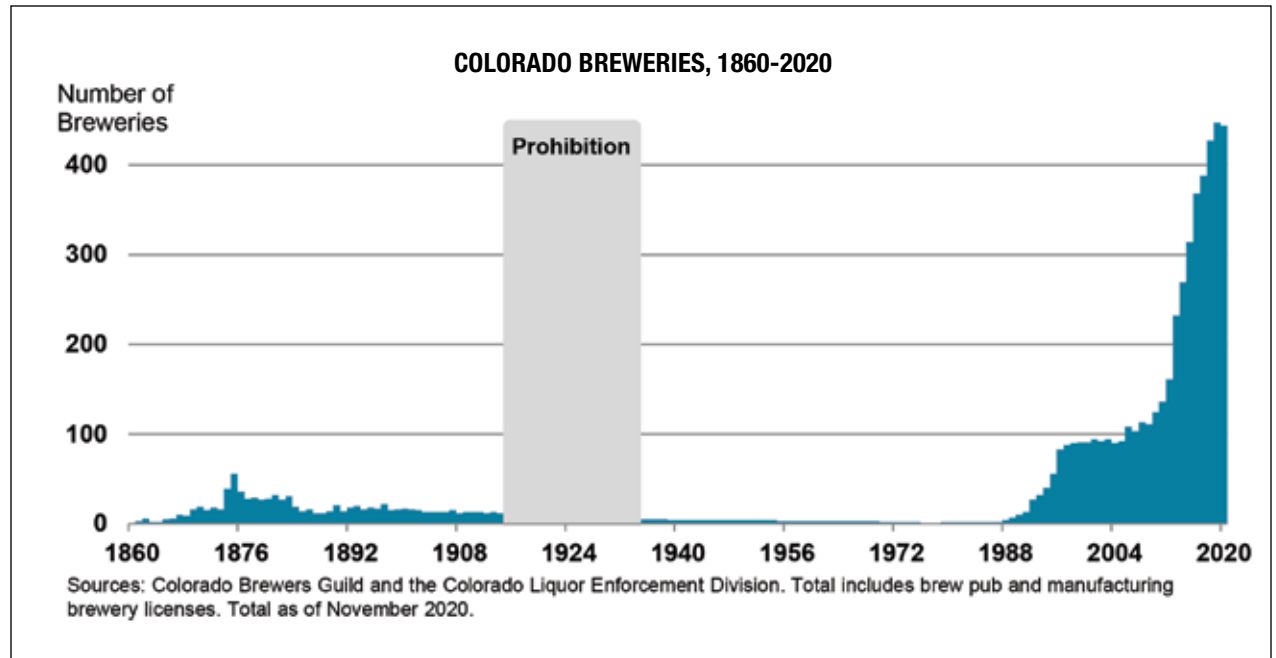
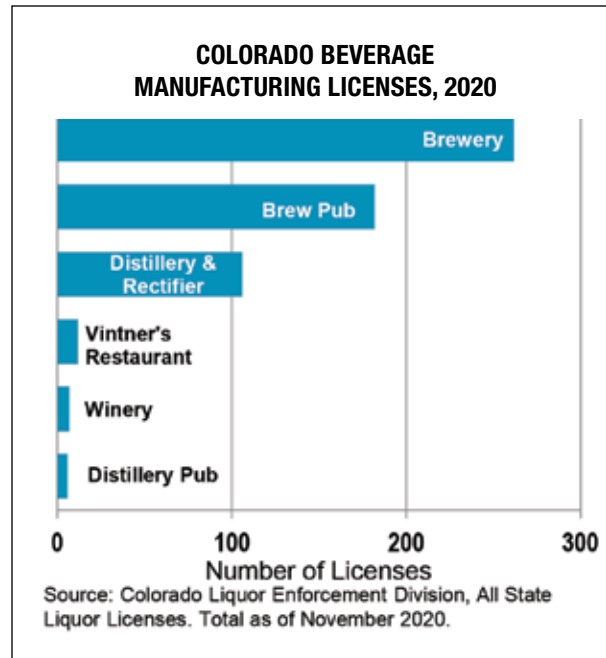
Canada, Mexico, and countries in Asia are major purchasers of Colorado-produced food products, with South Korea rising to the top spot in 2019, while many other countries including Canada and Mexico have declined. Colorado food manufacturing exports totaled over \$1.6 billion in 2019, falling 7.5% from the 2018 level. These exports made up 19.7% of all Colorado exports in 2019 and continue to be the second-largest export category for the state after computer and electronic products. Of the 2019 food manufacturing exports, 94% were to North America (excluding U.S.) and Asia combined. Between

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Manufacturing

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2018 and 2019, these exports to North America fell by \$103 million and decreased by \$33.5 million to Asia.

Colorado's exports for the first quarter of 2020 were up 28.6% compared to the first quarter of 2019, according to the Census Bureau and the Kansas City Federal Reserve. This was before the impacts of COVID-19 were felt, and many food manufacturing plants had to deal with outbreaks. According to the Census Bureau and Denver Business Journal, meat exports were among the largest Colorado exports to slow down in the second quarter, but they rebounded well by the end of July 2020.

As with many areas of manufacturing and all other sectors, finding new employees is an issue. Food manufacturing is impacted by immigration restrictions, and COVID-19 has led to further travel restrictions. Employment is expected to stay fairly flat, adding just 95 jobs in

2020, but then adding another 405 jobs in 2021, reaching total employment of 24,300 workers and representing just over 42% 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. Most of the subsector employment is located along the Front Range. According to the Brewers Association, in 2019 Colorado ranked second in the country for the number of craft breweries (425) and first in economic impact per capita. In 2019, the state produced just over 1.5 million barrels of craft brew, the third-highest production in the country.

The industry is hurting with COVID-19 impacting taprooms and restaurant sales, causing many to reduce staffing levels. The Brewers Association has looked at various surveys across the U.S. and found typical sales

down over 60% during the second quarter of 2020 and still down over 35% during the third quarter. There have been various ways to get beers to customers off-premises, but many of these methods rely on canning, which adds cost and was in short supply. These two factors created additional strain for small breweries that were less likely to get ahold of cans.

The craft brewers and specialty drink producers are a unique group of entrepreneurs that are trying out many ideas to stay afloat, including offering tastings and education virtually, putting more products in cans and growlers, hosting socially-distanced events, and using trolleys to get their product to customers. A group of 125 Colorado brewers even worked together to create a version of the same beer, Colorado Strong, as a fundraiser to support various industries' struggling workers across the state. A Boulder system that helps with online ordering has helped boost sales enough to keep some

workers employed. The bills that were signed in July 2020 allowing to-go alcohol and delivery have extended a lifeline to both breweries and restaurants. The industry is hoping the current tax breaks will be renewed before they expire at the end of 2020 or there will likely be significant additional closures in 2021.

Winemakers and craft distillers were doing well in 2019, but those that are dependent on tourist visitors are being hit significantly. With fewer events to celebrate and a higher price tag, there is a lot less demand for wine. Some have seen revenue drops of up to 80%, causing significant furloughs of employees. The Distilled Spirits Council surveyed distillers across the U.S. in April and found that they had laid off 43% of their employees.

Colorado exports of beverages and tobacco products decreased 60.7%, from \$82.3 million in 2018 to \$32.4 million in 2019. Most of this decline came from exports to Canada and Mexico, which declined a combined \$50.8 million and dropped from a combined share of 95% of beverage and tobacco product exports to just 86%. Exports to South Korea increased by almost \$1 million and helped offset some of the other declines. Employment in the beverage subsector is expected to stay flat in 2020 and then gain about 130 jobs in 2021, reaching just over 9,000 workers.

Printing and Related

Colorado employment in the printing and related products subsector is continuing to decline after five years of minor growth from 2012 through 2016. Those in printing are looking for ways to stay relevant, but things that have helped keep people employed in the past, like print jobs for craft beers and niche products or exports to Asia, did not do as well in 2019. One bright spot in 2019 was that the export of Colorado's printed products increased 12.2%, to \$51.7 million. Exports to Asia increase by \$3.7 million, with a \$2.6 million increase to Japan in 2019 alone, making it the top country for Colorado printed products. Still, employment is expected to decline in 2020, to 4,750, and again in 2021 to 4,600 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 2020, employment in the textiles, apparel, and leather and allied product subsectors averaged about 2,000 employees, a small decline from 2,100 in 2019. For now, employment in apparel and leather and allied products is expected to remain flat in 2020, at approximately 2,000 jobs.

After several years of flat or declining employment levels, the story of employment in textiles, apparel, and leather and allied product subsectors may be changing—COVID-19 is the spark. The pandemic, like tariffs before, is disrupting global supply chains and in effect, manufacturing considerations for apparel and textile brands. Enthusiasm for new domestic manufacturing should heighten, inducing a demand for new labor.

Change will come slowly, yet new outdoor industry clusters taking shape on Colorado's Western Slope may prove a catalyst. Planners at Grand Junction's Riverfront at Los Colonias and Colorado Outdoors in Montrose are keen on new cut-and-sew assets that would attract brands and original equipment manufacturers (OEMs).

Paper products manufacturers employed about 1,300 employees in Colorado in 2019, a small increase, with employment forecast to remain flat through 2020. 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 is again 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, a gain of 4% over 2018—the largest gain observed in the last 15 years. The sensitivity of the sector to oil and gas production operations that have observed a large decline in output due to the pandemic, along with the ongoing policy attention surrounding the oil and gas industry, may dampen the employment outlook in the years ahead. Employment has increased gradually over the last few years but is expected to decline slightly to around 750 to 800 workers in both 2020 and 2021.

Chemical products manufacturing firms employed almost 8,300 workers in 2019 and is 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 biotech manufacturing in the state, increasing 8.9% in 2019 after increasing 10.7% in 2018; the subsector has observed a five-year compound annual growth rate of 6.9%. Employment gains in the subsector continued through the first quarter of 2020 before the pandemic, with employment through March up 11.2% compared to the same time period in 2019. Cannabis companies continue to expand and build new manufacturing facilities in the state due to increasing popularity and consumption, which has been increasing at a higher rate in the midst of COVID-19. Recent strength in this subsector, which added around 700 jobs in both 2018 and 2019, is expected to continue through the forecast period, albeit at a slower rate due to a decline in chemical production stemming from the recession and lower demand from downstream users. Employment in Chemical Products manufacturing is expected to increase to 8,600 workers in 2020 (3.8%) and 9,300 workers in 2021 (8%).

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. Employment in this subsector rose 1.4% to average 5,872 in 2019, slightly below expectations published

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Manufacturing

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last year. Firms maintained payrolls in the first quarter of 2020, but employment is expected to sag during the year on reduced demand consistent with a weakened economy. Employment in the industry is expected to fall to 5,700 in 2020, roughly equal to its 2017 level, and to return to 5,900 in 2021. 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.

Durable Goods

Durable goods industries represented nearly 63% of employment in the manufacturing sector in 2019. 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 2020, to 93,300 employees. Significant contractions in primary metals manufacturing, machinery manufacturing, and miscellaneous manufacturing were partly offset by encouraging growth in computer and electronic products and

transportation equipment. By the end of 2021, the durable goods subsectors are expected to fully recover jobs lost during 2020, with employment increasing by 1.2%, or the addition of 1,100. In 2021, durable goods employment is expected to reach its highest level since 2008.

The nonmetallic minerals subsector employs approximately 8,300 workers in Colorado, a 1.2% contraction from 2019. The forecast for 2021 calls for the loss of another 300 jobs, or a decline of 3.6%. 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, employing about 15,100 workers in roughly 900 establishments in 2020. 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 is expected to lose 100 jobs in 2020, a contraction of 0.7%. However, employment is expected to rebound in 2021, increasing by 2%, an addition of 300 jobs.

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 other things. 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 are Colorado's largest export industry.

Momentum in Colorado's computer and electronic products subsector continued into 2020 and is on pace for its fourth-consecutive year of employment growth. Despite challenges to the subsector that were evident by the end of 2019, the sector has been bolstered by resurging export activity (up 35% year-to-date for Colorado through June 2020), a surge in investment activity, and continued growth in Colorado's aerospace industries. It is noteworthy that as businesses, households, and institutions ramped up IT infrastructure in response to remote school and work, real GDP attributed to private investment in computers and peripheral equipment was up nearly 7% year-to-date through the second quarter of 2020. By the end of 2020, employment for the year will be an estimated 23,000 jobs, an increase of about 0.9%. Growth is expected to accelerate in 2021 as new orders continue to grow nationally and production activity grows. Employment is forecast to grow by 1.7% in 2021, increasing to 23,400 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.



Impact Fenders. Photo courtesy of Region 9 Economic Development District of SW Colorado.

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. The subsector is set to grow by 1.9%, increasing to 10,900 jobs. Growth will continue in 2021, with subsector employment increasing to 11,100.

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 36,000 workers in 2020, a decrease of 2.2% year-over-year. 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 2021, increasing by 1.4% and reaching 36,500 jobs. However, employment will remain below 2019 levels.

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.

There is significant uncertainty in the outlook for machinery manufacturing over the next year. The pandemic negatively impacted many of Colorado's companies, including demand from sectors such as automotive vehicles and parts, aviation, oil and gas, and health care. Demand from these sectors is expected to remain depressed into 2021, impacting any employment recovery in the subsector. While the Payment Protection Program helped many businesses in the subsector, companies are keeping inventories lean and are hesitant to ramp up production. Employment losses in machinery manufacturing were

partially stemmed from the strong presence of essential manufacturers in Colorado and defense contractors. Also noteworthy is the rapid growth of small satellite investments. In addition, demand from renewable energy investments appears solid and could be a bright spot. In 2020, machinery manufacturing is expected to contract 3.9%, falling to roughly 12,800 employees. In 2021, employment will remain stable, ticking up by a projected 0.6%. It should be noted that many firms may move 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. Employment in Colorado's furniture and related products subsector is expected to contract 0.9% in 2020 and average about 5,700 jobs. Employment in the subsector is expected to rebound in 2021. The residential home sales market has remained resilient, bouncing back quickly over summer 2020. Sales activity is expected to boost demand for remodels and support new home development over the next year. Additionally, there may be pent-up demand for consumer durable goods, and continued household growth in the state will help employment rebound. In 2021, the subsector is expected to add 200 jobs, increasing by 3.5% to reach 5,900 employees.

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 electrical equipment, appliances, and components subsector is influenced by residential and nonresidential investment activity, both of which were impacted during the first few months of the pandemic. However, the subsector was challenged prior to the pandemic, with employment contracting from 2016 to 2019. In 2020, employment in the subsector is expected to

fall 4.5% to 2,100 employees. Negative indicators include falling orders in the subsector nationally, an uncertain outlook for nonresidential building activity, and falling export activity from Colorado. Employment in the sector is estimated to average 2,100 once again in 2021.

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 12.3% in 2020, losing about 300 jobs and averaging about 2,000 employees. Many companies in the subsector operate on tight margins and were already facing headwinds by the end of 2019. Another negative indicator for the subsector is the steep drop in job openings at this point in 2020. Looking ahead, job growth is expected to resume in 2021 as employment increases to 2,100.

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 remained flat at 10,083 jobs in 2019, slightly above expectations published last year. The sector exhibited a sizable contraction in the first quarter of 2020, dropping more than 200 jobs. Employment is expected to stabilize at 9,900 jobs in 2020 and rebound to 10,100 jobs in 2021. Over the longer term, employment in this subsector is expected to remain stable, as it has historically – total employment in the subsector has remained fairly consistent, with only slight fluctuations, since the early 2000s. ❖

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Manufacturing

The Colorado Cannabis Market

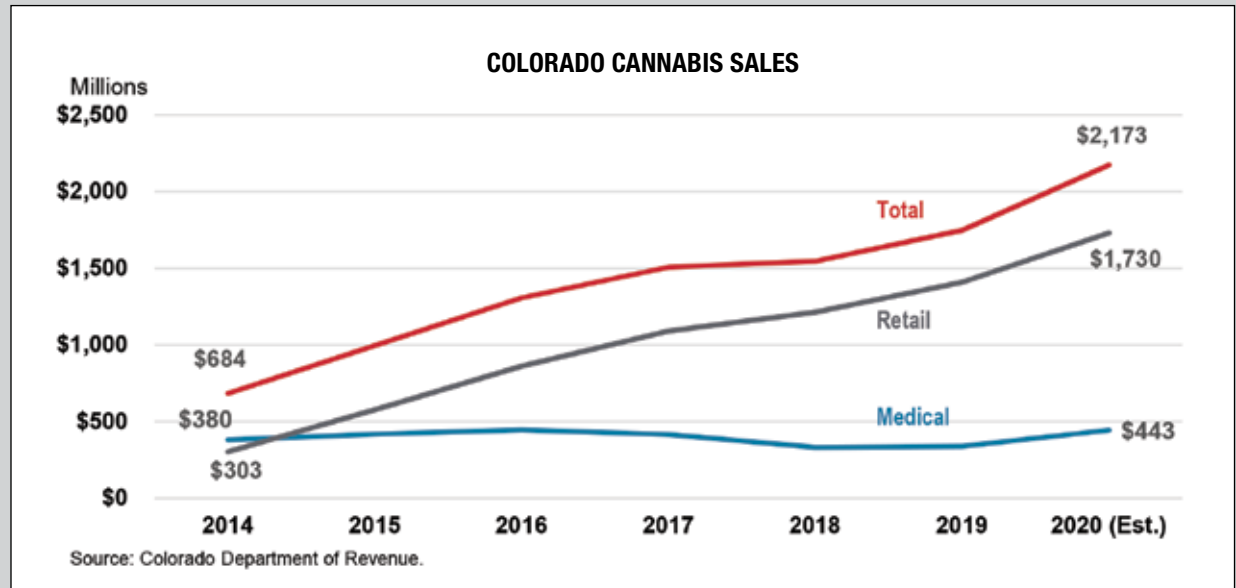
For the past few years, the Colorado Cannabis Market has grown very rapidly, absorbing the illicit market for residents and tourists. The market has started to show signs of maturity as medical cannabis sales have declined slightly and retail cannabis sales growth has started to settle.

Then came COVID-19, increasing sales and establishing cannabis as a clear winning sector, as household spending has shifted to more at-home entertainment options.

In 2019, total cannabis sales were \$1.75 billion, up from \$1.55 billion the previous year—a growth of 13%. A closer look shows that retail sales grew by 16% and medical sales grew by 2%. Sales are back to a considerable rise this year, owing to an increase in demand due to household spending shifts associated with the COVID-19 pandemic. Total cannabis sales are expected to increase to about \$2.2 billion this year based on year-to-date performance—growth of 24% over 2019.

Market growth is more pronounced in the retail market, although both medical and retail sales have grown due to the pandemic. The retail market experienced growth of 90% and 45% in the first two years of legalization, respectively. This year, medical sales growth on a percentage basis (31%) has shot up to exceed retail sales growth (23%), indicating that heavier cannabis consumers and medical patients are contributing to further market growth in a more meaningful way than in past years during the pandemic.

It is unknown whether this level of household spending on cannabis will persist when the pandemic is over. We project some of the spending will stay as there will be



some permanent impact of the pandemic on American lifestyles and associated spending.

Regardless of the length and permanence of the COVID-19-induced spending shock, the cannabis market in Colorado is still positioned for further growth due to a number of bills that passed the legislature in 2019. These bills are generally designed to improve patient and consumer access and encourage overall regulated market growth, including easing investment and residency restrictions; expanding eligible medical conditions; and introducing delivery and hospitality businesses. This new regulatory environment is expected to attract a wave of investment, increasing scale, operational efficiency, R&D spending, and consolidation in the industry. The

full impacts of these regulatory changes have not been fully implemented due to the pandemic.

The overall cannabis industry outlook is generally positive, as the nation and the world continue to legalize and regulate cannabis at an increasing clip; cannabis use is allowed in more public spaces; and the therapeutic benefits of cannabis are further researched. We see market growth continuing in Colorado, albeit with an unknown lingering impact from COVID-19.

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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.). From January to April 2020, the industry lost 45,300 jobs (9.4%) as the pandemic took a toll on trade and transportation. About 37,600 jobs were added back from April to October. It is estimated that average industry employment will be down 10,600 jobs in 2020, to total of 466,800. The sector is expected to rebound in 2021 and grow 3.1%, to total 481,500 jobs.

Trade

Wholesale

Wholesale trade employed over 110,000 Coloradans in 2019, with more than 90% working for merchant wholesalers, firms that sell to retail outlets (the remaining 5,000 employees are recorded in Electronic Markets and Agents and Brokers). More than 67,000 of these jobs are in firms selling durable goods, including computers, peripherals, and electronic equipment. Businesses selling groceries and related products account for the largest share of the 38,000 nondurable wholesale jobs. The remaining workers are employed by electronic marketers and agents and brokers. Among the wholesale employers in Colorado are several Amazon warehouses.

Colorado wholesale employment is recording smaller losses than the nation. If the economy continues to strengthen, some of the lost jobs should be recovered in 2021 where a gain of 1,600 jobs is forecast.

Retail Trade

Colorado's retail sector accounts for more than 260,000 jobs or nearly one-tenth of all the jobs in the state. 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. 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.

Total retail sales fell sharply in March and April but have since enjoyed a rebound. National data year-to-date through September show sales 2% higher than last year. It is likely that Colorado is doing somewhat better, although changes in legislation and rules affecting tax collections make comparisons of 2020 and 2019 sales figures difficult.

The COVID-19 pandemic has drastically altered the retail landscape while accelerating some ongoing trends. Some outlets have thrived, notably sellers of building materials, groceries, and big-box retailers along with purveyors of online sales. Grocery store sales have been strong as people are eating more meals at home rather than going out. Walmart, Target, and Home Depot all reported

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INDUSTRY SNAPSHOT TRADE, TRANSPORTATION, AND UTILITIES

Nominal GDP, 2019 (\$ Billions)	61.2
Real GDP, 2019 (\$ Billions, 2012 Dollars)	54.2
2019 Real GDP Growth Rate	2.1%
Total Employment, 2019 (Thousands)	477.4
2019 Employment Growth Rate	1.5%
Employment Growth National Rank	7
Share of Colorado Employment	17.1%
Share of National Employment	18.4%
Average Wage, 2019	52,675
Percent of Statewide Average Wage	84.5%
2019 Average Wage Growth Rate	5.3%

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

TRADE, TRANSPORTATION, AND UTILITIES EMPLOYMENT, 2011-2021 (In Thousands)

Year	Wholesale Trade	Retail Trade	Total Trade	Transportation and Warehousing	Utilities	Total TTU
2011	91.8	239.3	331.1	62.4	8.1	401.6
2012	93.9	243.0	336.9	64.6	8.0	409.5
2013	96.3	248.4	344.7	67.6	7.9	420.2
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	454.0
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 ^a	110.1	272.2	382.3	86.9	8.2	477.4
2020 ^b	107.8	262.5	370.3	88.5	8.0	466.8
2021 ^c	109.4	270.0	379.4	94.2	7.9	481.5

^aRevised. ^bEstimated. ^cForecast.

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

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

Trade, Transportation, and Utilities

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TRANSPORTATION AND WAREHOUSING EMPLOYMENT 2011-2021 (In Thousands)

Year	Truck Transportation	Couriers and Messengers	Warehousing and Storage	Air Transportation	Other Transportation	Total
2011	17.9	8.5	6.9	12.3	16.8	62.4
2012	18.7	8.6	6.9	13.0	17.4	64.6
2013	19.4	8.9	7.1	14.2	18.0	67.6
2014	20.3	9.4	7.3	14.7	18.7	70.4
2015	20.8	10.3	7.7	14.1	19.3	72.2
2016	20.1	10.9	8.1	14.4	19.5	73.0
2017	20.1	11.3	9.2	15.4	20.1	76.1
2018	20.6	12.6	11.2	15.9	20.7	81.0
2019 ^a	21.0	14.0	13.7	16.7	21.5	86.9
2020 ^b	21.0	16.8	14.0	14.7	22.0	88.5
2021 ^c	22.0	18.0	15.7	15.9	22.6	94.2

robust growth. According to Adobe Analytics, August and September online sales for the nation were up 40% over 2019, and the Colorado Department of Revenue data show strong gains in the “nonstore retailer” category, which is dominated by online sales. Some other categories of stores struggled, among them gasoline stations, clothing and accessory stores, electronic and appliance stores, and sellers of furniture and home furnishings. The ongoing difficulties of major department sales were compounded in 2020. Major state shopping centers were closed for several months in the spring, with Park Meadows the first to reopen on May 24. Some stores were closed permanently including Nordstrom, which shuttered its Flatirons Crossing store and laid off 167 employees.

New car purchases dropped sharply in the spring as manufacturers and many dealers were shut down. Colorado Auto Dealers Association reports show new car and light truck registration through September down 16.3% from 2019, but car buying has picked up in recent months. Registrations for August and September were off 11.3%

compared with a decline of 28.9% in May and June. The latter figure largely measures sales during the lockdown. The rebound almost certainly would have been more robust but for shortages of dealers’ inventories. Next year will likely see a healthy gain, although registrations will still fall below their 2019 level.

Retail spending in some Colorado communities posted sharp declines due to restrictions and changes in customer behavior, particularly those that relied on visitors or commuters. Mountain resort counties and casino communities were among the hardest hit. According to Department of Revenue data, Summit, Pitkin, Garfield, and Gilpin Counties all showed double-digit declines in retail sales in the months since lockdowns began, as did Boulder County with its dependence upon commuters and college students.

Consumers’ behavior will be determined by progress in controlling COVID-19, the extent of federal assistance to individuals and businesses, the permanence of changes in shopping patterns during the pandemic, and changes

in travelers’ behavior. Despite these uncertainties there are some reasons for optimism. Consumer confidence has rebounded from its depressed level during the spring lockdowns. Incomes have increased as funds from the CARES act were distributed to households. Middle-income households enjoy a high savings rate and low debt levels. Inflation should remain moderate although food prices are increasing faster than in recent years, with the Metro Denver CPI for food at home up over 4% compared to last year since March. Most forecasters expected sales to continue to improve through the rest of 2020 and rebound strongly next year, although the outlook for holiday sales is uncertain. If some level of control of the virus is achieved, it is likely that many of the sectors that were hardest hit by the pandemic will show a healthy rebound. Colorado sales are forecast to grow 5% in 2021.

Retail employment has slowed in recent years and recorded a small decline in 2019. Losses accelerated in 2020, but still outperformed national retail employment. Both food and beverage stores and general merchandise stores, which include most healthier sales categories, registered solid increases. Total employment strengthened in recent months after sharp declines in the spring. Preliminary data show Colorado regained about 30,000 retail jobs from April to October. Recovery should continue through this year, although holiday hiring reportedly has been weak. Further gains are expected in 2021, with 7,500 additional jobs.

Transportation and Warehousing

The Transportation and Warehousing Sector includes air, railroad, and water transportation; trucking; taxi services; urban transit; couriers; warehousing; and pipeline companies. These industries are expected to contribute 88,500 jobs in 2020 and 94,200 in 2021. The sector is projected to add 1,600 jobs in 2020 and 5,700 in 2021, or growth of 1.9% and 6.4%, respectively. Gains in couriers and messengers more than made up for losses in air transportation in 2020, which is forecast to rebound in 2021.

RETAIL SALES, 2011-2021 (In Billions of Dollars)			RETAIL TRADE EMPLOYMENT, 2011-2021 (In Thousands)				
Year	Total Retail Trade Sales ^a	Percentage Change	Year	Food and Beverage Stores	General Merchandise Stores	Other Retail	Total
2011	66.7	7.1%	2011	45.1	50.7	143.5	239.3
2012	70.7	6.0%	2012	46.1	50.6	146.3	243.0
2013	74.1	4.8%	2013	48.0	49.8	150.6	248.4
2014	79.5	7.3%	2014	49.3	49.6	155.6	254.5
2015	83.4	4.9%	2015	51.1	50.3	160.7	262.1
2016	87.2	4.5%	2016	52.4	52.0	163.7	268.1
2017	91.7	5.2%	2017	52.7	52.6	165.5	270.8
2018	96.7	5.5%	2018	52.3	53.4	167.5	273.2
2019 ^a	99.8	3.2%	2019 ^a	52.2	52.8	167.2	272.2
2020 ^b	110.8	11.0%	2020 ^b	53.4	54.5	154.7	262.5
2021 ^c	116.3	5.0%	2021 ^c	53.9	55.8	160.3	270.0

^aExcludes food services. ^bEstimated. ^cForecast.

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

Transportation

Couriers and Messenger, Warehousing and Storage, and Support Activities for Transportation

Couriers and Messenger employment increased 12.1% in 2018 and 11% in 2019 year-over-year. This 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 has continued to post large gains in 2020 due to even more online shopping stemming from the COVID-19 pandemic; employment through September 2020 was up 26.2% compared to the same time period in 2019. Employment

in the subsector is expected to increase to 16,800 in 2020 and 18,000 in 2021.

Warehousing and Storage has seen strong employment gains in recent years, with a five-year compound annual growth rate of 13.3%, bolstered by increased online shopping and the needed storage and distribution facilities to strengthen supply chain operations. The subsector increased 22.3% in 2018 and 21.7% in 2019; this growth has continued through Q3 2020, albeit at a slower rate (3.7%). As online shopping continues to increase its share of overall consumer shopping, there will be an increased need of warehousing and storage, sustaining employment gains in the years ahead. Growth in warehousing and storage could also be heavily influenced by the changing landscape of consumer shopping and the response from companies. Additionally, Amazon announced the opening of new storage and distribution

facilities in the state in 2021 and that it will hire an additional 100,000 warehouse workers across its entire operation due to heightened demand stemming from COVID-19. Employment in the subsector is expected to increase to 14,000 employees in 2020 and 15,700 employees in 2021.

Employment growth in support activities for transportation increased 3.3% in 2018 and 6.7% in 2019, and it increased 10.1% in the first quarter of 2020 year-over-year. Growth is expected to continue in 2020 and 2021, reaching 10,400 and 11,000. Scenic transportation employment grew 7.9% in 2019 but declined 3.9% in the first quarter of 2020. Employment in this subsector is expected to see continued declines in 2020 due to COVID-19 affecting the tourism industry but is expected

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Trade, Transportation, and Utilities

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COLORADO AIRPORT STATISTICS, 2009-2019 (In Thousands)

Passengers and Cargo	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Passengers (in thousands)^a											
Denver International Airport (DEN)	50,167	51,985	52,849	53,156	52,556	53,473	54,015	58,267	61,379	64,495	69,016
Colorado Springs Municipal Airport (COS)	1,864	1,738	1,621	1,639	1,300	1,250	1,180	1,298	1,675	1,725	1,672
Aspen-Pitkin County Airport (ASE)	434	445	443	430	413	435	467	509	490	571	608
Grand Junction Regional (GJT)	458	444	444	439	422	428	429	465	481	488	549
Durango-La Plata County Airport (DRO)	296	327	351	373	386	388	374	376	374	379	391
Eagle County Regional Airport (EGE)	363	402	379	336	334	330	314	328	309	348	380
Montrose Regional Airport (MTJ)	184	193	175	145	169	175	205	230	245	268	316
Yampa Valley Airport (HDN)	245	220	213	120	184	185	188	215	193	200	212
Gunnison-Crested Butte Regional Airport (GUC)	84	75	73	62	62	64	69	70	65	73	72
Pueblo Memorial Airport (PUB)	10	23	45	20	14	14	7	5	8	21	24
San Luis Valley Regional/Bergman Field (ALS)	13	14	14	14	14	8	6	8	13	14	20
Cortez Municipal Airport (CEZ)	15	13	14	15	16	8	5	9	16	16	17
Telluride Regional Airport (TEX)	14	19	22	16	13	7	0	0	5	4	11
Fort Collins-Loveland Municipal Airport (FNL)	62	71	90	70	6	4	7	9	6	5	6
Total Passengers	54,210	55,969	56,732	56,835	55,888	56,767	57,264	61,788	65,258	68,605	73,294
Cargo, Freight, and Air Mail (in millions of lbs.)											
DEN Freight and Express	468	518	512	488	470	487	491	504	525	559	628
DEN Air Mail	27	38	35	34	29	33	55	48	60	54	44
DEN Total	495	555	547	522	499	520	546	552	585	614	672

Note: Excludes airports with few passengers.

^aPassengers 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.

to return to growth in 2021. Pipeline transportation and ground transportation employment is expected to remain stable in 2019 and 2020.

Air Transportation

The COVID-19 pandemic has negatively impacted the global aviation industry unlike any other event in history. National data from the Bureau of Transportation Statistics show that U.S.-based airlines carried more than 634 million passengers for the 12 months ending July 2020, a decline of 30.3% compared to the same period one year prior. The 2019 figures were the highest figures on record. The COVID-19 pandemic has severely impacted airline traffic, with an average of 11.9 million passengers each month from April to July 2020 compared to 77 million passengers over the same time period in 2019.

The seasonally adjusted system-wide load factor on U.S. airlines dropped to 76.3% over 12 months ending July 2020 compared to 83.5% the year prior.

Load factors—the ratio of revenue passenger miles to available seat miles—in the second quarter of 2020 demonstrate the true devastation of the COVID-19 pandemic on air travel. The U.S. domestic load factor in April 2020 was 13.2% (vs. 85.7% in April 2019); in May 2020 it climbed to 39.2% (vs. 87.4% in May 2019); and in June 2020 it had recovered to 56.2% (vs. 89.4% in June 2019). Load factors only tell part of the story because scheduled flights and capacity were drastically reduced during these months due to the collapse of demand.

While the load factor has recovered from historic lows in April of this year, it is still on track to finish 2020 at its lowest level on record.

Five U.S. carriers accounted for 85% of domestic passenger traffic in the 12 months ending July 2020: American Airlines (23%), Delta Air Lines (21%), Southwest Airlines (20%), United Airlines (15%) and Alaska Airlines (5%).

Airlines depend highly on the health of the economy and have been heavily impacted by the COVID-19 pandemic

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

Major airlines have cut thousands of jobs due to decreased travel demand. American Airlines has cut 19,000 jobs and United Airlines has cut 13,000 jobs as of the end of September. Many other airlines have cut or furloughed jobs as well, with continued pressure in the industry for more cuts if demand doesn't improve.

The pandemic has caused more people to work from home, therefore greatly cutting down, or eliminating, travel for business meetings and conferences. Business travel is critical to many travel providers, as corporate travelers can drive between 55-75% of profit for top airlines. Historically, business travel is more volatile and takes longer to recover than leisure travel in economic downturns. According to the iMeet Survey of Meeting Planners, 16% of planners believe they will resume face-to-face meetings by the end of the year, 40% of planners are targeting the first half of 2021 to resume face-to-face meetings, with the majority (33%) targeting Q2. A rebound in business travel is most likely to be slow and in waves, based on company travel policies and comfortableness, the amount of COVID-19 cases, vaccine availability, and travel restrictions imposed by states and countries. Regional and domestic business travel will likely return before international travel—a survey by the Global Business Travel Association indicated that companies are twice as likely to have halted international travel compared to domestic travel due to the pandemic as of July 2020. A survey by McKinsey indicated that a vaccine would be the largest catalyst for businesses to start attending meetings, conferences, and events, followed by lower case counts and increased testing availability.

According to a national tracking poll by Longwoods International, nearly half of Americans indicate they

will stay home this holiday season. Of those who plan to travel, 41% plan to travel by car and 19% intend to fly. According to Engagious's Back to Normal Barometer, 34% of travelers would be much more likely to fly domestically if all passengers and employees tested negative for COVID-19 immediately before flying, while 26% of travelers would be much more willing to attend a conference if all attendees tested negative.

Domestic air and hotel bookings for future travel was down 62% year-over-year in the week ending October 5. Domestic bookings were down the most in New York (-81%), Massachusetts (-74%), and Maryland (-73%), according to ADARA's Travel Trends Tracker. International bookings for future travel to the U.S. were down 77% year-over-year.

According to the International Air Transport Association's (IATA) July 2020 Airline Business Confidence Index, the aviation industry experienced its sharpest quarterly fall in demand and profits since the Global Financial Crisis. Airfares are expected to decrease in the year ahead to stimulate demand, and further job cuts in the industry are expected. Airline leadership expect a deterioration or no improvement in profits over the year ahead due to the slow lifting of border restrictions and a still muted restoration of passenger confidence in travel.

Passenger traffic in August 2020 year-to-date was down 53.7% at Denver International Airport (DEN) and down 58% at the Colorado Springs Airport (COS). In 2019, Colorado Springs saw just under 1.7 million passengers pass through the airport, a 3% decline over 2018. Colorado Springs passenger traffic is less than 3% of the DEN volume.

Colorado has a total of 14 commercial service airports; 13 of those had scheduled passenger service in 2019 and early 2020. The only airport without scheduled commercial flights was Northern Colorado Regional Airport (FNL). Three of Colorado's airports fall under the

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Trade, Transportation, and Utilities

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federally subsidized Essential Air Service (EAS) program: Alamosa (ALS), Cortez (CEZ), and Pueblo (PUB).

While passenger traffic is down substantially across all of Colorado's 14 airports, passenger growth was observed in 2019 year-over-year. Southern airports, Alamosa (ALS) and Pueblo (PUB), both saw seat capacity increases in 2019 compared to 2018. Alamosa increased by 7%, while Pueblo increased by 17%. Mountain airports—Aspen (ASE), Vail/Eagle (EGE), Steamboat Springs/Hayden (HDN) and Telluride (TEX)—experienced a combined increase in 2019 capacity of 7.8%. However, Telluride experienced almost three times the capacity growth in 2019 compared to 2018 because of additional service on Denver Air Connection to DEN, joining Boutique Air's existing service. Vail/Eagle Airport announced a new route on American to Philadelphia (PHL) that started in December 2019 and ran through winter 2020. Western Slope airports—Cortez (CEZ), Durango (DRO), Grand Junction (GJT), Gunnison (GUC), and Montrose (MTJ)—experienced a combined capacity growth of 10% compared to 2018.

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.

DEN served 69 million passengers in 2019, ranking the fifth-busiest airport in North America and the 16th-busiest in the world. This was the highest number of annual passengers in DEN's history. Passenger traffic increased by 7% in 2019 compared to 2018, primarily driven by growth in international traffic and DEN's largest carriers: United, Southwest, and Frontier. On February 28, 2020, DEN celebrated 25 years of operation; the airport opened on this date in 1995.

The COVID-19 pandemic in 2020 has caused massive negative impacts to the air travel industry. For the year-to-date period ending September 2020, DEN's passenger traffic has declined 53% compared to the same period in 2019. Airline passenger traffic at DEN is expected to

remain at this greatly decreased pace through the end of 2020 and well into 2021. Twenty-one airlines have provided nonstop service so far this year to 210 destinations from DEN, although many international carriers and destinations have temporarily paused their DEN nonstop service due to COVID-19.

Through YTD September 2020, United continues to be DEN's largest carrier, accounting for 41% of DEN's passengers. The carrier has provided nonstop service to more than 170 destinations from Denver this year. In 2019, DEN ranked as the fourth-largest hub by scheduled seat capacity in United's network, behind Chicago, Houston, and Newark. In this COVID-19 era, DEN has been the second-largest hub for United, providing a strong network of domestic connections and local travelers for the carrier. Denver's local market strength and competitive advantage as a central point for transcontinental connecting passengers has greatly helped United weather this pandemic. United has managed to continue adding new destinations to DEN this year with service to four domestic destinations previously unserved from Denver: Cheyenne, Wyoming; Rochester, Minnesota; Salina, Kansas; and Sioux City, Iowa. Internationally, United started brand-new seasonal service to Nassau, Bahamas, in early March and announced new service to San Jose, Costa Rica, currently unserved from DEN, and Belize City, Belize, starting in December of this year.

Southwest Airlines ranks as Denver's second-largest carrier, accounting for 31% of DEN's passengers so far this year. In 2019, DEN ranked as the second-largest station in Southwest's network, however in 2020, DEN's easy accessibility to the spacious mountain-west region, along with DEN's optimal geographic location for connections, has propelled DEN to now rank as the largest station for the carrier. Southwest has added eight new destinations in Denver this year which has helped to increase competition on these routes: Birmingham, Alabama; Charlotte, North Carolina; Des Moines, Iowa; Little Rock, Arkansas; Montrose, Colorado; Palm Springs, California; Steamboat Springs, Colorado; and Wichita, Kansas.

Additionally, the carrier has announced that in 2021 they will start service to Colorado Springs, Colorado, and expand their Chicago flight offerings for DEN beyond just Chicago-Midway Airport and into Chicago-O'Hare Airport. DEN will be connected nonstop with both Colorado Springs and Chicago-O'Hare on Southwest.

Frontier Airlines ranks as DEN's third-largest carrier, accounting for 14% of DEN's passengers. DEN continues to rank as Frontier's largest hub in terms of seat capacity and destination count. The carrier served 86 destinations in 2020, the second-most destinations of any DEN carrier after United. This year Frontier added nonstop service to Newark, New Jersey, to their DEN network.

Through September 2020, international passenger traffic at DEN decreased nearly 70% compared to the same period in 2019. For a period of 75 days, from April 2 through June 15, 2020, DEN did not have any international flight activity. Nonstop international flights from Denver resumed on June 16 to Guadalajara, Mexico, and DEN's nonstop international network continues to slowly rebuild. Sustained demand for travel to destinations in Mexico has led to the resumption of flights from Denver to Mexico City, Cancun, Chihuahua, Cozumel, Los Cabos, and Puerto Vallarta. Flights to the Canadian cities of Calgary and Vancouver have also returned, and leisure destinations such as Liberia and San Jose, Costa Rica; Belize City, Belize; and Nassau, Bahamas are scheduled to operate this winter. Nonstop service between Denver and Europe was suspended on March 16 and returned on October 25 with flights to Munich, Germany on Lufthansa; United resumed flights between Denver and Frankfurt, Germany on November 2. Overall, international air service has been and will continue to be more severely impacted than domestic air service due to international border closures, quarantine requirements, and government-mandated travel bans.

Daily throughput at TSA security checkpoints at airports across the U.S. has proven to be a real-time indicator of air travel demand during the COVID-19 pandemic. In the peak summer travel period of July and August 2020,

DEN was the busiest U.S. airport for volume through the TSA checkpoints; for the same period in 2019, Denver ranked fourth behind busier airports such as Los Angeles (LAX), Atlanta (ATL), and Chicago-O'Hare (ORD). The primary reason for Denver's top ranking is due to domestic travel. Domestic travel is leading the recovery of air travel, and prior to the COVID-19 pandemic, 95% of passengers at DEN were traveling domestically. Larger airports mentioned previously have a much higher reliance on international travel, and it is expected international passenger volumes will return more slowly than Denver. In addition, the type of domestic travel that is returning is for the purpose of leisure activities and visiting friends and relatives (VFR); business travel remains severely depressed. Prior to the COVID-19 pandemic, DEN's traveler profile was more heavily weighted to leisure/VFR (65%-70% of travelers) than to business (30%-35% of travelers). Denver was a top destination for leisure travelers this summer due to the region's access to outdoor spaces such as national parks that allowed for socially distant experiences and safe recreational activities. DEN's strong TSA ranking continued into September and October when the airport ranked second only to LAX. Pre-COVID, LAX ranked as the number one airport in the U.S. for domestic travel demand, and Denver ranked second.

Denver's \$1.5 billion gate expansion plan, which will bring 39 new aircraft gates to all three of the airport's concourses, remains on schedule for completion by the end of 2021. In addition, the airport is making sure that Jeppesen Terminal is ready for the future return of record-setting passenger volume via the restarted Great Hall project. DEN transitioned to a new contractor for the project in early 2020 and construction has since resumed. Once completed, the overall passenger experience in Jeppesen Terminal will greatly improve for the future traveling public.

Utilities

Colorado natural gas rates fell with lower wholesale prices in 2020. Despite favorable weather and low prices,

slumping economic growth dropped natural gas consumption compared to 2019.

Electricity rates fell slightly in 2020 with lower fuel costs. Working at home during the pandemic pushed up residential electricity sales substantially, while non-residential sales crashed with business closures. The net result being a reduction in total electricity sales.

The Colorado Energy Office issued its 2020 electric vehicle plan outlining the electrification of medium and heavy-duty vehicles as part of the state's goal of having 940,000 electric vehicles on the road by 2030. Xcel Energy filed a multiyear Transportation Electrification Plan with the Colorado Public Utilities Commission (PUC) to launch 20 new programs such as home, multi-family, commercial fleet, school bus, and community-based charging and rebate programs to help meet the goal.

The 500-megawatt Cheyenne Ridge wind farm was completed in 2020. Xcel Energy teamed up with Mortenson

and Vestas for the project that will provide enough energy to power about 270,000 homes. Cheyenne Ridge will bring customers additional carbon-free energy and move Xcel Energy closer to delivering on its goal to reduce carbon emissions 80% by 2030.

Colorado natural gas consumption fell by 4.6% in 2020, to an estimated 496 billion cubic feet. Electricity consumption also moved down by 0.9% in 2020, to an estimated 56,024 million kWh. Utilities employment was flat in 2020 and is expected to continue to decline in 2021 due to retirements from an older-than-average workforce. ❖

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COLORADO ELECTRIC POWER AND NATURAL GAS CONSUMPTION 2011-2021 (In Millions of Kilowatt Hours) (In Billions of Cubic Feet)

Year	Nonresidential	Residential	Total	Percentage Change	Total Gas Consumption	Percentage Change
2011	35,181	18,277	53,458	1.0%	466.7	-6.9%
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	438.7	-0.5
2018	37,163	19,287	56,450	3.0	492.1	12.2
2019	37,116	19,405	56,521	0.1	520.1	5.7
2020 ^a	35,585	20,439	56,024	-0.9	496.0	-4.6
2021 ^b	35,615	19,957	55,572	-1.7	496.4	0.1

^aEstimated. ^bForecast.

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

Information

Companies in the Information industry are responsible for the creation, distribution, and transmission of information. In 2019, Information industry employment added 800 jobs. While the industry performed relatively well at the beginning of the pandemic, the impact on sub-sectors (e.g., movie theaters) will lead to industry employment losses. Despite a relatively strong tech economy, the industry lost an estimated 1,500 jobs in 2020 and is projected to shed another 1,100 (1.5%) in 2021.

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. The types of products produced by the publishing industry has diversified to include an increasing amount of electronic and internet-based products, such as audio, downloadable files, digital books, and mobile device applications. The sector is expected to post modest employment losses in 2020 and 2021.

Newspaper Publishing

After years of job cuts in newsrooms across the state, the Newspaper Publishing sector has suffered a similar fate over the last year. The current public health and economic crises, coupled with the pressures facing the industry over the last several years, remain a threat to employment. Last year the trade war squeezed print publications with a tariff on newsprint imports from Canada, resulting in a further shift away from print to digital journalism. The COVID-19 pandemic cut into newspaper advertising revenue this year, which dropped by 42% between the second quarter of 2019 and the second quarter of 2020 at six large publicly traded newspapers, according to the Pew Research Center. Over the same period, circulation revenue dropped by 8% for the same group, as consumers favored cable TV news during the

pandemic. Alternative news weeklies, such as Denver's *Westword* or *Boulder Weekly*, lack an audience, since their distribution is largely based on in-person pick-up sites like restaurants and bars and rely on entertainment ad revenue. A lot of their content went online temporarily, and staff had to take 25% pay cuts; however, this may signal a future shift for these subscription-free papers.

In Colorado, several large newspapers received federal assistance under the CARES Act in the form of pay-check protection loans, which helped mitigate job losses in the industry this year. Additionally, new news sites came online in the state this year. Clarity Media, owner of *The Gazette* in Colorado Springs and *ColoradoPolitics*, launched a new periodical in Denver, *The Denver Gazette*, an online-only publication. Another online platform, *Colorado Newsline*, launched over the summer as a nonprofit news organization covering politics and policy issues with a small team. New publications are welcome news in the industry, since the total number of news publications decreased by 16% between 2004 and 2019, according to *The Expanding News Desert* project at the University of North Carolina.

In 2019, the newspaper publishing industry in Colorado employed 2,325, down from 2,535 in 2018, an 8.3% decline. From 2009 through 2018, the industry lost 48.6% of its jobs, never recovering from the Great Recession as many other industries did. The average annual salary in newspaper publishing during 2019 was \$49,920, 13.4% lower than the mean annual salary of \$57,690 in the state. The pressures of falling ad revenue, the current health and economic crisis, and the structural shift newspaper journalism is undergoing will cause further job losses both nationally and statewide through 2020 and 2021.

Book Publishing

Employment in the book publishing industry over the last two years has reversed the trend of the past decade when online book retailers gained significant prominence. Between the first quarter of 2019 and the first quarter of

INDUSTRY SNAPSHOT INFORMATION

Nominal GDP, 2019 (\$ Billions)	22.8
Real GDP, 2019 (\$ Billions, 2012 Dollars)	25.3
2019 Real GDP Growth Rate	10.8%
Total Employment, 2019 (Thousands)	76
2019 Employment Growth Rate	1.1%
Employment Growth National Rank	11
Share of Colorado Employment	2.7%
Share of National Employment	1.9%
Average Wage, 2019	109,380
Percent of Statewide Average Wage	175.4%
2019 Average Wage Growth Rate	8.6%

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

2020, employment in the industry grew by almost 5% before the pandemic hit. According to the Association of American Publishers, sales faltered, down 1.8% nationally year-to-date through September 2020 compared to the same period last year; however, the month of September grew 14.6% over September 2019 on a large uptick in adult, profession, and children's book sales.

As the COVID-19 pandemic upended traditional education models, the sale of educational materials, which comprised almost 50% of total publisher sales in 2019, declined this year. Between both K-12 and higher education materials, sales dropped in the category by 11.7%. Sales by religious presses, which represent about a quarter of publishing jobs in Colorado, have remained flat this year. Professional book sales revenues, the sector with the largest job gains in Colorado over the last year, are up 1.4% through September 2020 over the same period the prior year, according to the American Association of Publishers.

The book publishing industry in Colorado is quite small, with 692 employees in 2019, down 4.8% from 2018.

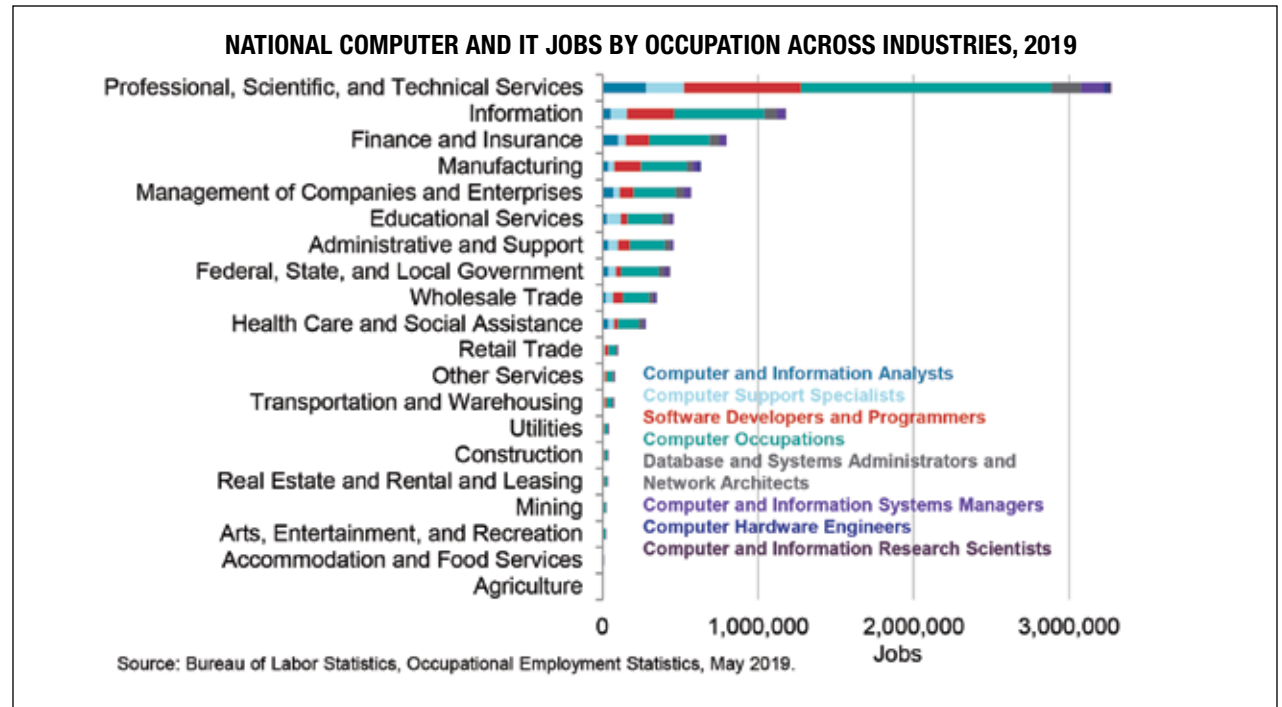
The largest employers are concentrated in Boulder and Colorado Springs in niche publishing sectors. Annual salaries for the industry have remained essentially flat the last few years, hovering around \$73,000 in 2018 and 2019. The number of establishments dropped to 85 in 2019, falling by 4.5% over 2018. Both employment and the number of establishments ticked up during the first three months of 2020 and are expected to end the year up about 50 jobs and remain relatively flat into 2021.

Directory Publishing

The directory publishing industry includes companies that publish not only directories, but also mailing lists and any 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. With only 24 establishments in Colorado, the directory publishing industry employed 959 people during 2019, a 13% decline over 2018 employment levels. The first quarter of 2020 saw deeper declines, with just 804 people employed—an additional 16% decline over the 2019 average. Both the number of establishments and employment have slowly declined annually for the past decade, and that trend is expected to continue in 2021 due to both the high concentration of large companies in the industry and lower spending on advertising. Directory publishing employees garnered the highest wages in the publishing sector, with average annual pay in the state at \$124,020 during 2019.

Software Publishing

Colorado continued to record gains in software publishing in 2019, marking five consecutive years of growth. Fueled by organic, homegrown growth, as well as through acquisitions and company relocations, the sector expanded by 4.2% in 2019, to 15,400 jobs. Colorado has the ninth largest software publishing workforce in the nation. Growth has continued in 2020, averaging 2.8%



year-over-year through September. The sector is poised to grow further in 2021.

In 2019, there were 754 software publishing companies, an addition of 70 establishments year-over-year, or an increase of 10.2%. Average industry wages in Colorado are more than twice the state average (\$152,284).

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

Software publishers in Colorado range in size from small startups to major corporations, with offices in the state, such as Cisco Systems, Google, Hitachi, IBM, and Oracle. Colorado has a high concentration of employment in the software industry (twice the national average). According to the CompTIA *Cyberstates 2020* report, Colorado ranks fifth in tech innovation, ninth in net new tech jobs, third in projected percent change in tech employment growth from 2018-2028, and 15th overall in tech employment.

Telecommunications

Employment in the Telecom Sector declined by 359 (-1.3%) in 2019, after adding over 1,000 jobs in 2018. Approximately 26,700 people worked in the Telecom

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Sector in 2019 across 677 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, over 70% of all telecom jobs are in the Denver MSA. The majority of the job loss in the sector came from the Denver MSA (-530 jobs), while the Boulder MSA observed a gain of 153 jobs.

Broadcasting and telecommunications are combined for GDP reporting; this combined sector expanded 5.8% in 2019, after observing a 27.9% increase in 2018. The sector contracted 1.7% in 2014, 4.7% in 2015, 6.9% in 2016, and 8.5% in 2017. In 2019, GDP in the telecom and broadcasting sector accounted for just 3.2% of the state total, up from 2.6% of the 2017 statewide GDP.

INFORMATION EMPLOYMENT 2011–2021 (In Thousands)

Year	Publishing	Telecom	Other	Total
2011	22.5	28.0	20.9	71.4
2012	21.6	27.2	21.0	69.8
2013	20.6	27.4	21.9	69.9
2014	20.2	27.5	22.6	70.3
2015	20.2	27.0	23.5	70.7
2016	20.2	27.4	24.3	71.9
2017	20.6	26.1	25.2	71.9
2018	21.1	27.1	27.0	75.2
2019 ^a	21.3	26.6	28.1	76.0
2020 ^b	21.0	26.2	27.3	74.5
2021 ^c	20.8	25.8	26.8	73.4

^aRevised. ^bEstimated. ^cForecast.

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

Mergers and acquisitions have been commonplace in this industry over the past handful of years, including Charter Communications acquiring Time Warner Cable in 2016, CenturyLink buying Broomfield-based Level 3 Communications in 2017, and Zayo Group going private in 2020. Additionally, with T-Mobile's merger with Sprint in 2018, DISH Network, based in Englewood, was granted the right to purchase wireless spectrum and two mobile phone businesses from T-Mobile in an agreement with the Department of Justice to become the fourth nationwide wireless mobile operator. Colorado stands to gain 2,000 jobs from this deal to help roll out and support the new wireless company.

Employment in the Telecom Sector has been on the decline since a high of 46,800 in 2001 and has observed a 5-year CAGR of -0.5% and a 10-year CAGR of -1.7% (2019). 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 three of decline.

The Telecom sector has been affected by the pandemic-induced recession, much like other sectors, with employment in September year-to-date down 3% compared to the same period in 2019. The sector has shed 1,000 jobs since the beginning of the year, and has yet to observe a bounce back, with employment still trending downward. Monthly Telecom employment has returned to levels not seen since 2017 and could possibly end the year with the lowest employment level since 1993.

The Wired and Wireless Telecommunications subsector, created in 2017 when wired and wireless carriers were collapsed into the same component sector, accounted for nearly all of the telecom job losses, with employment

falling 471 in 2019. The Bureau of Labor Statistics suppressed the number of jobs in Satellite Telecommunications and Other Telecommunications in 2018, but there appears to be a large gain in Satellite Telecommunications employment in 2019.

Impact of COVID-19

The Telecom Sector has been impacted by the COVID-19 pandemic in different ways. With the switch to remote working for a large number of occupations, demand for networking infrastructure and connectivity has, and will continue to, increase. Business travel has come to a standstill and meetings are now done online, inducing a sharp increase in mobile communications and other telecommunications. Video conferencing platforms have seen their usage soar, with the leading platform, Zoom, reporting a 458% increase in customers in Q2 2020 over Q2 2019 and over 300 million meeting participants each day, up from just 10 million in December. The skyrocketing demand for network connectivity due to the pandemic has challenged the existing infrastructure and network. Due to increased data traffic, download speeds have dropped since the current networks aren't prepared for this high demand.

According to the BLS, in the fall of 2020, 22.7% of U.S. workers teleworked or worked from home because of the pandemic, down from 35% in May. Home broadband traffic is up 20% to 40% compared to pre-pandemic levels, according to the Information Technology and Innovation Foundation, and U.S. downstream cable internet traffic is up 15.1%. AT&T reported core network traffic was up 20%, mobile voice minutes were up 40%, and peak text rate was up 53% in September compared to pre-pandemic levels. This increase in demand for network and infrastructure could lead to increased hiring from companies within the sector; however, the uncertainty as to how long the pandemic will last could cause companies to be hesitant in hiring to meet the demand too quickly.

Broadband

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

Around 90% of Coloradans have access to broadband at speeds of 100mbps or faster, ranking the state 25th in broadband access, according to BroadbandNow. However, 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 87.1% of rural Colorado had broadband access in June 2020, short of the state's 92% goal. This divide in broadband access between rural and urban communities has even more implications during the pandemic, as remote schooling and work are more difficult. Rural areas of the state have historically been underserved as mountainous and rugged terrain poses challenges to infrastructure projects, which are reliant on large population bases to offset the high initial investment costs. State legislation, namely Senate Bill (SB) 05-152, which intended to proscribe unfair competition between publicly and privately provided broadband, initially presented barriers to broadband efforts in many rural parts of the state.

Over the past decade, about 40% of municipalities and two-thirds of counties have voted to opt out of the restrictions in SB 05-152 that prohibit communities from running their own internet service. According to the Institute for Local Self-Reliance, 142 cities and counties have voted to override the provisions in SB 05-152. Collaborating with a private provider to roll out municipal broadband can be a costly venture, especially in areas with smaller or widely dispersed populations. Larger towns like Longmont, Loveland, and Centennial have implemented plans to roll out their fiber networks. Fort Collins opted out in 2015, issued \$142 million in bonds for broadband buildout, and launched the Fort Collins

Connexion service to its first customers in late 2019. The town will have at least 800 miles of fiber when the network is completed, but construction and installations has been slower than originally planned, with about 113 miles of fiber installed as of March 2020. Smaller communities have been slower to engineer and deploy broadband utilities infrastructure. 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.

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. Many small, rural local telephone companies in Colorado stand to benefit from the final phase of the Federal Communications Commission's (FCC) Connect America Fund designed to subsidize voice and broadband networks in high-cost rural areas over a 10-year period. The Governor's Office of Information Technology developed a broadband map that focuses on broadband infrastructure throughout the state and is updated twice per year.

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 tele-medicine and remote health care monitoring that have the promise to reduce health care costs while improving outcomes. The United States Department of Agriculture (USDA) recently announced in October of this year the investment of \$6.3 million in high-speed broadband in rural Colorado. 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 funding will be used by Emery Telecommunications & Video Inc. to deploy fiber and connect 1,638 people, 91 farms, 52 businesses, three fire stations, and two post offices to high-speed broadband internet in Dolores, San Miguel, and Montezuma counties. Additionally, Yampa Valley Electric Association received a \$6 million grant award to expand northwestern Colorado's rural broadband access to an additional 264 homes, farms, and businesses in Routt, Moffat, and Eagle counties. This funding supports Governor Polis' Rural Economic Blueprint, which seeks to modernize Colorado's broadband infrastructure to expand internet access across the state.

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 over 59% of U.S. households had only cellphone service in 2019, marking the third consecutive year the share without a landline has grown by more than two percentage points. According to this study, less than 40% of all households still had a landline (and about 3% have no phone service at all). Improvements in VoIP services have allowed internet and cable TV providers to compete

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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. A report from Leitchman Research revealed that cable, satellite, and telecom pay TV providers lost about 1.57 million subscribers in Q2 2020 compared to a loss of about 1.33 million in Q2 2019 and 420,000 in Q2 2018. This marked the sixth consecutive quarter with pay TV loss of over one million. As internet speeds have become faster and more affordable in many markets, customers have been “cord-cutting” and leaving traditional cable and satellite services. Even internet-delivered TV services, like Sling TV, HULU, and DIRECTV NOW, saw a drop of 25,000 subscribers in Q2 2020. Leitchman reported that 80% 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 55% 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 AppleTV 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 1.24 million broadband internet subscribers in Q2 2020, up from 370,000 in Q2

2019. There are now 103.3 million broadband subscribers—an increase of 3.3% year-over-year; cable companies provided broadband service to 70.6 million while telephone companies provided service to 32.7 million. The pandemic has 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.

Wireless

Advances in wireless communications have enabled 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 on the horizon, telecoms are fighting to expand their spectrum to meet the demands of bandwidth-intensive consumers. According to the FCC, the number of connected devices exceeds 421.7 million, or 1.3 devices, for every resident in the United States. The wireless industry supports over 4.7 million jobs and contributes \$475 billion annually to the U.S. economy, according to CTIA. According to Pew Research Center, 96% of Americans own a cell phone and 81% own smartphones (up from just 35% reported in the first smartphone ownership study in 2011). Approximately 285 million people in the U.S. are projected to own smartphones by 2023. Additionally, tablet computers are owned by 52% of Americans (up from just 3% in 2010), but this share has plateaued over the past three years perhaps due to the increased size of many smartphones. The uptick in ownership of these data-hungry devices and the increasing prevalence of smart-home Wi-Fi connected devices like thermostats, doorbells, and appliances has resulted in increased demand for spectrum, especially high-band. The amount of wireless data used reportedly almost doubles each year. The FCC auctioned 5G spectrum in the 28GHz and 24GHz band in 2019, releasing a total of nearly 5 gigahertz of 5G spectrum into the market—more than all other flexible bands combined.

In October 2018, the FCC unanimously voted to open additional spectrum to connected devices and proposed opening up to 120 megahertz of spectrum available on the 6GHz band, an unlicensed spectrum used by Wi-Fi networks. This additional spectrum will help to ease congestion on wireless networks and help to accommodate the expected 300% increase in U.S. internet traffic between 2016 and 2021. Additionally, the FCC changed how it auctioned licenses in the 3.5 GHz band—a spectrum that is key to the deployment of 5G networks—and now issues licenses at the county level rather than the smaller census tracts.

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. For example, T-Mobile has announced it will bring 5G service for 93% of the Colorado population within six years. Mobile phone users will be required to upgrade their phones to fully take advantage of the new 5G networks, which could limit their adoption.

Film, Television, and Media

The 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

**COLORADO FILM INCENTIVES PROGRAM
2013-2020**

Number of Completed Projects	80
Incentives Paid	\$18.1M
Total Cast and Crew Positions Created	4,079
Economic Impact	
Total Production Spend	\$121.9M
Estimated Tax Revenue	\$14.6M
Net Cost to State	\$3.5M
Estimated ROI	35:1

Sources: Colorado Office of Film Television & Media.

produced in Colorado. Since the incentive's inception, the increase in inquiries and applications has been palpable; over \$19 million in incentives has been paid or conditionally approved to productions as of September 30, 2020. The Colorado Office of Film, Television & Media estimates that approved productions have (and will) generate over \$230 million in economic impact to 55 counties in Colorado and create over 9,600 cast and crew positions.

A multiplier effect was used based on the reported actual and predicted expenditures of \$128 million in production spend and 4,392 cast and crew hires from the start of the program in FY2013 through FY2021. 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. Using the multiplier, the actual economic activity is predicted to be \$230 million since the inception of the program.

The table below demonstrates the Return on Investment (ROI) on all completed projects through the end of FY20.

After completing an internal review process within COFTM, each project is presented to the Economic Development Commission. This group, made up of Colorado business leaders, must vote to approve each project before a purchase order or contract is initiated. 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 eight 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 12 projects produced locally 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 five separate incentives for adventure games, including *Life is Strange* and "Project Medusa" produced by Deck Nine in Westminster and "Project Blue Tree" currently being produced in Boulder by Serenity Forge. In 2020, the video game industry is advantageously poised to see exponential growth due to both the COVID-19 pandemic and the natural evolution and integration

**COLORADO FILM INCENTIVE PROGRAM 2013-2020
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.

of gaming technology into more facets of society. The effects of the current 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, and gaming work—unlike most non-animated film and television productions—can be achieved 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.

Apart from the current health crisis, the gaming industry continues to grow. According to a May 2020 report by Reuters, gaming revenue is expected to top \$159 billion in 2020 and over \$200 billion 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, and health care, as gaming provides another avenue to test procedures and simulate experiences. The industry

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COMPETING WESTERN STATES OFFERING FILM INCENTIVES

State	Incentive	Allocated Funds FY 2020 (Millions)
California	20-25% tax credit	\$330.00
New Mexico ^a	25% film / 30% TV tax	\$130.00
Montana	20-35% tax credit	\$10.00
Utah	25% tax credit	\$8.29
Oklahoma	35-37% rebate	\$8.00
Colorado	Up to 20% rebate	\$0.25

Source: Colorado Office of Film Television & Media.

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

expects to rapidly grow further into these spaces in the coming years.

Colorado Film and Television Industry in Decline

COFTM has started tracking non-incentivized production across the state as well. Due to Colorado’s strong crew-base reputation, commercial production—which traditionally skips the incentive application process due to tight client deadlines—has become a large part of the state’s film market. 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. During FY 2019-20, Colorado remained a key location for the commercial industry including content for Skull Candy (Denver), Harley-Davidson (Leadville), and 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 (“Despues que ta Perdi” filmed in Park County), Dan + Shay (“Tequila” filmed in Frisco), and Brooks Forsyth (“Cast My Dreams to the Wind” filmed in Victor).



Winter street scene was taken by Zachary Andrews for “Rook,” a feature filmed in Victor, CO and released in 2020.

Unfortunately, growth of Colorado’s infrastructure is at a standstill. Rental houses 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. Ken Seagren, the owner of Colorado’s largest rental house, Lighting Services, Inc. reports a 95% decline in local rentals. Additionally, Colorado’s largest soundstage, 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 crews. 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. In fact, 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.

Since the inception of the 20% performance-based rebate, 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 funding. For FY2021, COFTM was allocated \$250,000, a significant drop from the previous year's \$750,000. The COFTM allocation has continued to shrink since FY2017 when the office was allocated \$3M. As a result of lower funding allocations, COFTM has made an effort to support Coloradans who live and work within the state by only awarding incentive dollars to in-state applicants since FY2018. Fewer funds have resulted in fewer incentivized productions and a lower impact on both the state's workforce and economy.

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 decline 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 \$1.25M "band-aid" from Strategic Funds that the Economic Development Commission (EDC) (more information below) 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 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.

Throughout the early months of the pandemic, industry leaders began assembling health and safety guidelines through coalitions, unions, guilds, and governments to pave a 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 online. However, the pandemic has left an insurance vacuum that precludes most small- and mid-sized productions (which account for 94% of production in the U.S.) from starting work again. As of October 2020, countries like Canada, France, and the UK have implemented compensatory programs to aid productions unable to acquire production insurance without a COVID-19 exclusion, but until the U.S. gets behind a similar initiative (such as the implementation of Terrorism Insurance following the September 11, 2001 attacks), most production in the U.S. will not be able to resume.

Due to various logistical concerns stemming from the pandemic, many incentivized Colorado productions have had to hit pause. However, some micro-budget projects have been able to move forward, and the paused productions that were slated to begin filming in Spring 2020 are pivoting to new production schedules set to begin in Spring and Summer 2021 (which accounts for the high number of FY20 incentivized projects that are labeled as "still in production").

The Future of the Colorado Film Industry

Limited funds for Colorado's incentive program puts 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 move their films to neighboring states that offer similar scenery and larger funding opportunities. During the 2019 legislative session, New Mexico lawmakers voted to increase the state's annual allocation from \$50 million to \$110 million; an additional \$20 million was provided for FY21. Also worth noting is a new investment in Montana's film incentive program. Lawmakers there increased the film incentive allocation from \$750,000 (the same amount Colorado has been allocated the previous three fiscal years) to \$10 million. Georgia, which offers an incentive of up to 30%, with no cap on annual incentive funds, is not included below.

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

Technology and Innovations Amid COVID-19

While all industries have been affected by the COVID-19 pandemic, the Colorado technology sector has seen a lighter impact compared to some. In the early months of the pandemic, many technology companies in the state halted hiring or expansion, and most were planning for the unknown. However, after those first months of the pandemic, many Colorado technology companies have returned to hiring and other activities initially placed on hold. They have also seen this as an opportunity to invest in innovation and new products to respond to the ongoing pandemic. In August, Colorado was ranked second in the country for technology job growth by CompTIA, and analysis of data from Burning Glass Technologies Labor Insights shows the state had increased its technology job postings significantly from those previous months.

Technology has led the way for innovative responses to the pandemic, from allowing millions to effectively work remotely to new tools to protect Coloradans from infection.

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Remote Work

Innovation within the Colorado technology sector during the COVID-19 pandemic is perhaps most evident when looking at the move to remote work. The technology sector had a head start on other industries when it came to remote work with many companies already implementing such policies, thus many jobs within the sector adapted easily to the shift—with exceptions, of course. Tools such as videoconferencing and communication tools, cloud storage, and collaboration technologies are aiding employees who are working from home.

While other industries may not keep some of the current remote working practices post-pandemic, technology companies seem ready to embrace them moving forward. Many large companies are already making the possibility of remote work a permanent option for

employees. A survey of state technology leaders conducted by the Colorado Technology Association early in the pandemic found that only 9% of the companies surveyed expected employees to return to work operating at the same pre-COVID-19 levels, while 76% believed work-from-home would become more common.

With remote work being embraced across the country and internationally, Colorado has seen an influx of technology workers moving to the state who no longer have the worry of needing to be physically present for work. The state has also been attracting technology companies interested in moving to, or creating a presence in, Colorado, such as Palantir moving its headquarters to Denver from Silicon Valley. Working remotely has worked well for many, but the need to do so has also elevated already

high-priority issues—the need for access to reliable, high-speed broadband and cybersecurity risks.

COVID-19 Technology

Colorado is also utilizing technology to help slow the spread of COVID-19. In October, the State of Colorado released Exposure Notification, a mobile service developed in partnership with Google and Apple that can notify users of possible exposure to COVID-19. This free and voluntary service can directly reduce the spread of COVID-19 through more awareness and timely notifications of potential exposure. We've also seen private companies release contact tracing apps, such as PricewaterhouseCoopers that aimed to help its employees safely return to work during the pandemic with the release of their technology in June. In addition, IT serves as the backbone to support the uptick in services such as Unemployment Insurance applications and connections to local and state services. ❖

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Financial Activities

The Financial Activities industry consists of two sectors that comprised 6.2% of statewide employment in 2019: (1) Finance and Insurance, and (2) Real Estate and Rental and Leasing. The industry performed relatively well during the pandemic, losing just 3.7% of industry employment in April and May. Year-over-year gains were recorded in Financial and Insurance in October, while losses stacked up in Real Estate, Rental, and Leasing. The Financial Activities industry lost an estimated 3,400 (2%) jobs in 2020, to total 170,500. Growth of 1.5% is projected for 2021, with the addition of 2,500 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

FINANCIAL ACTIVITIES EMPLOYMENT 2011-2021 (In Thousands)

Year	Finance and Insurance	Real Estate and Rental and Leasing	Total
2011	101.4	42.5	143.9
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 ^a	117.8	56.0	173.9
2020 ^b	119.0	51.5	170.5
2021 ^c	120.0	53.0	173.0

^aRevised. ^bEstimated. ^cForecast.

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.

companies that lease anything from real estate to equipment to formal wear.

Finance and Insurance

Capital Markets

Twenty years into the 21st century and one could say the outlook has never been more uncertain. Twelve years ago, the U.S. was in the midst of the Great Financial Crisis (GFC), another period of great uncertainty. We can go back further to the last 20 years of the 20th century, capturing the Black Monday crash of October 19, 1987, and the savings and loan (S&L) crisis of the 1980s and early 1990s, and still, as we sit on the precipice of 2021, we face more uncertainty than the preceding 40 years. While those events were disruptive and distressing, there was more economic maneuvering room at the time of those incidents. It was possible to economically accelerate through the financial distress and the go-to cure of choice was expansionary monetary and fiscal policies.

What makes this period of uncertainty greater than any period over the last 40 years? It is the breadth and depth of uncertain factors coupled with already low interest rates, already low taxes, and slow GDP growth. U.S. monetary policy was still trying to normalize from the herculean measures implemented during the throes of the GFC. Further encumbering the response options is the expansion of the budget deficit at the tail end of a record-long economic expansion post GFC. The growing deficit theoretically limits the budgetary flexibility to stimulate the economy with government spending.

Over the last four years, the U.S. has undergone the largest overhaul of the tax code in 30 years. The argument in favor of this was that the reduced tax burden would energize the economy and offset the budget impact of the tax cuts with increased economic output. The economy did have a surge in anticipation of the Tax Cuts Job Act (TCJA) legislation that was signed into law in December 2017. The country saw GDP rise 2.9% in Q3 2017, 3.9% in Q4, 3.8% in Q1 2018, and Q2 2018 GDP fell

INDUSTRY SNAPSHOT FINANCIAL ACTIVITIES

Nominal GDP, 2019 (\$ Billions)	80.9
Real GDP, 2019 (\$ Billions, 2012 Dollars)	65.6
2019 Real GDP Growth Rate	2.7%
Total Employment, 2019 (Thousands)	173.9
2019 Employment Growth Rate	1.3%
Employment Growth National Rank	21
Share of Colorado Employment	6.2%
Share of National Employment	5.8%
Average Wage, 2019	88,613
Percent of Statewide Average Wage	142.1%
2019 Average Wage Growth Rate	4.7%

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

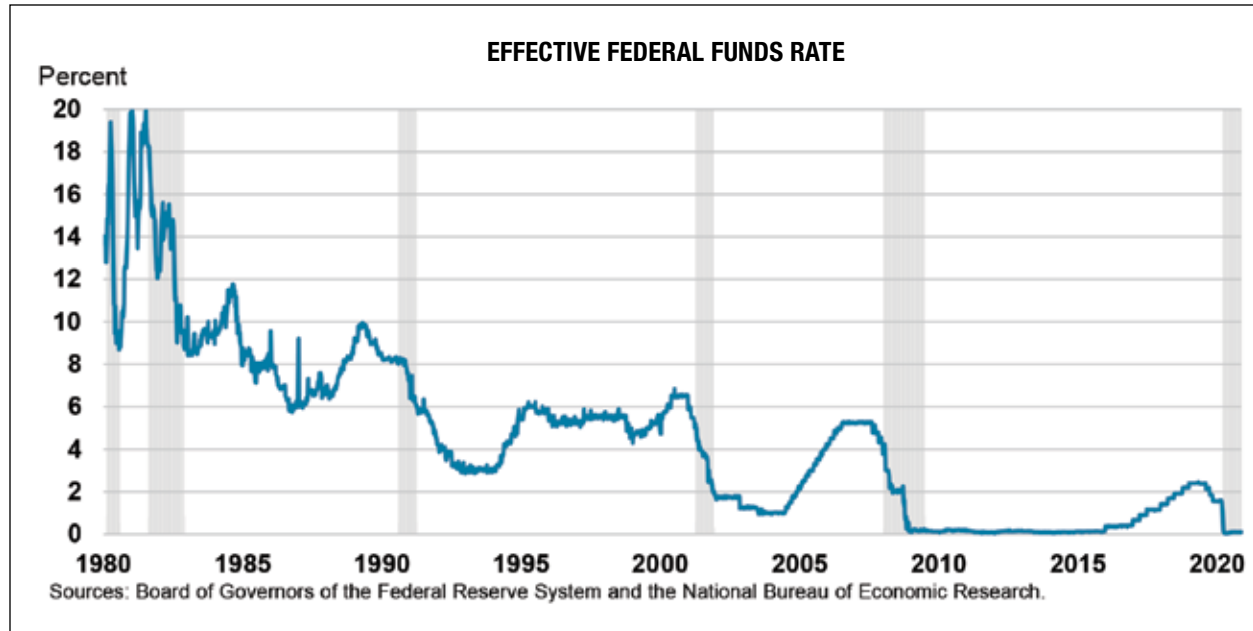
back below 3% to 2.7%, for a four-quarter average of 3.3%. Not too shabby, but the ability to sustain over 3% GDP growth was a subject of great debate. Anything less would result in an expansion of the budget deficit, putting the country's fiscal health in jeopardy. To understand the second- and third-order consequences of the tax cut and how it filtered through the economy would have necessitated at least another year or two absent major economic change to observe the impacts. The timing of the tax cuts also defied conventional wisdom in that a tax cut is often a means of injecting economic adrenaline into the economy to overcome an economic shock. While GDP had been lethargic before the tax reform, averaging around 2%, it was consistently running at a steady, positive rate.

Following the tax cuts, the U.S. entered into a sustained trade war in 2018 with both our allies and China. This makes it all but impossible to decipher the impact of the tax cuts, as the trade war sent shock waves through the economy. Looking at GDP from Q3 2018 through Q4

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Financial Activities

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2019, GDP grew 2.1%, reverting to its long-term average. Where would GDP have fallen to were it not for the tax cuts? How much higher would GDP have been if not for the trade war we started? With GDP running well below 3%, the U.S. budget deficit rose to just under \$1 trillion in 2019, an expansion from \$779 billion in 2018 and \$665 billion in 2017.

U.S. monetary policy closed out 2019 with the Fed Funds rate (an overnight lending rate) at a meager 1.75%, and a budget deficit that had expanded nearly 50% from its 2017 level to \$984 billion. Quarterly GDP for 2019 averaged just barely 2.4%.

That scenario set the stage for a tumultuous 2020 where the economy, both global and domestic, fell victim to a pandemic known as COVID-19. Bear in mind, the trade war was (and is) in effect as we started 2020. Some businesses were trying to shift their supply chains away from the principal target of the trade war, China. Other businesses were trying to ride out the storm with hopes of a return to normal relations or a close semblance.

Then reports surfaced of a mysterious respiratory illness identified in Wuhan, China, now known as COVID-19. As we closed out Q1 2020, the United States was experiencing community transmission as cases began to surge. Countries around the globe began to implement stay-at-home orders as hospitals became deluged with people infected with COVID-19. By the end of March 2020, most states in the U.S. had issued stay-at-home orders.

On March 3, 2020, the Federal Reserve cut the Fed Funds rate by 50 basis points to a 1.25% target rate. Between March 4 and March 11, the S&P 500 declined by 12%. On March 12, the S&P 500 plunged 9.5%, the steepest single-day decline since 1987. Accounting for the record high the S&P 500 had set on February 19, within three weeks, the S&P 500 had declined by approximately 26%. By March 16, in response to a faltering stock market as reports grew of the pandemic's spread and impact, and as developed economies around the globe all but froze, the Federal Reserve went back to zero interest rate policy (ZIRP)—the Fed Funds target would now sit between

0.0 and 0.25%. Q1 2020 GDP was reported at -5.0%, well below the level necessary to offset the tax cuts, sending the budget deficit on a trajectory above \$1 trillion.

On March 27, the Coronavirus Aid, Relief, and Economic Security Act (CARES), a \$2.2 trillion economic stimulus bill, was signed into law. This, in combination with support from the Federal Reserve, reassured the capital markets as an unprecedented amount of stimulus and support was thrown at the economy to tamp down fears. In April, the stock market began to recover and, in the midst of the pandemic with staggering unemployment, on September 2 the S&P 500 closed at a record high of 3,588.11.

At the time of this writing, the outcome of the 2020 presidential election remains unknown. What we do know is that stocks have rallied post-election. The GOP tenuously retains control of the Senate with fewer seats and some that are too close to call; the Democrats retain control of the House. As of the market close on November 4, 2020, the year-to-date figures for the major U.S. indices are as follows:

- o Dow Jones Industrial Average - 2.42%
- o S&P 500 +6.58%
- o NASDAQ +29.18%
- o Russell 2000 - 3.20%

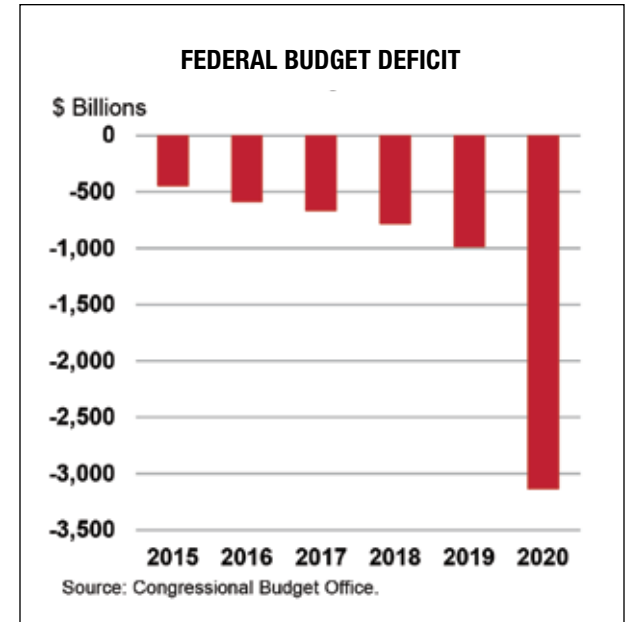
The yield on the 10-year U.S. Treasury at the start of 2020 had been approaching 2%. Facing uncertain economic prospects and ZIRP policy by the Federal Reserve, the yield on the 10-year U.S. Treasury has traded as low as 0.38%. Heading into year-end 2020, the yield sits at approximately 0.75%. The Federal Reserve has indicated its intention to keep the Federal Funds rate near zero until 2023 to support the U.S. economic recovery. The Fed has also changed their inflation policy and will no longer be targeting a fixed goal of 2% inflation but instead will target an “average” of 2% inflation. This means that the Fed will retain accommodative monetary policy longer, with reported inflation above 2% before attempting to throttle back. While we do not know what

Q4 2020 GDP is yet, the trailing four quarter average (Q4 2019 through Q3 2020) is -0.9%. During 2020, the pandemic pushed the unemployment rate to a record high of 14.7% with more than 23 million Americans out of work. Due to the cost of emergency stimulus as 2020 closes out, the budget deficit is estimated to be running on the high side of \$3 trillion. U.S. debt is expected to exceed the size of the economy in 2021, the first time since World War II.

Looking ahead to 2021, there are causes for capital markets optimism, heavily tempered with unprecedented uncertainty and the attendant risk. To begin, we will be entering 2021 with a lower cost of capital, courtesy of the ZIRP of the Federal Reserve. While there are negatives regarding the long-term impact of Zero Interest Rate Policy, in the short term, cost of capital will not be a significant hurdle when it comes to reviving our stalling economy.

The U.S. is also fortunate to have an economy that rewards innovation and adaptability. This is amplified by the near 60% of the U.S. labor force that are knowledge workers. The majority of the knowledge workforce has demonstrated their ability to adapt to the work-from-home model necessary to reduce pandemic spread. This puts a floor on economic output and helps drive demand to less pandemic-friendly businesses—providing ample incentive to encourage the innovation to overcome the challenges of a pandemic, effectively “inoculating” the economy from significant disease related disruption. Post 9/11, many thought air travel might never recover. Instead, it adapted to a new environment and went on to thrive. While business may never quite look the way it did pre-pandemic, it will continue to adapt and prosper.

Perhaps the key economic weakness entering 2021 has been Congress’ inability to pass a second round of stimulus to address the effects of surging COVID-19 cases, and it will be our first experience with the disease for the full cold and flu season. There is also the lack of a clear strategy for addressing the pandemic. Many seem to believe that COVID-19 is a binary issue; it is either here, or it isn’t. However, there are many shades of gray



when it comes to eradicating a disease like COVID-19. One could argue that as a society, we have been spoiled by science. Most people in the 21st century likely don’t realize how much disease was a part of the 20th century. Diseases like measles, mumps, rubella, and polio were the cause of regular and broad hardships on society, and there weren’t vaccines for all of those diseases—let alone a handle on containment—until well past the half-way mark of the prior century.

As time goes on, there may be advancements in the therapeutics of treatment, reducing the impact and threat of death from COVID-19. However, that is mostly a band aid and does nothing to stop the spread and economic disruption of the disease. A vaccine may only offer some fraction of effectiveness, reducing the probability of infection but not enough to stop the community spread of the disease or the fear of the contagion. Additionally,

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any immunity, via vaccine or exposure, may only be short lived, meaning it might be necessary to receive the vaccine on an ongoing or even frequent basis. There is also the possibility that a significant portion of the population may refuse a vaccine. Meanwhile, COVID-19 is but the present threat. There are the better part of a dozen diseases smoldering in the world with the possibility of reaching pandemic status. COVID-19 was just the first of the 21st century.

The pandemic creates an opportunity for unfrozen thinking—a catalyst for accelerated change. Already, businesses have been forced to move rapidly to adapt to the challenges of the virus. Through remote work, IT capacity, and improved online interfaces, COVID-19 has forced the acceleration of these plans and more. Businesses are finding that they are no longer encumbered by the availability of knowledge workers in their immediate geographic area. Wherever talent exists, it can be plugged in remotely. With this realization, companies are reimagining their space requirements, jettisoning old ways of doing business, and reimagining new models. Employees are realizing that they really aren't limited to living in a narrow geographic area. This is leading to a migratory influx in smaller cities and towns. Rural towns and vacation homes are now being seen in a new light. The theoretical possibility of working anywhere there was a broadband connection has become a reality to knowledge workers around the country and around the globe.

With any period of economic restructuring, there is the pain of creative destruction. As a result of the pandemic, the movie industry and in-person entertainment, dine-in restaurants, bars, nightclubs, gyms, sporting events, and even churches—basically any business predicated upon large numbers of people in close-quarters—has been severely disrupted. As numerous people around the world were ordered by their government or instinctively realized that they were “safer at home,” businesses that had the ability to offer a contactless option for delivering their product/service saw a surge in business. This means that businesses like Amazon, with the logistics to provide

rapid to-the-home order fulfilment, have likely permanently disrupted traditional retail.

Companies with office workers that pivoted to work-from-home have realized they don't need as much office space as once thought; and the office space they do require may need to be designed with pandemic protocols in mind and/or outside of the central business district. The impact of this is that those real-estate intensive sectors will no longer have their traditional sources of demand and the distribution of demand may shift.

This means that asset valuations are falling. Banks and investors that lent money to purchase those assets may find they are only worth a fraction of what is owed on a pandemic valuation basis. The erosion in the value of real estate collateral could easily exceed the loss reserves at some banks and depress the value of mortgage backed securities that institutional investors own. This could reduce the availability of credit, despite the best efforts by the Federal Reserve and central banks throughout the world. A new wave of bank mergers and consolidation may be triggered.

Those workers deemed non-essential in a pandemic world resulted in record levels of unemployment, the loss of rent, and a strain upon social safety nets both from governmental and charitable agencies. As the month of October came to an end, reports indicate that over 3 million home loans are in forbearance—roughly 3.9% of all Fannie/Freddie Mac-backed loans and 10% of all FHA/VA loans are in forbearance plans. In a Bankrate article from September 1, 2020, titled “Why the coming foreclosure crisis will look nothing like the last one,” they estimated that Colorado could see a 361% spike in the foreclosure rate in 2021. However, this high percentage spike is coming off of a low base—Colorado's foreclosure rate has been among the lowest nationally. Those unemployed, non-essential workers could result in a wave of homelessness, placing additional strain upon local governments. State and local governments will experience economic distress of their own as they see property tax revenue declines as a result of subsequent asset

YIELD OF 10-YEAR SOVEREIGN BONDS BY NATION

Nation	Yield	Nation	Yield
Switzerland	-0.58	Spain	0.27
Germany	-0.39	United Kingdom	0.66
Denmark	-0.37	Israel	0.86
Netherlands	-0.26	Italy	0.99
Japan	-0.19	Australia	1.09
Austria	-0.16	Greece	1.16
Finland	-0.15	New Zealand	1.26
Sweden	-0.12	Norway	1.36
Belgium	-0.08	Hong Kong	1.41
France	-0.08	Canada	1.44
Ireland	0.02	Singapore	1.71
Portugal	0.20	United States	1.83

Source: Bloomberg.

Note: Data as of November 4, 2019.

devaluation in residential and commercial real estate (e.g., office and retail, as well as prime restaurant and bar space). This means that the municipal bond market could become a risk-filled mine field.

Companies will have to review weaknesses in their business models and in their supply chains and make a renewed determination as to what the optimum balance is between efficiency and resiliency. Just-in-time inventory management and concentrated risk in the supply chain degrades resiliency to pandemics and trade wars. Businesses will have to evaluate the likelihood of a roll back of 2017s TCJA tax cuts. As 2020 closes out with an expected budget deficit approaching \$4 trillion, coupled with the need for an additional stimulus package, federal, state, and local governments will be looking for new sources of tax dollars. The budget deficit cannot expand

FINANCIAL MARKETS: STOCKS
2011-2020 YTD
(Year-End Close)

Year	Index				Annual Percent Change			
	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	-6.2	-5.6	-3.9	-12.2
YTD Nov. 19, 2019	3,120	27,934	8,571	1,598	16.7	13.0	24.2	4.1
YTD Nov. 19, 2020	3,582	29,483	11,095	1,782	10.9	3.3	23.7	6.8

Source: Yahoo! Finance. Note: YTD represents the growth year-to-date through November 19 from the prior end-of-year close.

indefinitely without consequence. Where that line lies is an open-ended question.

Expect the government and the Federal Reserve to do whatever it can to minimize the economic damage and market volatility and expect every effort to be made to re-inflate the economy. However, with a massive budget deficit and monetary policy already set at zero, the room to maneuver in traditional ways is constrained. That is the uncertainty that is difficult to predict. What untraditional actions will be taken by the government and the central bank to stabilize and re-inflate the economy? How long will it take? How much political posturing and gridlock will be experienced in Washington, D.C., in 2021? How many non-traditional actions will need to be taken by the government and the central bank? Will there be any significant natural disasters or geopolitical

events in 2021 that impinge upon the efforts to stimulate a recovery?

What Lies Ahead

For all of the reasons mentioned previously, 2021 is expected to be a roller-coaster experience in the capital markets. Stock indices are expected to be volatile but with as much upward bias as can be generated by the promise of untold dollars of support courtesy of congressional and Federal Reserve actions. Meanwhile the Fed has already telegraphed an intention to keep monetary policy at/near zero until 2023. Colorado may experience a surge in home foreclosures, but this is the result of years of record low foreclosures. Fannie Mae and Freddie Mac postponed a 0.5% refinance fee until December 2020 as a result of COVID-19. Given that Fannie Mae and Freddie

Mac are still under U.S. government conservatorship as a result of the GFC, they may very well extend postponement of the refinance fee to support homeowners and the economic stimulation of refinancing activity. Colorado's economy may benefit from an expansion in the use of secondary or regional headquarters locations. Colorado has already been benefiting from active business recruitment from our economic development agencies. Colorado remains a draw for workers from high-cost cities that view the state as a more affordable alternative with a high quality of life and plenty of outdoor recreational options, attributes viewed as even more valuable in a pandemic world. The domestic and global markets and the economies they represent will be volatile as the challenges of the pandemic drive unprecedented change. Colorado, with its educated workforce and diversity of industries, should weather the turmoil better than most.

Commercial Banking

The current makeup of banks operating in Colorado consists of 129 banks; 74 are headquartered in Colorado while the remaining 55 are headquartered in other states. Roughly 54.3% of the deposits in Colorado banks reside in the four largest ones. The deposits of each of those four banks range from \$18 billion to \$36 billion. In this context, deposits can serve as a rough proxy for loans, too. Conversely, community banks with less than \$100 million face a situation where the 40 banks (31% of all banks doing business in Colorado) collectively hold \$2 billion in deposits (1.2% of the industry total). Total deposits in Colorado are \$172 billion.

The data show a few large institutions at one end of the spectrum and many small ones at the other. A key question is the minimal size for a bank to operate efficiently.

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

Currently, U.S. banks hold more than \$2.1 trillion in capital to support all banking activities, making the U.S. banking system the most financially sound in the world.

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Banks in Colorado have about \$19 billion in capital. Loan loss reserves provide additional buffer should banks encounter bad loans. Banks entered 2020 financially sound, which has helped bolster the country's FDIC-insured institutions as they reported a 70% decline in aggregate net income—to \$18.8 billion—in the second quarter of 2020, a net decline of \$43.7 billion over a year earlier. The ratio of return on average assets stood at 0.36% for the third quarter, a drop of 102 basis points from 12 months earlier.

It is important to note, however, that just less than half of all institutions reported a decrease in net income year-over-year. Banks that reported a drop in income attributed it to increased reserves driven by continued economic uncertainty. A major factor is the prudent diversion of additional sums into reserves for future loan losses.

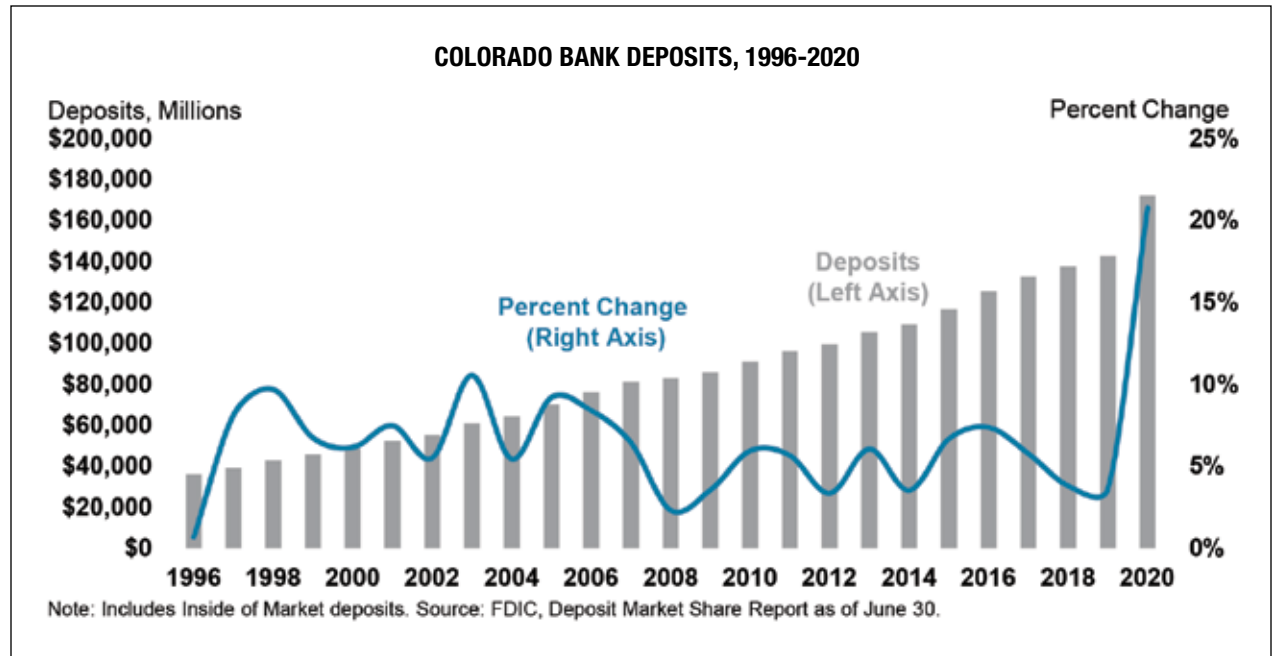
A Glimpse at Community Banks

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 collective growth in net income amounting to 3.2% year-over-year, indicating the aggregate profitability was driven largely by loans. More than half of those banks reported higher annual earnings overall—growing their net income to \$6.63 billion, a \$202.5 million increase over Q2 2019.

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

Interest Rates and Net Interest Income

Reported by the Federal Deposit Insurance Corporation (FDIC), net interest income declined for a third consecutive quarter in Q2 2020, decreasing \$7.6 billion (5.4%). Fewer than half (42.2%) of all banks reported annual declines in net interest income. As the decline in average earning asset yields outpaced the decline in average



funding costs, net interest margin (NIM) for the banking industry was down 58 basis points (to 2.81%). The year-over-year compression of the NIM was broad-based.

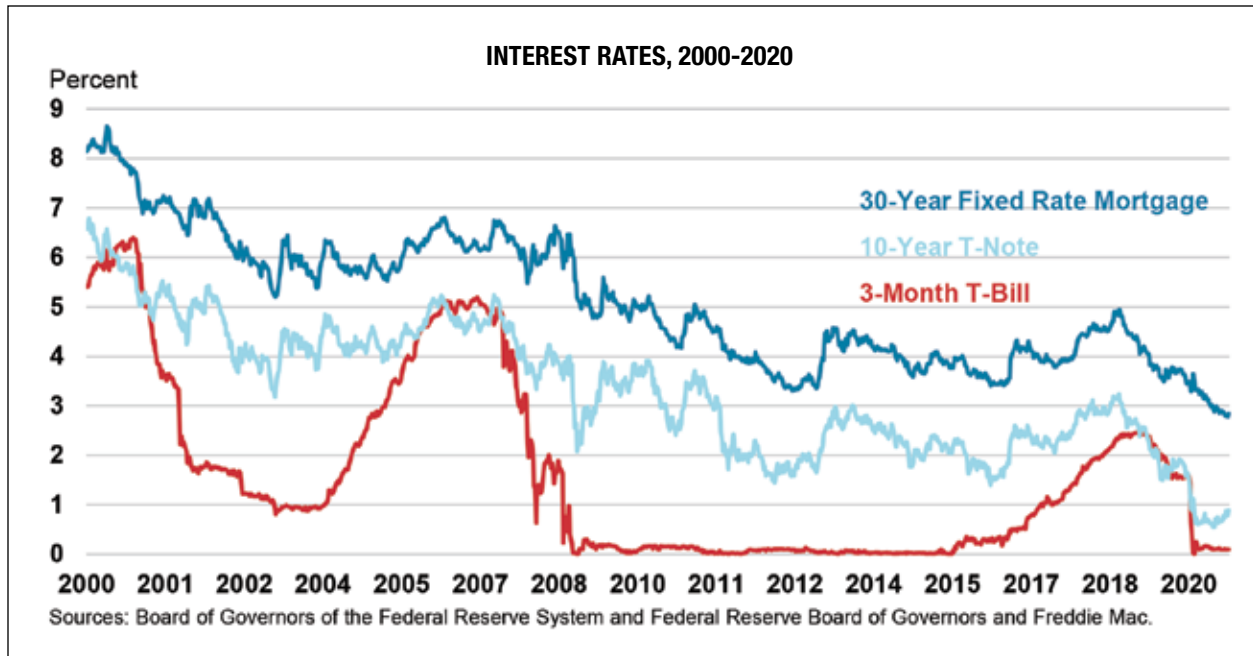
Responding to the economic impact of the global COVID-19 pandemic, the Federal Reserve dropped key interest rates close to zero, saying it will keep them there until inflation exceeds its 2% target, which many Federal Reserve Board members don't expect will happen before 2023. The move will damage banks' lending margins, and in October, 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

Like every other industry, America's banks in 2020 experienced unprecedented economic conditions. The industry not only was able to navigate relatively smoothly the onset of the COVID-19 pandemic on its own operations,

but to devote enormous resources to assist customers in weathering related economic strife. Banks have been able to offer a slew of 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 huge majority of customers granted loan forbearance (meaning tolerance in loan repayment) has returned to loan payments on the original schedule.

Banks constituted the delivery system for distributing Paycheck Protection Program (PPP) funds from the U.S. Treasury and Small Business Administration, as part of assistance approved by the CARES Act economic relief bill in April. Colorado bankers excelled by making 110,000 PPP loans in Colorado worth \$10.4 billion in a couple weeks despite government problems. Nationally,



banks advanced all of the \$525 billion in PPP funding extended to 5.2 million borrowers.

Banks here in Colorado made those PPP loans in the span of a couple weeks, pivoting from normal business to using an untested PPP startup with technical glitches and regulations written on the fly. Banks had a remarkable performance and bank employees worked very long hours. The government wisely used the incredible capacity of the banking system; there's no way it could have pumped out funds that quickly.

Banks now are doing all they can to help troubled small businesses. Despite high expectations that PPP loans would be forgiven, the final regulations earlier this year made that very doubtful; when the loan isn't forgiven the business is on the hook to repay a big loan in a short timeframe. Most small businesses were not, and are still not, in a position to do that. The banking industry has

advocated for broad debt forgiveness—an effort that has succeeded on loans under \$50,000, and efforts continue on relief for those under \$150,000.

Eligible small businesses accessed PPP funds to cover payroll and benefits costs, as well as mortgage interest, rent, and utilities expenses. Banks fronted the \$10.4 billion in PPP funds to small businesses and funded those loans out of their own deposits. Banks will be repaid either by the government when the loan is forgiven, when the borrower pays it back, or when the SBA guarantee applies upon loan default. This lending helped save or create 900,000 jobs in Colorado. It remains to be seen what overall burden banks may bear regarding PPP lending, as any “defaults” won't occur until the end of PPP loan terms, which could extend up to five years depending on when they were issued.

It is important to note that the PPP funds, while called loans, were never intended to be loans; they were intended

to be grants and dispersed 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.

Banks have been a strong advocate with the SBA, Treasury, and in Congress for small business-friendly terms throughout the PPP process. When banking accomplished de minimis forgiveness of loans of \$50,000 or less, banks immediately began assisting customers with the process, while continuing to advocate for forgiveness below \$150,000 (meaning almost automatic forgiveness for these smaller loans) and a streamlined process for applying for forgiveness for amounts larger than that.

Loans in excess of \$50,000 still face a complex application process that takes a lot of time and causes frustration for the borrower and the bank alike. Banks are pushing against a policy that PPP forgiveness is counted as income to borrowers for tax purposes—this would alleviate the additional tax liability for businesses incurring financial hardship.

The CARES Act created the expectation that loan forgiveness wouldn't be taxed, although it didn't clearly specify that. While loan forgiveness is typically treated as income and a taxable event, there is near consensus for forgiveness to be exempt from taxation. However, another tax issue could affect small businesses that received PPP loans—they may not claim tax deductions for any expenses paid for with PPP proceeds. This is not resolved yet.

Customer Debt

For the first time since 2014, total household debt fell in Q2 2020 as COVID-19 made Americans cautious. The Federal Reserve reported a decline of \$34 billion (0.2%) and marks the largest drop since the second quarter of 2013. In total, non-housing balances (including credit card, auto loan, student loan, and other debts) saw an

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\$86 billion decline, the largest decline in the history of related Federal Reserve data reporting.

Also of note in Q2 2020, was the steepest decline in credit card balances in the history of the New York Fed data—a decrease of \$76 billion. The New York Fed stated, “The credit card balance decline was notably larger than the same period last year, which may reflect the early signs of decreased consumer spending due to COVID-19.”

Rob Strand, senior economist for the American Bankers Association, added, “Consumers faced exceedingly challenging times amid an abrupt deterioration of economic conditions. It is not surprising that consumers reduced their credit card spending compared to the previous quarter as they navigated substantial financial uncertainty stemming from the pandemic.”

Consumer credit reports on June 30 showed mortgage balances standing at \$9.8 trillion, a \$63 billion increase from the previous quarter, while balances on home equity lines of credit (HELOC) saw an \$11 billion decline. That marked the 14th decrease in a row since Q4 2016, bringing the outstanding balance to \$375 billion.

Auto loan balances were roughly flat in the second quarter, while student loan balances increased by a marginal \$2 billion.

Americans’ caution also partially explains the increase in deposits banks have experienced. In a time of concern, consumers reduced debt and hoarded money.

Small Business Financials

The COVID-19 pandemic was expected to trigger a wave of bankruptcies, but that has not yet materialized. Filings for Chapter 11 protection have increased 21% compared with 2019 because of separate filings by affiliates, but Chapter 11 filings fell 28% year-over-year from March to September if only parent companies and firms without affiliates are counted.

That said, some experts surmise that 2020 will easily set a record for bankruptcies filed by companies with \$1 billion or more in debt. Minutes from the Federal Reserve’s Open



Photo provided courtesy of Nikki A. Rae.

Market Committee’s mid-September meeting show that members found delinquency rates on business loans have risen noticeably in recent months and surveys of credit availability shows that bank lending is more cautious.

While mortgages appeared to be performing better than expected—some bolstered by COVID-19-spurred moratoriums on foreclosures—banks were preparing to assist customers with troubled loans as the impacts of the pandemic extend over the long term.

The portion of current and performing first-lien mortgages in the second quarter of 2020 was 91.1%, down 5% from a year ago, according to the Mortgage Metrics Report released by the OCC in September. The report is generated from seven large national banks representing 28% of all outstanding residential mortgages.

Due in large part to foreclosure moratoriums and other events related to the COVID-19 response, foreclosure activity fell 98.7% from the previous quarter and was down 98.8% from a year ago. Mortgages that were considered seriously delinquent grew significantly, rising to 6.8% from 1.4% the previous quarter. Meanwhile, loans that were 30 to 59 days delinquent edged up from 1.8% to 1.9% in the second quarter.

Loan Demand and Fee Income

Nearly half (47.8%) of all banks increased their noninterest income over a year ago, improving the aggregate non-interest income for the banking industry by \$4.6 billion (a 6.9% increase) to \$70.8 billion.

But amid continued COVID-19-imposed tightening of purse strings, job loss, and economic restriction, banks’ fee income from various sources—including loans—is

expected to be pressured. Those factors, combined with near-zero interest rates, will make profitability a concern over the next several years.

Banks participating in the Paycheck Protection Program say they don't expect to generate much, if any, profit from the loans. Banks cite high costs associated with technology projects, large personnel costs for working long hours to assist customers, and other factors. What's more: many large institutions have announced that any proceeds would be donated to charity.

Banking is impacted by deteriorating economic conditions and the implementation of the current expected credit losses (CECL) accounting methodology that banking resists as a nonsensical accounting shift, which requires banks to forecast the day the loan is made to allocate for expected losses over the life of the loan, possibly many years later. Under current accounting rules, provisions for credit losses increased by \$38.8 billion (279.9%) from a year ago to \$52.7 billion. A total of 243 larger banks adopted the CECL accounting standards in the first quarter. These institutions reported an aggregate \$47.6 billion in provisions for credit losses. Almost half (49.9%) of all banks reported year-over-year increases in provisions for credit losses. CECL was not scheduled to apply to smaller banks yet, and now has been pushed out.

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 won't perform as the customer agreed. From Q1 to Q2 2020, America's four biggest banks 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 which 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 who is creditworthy, resulting in a general tightening of credit standards.

Meanwhile, banks are also working to manage, and potentially capitalize upon, COVID-19-fueled increases in bank deposits. Consumers are holding onto their money as unemployment and uncertainty remain high and the pandemic continues.

On average, Americans stockpiled just over one-third of their income (a record 33.5%) in April, an exponential increase from the pre-pandemic savings rate of 7.5%, according to data from the Commerce Department. While that figure dipped to 19% two months later, it still landed well above pre-pandemic levels.

Between January and September, deposits grew by 19% to \$15.7 trillion, while at midyear, the average net interest margin for the industry declined to 2.8%, the lowest level ever reported in the FDIC's quarterly banking profile.

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, bolstered possibly by another round of economic stimulus from lawmakers.

Additional relief was provided by the FDIC in October when the agency issued an interim final rule providing relief from changed regulatory treatment as a result of a swollen balance sheet. The FDIC noted that these inflows—a result of banks' participation in the Paycheck Protection Program and other government-encouraged relief and recovery efforts—“may be temporary but are significant and unpredictable.”

The FDIC has taken an important step toward alleviating the regulatory pressures on banks that have seen their balance sheets swell as a result of serving their customers during COVID-19, including absorbing an influx of deposits and participating in the critical Paycheck Protection Program. Recognizing that the growth at banks is in safe assets and is a byproduct of the national

response to the pandemic, banking is encouraging other regulatory agencies and policymakers to consider taking similar steps.

Mergers and Acquisition

The number of FDIC-insured commercial banks and savings institutions declined from 5,303 to 5,066 year-over-year from Q2 2019 to Q2 2020. Mergers account for the decrease, as well as six failures between September 2019 and September 2020.

Often, smaller banks will struggle to keep up in the current financial services landscape unless they merge with others or find ways to invest heavily in new technologies to cope with the legal and compliance component, and regulatory and digital pressures today.

Mergers and Acquisitions (M&A) activity in Colorado's banking sector slowed over the previous year, experiencing just one transaction. Turmoil and uncertainty brought by COVID-19 overshadowed once-favorable drivers for continued mergers and acquisitions in banking. Mergers often result in increased capital for loans and the ability to offer new services, and they can be one way to keep costs and prices down. Customers see benefits, including access to a greater number of ATMs and bank branches.

According to a 2020 Deloitte report on activity in banking, “availability of a significant amount of dry powder, attractive valuations, a very favorable low-interest-rate environment, and access to financing and certain underlying dynamics that have been driving M&A to this point (such as the search for digital capabilities or the desire for scale efficiency) will likely continue,” noting that the heightening risk of a potential recession may drive strategic decisioning for banks.

“We may see transformational deals supported by a friendly regulatory environment that is pro-growth following an economic downturn. Bank boards' resulting decisions—to be a buyer, seller, or an observer on the

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sidelines—will shape bank M&A activity in the second half of 2020 and into 2021,” the report added.

Following a national trend, a Colorado credit union announced the purchase of a Colorado bank late in 2019, but the effort was blocked in January 2020 by the State Banking Board which oversees bank regulations. It did so at the behest of the Colorado Bankers Association, citing conflicts with Colorado law. Other purchases have been completed across the country, however, extending a trend troubling to many public officials: more commercial banking activity moving from taxable banks to tax exempt credit unions.

Regulation

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

Banks have fared well due to President Trump’s 2017 tax overhaul, while Democratic challenger Joe Biden has indicated he would roll back some of Trump’s changes which could amount to as much as \$7 billion in additional tax burden for nearly a dozen of the nation’s largest banks. Other banks could see similar results.

Potential changes at the helm of America’s banking regulatory agencies, too, will determine the temperature of banks’ operations as they could result in more robust enforcement actions and require institutions to allocate additional resources toward compliance, and increase time spent with bank examiners instead of revenue-generating activities.

Marijuana Banking in Colorado

Banking 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, and it could gain ground under a Biden presidency.

The SAFE Act was included in a proposed second round of Coronavirus economic relief funding, but as of early November, talks in Congress had stalled.

The SAFE Act appeared to have strong potential last year when the House passed the landmark bill in September by a 321-103 vote, but it went nowhere when Senate Banking Committee Chairman Mike Crapo, R-ID, refused to support the measure, citing safety issues.

Expected Headwinds and Challenges—and Work Ahead

Colorado banks will continue to face the following headwinds:

- The reaction of the economy to COVID-19 will have a very big impact on banks and especially bank customers.
- Regulatory reform is still a top issue for the industry. While managing excessive regulatory burden is a significant challenge for all banks, it is overwhelming for community banks. The cost of regulatory compliance as a share of operating expenses is two-and-a-half times greater for small banks than for their larger counterparts. Compliance burdens must be spread over a large asset base. Thus, industry consolidation is significantly being driven by government policy (extremely detailed regulation) and not just by market forces.
- Banks are working against an ill-advised move by the government-sponsored enterprises (Fannie Mae and Freddie Mac) to increase refinancing costs by 50 basis points. While the increase was initially slated to become effective in September, it was delayed until December. The increase could particularly harm low-income borrowers during an economically challenging time, potentially putting out-of-reach their ability to refinance their home loans at lower rates.
- Bankers will continue to monitor carefully the Federal Reserve’s work to create FedNow, its own faster payments system. Bankers have urged it to focus on

ensuring interoperability between FedNow and the existing real-time payments network that financial institutions use. FedNow is not expected to be operational until 2023 or 2024—and it should ensure that the system remains accessible only to chartered financial institutions; develop a liquidity management tool to help financial institutions manage fund balances in a real-time environment; ensure equitable pricing with no volume discounts; work closely with core service providers to facilitate rapid implementation; and strive to get FedNow operational and interoperable on an accelerated timeline without forcing institutions to operate duplicative real-time payment systems in order to service all of their customers.

- The bank workforce is expected to experience continued rebalancing related to increased use of mobile banking and other technologies—although overall numbers likely won’t change significantly. While two-thirds of the industry’s workforce is still composed of front-line staff (tellers and other administrative positions), the number of IT and compliance staff has been on the rise while the number of front-line staff, such as tellers, has seen some decline.

U.S. Small Business Administration

Traditional Programs

In addition to the unprecedented amount of disaster funding assistance made available in 2020, the U.S. Small Business Administration (SBA) continued to offer its core programs through the three broad main types of financing and through its Surety Bond Guarantee (SBG) Program.

The flagship guarantee loan program, also known as the SBA 7(a) loan program, provides government guarantees to authorized private-sector lenders to help mitigate risk and encourage more of those lenders to make loans to small businesses that otherwise would not qualify for conventional financing.

The SBA 504 loan program is a low-fixed-interest-rate, public-sector/private-sector partnership financing tool

that assists small businesses owners in financing long-lived assets, such as real estate and capital equipment associated with their business operations.

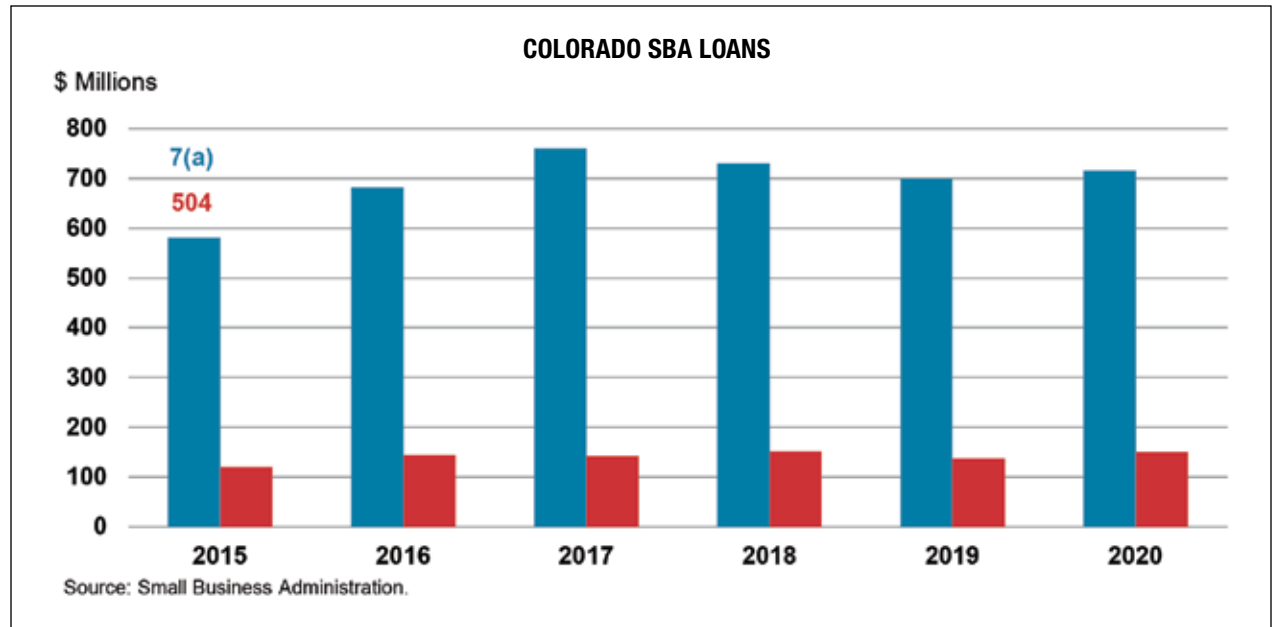
The SBA also facilitates microloans through intermediary mission-based nonprofit lenders to assist emerging small businesses that may be unable to secure financing from conventional sources.

In addition, SBA also guarantees bid, performance, and payment surety bonds issued by certain surety companies. Surety bonds help small businesses win contracts by providing the customer with a guarantee that the work will be completed. Many public and private contracts require surety bonds, which are offered by surety companies.

Nationwide, SBA 7(a) lending only slightly declined from \$23.2 billion in FY2019 to \$22.6 billion in FY2020 (-2.7%), while Colorado experienced an increase in approvals from \$700 million in FY2019 to \$716 million (+2.3%). The absolute number of 7(a) loans approved in Colorado declined from 1,297 to 1,123 (-13.4%), reflecting the overall national trend of fewer loans but higher average dollar loan sizes. The average 7(a) loan in Colorado increased from \$539,919 in FY2019 to \$637,939 in FY 2020 (+18.2%). Nationwide, the average size of an SBA 7(a) loan was \$533,076.

In Colorado, 118 different lenders originated 7(a) loans in FY 2020. Wells Fargo Bank, National Association, was the #1 SBA 7(a) lender in the state, with 117 approvals totaling \$44.9 million.

The SBA 7(a) program tends to be countercyclical in the sense that when the economy is strong, financial institutions have less need for guaranties, and when the economy is not as strong, banks will utilize the program more to mitigate risk. The long-lived asset-focused SBA 504 loan program is less countercyclical than the 7(a) program because it is an owner-occupied commercial real estate program. Long-term interest rates tend to impact SBA 504 volume. With 20-year and 25-year fixed rates at historic lows during 2020, the program appeared to have had a broader appeal to small businesses looking



to own rather than lease their space and/or long-lived equipment. Nationwide, SBA 504 lending increased from \$5 billion in FY2019 to \$5.8 billion (+17.5%) in FY2020. The trend in Colorado also followed suit with total loan approvals increasing from \$137.5 million in FY2019 to \$150.8 million in FY2020 (+10.1%). The quantity of 504 loan approvals in FY 2020 also increased by 24% over FY 2019 approvals—181 versus 146. The average size of an SBA 504 loan in Colorado decreased from \$938,356 to \$833,210. Nationwide, the average size of an SBA 504 loan was \$818,498.

Six different Certified Development Companies (CDCs) and 65 first mortgage lenders participated in 504 loans in the state in FY 2020. Colorado Lending Source was the #1 SBA 504 CDC lender, with 133 approvals totaling over \$95.5 million. The 504 program requires a private-sector lender to partner with a nonprofit CDC lender to facilitate a 504 loan. The most active bank partner on the

SBA 504 loan program was FirstBank, which participated in 23 unique 504 projects totaling \$14.1 million.

In terms of geographic dispersion, SBA 7(a) loans were originated in 43 of Colorado's 64 counties. The top five counties in terms of approvals were: Denver, Arapahoe, Jefferson, El Paso, and Adams counties. SBA 504 loans were originated in 23 Colorado counties. In order of number of approvals, El Paso, Jefferson, Denver, Larimer, and Weld counties were the top five.

Both nationally and in Colorado, demand increased once again for capital from the SBA microlending program. Nationally, the SBA participated in 5,892 projects totaling \$851.5 million, an increase of 6.6% in numbers and 4.4% in dollars compared to FY 2019. In FY 2020, the SBA Colorado District authorized an additional intermediary lender in the state to bring the total of approved SBA Microlenders to four. At FYE 2020, 202 microloans

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for a total of \$2.85 million were accessed by Colorado small businesses, an increase in both volume and dollars, year-over-year.

One factor that likely impacted the level of SBA 7(a), 504, and Microloan loan activity in FY 2020 was the Small Business Debt Relief incentive authorized under the CARES ACT. As part of the coronavirus debt relief efforts, the SBA is paying six months of principal and interest that borrowers owe for new 7(a), 504, and Microloans disbursed and in regular servicing status prior to September 27, 2020.

Finally, the SBA's Surety Bond Guarantee Program (SBG) recognized another year of increased activity nationwide and in Colorado in FY2020. Nationally, the SBG Program guaranteed 10,577 bonds for small businesses totaling \$7.19 billion in contract value, a 6% increase compared with FY2019. Bond guarantees to Colorado's small business community increased more than 40% in FY2020, with bond guarantees supporting contracting opportunities for 50 small businesses in construction, service, supply, and manufacturing industries mainly located in HUBZone designated communities. The large increase is due in part to an enhanced marketing effort on the part of the agency as well as policy changes that have streamlined the surety bonding guaranty process, and the addition of new surety companies to the Colorado market. A healthy construction industry has fueled demand.

The Paycheck Protection Program (PPP) brought many new lenders into the SBA loan guaranty processes. Many small banks and credit unions that had been inactive, or never utilized SBA guaranties, made loans under the PPP. In Colorado alone, 31 new lenders were added as authorized PPP lenders. If new and pre-pandemic low volume lenders maintain the relationship with SBA programs and originate traditional SBA loans, there could be an increased volume in the 7(a) program in 2021. Many factors affect lending in the commercial real estate sector. One of them is interest rates. If low, long-term interest rates remain and there is a healthy inventory of commercial property available in the state, 504 should

continue to experience growth. With the addition of another SBA microlender in Colorado, it is expected that SBA microloan approvals in the state will continue their upward trend in FY 2021. Another factor that impacts small business lending is construction spending. If the current expansion in this sector continues, look for the SBG to have another good year in FY2021. Finally, if any temporary CARES Act incentives, such as Small Business Debt Relief and increased maximum loan amounts under SBA Express, are extended, the expectation is that SBA traditional lending will see a flurry of activity to close loans in time to take advantage of any such provisions.

Disaster Assistance

In FY 2020, the nation's and Colorado's small businesses faced an unprecedented economic disruption due to the COVID-19 pandemic. In response, the U.S. Congress passed, and on March 27, 2020, President Trump signed into law, the Coronavirus Preparedness and Response Supplemental Appropriations (CARES) Act. The Act contained \$376 billion in relief for American workers and small businesses. The U.S. Small Business Administration (SBA) was tasked with the primary responsibility to assist the over 32 million small businesses across the country to overcome the challenges created by this health crisis.

The CARES Act established and/or authorized activation of several temporary measures to address the COVID-19 outbreak: Economic Injury Disaster Loans (EIDL) and EIDL Advance; Paycheck Protection Program (PPP); SBA Express Disaster Bridge Loans; and SBA Debt Relief. Additionally, the Act appropriated additional funds for expanded outreach and technical assistance by SBA, its partners, and other federal channels.

The Act allowed the SBA to activate its longstanding EIDL disaster program for a biological or pandemic disaster for the first time in history. Disaster programs are unilaterally administered by the SBA's Office of Disaster Assistance. The EIDL Program is a long-term direct loan program offering six months of working capital in the form of low-interest loans. Funds may be used to pay

fixed debts, payroll, accounts payable, and other financial obligations and operating expenses that can't be paid due to the disaster's impact. Payments are deferred for the period of one year.

The CARES Act also created a new EIDL "Advance" companion to the loan program, subject to fund availability. The amount of an Advance offer was determined by the number of employees indicated on the EIDL application: \$1,000/employee, up to a maximum of \$10,000. The national allocation of \$20 billion was fully expended around July 11, 2020.

Both the EIDL long term lending and EIDL Advance programs were available to small businesses, including agricultural enterprises, as well as private non-profit organizations, to help alleviate economic injury caused by the COVID-19.

The EIDL COVID-19 program served a significant amount of small businesses, non-profits (including faith-based entities), and for the first time in the EIDL program's history, agricultural businesses. Nationwide, as of October 19, 2020, the EIDL program disbursed 3.6 million loans worth \$192 billion. At allocation end, \$20 billion through the EIDL Advance program was disbursed to 5.8 million applicants, employing 30.5 million people in the U.S. The programs have reached across geographic locations, economic regions, including rural and underserved communities, and all industries—including retail, hotels and restaurants, agricultural enterprises, and health care and social assistance services.

In Colorado, 55,928 EIDL loans totaling \$3.2 billion had been disbursed through October 19, 2020. Also, over 87,334 EIDL Advance awards totaling \$267.7 million were made in Colorado. Approvals were made throughout the state and across multiple industries.

On March 30, 2020, the SBA and U.S. Treasury jointly announced the establishment of a new program authorized under the CARES Act called the Paycheck Protection Program (PPP). This authorized \$350 billion in much-needed relief for millions of small businesses and



Photo provided courtesy of Nikki A. Rae.

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

PPP loans were 100 percent federally guaranteed loans, delivered by a national network of approved PPP lenders, to small employers who maintain their payroll during this emergency. PPP borrowers may be eligible for loan forgiveness if the funds were used for eligible payroll costs, payments on business mortgage interest payments, rent, or utilities during either the 8- or 24-week period after disbursement. Initially, payments were deferred for six months after the final forgiveness decision, but then amended to a longer deferment of 10 months past the covered period in order to address the lengthy nature of the COVID-19 response. This proposal was retroactive to

February 15, 2020, to help bring workers who may have already been laid off back onto payrolls.

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 average borrower loan approval remained just over \$100,000. This unprecedented work was greatly aided by strong partnerships with almost 5,500 lenders of all sizes located around the country. Over 51 million jobs were reported to have been retained by borrowers.

There were 109,170 loans valued at \$10.4 billion approved for Coloradans, distributed by over 1,000 lenders. This represented 2.09% of the national loan volume and 1.98% of total national loan dollars approved. The

majority of the PPP loans approved in the state went to smaller applicants: 87.7% of all PPP loans were under \$150,000. Further, 94.96% of all PPP loans were under \$350,000. The average PPP loan size in Colorado was \$95,287. PPP was also made available to non-profits, including faith-based organizations to help keep Coloradans employed. The total loans approved for these entities was 3,957 or 3.62% of the state total. PPP Loans were originated in all 64 counties of the state. The highest percentage of PPP loans were originated in Denver County. Jobs retained by PPP in Colorado was reported to be 886,662 by the borrowers.

Outside of the PPP and EIDL programs, SBA's traditional financing programs were still available, including 7a, 504, Community Advantage, Microloans, and Express loans. Some traditional SBA loan terms were temporarily altered in order to promote greater flexibility for small businesses in need of capital.

Section 1102(c) of the CARES Act temporarily increased the maximum loan amount under the SBA Express Loan Program from \$350,000 to \$1,000,000 for loans approved from March 27, 2020, through December 31, 2020.

In addition, the SBA Express Disaster Bridge Loan Pilot Program was activated in the event small businesses had urgent need for cash while waiting for decision and disbursement on Economic Injury Disaster funding. This program allowed small businesses that had relationships with delegated SBA Express Lenders to access up to \$25,000 quickly. These could be either term loans or used to bridge the gap while applying for EIDL funding and would be repaid in full or in part by proceeds from the EIDL loan.

Under section 1112 of the CARES Act, the SBA was authorized to offer Small Business Debt Relief on a few different levels. 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

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for a six-month period. This debt relief incentive also applied to any new non-COVID-19 SBA loans closed and disbursed through September 27, 2020, to allow small businesses to take advantage of six months of debt-relief payments made on their behalf.

Outside of the Act, in order to provide relief and preserve working capital, clients with outstanding SBA disaster loans from disasters other than COVID-19 were granted automatic deferments on those payments for a period of 12 months by the SBA Administrator.

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 solid relationships with lenders and strong collaboration among stakeholders and partners. It was also critically important to expand SBA's reach in undeserved markets.

To bolster those endeavors, under the CARES Act, \$265 million in additional funding was allocated nationally for official SBA Resource Partners. Funds were essentially earmarked for surge hiring and to reinforce disaster response and recovery programming, recognizing that SBA's partners would play a very significant role in the actual provision of technical assistance. CARES Act grants were made to SBA resource partners, including Small Business Development Centers and Women's Business Centers, to offer counseling, training, and related assistance to small businesses affected by COVID-19.

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, to assist Colorado's approximately 655,000 small businesses with a variety of support and programs within local communities as well as supporting technical training offerings.

The State of Colorado OEDIT established a Small Business Navigator hotline and email for businesses seeking general guidance, information on access to capital programs, workforce development concerns, and other areas small businesses are affected by the pandemic. Other federal, state, regional, and local economic development organizations—chambers of commerce; trade associations and representatives of private industry—gave their time and resources to support this statewide Rapid Response enterprise.

Second, in efforts to reach more underserved communities, the CARES Act also provided additional funds to allow the SBA to create disaster assistance materials in languages other than English. Materials were subsequently made available in 17 different languages.

SBA's Office of Advocacy estimates that there are approximately 655,000 small businesses in Colorado, representing 99.5% of all business in the state, which pre-pandemic employed about 1.1 million people in the state. Outreach and technical assistance support from key partners were especially crucial in Colorado.

Small businesses are the driving force of economic stability in the U.S. and will lead the way in allowing the nation to rebound. More than half of Americans either own or work for a small business, and they create nearly two out of every three new private jobs in the U.S. each year. Although there was an unprecedented amount of financial support, new programs and incentives targeted toward small business survival and to preserve employment, the provisions are finite and many were temporary. Many of the successful PPP borrowers have already expended the funds and are now applying for forgiveness. Additionally, authorization of small business debt relief ended in late September, and therefore, full payments on existing SBA loans started coming due in October. EIDL disaster loan payments will follow within a year of loan closings.

If small businesses are not able to operate at full capacity, there may be a need for additional stimulus, bridge

working capital, and technical assistance to continue connections to additional recovery resources.

Many localized relief effort programs have been developed across the state to assist with gap needs. The EIDL long-term loan program is still capitalized and accepting applications. SBA's and other federally funded traditional finance programs are also available, to the extent that borrowers have capacity for additional debt.

An encouraging circumstance born out of the pandemic is that as many small businesses found they couldn't physically operate per usual, they pivoted business models to e-commerce platforms or changed product offerings to meet unique pandemic market demands.

Colorado's lauded entrepreneurial spirit and access to a very robust small business development support ecosystem will be a benefit to the state on its road to economic recovery. Small businesses are represented across the majority of Colorado's industries, and some have been much less impacted than others. Some have even experienced revenue growth and added employees.

However, continued patronage of small businesses and additional support may be important to continued recovery, preservation, and further growth of existing small businesses.

Colorado Credit Unions

Colorado credit unions entered the crisis in great shape overall, with all key financial shock absorbers in place. At year-end 2019, credit union asset quality stood near a cyclical high, with aggregate delinquencies of only 0.43% (meaning 99.57% of all loan balances were paying on time). The aggregate loan loss rate was only 0.36% (30% lower than the long-run average). Earnings rates, reflected in net income as a percent of average assets, finished 2019 at a robust 0.99% (a 17-year high) and the aggregate capital ratio started 2020 at 11.2%—very close to its all-time high. All of these factors helped the state's credit unions respond to the crisis quickly and decisively.

FHFA HOME PRICE INDEX Q2 2020

Colorado MSA	Compound Annual Growth		
	1-Year	5-Year	10-Year
Boulder	1.6%	7.3%	6.0%
Colorado Springs	6.5	8.4	5.1
Denver-Aurora-Lakewood	3.2	7.9	6.9
Fort Collins	3.1	7.6	6.3
Grand Junction	6.3	6.9	3.1
Greeley	3.3	8.6	7.4
Pueblo	8.5	8.2	4.8
Colorado	3.7	7.7	6.1

Data Source: Federal Housing Finance Agency, All Transactions Index (NSA), through Q2 2020.

Recent survey research conducted by the Credit Union National Association shows that 95% of credit unions offered loan modifications to members, 90% waived fees, and 86% created new loan products to meet members' pressing needs.

In Colorado, credit unions originated 2,269 Paycheck Protection Program (PPP) loans, injecting \$83.7 million into the state's economy. The U.S. credit union average PPP loan size was \$49,000, and in Colorado the average loan size was roughly \$37,000—clear evidence that credit unions were firmly focused on helping independent, Main Street, mom-and-pop businesses.

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 3.7% pace in the 12 months ending June 2020—nearly three times faster than the state's population growth rate. Colorado credit union memberships now total 2.1 million, or over one-third (36%) of the state's 5.9 million population.

Members deposited enormous federal fiscal stimulus payments into their credit union accounts, which led to

an unprecedented 18.3% increase in overall savings balances (and 16.2% growth in total assets). Overall, 94% of Colorado's 78 credit unions experienced increasing assets over the period June 2019 to June 2020.

Colorado's not-for-profit credit unions experienced strong loan growth with portfolio balances increasing 8.8% during the 12-month period ending June 2020. This was a modest acceleration compared to full-year 2019 results and reflects significantly higher growth compared to national credit union norms.

In percentage terms, credit union commercial loans reflected the most pronounced growth. PPP lending and other forms of small business assistance increased overall commercial loan portfolio balances by 32.3% in the year ending June 2020.

In addition, Federal Reserve pandemic policy responses pushed market interest rates to historical lows that led to an incredible wave of mortgage refinancing activity. Overall, the state's credit unions originated a record \$3.8 billion in first mortgages in the first half of 2020, more than doubling the previous first-half record. This helped consumers lower monthly mortgage payments, freeing up cash for emergency spending, and helped them build precautionary savings balances.

The state's credit unions remain well positioned to continue to serve those in need. In the early stages of the pandemic, savings growth greatly outpaced loan growth, which provided credit unions with more than enough liquidity to meet any unexpected deposit outflows. The Colorado credit union loan-to-savings ratio stood at 84.2% at mid-year 2020. Colorado credit unions have maintained a high-performing loan portfolio, healthy earnings, and robust capital positions through the first half of 2020.

Mid-year 2020 results show asset quality actually improved. State and federal support for consumers helped borrowers continue to pay loans on time and mid-year credit union delinquencies and annualized mid-year net charge-offs were 0.30% and 0.37%, respectively. Both of

these asset quality metrics are substantially below the comparative national levels of 0.57% and 0.52%.

Credit unions embraced lower earnings in an effort to help members with fee waivers, loan payment forgiveness, and a variety of other forms of assistance. In addition, asset yields declined as market interest rates plummeted. And many credit unions increased loan loss provisions in anticipation of a prolonged dislocation in both public health and economic activity. As a consequence, first-half annualized ROA (net income as a percentage of average assets) declined to 0.42%—a healthy level but well below full-year 2019 results.

Very strong asset growth and lower earnings pushed the Colorado credit union capital ratio (net worth as a percentage of total assets) down to 10.6%, from 11.2% at the start of the year. The mid-year reading is in line with the national aggregate capital ratio, above the Colorado bank average (9.5%), and well above the 7% threshold level at which federal regulators deem credit unions "well capitalized." In fact, all 78 of Colorado's credit unions remain "adequately capitalized," and all but one was "well capitalized" at mid-year.

From a credit union operations' perspective, expect mortgage refinancing to ease substantially in 2021 as demand dwindles and the new 0.5% market refinance fee takes effect starting in December. This decline will likely be offset by increases in demand for other credit union consumer loans, such as auto loans, credit cards, and personal loans. It should also help to buoy credit union membership growth—with a 3% national increase in 2021 and a marginally faster increase in Colorado.

Credit union asset quality is likely to decline a bit in 2021 with modestly higher loan delinquency and net charge-off rates increases arising from the fact that many loan deferments and forbearances will expire; temporary unemployment becomes permanent; and government stimulus declines. Loss provisions will increase, and earnings rates will ease, but remain healthy overall. The

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baseline forecast has credit union ROA (net income as a percent of average assets) declining from 0.93% nationally in 2019 to 0.5% in 2020 and 0.3% in 2021.

Credit unions are expected to maintain abundant liquidity and to report solid capital positions with net worth finishing 2021 at approximately 10.0% of total assets—substantially higher than the 7% threshold deemed “well capitalized” by regulators.

No matter what happens, Colorado’s credit unions have shown remarkable resiliency and expect to continue serving their members with loans and economic relief measures throughout the pandemic and the financial crisis as quickly, and with as little disruption, as possible.

Real Estate and Rental and Leasing

Commercial Real Estate

The tale of two economies. That could describe 2020. On January 1, 2020, businesses were forecasting another record year of growth. The 2017 Tax Cuts and Jobs Act reduced corporate tax rates, triggering an increase in investment and a surge of employer optimism. The national economy was experiencing historically low unemployment rates, massive job creation, and rising wages for low- and middle-income workers. Companies were opening offices in new locations or acquiring more space and hiring employees at a rapid pace. From a commercial real estate perspective, this represents nirvana.

Then, in March, the COVID-19 pandemic crippled the nation. Federal, state, and local governments instituted an unprecedented total shutdown of the economy. The effects wrought historic economic destruction, which the nation is just beginning to claw its way out.

Nationally, and in Colorado, market fundamentals were on a firm footing prior to the pandemic. Gross domestic product was positive, interest rates were low and will remain low, and wages were rising. Colorado is experiencing in-migration, business expansions and relocations of robust job creators like Lockheed Martin, VF Corp,



Photo provided courtesy of Visit Pueblo.

Smucker’s, Vestas Wind Systems, and Amazon, and an expanding pool of educated workers. As of September, the Colorado Department of Labor and Employment reported the state unemployment rate was 6.4%, improving from 12.2% in April, and labor force participation increased in the state.

The pandemic’s effect on commercial real estate has been swift and uneven. Sectors that had been thriving, like hospitality, were decimated; sectors undergoing a paradigm shift, like retail malls, continued their contraction; conversely, others, like industrial, strengthened and are expanding. The pandemic accentuated and accelerated market trends, such as telecommuting, e-commerce, and demand for housing. The migration from the urban core to suburbia that began in 2015 continued, driving demand for apartments,

homes, neighborhood retail, self-storage units, and suburban offices. Health and wellness decisions have taken center stage, but it is not clear how the pandemic will impact office occupier habits.

The traditional office was once the place to cultivate company culture and foster networking, encourage collaboration, and power productivity. But the pandemic changed that, with the nationwide lockdown instituting a “work from home” policy for many companies. In a recent industry discussion on the future of office, Chris Zlocki, EVP/Occupier Services/Global of Colliers International, observed that telecommuting received a robust trial, since every company across the globe had to do it. A recent study by the University of Chicago shows that, with no commute, employees are actually working longer hours, not fewer. This does not necessarily mean the

demise of the traditional office; however, Zlocki noted that the convenience of working from home “can’t be unseen” from the workforce. He believes that this will become a significant amenity and retention tool to attract and retain the best talent. In the short run, a telecommuting culture may reduce businesses’ square footage requirement, thus increasing vacancy, and co-working space operators could certainly benefit by offering maximum flexibility to expand and contract more quickly than restrictions of a longer-term office lease. Looking ahead, the benefit of a company office may rest more in the opportunity to collaborate, network, and mentor than for individual-focused work.

Metro Denver

Like the State, the Denver MSA was experiencing solid economic fundamentals prior to the pandemic, which have now softened. Households had grown nearly 7% over the past five years, and household income had grown nearly 20% in the same time period. The Denver MSA added an average of 45,808 residents annually between 2010 and 2020, and its annual growth rate exceeded the state’s rate of 1.5%. A 2020 Scoring Tech Talent report from CBRE ranked Denver seventh in the nation in technology talent. Part of the Mile High City’s appeal includes its high number of residents with bachelor’s degrees (53%), large number of millennials, and the lure of the outdoors lifestyle. Major companies, such as Emerson Electric, Wix, and ACG Biologics, have chosen the Denver and Boulder MSA region for relocation 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 and quality of life. Further, Denver, Boulder, and the entire Front Range are well positioned to gain jobs and investment as a result of the pandemic, 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 of talent available in Colorado.

Following are the CBRE commercial product reports for Q3 2020:

Denver office market continues to feel the impact of the pandemic-induced recession, posting negative net absorption for the year at 216,212 square feet. Total vacancy increased 137 basis points (bps) quarter-over-quarter to 15%, while sublease availability climbed to 4.3 million square feet for a 28.2% increase from the prior quarter. Despite softening fundamentals, the direct asking lease rate increased to \$29.02/sf FSG, an increase of \$0.21/sf from Q2. Speculative construction accounted for 2.6 million square feet – 79% of the total development footprint (3.3 million square feet), however, only 9% was pre-leased. Significant new projects include Block 162 (downtown, 595,000 square feet), 4889 S. Quebec St. (Southeast Suburban, 334,000 square feet), Reve360 (RiNo, 130,000 square feet), and REVE Boulder (Boulder, 118,000 square feet). As noted in the previous discussion, the future use and demand for office space is evolving as working from home becomes more integrated and companies retrofit open office designs for more closed offices. The high percentage of spec office space suggests stabilized occupancy will take longer to achieve.

Denver industrial market has proved its resilience to COVID-19 by reporting its 42nd consecutive quarter of positive net absorption, recording over 2.8 million square feet of net absorption YTD, a 37.9% increase year-over-year. Construction volume remained elevated, with 7.1 million square feet of projects under way, the second highest volume since 1997, and 66% (4.7 million square feet) is planned for speculative space. Direct vacancy remained stable at 6.9%, and availability increased. Direct asking lease rates rose to \$7.63/sf NNN, a 1.6% increase quarter-over-quarter. The industrial market benefited strongly from growth in e-commerce, manufacturing, transportation, warehousing and utilities, construction, and wholesale trade. E-commerce, online grocery, bioscience R&D and manufacturing, and safety stock warehousing

versus “just-in-time” trends have all contributed to strong demand for Denver industrial in recent years but were amplified during the pandemic. The Denver region is positioned to remain a highly sought-after destination based on a growing population.

Denver retail market is a mixed bag – great weakness where expected, within enclosed malls, restaurants and gyms, while strength in online retailers with grocery and pharmaceutical anchors. The pandemic accelerated the evolution from largely in-person shopping to internet-based fulfillment. The migratory push to the suburbs has helped local retailers. The average direct asking lease rate remained elevated at \$20.33/sf NNN. Direct vacancy increased to 7.1%, yet 8bps lower year-over-year. Retail construction activity in metro Denver remained active with 944,000 square feet underway in Q3. YTD absorption was negative 215,435 square feet, reflecting the significant amount of retail businesses closing in the current quarter. The pandemic’s overall impact on retail is likely not yet fully realized. Expect growing negative absorption into 2021.

Northern Colorado

Early in the year, The Group Inc. reported that Northern Colorado was one of the best places to find and keep a job. In fact, the Ft. Collins-Loveland metro area ranked ninth for job growth percentage (18%) between October 2014 and October 2019. If Greeley jobs are included, the two metro areas added 55,000 additional jobs over a five-year period. Housing construction is booming in Northern Colorado. Office-using employment, including the information, financial activities, professional and business services, and government sectors – remained stable year-over-year. While the unemployment rate has risen to 9.6% as of June, it was still less than the state and nation.

Through the first half of 2020, CBRE reports that construction starts and deliveries in the office and industrial sectors have been robust, while absorption has been

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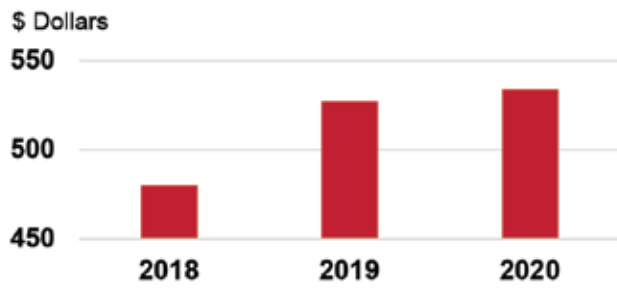
negative. Year-over-year, direct vacancy in office was 5.3% and stable, but an increase of 92bps from 2019; industrial vacancy was 5.8%, up 120bps, principally due to deliveries of new supply; and average retail vacancy decreased to 3.2%, a decrease of 94bps. COVID-19 had a more direct impact on office rental rates, declining to \$15.91/sf NNN from \$16.00/sf NNN, while industrial space, still constrained by low inventory, experienced a rate increase to \$10.22/sf NNN, up \$0.13/sf. Northern Colorado is a more affordable alternative than Denver and contains a large pool of college-educated workforce talent. Employers and employees will continue migration to Northern Colorado, which will sustain demand for commercial real estate.

Southern Colorado

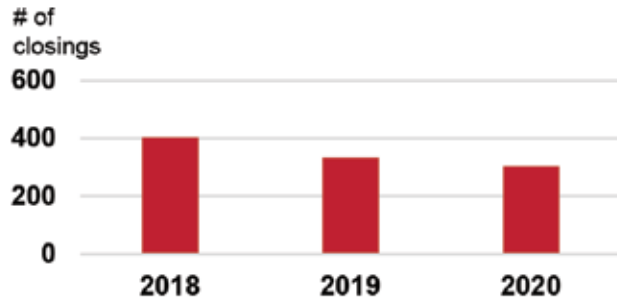
Colorado Springs continued to be the recipient of a strong Denver economy and its pricy commercial real estate market. Millennials relocating to Southern Colorado are attracting major employers like Centura Health, which is planning a 1 million square foot hospital; Ent Federal Credit Union, which is building a 300,000 square foot headquarters; In-N-Out Burger, which is building a 100,000 square foot office and distribution hub; and Amazon, which is building an 800,000 square foot fulfillment center, with plans for up to 4 million square feet. Additionally, the federal government named Colorado Springs the permanent home of Air Force Space Command, with a future location near Peterson and Schriever Air Force bases. The unemployment rate in June was 10.2%, slightly lower than the state and well under the national average of 11.1%.

CBRE notes that construction of new commercial space has been robust and net absorption has been mostly negative. As of June 2020, direct vacancy for office space was 8.8%, down 80bps from 2019; industrial vacancy was 4.7%, up 50bps from year-end 2019 but stable year-over-year, and retail vacancy was 6.1%, up 107bps from year end 2019. Asking lease rates for office space increased to \$15.53/sf NNN; rates for industrial space increased

CONDOMINIUM PRICE PER FOOT ACROSS ALL PRICE RANGES



CONDOMINIUM CLOSINGS ACROSS ALL PRICE RANGES



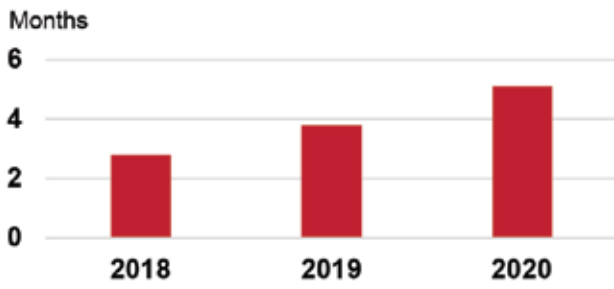
Source: REColorado.

to \$9.78/sf NNN; and retail rates remained steady at \$14.33/sf NNN. Market fundamentals are buoyed by military installations, defense contractors, cybersecurity and financial technology industries. The commercial real estate market will continue to benefit from strong population growth and a record-setting housing market.

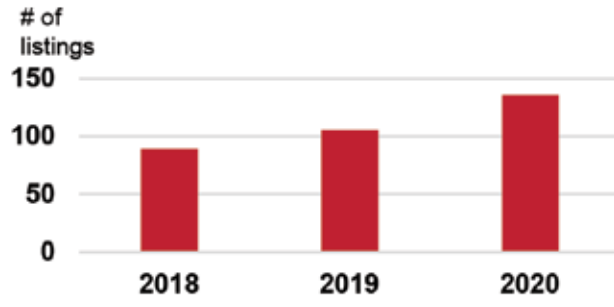
Summary

The pandemic is having a disproportionate disruption, forcing evolution in CRE, which will not be resolved in 2021. Market trends that started prior to COVID-19, like consumers shifting to e-commerce and migration into the suburbs, will continue. Tenants and landlords are

CONDOMINIUMS ACTIVE LISTING ACROSS ALL PRICE RANGES



CONDOMINIUMS ACTIVE LISTING ACROSS ALL PRICE RANGES



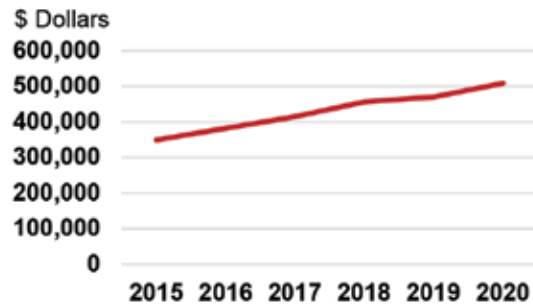
now focused on health and wellness more than before. Investment in air purification, touchless building systems, outdoor amenities, and cleanliness, among others, will remain ever present. Colorado will benefit comparatively due to its strong market fundamentals, less-dense commercial real estate offerings, diversified economy, and educated workforce.

Residential Real Estate

Colorado Real Estate Market

The first quarter of 2020 started off with what appeared to be a continuation of the trends from 2019. That

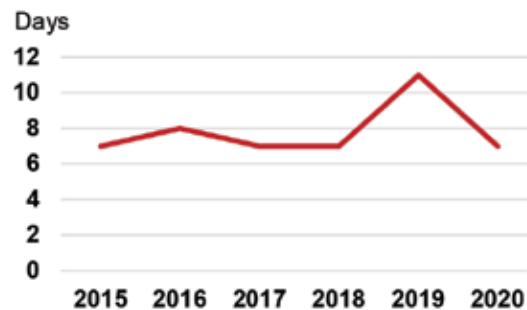
MEDIAN PRICE OF SINGLE FAMILY HOME IN DENVER



MONTHS OF INVENTORY FOR SINGLE FAMILY HOMES IN DENVER



DAYS ON THE MARKET FOR SINGLE FAMILY HOMES IN DENVER



Source: REColorado.

changed drastically as the effects of COVID-19 began to show in late February and March. In April and May, most real estate buying and selling ceased. As a result, Colorado real estate professionals predicted a difficult year for the Colorado real estate market. However, when the Colorado real estate market re-opened in May, events that had been occurring over the last eight years such as household migration to Colorado from the major coastal markets (New York, San Francisco), companies expanding Colorado operations (Amazon and Charles Schwab) and/or re-locating their headquarters to Colorado (Palantir, VF Corp), and individuals choosing to work remotely from more spacious confines in Colorado, accelerated.

Nationally, the housing market continues to be robust in spite of the headwinds created by the COVID-19 pandemic. National home builder confidence is at an all-time high. The one constraining factor in the market is lack of supply, which should keep upward pressure on home prices nationally.

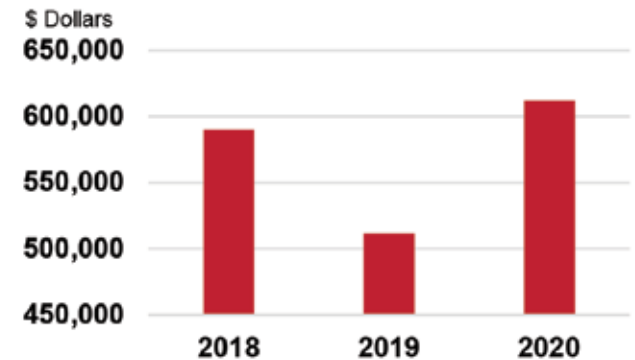
How do we see COVID-19 impacting the housing markets in Colorado in 2021? In order to answer that question, we must first breakdown 2020. The Front Range housing market, the mountain communities, and the Front Range rental markets have all been impacted by COVID-19. The analysis below will help explain the dynamics of these markets and assess the sustainability of the trends we are seeing.

Denver Real Estate Market

LoDo Condos/Denver High Rises—COVID-19 has caused a shift in buyer preferences, from the high-rise condos to single-family homes, as people are seeking space for social distancing and limiting their exposure to common areas such as building lobbies and elevators.

Data on price per square foot, months of inventory, and active and closed listings suggest softness in the LoDo condominium market. We are seeing a combination of forces reflected in the data above. The most telling data point is the increase in months of inventory from 3.8

SILVERTHORNE MEDIAN PRICE PER HOME



Source: REColorado.

in 2019 to 5 in October 2020. This is the result of more condos coming on the market (which we see by the increase in listings) and the time it is taking to get a listing under contract (35 days which is a 9.6% increase over 2019). The price per square foot has remained relatively flat, but once all the active listings close, there could be a drop in price as sellers will likely have to make concessions in order to get properties under contract. Additionally, there is an increase in active listings coupled with a decrease in closings. This suggests that the months of inventory will trend upward in the near term meaning that buyers will have more selection and should get concessions from sellers.

Lori Greenly, owner of Denver High-Rise Living and an expert in the downtown condo market, sees the LoDo condos as a great buying opportunity in 2021. She believes the softness in the condo market is largely because of the fear of high-density living brought on by COVID-19. For those willing to ride out the COVID-19 storm downtown, buyers will likely be able to purchase a condo for a 10-15% discount off 2019 prices. Greenly

continued on page 82

Financial Activities

continued from page 81

sees this as a great investment since she believes this market will roar back as COVID-19 fears subside.

Greenly is not the only market prognosticator that likes the downtown Denver market:

- The Wall Street Journal sited Denver as the #3 fastest growing downtown market;
- Denver is predicted to be one of the fastest markets to recover from the COVID-19 crisis, according to The Wall Street Journal; and
- Employers continue to expand operations and re-locate headquarters in and around downtown Denver, according to the Denver Metro Chamber of Commerce

While COVID-19 represents a significant threat to the long-term viability of the downtown condo market, this market has the potential to rebound in the latter part of 2021 and into 2022. As restaurants and sports teams return to normal activity, downtown Denver should begin attracting Denver migrants in droves as it did in 2019. LoDo condominium prices will likely decrease by 8-10% in 2021. This represents a buying opportunity in 2021, and this market should rebound in 2022.

Denver Single Family Homes—Demand for single-family homes in Denver has been historically high over the last five years and this demand accelerated in 2020. This trend is fueled by a combination of low interest rates, continued migration to Denver from coastal cities and the Midwest, and the preference shift from downtown condos to single-family homes. Is the data coming from this market consistent with the narrative that the market is overheating?

The median price of a home in the Denver metro area increased 8.3% in 2020 to \$509,000. This is driven by a lack of supply in the market. Builder permits and starts are increasing but new units are so quickly absorbed that prices will likely continue to rise, and supply will remain tight.



Durango parade. Photo courtesy of Region 9 Economic Development District of SW Colorado.

In 2020, a \$500,000 home in Denver took seven days to go under contract versus 11 in 2019. This suggests that competition for homes at this price point has increased. Prior to COVID-19, the days on market was trending upwards from seven in 2018 to 11 in 2019. Eleven days on the market was still indicative of a strong sellers' market, but the increase in 2019 was good news for buyers. With the advent of COVID-19, days on market reversed the trend to seven, representing a dramatic shift back in favor of sellers. Paulette Sanchez, Broker Associate for Your Castle Realty, represents buyers in the competitive \$500K-\$1M price point in the Denver Metro area. Sanchez lost three bidding wars for ranch style homes in the ultra-competitive Denver/Slavens market while working with a cash buyer. Typically, cash

is king when offering 3-5% over asking price. Absorption of single-family units is expected to remain high, but a portion of the demand will revert back to condos as COVID-19 fears subside. Single family home inventory in Denver will continue to be tight throughout 2021, pushing up home prices.

Denver Rental Market—The investor market for rental properties in Denver has been robust. The average price per unit for a rental property in Denver increased by 25% in 2020, which is historically high relative to the last five years. Rental rates for this same unit have increased 8.6% per year (on average) over the last five years (per Your Castle Realty Income Trends report for Q3 2020). This suggests that investors are willing to accept a lower cap

rate in the Denver market which has been the trend as more institutional capital flows into the Denver market.

COVID-19 has been disproportionately tough on renters in the Denver market. The Federal Government acted quickly with a stimulus package consisting of a \$1,200 distribution and an incremental unemployment benefit of \$600 per week. While this benefit expired in late July, this relief provided a temporary cushion keeping struggling households financially solvent. However, the Federal Government has not been able to agree upon a relief package to extend these benefits as we head into winter. If there is a tightening of restrictions because of the rise in COVID-19 cases, tenants working in the hardest-hit sectors of the economy (restaurants, hotels and travel) will bear the brunt as many service sector employees are renters.

Rent increases tapered in 2020 increasing only 1% from 2019 to 2020. The vacancy rate dropped below 5% in this period suggesting that competition for rental units will continue to be high. Low vacancy should translate into increased rental rates in 2021, but the trendline shows rent increases tapering off, with modest increases expected in 2021.

Colorado Governor Jared Polis recently signed an executive order prohibiting landlords from charging late fees and penalties on rent due through December 31st. Additionally, Governor Polis signed an order granting tenants 30 days to catch up on rent before a landlord can begin eviction proceedings. Previously tenants had 10 days to

resolve lease violations. Per the data analytics group RealPage, landlords have been able to collect 94.3% of owed rent in October. RealPage also sites vacancy dipping below 5% to 4.9% for the month of October, which is also a positive sign for the rental market. As long as this figure stays in the 90% range, landlords should remain solvent in spite of these tenant-friendly policy changes.

Colorado Mountain Properties

The Colorado mountain markets such as Aspen, Telluride, and Vail each have seen a massive influx of new residents to their communities. The net new residents are made up of new buyers and existing owners of second homes converting to full-time residents. Ted Borchelt, Real Estate Broker with Aspen Snowmass Sotheby's International Realty, attributes this shift to people seeking refuge from the pandemic and social unrest in the large metropolitan cities. Per Borchelt, 2020 year-to-date sales are twice that of 2019.

What is the data telling us about the mountain real estate markets? Prices in Silverthorne dropped from 2018 to 2019, then prices rapidly appreciated by 19.6% in 2020. This is consistent with the narrative that people are seeking mountain properties as a better place to shelter during the pandemic.

This migration to mountain communities has had a negative impact as they absorb these new residents. The additional residents are all vying for scarce municipal services

such as parking, health care, and schools, putting a strain on these communities. Additionally, this trend has exacerbated the affordability crisis for critical service personnel such as teachers, firefighters, and nurses who continue to be pushed further and further away from their locations of employment because of the high cost of housing.

Are the trends we are seeing in the mountain communities sustainable? Should mountain communities build additional capacity in schools, hospitals, and other infrastructure to support this increase in the number of residents? It is likely there will be a migration back to the metropolitan areas as COVID-19 fear and travel restrictions subside. This could present a buying opportunity in the Colorado mountain towns in 2022 and beyond as new 2020 entrants into the mountain communities begin to sell their properties and move back to the metropolitan cities as COVID-19 fear subsides. ❖

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Professional and Business Services

ESG Reporting

Sustainability reporting and environmental, social, and governance (ESG) disclosures are on the rise around the globe and here in Colorado. The growth in reporting is largely driven by investors seeking additional decision-useful data on topics deemed to be material and stakeholders looking for more transparency. These reports incorporate information a company may be required to report on—such as greenhouse gas emissions or gender makeup of a corporate board—and supplement them with increasingly specific voluntary reporting elements to allow for increased comparison within industries.

State of Play

Standards and Frameworks

As a voluntary effort, there are no formal standards or frameworks mandated for ESG reporting, which can make it difficult not only in selecting the most appropriate standard but also in comparing companies. The Global Reporting Initiative (GRI) has historically been the most prevalent framework and provides a comprehensive approach to reporting, with significant latitude in the actual report preparation. That standard is based on a definition of materiality centered on a nexus between external impacts and stakeholder interest. However, with the rise of investors as the dominant stakeholder group, there is a shift toward more accounting-based standards. The Sustainability Accounting Standards Board (SASB) standards are quickly becoming the norm, in part because they can be incorporated more efficiently into traditional annual reporting, and in part because they attempt to focus on only those issues considered to be material to a company's operations. At the same time, issue-specific standards are on the rise, such as Task Force on Climate-Related Financial

Disclosures (TCFD), which focuses on risks and opportunities posed by climate change.

Any discussion of sustainability reporting would be remiss not to mention the continuing ascension of the United Nations Sustainable Development Goals (SDGs), which provide a global framework for defining activities as contributing to discrete goals that support the most commonly accepted definition of sustainability. The SDGs shift the pendulum more toward a comprehensive approach like GRI reporting as opposed to a narrower approach like the SASB standards but do allow for a more rigid set of targets to compare performance against. The ultimate selection of an appropriate reporting standard requires thoughtful consideration of stakeholder interests, corporate goals, and reporting intentions by each company.

While not a formal reporting framework, becoming a Certified Benefits Corporation (B Corp) serves many of the same purposes and is typically followed as a means to certify and communicate the ESG values of a company to the public. B Corp certification is on the more comprehensive side of data collection, with a very specific questionnaire including many SDG elements, disclosures similar or the same as those required by standards like SASB, and a host of internal metrics looking at holistic sustainability. B Corp companies get a score based on their answers and can elect to change their score annually.

Reporting Trends

While there has been a significant increase in the number of small- and medium-sized companies publishing sustainability reports in recent years, large companies and multinational enterprises continue to dominate the reporting landscape due to their global impact and need to maintain their social and environmental license to operate. The most active

sectors are financial services, energy and energy utilities, food and beverage, health care products, and mining. Along with the growth in sustainable reporting, we also see increasing investor demand for reliable, high-quality, and comparable data. To meet the growing expectation for better data, more companies may consider seeking third-party assurance. The need for reliable and comparable data is critically important as investors continue to incorporate ESG factors into their decision making. The Principles for Responsible Investment (PRI), an international network of investors that commit to six investment principles that integrate ESG into their investment process, now has more than 3,000 signatories representing over \$100 trillion in assets under management.

Smaller companies are approaching ESG reporting based on interest from their particular stakeholders, and many are starting to explore reporting under one or more of these frameworks. B Corp certification in particular has risen to the forefront among non-profits, socially minded enterprises, and smaller companies, and as of 2020, accounted for about 120 Colorado companies out of the 1,300 or so nationally, a strong representation per capita. With a free B Impact assessment tool used by over 50,000 businesses, there is a pathway toward internal analysis and improvement prior to official scoring/reporting, which can be attractive.

ESG Reporting in Colorado

Companies in Colorado are mirroring national and global trends in several important ways. From tightening the focus on investor concerns to fully integrating sustainability into their business models, there are a number of Colorado companies leading the way. From long-time ESG leaders with Colorado headquarters like Ball Corporation, Newmont

Corporation, and Johns Manville to newer Colorado companies such as Prologis, VF Corporation, and Davita, there is a strong tradition of companies linking their ESG performance to their business strategy.

Newmont, the world's leading gold company headquartered in Colorado for nearly 100 years, has seen trends come and go in ESG reporting. Commenting on the current state of reporting, Carrie Christopher, Director of Sustainability Reporting, said, "reporting is moving to an in-house competency, rather than a consulting practice, which means it's more embedded in most organizations as part of the regular work, and we're seeing more collaboration between investor relations and sustainability teams and more interest from CFOs and financial reporting teams in data quality and consistency for non-financial reporting." She also acknowledged the trend toward SASB standards, noting that, "investors and asset managers want the SEC to provide more clarity on materiality of ESG issues and impacts/outcomes."

VF Corporation decided to move their headquarters to Colorado in 2018 following the Outdoor Industry Association's decision to relocate their annual conference to a state that more closely aligned with their sustainability goals. As CEO Steve Rendle stated

at the time, "Colorado is an area with an unrivaled heritage and culture of outdoor and activity-based lifestyles, as well as a thriving business environment. It is a great strategic fit for our business, and we are excited to be relocating our headquarters and several brands to the metro Denver area next year. We believe that the creation of our new headquarters in the area will help us to unlock collaboration across our outdoor brands, attract and retain talent, and accelerate innovation." VF Corporation has taken a strong sustainability leadership position across the brands under their umbrella and uses ESG reporting to both demonstrate long-term value and highlight their efforts to remain at the leading edge of sustainable actions. Their reporting efforts are on the robust end of the spectrum but have recently become more focused on the SDGs as well as TCFD and some of the newer standards that focus on supply chain in their specific industry such as the HIGG Index.

Outlook

ESG reporting is being requested primarily by larger funds and investment groups (see Black Rock's annual shareholder letter in 2020) that are characterizing climate risk as investment risk. We believe that in addition to larger companies continuing to refine ESG

reporting strategies, smaller companies will begin to disclose ESG performance to meet growing investor expectations and to demonstrate their sustainable actions as market differentiators. As the disclosure landscape continues to evolve, there are signs that standardization may be coming as companies and investors agree that SASB and TCFD are too important to ignore. Companies are increasingly building internal sustainability groups to manage the data associated with reporting and coordinating ever more closely with investor relations teams rather than stand-alone sustainability or environmental divisions. Less investor-focused reporting standards such as B Corp certification are also growing, and we would expect more and more companies to explore that pathway instead of, or in addition to, SASB and TCFD. Colorado companies are located in a market that places high value on sustainability, and the companies that prepare to report will have a competitive advantage over those that do not. ❖

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Professional and Business Services

Professional and Business Services (PBS) aggregates a wide variety of sectors including Professional, Scientific, and Technical Services; Management of Companies and Enterprises; and Administrative and Support and Waste Management and Remediation Services. The sector has produced solid employment growth, adding nearly 109,000 jobs across Colorado from 2010 to 2019.

Unlike many sectors, PBS was buffered early in the pandemic due to the work-from-home capacity of the industry. The industry lost 5% of employment from February to April before resuming growth. That being said, industry employment is still at risk from the “second wave” of the pandemic, dampening business services demand and PBS staffing.

The PBS subsectors generally yield highly skilled, highly educated workers and pay above-average wages. This is particularly true for the technology and information sectors, where professionals earn much higher total compensation—about 98% more—than the average private-sector worker in Colorado. In part due to their ability to adapt working styles and do most of their work remotely, these higher income jobs have been far less impacted by the pandemic than lower income workers who often need to be physically present onsite or directly interface with colleagues or customers to effectively do their jobs. As a result, despite all the ills of the pandemic, PBS retains its position as the largest private super sector, with 20% of all private-sector jobs.

Overall, PBS employment is projected to decrease 1.9%, 8,400 jobs, to average 431,600 in 2020. Growth will resume in 2021, with gains of 4,400 jobs, or 1%.

Professional and Business Services Concentration by County

Geographically, PBS companies and jobs in Colorado are clustered largely along Colorado’s Front Range, particularly between the major metropolitan areas of Fort Collins, Boulder, Denver, and Colorado Springs. This concentration is largely due to the historical need to locate near client organizations and tap the innovative,

highly educated, and experienced talent pool that has concentrated along the Front Range. The pandemic is changing some of this calculus, but initial data indicates Colorado PBS jobs are disproportionately benefiting from the remote working environment.

According to Bloomberg’s 2020 U.S. State Innovation Index, Colorado ranked as the ninth-most innovative economy in the country and was the only non-coastal state to land in the top 10. The index uses six equally weighted metrics, including research and development intensity; productivity; clusters of companies in technology; science, technology, engineering, and math (STEM) jobs; populous with degrees in science and engineering disciplines; and patent activity. Colorado ranked in the top 10 for STEM concentration, tech company density, and science and engineering degree holders.

Colorado is known as an innovative and entrepreneurial state and attracts various forms of business funding for research and development. For example, Colorado ranks sixth in the number of awards funded through the Small Business Innovation Research (SBIR) program since 2015. Just recently, two Denver tech businesses were recipients of federal grants through the SBIR program. Greetly, a company that provides systems for companies to check-in and track visitors, was awarded \$50,000 through the SBIR to work with the Air Force. Cipher Skin was awarded \$1.5 million through the program to work with the Department of Defense.

Colorado has one of the highest educated populations in the country, ranking second in the percentage of bachelor’s degrees among people 25 and over, at a record 40%—higher than the national average of 32%, according to data from the U.S. Census Bureau. Colorado attracts highly educated talent from other states. More than 43% of the residents age 25 and over living in Colorado who were born elsewhere have a bachelor’s degree or higher. This is true for about 30% of the residents 25 and over born in Colorado. Not only does Colorado score well on bachelor’s degrees overall, Colorado has the

INDUSTRY SNAPSHOT PROFESSIONAL AND BUSINESS SERVICES

Nominal GDP, 2019 (\$ Billions)	59.3
Real GDP, 2019 (\$ Billions, 2012 Dollars)	55.9
2019 Real GDP Growth Rate	8.2%
Total Employment, 2019 (Thousands)	440
2019 Employment Growth Rate	3.8%
Employment Growth National Rank	1
Share of Colorado Employment	15.8%
Share of National Employment	14.1%
Average Wage, 2019	86,477
Percent of Statewide Average Wage	138.7%
2019 Average Wage Growth Rate	6.2%

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

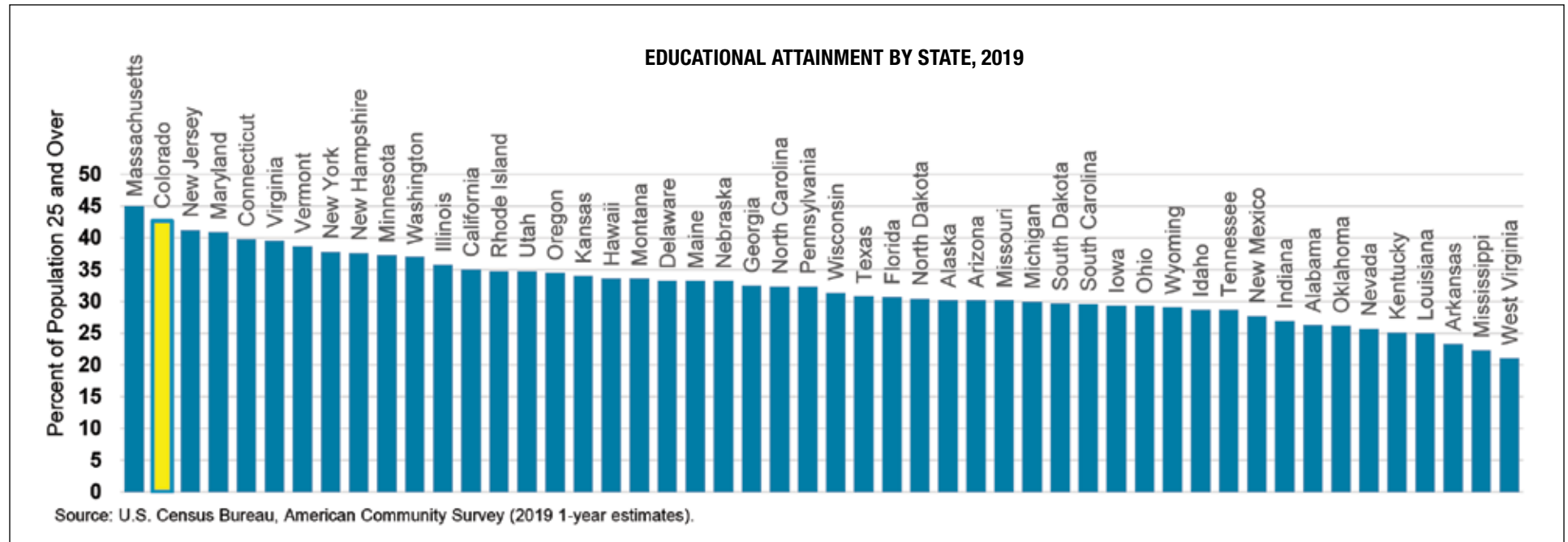
country’s highest proportion of people with a Science or Engineering degree at 39.1%.

While Colorado ranks very high on college attainment, particularly for those who migrated here, according to the Colorado Department of Higher Education’s 2020 Legislative Report on The Postsecondary Progress and Success of High School Graduates, 57% of Colorado’s 2018 high school graduating class went on to enroll in a postsecondary institution immediately after graduation (up 1% from the prior year). Of those who did enroll, 73% attended a four-year institution, but 25% enrolled in schools out of state—up 1% from 2017. This limits the talent base for STEM and other skills needed to compete for the highest-paying PBS jobs.

Most PBS work performed is not physical labor. As a result, many engineers, accountants, attorneys, enterprise managers, employment service employees, and computer designers are still working past their normal

Professional and Business Services

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Professional, Scientific, and Technical Services

The Professional, Scientific, and Technical Services (PST) Sector comprises establishments that provide services that require high levels of expertise and training, including legal, engineering, computer design, and advertising services. This sector accounted for an estimated 245,100 jobs in September 2020, an increase of 2.8% over September 2019. Nothing short of stunning, PST lost 2,900 jobs in April, but has since added 4,800 jobs from May through September, now up 1.4% from the beginning of the year. While employment growth over the past six months is slower than projected before the pandemic, the sector is still one of the strongest sectors in Colorado's job market. One area of particular strength is Colorado's aerospace industry—the state has the second-largest aerospace economy according to the Colorado

Space Coalition, with major aerospace contractors Ball, Boeing, Harris, Lockheed Martin, Northrop Grumman, Maxar, Raytheon, Sierra Nevada Corporation, and United Launch Alliance.

The Professional, Scientific, and Technical Services sector totaled 235,300 in 2019. Employment increased by an estimated 1.6% in 2020, adding 3,800 jobs. Continued growth is anticipated for 2021, adding 1,900 jobs, or 0.8%.

Legal Services

Legal services jobs in Colorado have remained stable between 18,000 to 20,000 over the last 10 years, despite the increase in Colorado's population and business activity. This is generally seen as a result of increasing efficiency, use of technology, outsourcing, and innovation in delivery models. Legal services employment across Colorado was at 20,000 in September 2020, a slight increase over September 2019.

The legal system climate changed dramatically with the pandemic in 2020. Many law graduates were poised to enter the strongest legal job market in more than a decade. With high debt loads, they are now facing reduced hiring and major delays getting their careers under way. High on their minds is the postponement of bar exams, however, movement to allow 2020 graduates to begin practicing law without being admitted to the bar is underway which may alleviate the graduates' intensifying financial hardships, according to a Bloomberg Businessweek article on April 14, 2020. Some firms are trying to adapt to the times by running programs online. This may limit student's opportunities for mentoring and networking.

New graduates were challenged with taking bar exams in the middle of this year's pandemic. Bloomberg reported that bar exam authorities were woefully unprepared for protecting the health of the test takers (Bloomberg, 8/3/20). Many administrators believe that in-person

testing is the most secure, however, the adopted safety measures such as checking temperatures and increasing distance between test takers has not provided enough safety for their health. In the future, 13 states plan to hold an in-person exam, at least 22 are planning online exams, and some states are offering multiple dates and modes of testing. It is expected that some test-takers will wait until they are comfortable with the safety, security, and the reliability of online testing.

Colorado held the bar exam on July 2020 in person at three locations to spread out the exam takers in different rooms. All applicants and proctors were required to wear masks, answer health-screening questions, and submit to daily temperature checks. Additionally, if any of the applicants were deemed positive for COVID-19 within 14 days of taking the bar, they were to notify the Office of Attorney Admissions immediately. No known COVID-19 outbreaks resulted from the in-person exam according to a Colorado Judicial Branch press release on October 8, 2020.

According to the American Bar Association, women make up slightly over half the population in the United States but comprise only 35% of attorneys. Blacks and Latinos represent over a third of the United States population but comprise only about 10% of attorneys. Additionally, the lack of diversity within the legal profession is evidently not a “pipeline” issue, with women constituting over half of law school graduates and people of color constituting a quarter of law school graduates.

The legal services industry continues to adapt the ever-changing legal services model. With an abundance and availability of market information, law firms are continuously adapting to trending practice areas, technologies, and the growth in the roles of allied professionals and specialists. According to a survey done by Thomson Reuters Legal Executive Institute and in partnership with the Saïd Business School at Oxford, the Center on Ethics and Legal Profession at Georgetown Law and Acritas, an alternative legal service provider (ALSP), show global annual revenues for 2017 estimated at \$10.7 billion (a

TOTAL PROFESSIONAL AND BUSINESS SERVICES SUPERSECTOR EMPLOYMENT, 2011-2021 (In Thousands)

Year	Professional, Scientific, and Technical Services	Management of Companies and Enterprises	Administrative and Support and Waste Management and Remediation Services	Total ^a
2011	173.8	30.2	137.5	341.5
2012	180.2	32.3	144.4	356.9
2013	189.3	34.6	148.8	372.6
2014	196.9	35.5	154.2	386.6
2015	204.6	36.6	157.3	398.4
2016	209.9	37.4	158.4	405.7
2017	215.6	39.2	158.0	412.8
2018	224.5	40.8	158.6	423.9
2019	235.3	42.5	162.2	440.0
2020 ^b	239.1	42.8	149.7	431.6
2021 ^c	241.0	43.0	152.0	436.0

^aDue to rounding, the sum of the individual items may not equal the total. ^bEstimated. ^cForecast.

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

27% increase over the \$8.4 billion estimated in the first global survey using 2015 data). The survey also found that 38% of corporations use ALSPs for litigation and investigation support, and 34% for legal research services. To adapt to this competition, many law firms are launching internal offerings similar to what ALSPs provide and developing strategic alliances to provide more diverse and cost-efficient opportunities for their clients.

Adapting to the Great Recession meant more client-centric business models, giving clients control of all key decisions impacting legal representation. This has forced law firms into more vigorous budgeting and billing processes, and a push toward improved efficiency, predictability, and cost effectiveness.

According to the 2019 Report on the State of the Legal Market by Georgetown Law and Thomson Reuters, the traditional legal services model has broken down over the past decade. This is due to several factors such as the growing availability of market information about firms and practices leading to increased competition; the rapid growth of new technologies reducing the labor intensity of legal work; and the significant market shifts in the industry after the Great Recession causing unintended consequences. The report states that since 2008, these repercussions have upended the traditional law firm model, shifting the industry from a seller’s to a buyer’s market for legal services, with clients now in control of

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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. The current transportation demand management (TDM) processes require that all new apartments, condos, and office buildings are designed for the tenants and employees to increase their use of alternate transportation to reduce single-occupancy vehicles on the streets as a method to slowly reduce congestion and to reduce parking.

Private-sector projects are continuing in residential single- and multi-family housing. Material cost increases and shortages will be affecting contractors' costs and schedules, which are anticipated to delay project occupancies. While residential development is increasing slightly, construction starts in industrial, manufacturing, retail, and other commercial buildings are decreasing in the last quarter of 2020 and are expected to continue at a slower pace for several quarters, especially in hospitality/hotels, commercial retail, and office buildings.

Prior to the pandemic, the labor market was extremely tight, and most firms could not hire enough personnel to perform the amount of work in their shops. During the pandemic and currently, the amount of work has been reduced; however, firms continue to look to hire younger engineers for performing the technical work in their shops and also to provide them the opportunity to gain knowledge and experience for working on future projects. Many engineering firms are developing internal recruiting to find potential workers quicker and to be more cost effective than utilizing recruiting firms.

The pandemic has increased the use of remote working in most offices. Company IT departments have had to ramp up their remote services, which have added costs, but travel cost savings have offset this. Remote working will improve with time as more capital is expended in order for the remote work to become more seamless. The engineering profession is one that depends on knowledge being passed on by experienced managers, so a big

drawback of remote operations is that it limits opportunities for mentoring.

As most public agencies are on calendar year budgets, there is some optimism for continuing the projects that are already appropriated for 2020 and 2021. The most notable continuing projects are those that are funded by multiple agencies and special districts. Denver has been hit the hardest by the pandemic lockdowns and the riots downtown. Revenue projections for Denver are expected to be reduced in 2021, which will affect all departments and their budgets. The Denver Department of Transportation and Infrastructure's (DOTI) budget is expected to be reduced significantly. The bond projects that were approved previously by voters will continue. The mayor has already implemented personnel reductions and working days to accommodate the reduced budget. The Colorado state budget is expected to have a shortfall of billions of dollars, which will also reduce appropriations for the Colorado Department of Transportation (CDOT) for capital projects and maintenance of roads and bridges. The Colorado General Assembly Joint Budget Committee will be challenged with balancing the state's budget this fiscal year. One bright spot is the extension of the FAST Act funding by Congress for one additional year, which will keep the funding levels the same for all state DOTs. This Act obligates \$9.1 billion for the Federal-Aid Highway Program, a \$10.4 billion general fund transfer to the HTF's Highway account, and a \$3.2 billion transfer to the Mass Transit Account.

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. The Great Hall project and concourse expansions at Denver International Airport are continuing. The RTD Light Rail North Metro Commuter Rail Line opened in 2020, however, due to falling ridership which decreases revenue, RTD has reduced overall capital and operations spending. The expansion of the National Western Complex also continues. Development of the roads surrounding the

Gaylord Hotel has started and will continue for several years. The streets around the hotel are being upgraded for multimodal traffic that will be designed to safely accommodate the mixture of vehicles, bicycles, scooters, and pedestrians.

The Fall 2020 student enrollment at universities in Colorado was generally reduced from the Fall 2019 enrollments. The main reason attributed to this reduction was reported to be the students deciding to wait another year before either starting their college education or continuing it. Uncertainty as to whether classes would be remote or in-person was a major factor in the students' and their parents' decisions. A few enrollment scenarios at universities included:

- The Colorado School of Mines, which is an all-engineering university, experienced a Fall 2020 enrollment of 6,605, which is 1% higher than the Fall 2019 enrollment of 6,522.
- The College of Engineering & Applied Science at the University of Colorado Boulder experienced a Fall 2020 enrollment of 5,481, which is 4.2% higher than 2019 enrollment of 5,259. Total enrollment for Fall 2020 is 7,520, which is 2.7% higher than the total Fall 2019 enrollment of 7,318.
- The Walter Scott, Jr. College of Engineering at Colorado State University experienced a Fall 2020 enrollment of 2,453, which is 5.6% lower than the Fall 2019 enrollment of 2,602. Total enrollment for Fall 2020 is 3,260, which is 0.5% lower than the total Fall 2019 enrollment of 3,277.

Computer Systems Design and Related Services

The Computer Systems Design (CSD) subsector has averaged over 5% employment growth annually over the past nine years. Although job growth began slowing in April due to the pandemic, year-to-date through September 2020, CSD employment is up 4.4% over the prior year.

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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.

CSD has been less impacted by the economic downturn in 2020 and continued expansion through the year. In this context, the committee anticipates a 4.2% increase of 2,700 jobs by the end of 2020, averaging 67,500 positions. Growth is expected to continue in 2021 at a rate of 4.6%, or 3,100 additional jobs, averaging 70,600.

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 annual Scoring Tech Talent report, Denver ranked #7 for best market for tech talent, moving up a spot from 2019. 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. The Denver MSA had the fifth fastest-growing tech talent labor pool at a rate of 33.2% from 2015-2019.

Subsector Activity

Colorado continues to attract high-tech companies to the state for expansions or headquarter relocations. Salesforce and Amazon have indicated expansion plans in Colorado. Palantir Technologies announced in late

August that they were moving their headquarters to Denver, bringing approximately 200 tech jobs. Snapdocs, an AI-powered mortgage loan platform that consolidates lenders, settlement agents, title companies, borrowers, notaries, and more institutions' processes into a single space, has attracted additional funding and plans to expand its Colorado employment footprint.

Management, Scientific, and Technical (MST)

Management, Scientific, and Technical (MST) Consulting Services has averaged 7% growth over the last five years. The sector is projected to average 35,200 jobs in 2020. The committee expects MST to add an additional 3.7%, or 1,300 new positions in 2021.

A search on LinkedIn shows over 4,100 open, full-time consulting positions across Colorado, down just a few hundred from a year ago. Despite the pandemic, consulting companies like Accenture, PWC, Cognizant, and others continue their long record of hiring across a variety of areas, including strategy, process, technology, business development, and others. Smaller niche players are doing well targeting software as a service (SaaS), compensation, project management, and software solution integrators.

Cognizant (CTSH) is one of the world's leading professional services companies, focused on transforming clients' business, operating, and technology models for the digital era. Ranked #194 on the Fortune 500 (May 2020) with 281,200 employees worldwide, Cognizant typifies the diverse and global reach of technology, and the ability to integrate complex operations with technology. A search revealed Cognizant was actively recruiting for 52 open positions posted for various locations across Colorado, with most focused on infrastructure, security, solution architects, technology/engineering, and consulting.

Subsector Activity

Globalization and utilization efficiency are pressuring most of the mid-sized consulting firms to join larger and more sophisticated firms to create a network of experts

and increase flexibility to serve clients in multiple markets. As an example, ACM LLP, one of Denver's largest locally owned public accounting firms, announced early in 2020 they are combining with Chicago-based professional-services firm BDO USA LLP.

Colorado is the temporary home for the U.S. Space Command headquarters, which complements the state's military and aerospace strengths and brings greater opportunity for a growing aerospace cluster. Private-sector companies operating in the state continued to report aerospace-related contracts in 2020—York Space Systems, Maxar Technologies, Boom Supersonic, United Launch Alliance, and Jacobs Engineering.

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 jobs, has produced 2% to 5% job growth over the last five years. Diverse industries and products are represented by companies in this sector, including VF Corporation, Antero Resources, Prologis, Ball Corporation, Arrow Electronics, Johns Manville, and Newmont Mining.

With 42,800 jobs in September 2019 and the same number of jobs in September 2020, the sector remains flat. Given the impact of the pandemic, the sector is anticipated to stay stable through 2021.

Job growth in this sector is driven by national and international economic conditions, as well as corporate headquarter relocations. Colorado continues to see corporate headquarters either relocate or announce relocations to the Front Range, even as some leave the state. 2020 saw long-time Colorado company Molson Coors announce a relocation of their corporate headquarters to Chicago in pursuit of marketing talent to support the diversification believed necessary to remain competitive, even while continuing to update and expand operations in Colorado.



PSMC EMS. Photo provided courtesy of Region 9 Economic Development District of SW Colorado.

Some of these relocations are driven by corporate officer preference, others by Colorado's business climate, and in particular some follow other notable Colorado industry trends. The U.S. Space Command coming to Colorado Springs and the BLM moving to Grand Junction are federal examples that have spurred companies to move.

Subsector Activity

Other tech companies have also recently announced plans of expanding to Colorado, including Marqeta, a global card-issuing platform; Wix.com, a global website creation company; Pax8, an IT service management company; Sophia Genetics, a biotech company; and Automox, a cloud-delivered solution.

The relocation of the Outdoor Industry Association's (OIA) annual trade show to Denver helped spur at least one relocation. Following the decision of the OIA to

leave Salt Lake City and move to Denver as a location more in line with their sustainability goals, VF Corporation, owner of several outdoor brands, moved the corporate headquarters and many of their brand corporate offices to Denver in 2019.

Administrative and Support and Waste Management and Remediation Services

This sector comprises establishments meant to perform routine support activities for the day-to-day operations of other organizations. It includes office administration, hiring and placing personnel, cleaning, document preparation and clerical services, and waste disposal, among others. This sector totaled 162,200 in 2019. It is anticipated to average 149,700 in 2020, indicating a contraction of 7.7%. A return to moderate growth of 1.5%, or 2,300 jobs is expected in 2021.

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.

The companies in this sector are seeing an increase of competition both directly from companies and from the numerous social media outlets. With the rise of unemployment since March 2020, the Colorado Department of Labor's website, Connecting Colorado, was advertising more than 70,000 jobs for public agencies and private companies in October. To increase the competition, public agencies and private companies are advertising for positions on their websites where a potential employee can apply for the open positions directly. Business associations are also including job boards on their websites, which are designed to match employers with potential employees.

Although employment services saw an increase of jobs in 2019, this sector was harder hit by the pandemic than most PBS sectors, shedding a whopping 10.6% in 2020 through September compared to the same period in 2019, despite a healthy recovery of 4,000 jobs in August. Given this employment trend, the PBS Committee expects the subsector to lose a net 10%, or 5,000 jobs, in 2020. Consistent with longer-term trends and assuming a broader, but slower, national recovery, moderate growth of 700 jobs, or 1.5%, averaging 45,500 jobs is expected in 2021.

Subsector Activity

Westminster-based Aerotek, Inc., a leading provider of recruiting and staffing services, was recognized by

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Forbes as the #3 ranked overall for the best work-from-home jobs in 2020. True North Talent Group, LLC, a Westminster-based company providing customized recruiting solutions to oil and energy, environmental, construction, and engineering companies, was started in 2019 and focuses on offering varied services including recruitment, selection, and contract filling to meet the demands of a competitive workplace. True North recently merged with Alliance of Professionals & Consultants, Inc. (APC), a Raleigh, North Carolina recruiting firm that provides technical staffing solutions for manufacturing, telecommunications, financial institutions, e-commerce, and health care firms.

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.

Despite the typical trends related to occupancy rates as highlighted above, the subsector in fact ballooned during the pandemic, adding over 33% more jobs in 2020, from 41,100 in January to 54,800 by September. This may be due to the extensive and repeated cleaning and disinfectant work that is expected in office buildings since the pandemic began. The increase in modern technology to support new building requires new skills and talents that are driving the hiring of a younger, more technically-oriented workforce for these new buildings. With the expectation of the immediate impact from the pandemic leveling off for several months, the PBS committee expects this to follow historical trends of shedding jobs through the fall and winter, ending the year up nearly 6.7%, averaging 48,800 jobs. A reversion to normal growth rates is expected in 2021, with the subsector projected to grow 2.5% in 2021, averaging 50,000 positions across the state.

Job growth in this sector typically correlates to construction as well as rental and occupancy rates. These have

suffered significantly in 2020, and the overall outlook remains difficult due to the pandemic. Evidence provided by the Colorado Real Estate Journal in October indicates a slow return to occupancy outside of essential personnel. Suburban office markets like Lakewood and Golden are seeing the strongest levels of occupancy, hovering around 50%, while the Denver Tech Center is at 25% to 30%. Boulder is the next highest at 25%, followed by Highlands Ranch at 18% and downtown Denver, which oscillates between 8% to 10%. Many tenants report that they will wait until 2021, or in some cases until there is a vaccine, to decide to come back to full capacity.

Subsector Activity

RISE Commercial Property Services is a full-service commercial real estate property management company, overseeing buildings across the Front Range from North Denver to Colorado Springs. Per T.J. Tarbell, president of RISE, “Before COVID, Colorado’s economy was on pace for another above-average year, albeit at a slightly slower rate of growth. Then came COVID, which affected 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 once a vaccine is available. Others fall somewhere in between. Regardless of the long-term view, the near-term outlook is one defined by more uncertainty. That means leasing activity will remain slow as many businesses try to determine their space needs with so many working from home. In turn, investment sales activity will also be well below previous years, with uncertainty over property values and caution in the capital markets. Our focus remains on those things that we can control, which starts with operating safe and healthy buildings for our valued tenants. Building cleaning service levels have increased significantly. The daytime day porter cleaning responsibilities have increased, as have the nighttime janitorial duties, and many tenants are also hiring their own cleaning services for extra cleaning and disinfecting—all due to the pandemic. In 2021,

expect employment to stay flat or even decline a little, particularly when a vaccine is readily available.”

Wage growth remains strong, and competition is heavy for quality real estate personnel (property managers, facilities/maintenance technicians, property accountants, etc.). Finding and hiring quality talent remains a challenge, particularly for facility management personnel. 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. This sector is continuing a multiyear contraction, decreasing from 28,500 in 2013 to only 19,400 in September 2020. As with Legal Services, the number of business support services jobs is often pressured by industry consolidations, globalization, automation, and programmed configured software as a service (SaaS) like Oracle or WorkDay to deliver compliance with these core services with fewer employees or intermediaries required. Given this dynamic, the committee expects Support Services to shrink an additional 2.6% or 500 jobs in 2020, averaging 19,200. Similarly, another reduction of 4.7%, or 1,000 jobs, is expected in 2021.

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 will likely see its eighth consecutive year of employment gains as these services are a trailing indicator of overall population growth and development. Consolidation may be taking a toll as well as the shift

from commercial to residential activity during the pandemic. Given this context, the committee expects a 3% decrease in employment by the end of 2020 to average 45,500 positions. A reversion to more traditional growth patterns of 2% growth is expected in 2021, representing a gain of 1,000 jobs, to average 46,500 over the year.

Subsector Activity

In 2019, the Front Range had a recycling diversion rate of 18%, meaning Front Range residents recycled or composted 18% of their generated waste. The national average diversion rate is approximately 35%. Increasing recycling is vital to reducing pollution and boosting the economy by creating jobs and providing needed materials to companies manufacturing goods in our region.

In 2018, the City of Arvada estimated that 60% of residents did not have a recycling bin due in part to the added cost from providers. The Arvada Sustainability Advisory Committee (“ASAC”) decided to take on the issue and develop a strategy to help the city reach the national average diversion rate. In 2017, ASAC engaged with Arvada residents, the City Council, and City Staff. The committee began designing a waste program that met more residents’ needs. According to Keegan Conley, an Environmental Engineer and Chair of the Committee, “An organized waste and recycling system would address the many concerns we heard over the years and would

follow 70% of the country that already benefits from an organized waste hauling system. We believe an organized system is the most efficient, affordable, and environmentally friendly way of transporting our waste to the landfill while also greatly increasing the recycling options in our community. We are taking this critical step toward a more sustainable and resilient city.” In July 2020, the city adopted the organized waste system, set to be implemented in July 2021.

Even though having a single waste hauler servicing Arvada may appear on the surface to eliminate jobs from the competition, the committee found otherwise during the outreach portion of the project. The awarded waste vendor had to staff up and invest in hauling equipment sufficient to service the broader city, providing work for manufacturers. The additional recycling streams also support additional services, in this case Momentum Recycling and Rocky Mountain Bottle Company. Along with the recycling center or Materials Recovery Facility (MRF), these businesses represent a closed-loop system for glass recycling in our region. Rather than throwing the glass bottle in the landfill, benefiting only one waste company, the bottle travels through three companies on route to be a new product. A closed-loop system creates more jobs and ensures that a beer bottle can be back on the shelf in just a few weeks without leaving the state. The organized system increases employment in the

community because the competition can service HOAs, multifamily residents, and businesses, which reduces the expected job losses in the waste hauling industry. It also increases the diversion rate, which provides more materials and encourages end-market companies like Momentum and Rocky Mountain Bottle Company, which diversifies and strengthens the job market.

PBS Sector Summary

The many subsectors of Professional and Business Services will continue to collectively support employment across Colorado’s Front Range in 2020. The overall strength of the sector to withstand through the pandemic will support growth 1.0% in 2021. ❖

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Professional and Business Services

Colorado Innovation, Entrepreneurship, and COVID-19

Innovators and entrepreneurs fuel economic vitality, and Colorado's networks of innovation and entrepreneurship are recognized as among the most productive in the United States. Colorado is routinely ranked within the top 10 states—often in the top five—for innovation and entrepreneurship. These attributes are especially important now as Colorado's economy and communities face historic challenges from the surging COVID-19 pandemic.

Workforce and Quality of Life

Economists consider a wide variety of factors in determining state rankings for innovation and entrepreneurship. Workforce factors such as educational attainment, labor productivity, and tech employment are among the most commonly studied—much to Colorado's benefit. Colorado has the nation's second-most highly educated workforce, with nearly 43% of adults holding a bachelor's degree or higher. Analysis by the U.S. Bureau of Labor Statistics shows the state tied for third in the latest annual growth in labor productivity. And Colorado has the fourth-highest concentration of tech workers, according to Cyberstates 2020, and was ranked third for projected growth in tech occupations between 2018 and 2028.

The quality of life in Colorado explains why most residents live and work here. The U.S. News & World Report's annual ranking of the best places to live in the country can be debated endlessly, but it isn't accidental that four of the top five cities on their 2020 list are in Colorado. It's also worth noting that the state is the third most popular destination in the U.S. for mobile millennials, according to SmartAsset.

Innovation and R&D

New ideas and innovations can spring from almost any inspiration or interaction. A well-understood source of innovation, and another factor behind Colorado's high rankings, is the research and development conducted in the state's universities and colleges. In the University of Colorado system alone, the faculty attracted more than \$1.4 billion in research funding in fiscal year 2020. Colorado State University, Colorado School of Mines, University of Denver, and other institutions also manage multi-million-dollar R&D portfolios. This research produces innovations—often through multidisciplinary “productive collisions” in the terminology of CU Boulder Nobel Laureate Tom Cech—that entrepreneurs capitalize on through new startups.

An additional public-sector factor behind the state's innovation and entrepreneurship rankings is the prominence of federally funded research labs in Colorado. With funding from multiple federal agencies such as NASA and the National Science Foundation, 33 labs in the state generated a \$2.6 billion economic impact, according to the most recent data available. Nearly one-third of the labs have active commercialization programs, which license R&D to spinoff companies and support public-private partnerships, among other strategies.

One more notable factor essential to Colorado innovation and entrepreneurship is private sector research and development. According to data from the National Science Foundation, private companies are the leading source of R&D funding and account for 73% of total R&D conducted in the nation. In Colorado, private sector R&D totaled \$4.7 billion in the most recent data available, ranking the state 12th in the U.S. for per capita funding.

Entrepreneurship and New Business Formation

The ideas, knowledge, and innovations resulting from Colorado-based R&D are vital, but much of their impact on the economy derives from the interaction between the state's innovation and entrepreneurial ecosystems. In Brad Feld's 2020 book, “The Startup Community Way,” he and co-author Ian Hathaway emphasize that entrepreneurs are “essential in converting knowledge into economic value.” Entrepreneurs are the “change-agents” who realize the economic potential of R&D by launching startups, raising investment capital, and building a network of employees, customers, and suppliers.

High-performing entrepreneurial ecosystems are fundamental to the formation of new businesses, which are in turn essential to job creation and economic vitality. Data on net job creation by age of business from the U.S. Census Bureau shows that new businesses are responsible for almost all net new jobs in the economy every year. More established companies employ the greatest proportion of overall workers by far, but on average they do not add as many new jobs to the economy compared with new businesses.

Colorado has a high concentration of new businesses creating more jobs relative to other states in the country. The state had the fourth-highest proportion of new and young businesses—those five years old and under—among all states over the past decade. The most recent data from the Ewing Marion Kauffman Foundation Indicators of Entrepreneurship show that Colorado is the highest-ranked state for net new jobs created per capita by businesses in their first year of existence.

New business formation in Colorado contributed significantly to the state's economic recovery from the Great Recession. Based on data from the Colorado Department of Labor and Employment, the state

SBIR FUNDING BY STATE, FIVE-YEAR TOTAL 2015-2019 (Millions)

Rank	State	Amount	Per Capita
1	Massachusetts	\$1,347.0	\$196.6
2	New Hampshire	172.4	127.9
3	Maryland	567.8	94.3
4	Colorado	515.5	91.9
5	Delaware	76.0	79.4
6	Virginia	615.2	72.8
7	New Mexico	133.6	63.8
8	California	2,495.4	63.5
9	Montana	57.7	54.9
10	Vermont	32.1	51.4

Source: Small Business Innovation Research Program.

Note: Rank order by per capita funding.

saw a net loss of almost 3,000 Colorado businesses a year on average—more than 1.5% of all businesses—during the worst recession years from 2009 to 2011. Business formation then started growing again, and in each year from 2015 to 2019 an average of 6,300 net new businesses—or over 3% of all businesses—were created. It's too early to know how the current COVID-19 recession will impact businesses statewide. Like Colorado's recovery from the Great Recession, however, new business formation is likely to be a vital factor.

Innovation, Entrepreneurship, and COVID-19

The productivity of Colorado's innovation and entrepreneurial ecosystems may be challenged now more than ever. COVID-19 is having a devastating impact on small businesses. The pandemic endangers startups and undermines the markets they serve and even threatens the generation of new ideas and innovations derived from R&D. At this stage of the

pandemic, there are more questions than answers to the challenges facing our economy.

Historical state rankings could seem irrelevant in the face of the radical economic impacts of the COVID-19 pandemic. But are past rankings meaningless? Or does the historic productivity of Colorado's innovation and entrepreneurial ecosystems suggest that the state may be better positioned than most to respond to the challenges—and opportunities—arising from the pandemic?

Will the creativity, productivity, and collaborative spirit of Coloradans and their networks advance us toward a more resilient and more equitable future for the state and even the nation? Will the R&D conducted at Colorado universities, labs, and businesses continue to enable the commercialization of innovations by entrepreneurs? And will those entrepreneurs and the ecosystems they are part of create new products, services, ways of doing business, and ways of living that address or even transcend the impacts of COVID-19?

There are reasons for cautious optimism about answers to these and other questions. As part of Colorado's dynamic innovation and entrepreneurial networks, there are numerous programs and initiatives supporting entrepreneurs, their businesses, and their employees. At a statewide level, two notable examples among many are Energize Colorado and the growing multi-million dollar Gap Fund it launched this year and the Colorado Small Business Development Center Network of the Colorado Office of Economic Development and International Trade. Both programs help entrepreneurs and small businesses respond to the impacts of the COVID-19 pandemic and work toward recovery from them.

There are even more programs and initiatives to support small businesses across Colorado's individual communities. Even as they face challenges of their own, many city and county governments have created

COVID-related financial assistance funds and revamped regulations to accommodate new ways of doing business. Local nonprofit agencies face uncertain futures, too, but have risen to the challenge of supporting individuals and families impacted by COVID-19.

Startup and small business accelerators and mentorship programs are pivoting to better serve early stage companies facing the heightened challenge of starting a business during a pandemic. And local economic development organizations, chambers of commerce, and industry associations are offering enhanced financial assistance, workshops, networking resources, and other support to serve their business constituencies.

Looking ahead to the prospects for 2021, Coloradans can aspire to maximize the state's formidable strengths to work toward recovery from COVID-19 and to ensure that the recovery is equitable for everyone in Colorado and even beyond. ✚

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Select Colorado Innovation and Entrepreneurship Rankings

- #1 on Consumer Technology Association U.S. Innovation Scorecard
- #2 on Milken Institute State Technology and Science Index
- #3 on Business.org Best States for Entrepreneurs and Startups
- #4 on Forbes Best States for Entrepreneurs
- #5 on CompTIA's Cyberstates Innovation Ranking
- #5 on CRN Best States for Entrepreneurship and Innovation
- #5 on WalletHub Most Innovative States
- #5 on U.S. Small Business Innovation Research Grants
- #10 on Bloomberg U.S. State Innovation Index

Education and Health Services

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, a ratio that has remained stable for the last six years. EHS was impacted early in the pandemic as it faced similar shut-downs as the broader person-to-person services industry. From January to April, private Educational Services lost 13.9% of employment, while Health Care and Social Assistance decreased by 13.6%. While both posted strong gains after the economy reopened, an annual loss of

COLORADO EDUCATION AND HEALTH SERVICES EMPLOYMENT, 2011–2021 (In Thousands)

Year	Educational Services	Health Care and Social Assistance	Total
2011	33.8	239.1	272.9
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 ^a	43.1	304.5	347.6
2020 ^b	37.6	296.7	334.3
2021 ^c	38.5	300.3	338.8

^aRevised. ^bEstimated. ^cForecast.

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.

13,300 jobs (3.8%) is estimated for 2020. In 2021, jobs are projected to increase by 4,500, a gain of 1.3%

Educational Services (Private)

Private-sector educational services can be classified as private not-for-profit, private for-profit, religious exempt, and private occupational, as well as private companies delivering training and development and other ancillary and support services. Public elementary and secondary educators are accounted for in local government; public higher education employees are accounted for in state government. Educational Services lost a combined 5,800 jobs in March and April but improved beginning in May. The Educational Services sector is estimated to be down 12.8% in 2020, with an expected loss of 5,500 jobs. The sector is expected to record a modest increase of 900 jobs in 2021.

Contributions to Colorado's employment come from many schools within the state's private postsecondary institutions, which account for approximately one-third of all postsecondary enrollments. The largest employers in the private education services subsector come from private postsecondary education. Among Colorado's more prominent private nonprofit schools are the University of Denver, Regis University, Colorado College, and Johnson & Wales University.

Profit and Nonprofit Colleges and Universities

Johnson & Wales University (JWU), a multicampus private, nonprofit university known for its culinary school, was recognized in last year's report as they celebrated 20 years in the Denver community. Unfortunately, in June 2020, JWU announced it will 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. Returning students will be able to attend their classes for the 2020-2021 school year, but those who haven't graduated by then will be able to transfer to the university's Providence, Rhode Island, or Charlotte,

INDUSTRY SNAPSHOT EDUCATION AND HEALTH SERVICES

Nominal GDP, 2019 (\$ Billions)	27.8
Real GDP, 2019 (\$ Billions, 2012 Dollars)	25.0
2019 Real GDP Growth Rate	2.6%
Total Employment, 2019 (Thousands)	347.6
2019 Employment Growth Rate	2.0%
Employment Growth National Rank	12
Share of Colorado Employment	12.5%
Share of National Employment	16.0%
Average Wage, 2019	51,600
Percent of Statewide Average Wage	82.8%
2019 Average Wage Growth Rate	2.9%

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

North Carolina, campuses, or complete their degree online. Some layoffs occurred in 2020, with the majority of cuts expected in 2021.

University of Denver, Colorado's largest private university, experienced a \$21 million loss in revenue in FY2020 but were able to cover the shortfall through retaining students in the spring term, freezing hiring and non-essential 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 is now evaluating how to manage its expected \$45 million budget shortfall in FY2021.

Private for-profit accredited colleges include Arizona-based University of Phoenix. In fall 2020, a total of 83 private accredited colleges are listed on the Colorado Department of Higher Education website; 67 of those are nonprofit and 16 are for-profit, 44 are private seminary schools, and 24 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 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 2020, a total of 271 in-state occupational schools and 18 out-of-state occupational schools approved to market in Colorado are registered with the Colorado Department of Private Occupational Schools (a decrease of 28 in-state schools from 2019). Among Colorado-based private accredited colleges are schools as diverse as Career School of the Rockies; General Air Welding Academy in Denver; Paul Mitchell The School, a cosmetology school in Colorado Springs and Denver; and IBMC College, with three locations in Colorado. Universal Technical Institute (UTI) 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 372 nonpublic-sector schools that provide education to children of compulsory school age (the term nonpublic

schools applies to private, parochial, and independent schools). There are also approximately another 160 schools that focus on nursery through kindergarten. Overall, numbers are down slightly as a handful of schools were not able to survive the pandemic. These were schools with declining enrollment and most likely would have closed anyway. Within that group, private secondary education is alive and thriving in Colorado. A sizable number of students transferred from public to private high schools as most of the large school districts implemented some type of remote or hybrid learning models, and most private high schools were delivering more learning face-to-face. According to the Council for American Private Education (CAPE), attendance at private secondary schools is still growing to record levels, not only in Colorado but across the entire nation. The greatest area of growth is non-sectarian, private religious-based high schools, with 13.4% of schools being non-sectarian in 1989-90, 15.7% in 1997-98, and 21.8% in 2015-16.

Regarding the sectarian-based private high schools open in 2015-16, 37.9% were Catholic private schools, which is down from 53.0% in 1991-92.

According to the 2020/21 results from “Niche,” a national school ranking and research organization, of the top 25 high schools in Colorado, 13 are public. Boulder Valley School District again leads the way, with three of the top 25. Of the 12 private high schools on the list, five are religious-based. That being said, of the 25 top-ranked private high schools in Colorado, 14 are tied to some form of religion-based education.

The growth of private education will continue as the statistics show that private school students are doing better in national testing and academic achievement than their public-school counterparts. The data has not changed in the past several years, but according to the National Assessment of Education Progress (NAEP), in the 2019/20 school year, a student attending a private high school was 16% more likely to attend a four-year college. Additionally, 54% of 8th graders in private Catholic

grade schools are reading at or above grade appropriate proficiency, compared to 34% for public schools; 8th grade Math proficiency is at 43% for Catholic schools and 31% for public K-8 schools.

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 our Colorado population expands, a large amount of the new residents are 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. We are all familiar with some of the great private high schools here 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.

A national movement is underway to make a world-class, college preparatory Catholic high school education available to families who would normally not be able to afford it. This program is called “Cristo Rey.” Arrupe Jesuit High School in north Denver is a member of this 37-school national network that is located in 22 states and the District of Columbia. Under the Cristo Rey program, every student works five days each month at

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sponsoring corporate employers, and students attend regular classes the other four days of the week. This shortened school week results in longer school days and a longer academic year. This “Corporate Work Study Program” provides access to a world-class private preparatory education to fiscally challenged Coloradan families, which otherwise would not be available to them. The results for Arrupe’s graduates speak for themselves. Every student across the 14 graduating classes has been accepted to college, with a 72% persistency rate. The 2020 class of 100 graduates earned \$15.5 million in merit/academic based scholarships. These scholarships included five Daniels scholars, bringing the total to 57 since opening its doors. Last year, Arrupe had its first student receive a full scholarship to an Ivy League school, with one of its best and brightest starting at Dartmouth this past September. In summary, the Cristo Rey Network has created a winning and life-changing strategy that works for its students and their families by breaking the vicious cycle of poverty through education.

Cautious Growth

Driving the cautious optimism for growth 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.
- Closures related to legal and financial difficulties will limit growth.
 - Johnson & Wales University announced in June 2020 that their Denver Campus will be fully closed by the summer of 2021.

The legislative pressures that for-profit schools have faced in the last decade are being eased with the president and education secretary’s support of for-profit colleges and universities. However, at the writing of this report (October 2020), little had changed.



Photo courtesy of Ani Kolleshi/Unsplash.

Educational Support Organizations

Educational support organizations located in Colorado include 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 increase in the adoption of online high school classes. This heavy reliance on

technology both requires more strategic thought specific to pedagogy and instructional design but also provides tremendous opportunities for data-driven education. When this “big data” can provide at-risk reports on behaviors, such as dropped classes within a week of course starts, an understanding of how students learn best and the development of courses that are tailored to student needs in real-time, personalized learning is very close to becoming reality.

Health Care and Social Assistance

The private-sector Health Care and Social Assistance Sector is a significant contributor to Colorado’s economy. The sector employed 294,400 in October 2020, 11,300 fewer jobs than in October 2019. This highlights the volatility in the economy during the global pandemic, even in health care.

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 2021. This is an increase of 6% overall from the 5.5 million people that called Colorado home in 2016. Over this period, the growth in the 65 and older cohort continues to outpace younger cohorts, with a growth rate of 19.8% over the five-year period. The age cohort of 0–64 is projected to grow 3.8%.

Select Populations and Health Status

According to America's Health Rankings produced by the United Health Foundation, Colorado's rank was 10th in 2019. The state's strengths include a physically active population, a low percentage of children in poverty, and a low prevalence of diabetes. Challenges for the state include prevalence of excessive drinking, high rates of pertussis, low birth weights, and low high-school matriculation rate (79.1%). There are also large differences in health status associated with educational attainment, and the state ranks 50th across all states on this metric.

However, the largest impact to health status in Colorado is the pandemic that began rapidly spreading around the world in early 2020. COVID-19 first appeared in Colorado on March 9, 2020, with five confirmed cases. By October 31, it has expanded to 107,000 cases, 9,000 hospitalizations, and 2,000 deaths directly attributed to the virus, according to data from the Colorado Department of Public Health and the Environment. Daily infection rates are increasing in October at the highest rate seen since the start of the pandemic, with a 94% increase over a two-week period.

The virus disproportionately impacts individuals with existing health conditions, so Colorado's relatively low

rates of obesity, diabetes, and cardiovascular deaths among states is beneficial in the overall impact of COVID-19 to the state. A recent report from the CDC Morbidity and Mortality Weekly Report looked at COVID-19 hospitalizations of health care workers and found that 72.5% of hospitalized workers were obese, 40.6% had hypertension, 36.7% had a chronic metabolic disease, and 30.9% had diabetes. Nurses were the most likely personnel to require hospitalization.

Prior to the start of the global pandemic, the opioid epidemic was the most concerning fatal health trend impacting the state. The opioid epidemic has intensified as the result of COVID-19 and in July, health officials in Denver indicated a 282% increase in overdoses over the prior year in just the first five months of 2020. Fentanyl and methamphetamines are two of the key drugs driving overdoses in the state. In 2019, 1,062 overdose deaths were reported, up from 974 in the prior year (9% increase).

Health Insurance Coverage

The 2019 Colorado Health Access Survey published by the Colorado Health Institute indicates that while the rate of uninsured Coloradans has remained stable at 6.5%, the way that Coloradans received their health coverage has shifted. Employer-sponsored coverage has increased back to its highest rate since 2009. Medicaid coverage dropped for the first time since 2015 by 1.2 percentage points, from 19.9% to 18.7%. Notably, the individual insurance market decreased, from 8.1% to 7% – 0.3 percentage points below the 2009 rate of 7.3%. These trends began shifting in 2020 with the emergence of COVID-19. With increases in unemployment, individuals have started shifting back into the Medicaid and individual markets. Continued volatility may exacerbate this trend until a vaccine can begin allowing a return to normalcy.

Employer-Sponsored Coverage

More than half of Coloradans received health insurance through an employer in 2019 as the state continued to prosper from an economic boom. According to the 2019

Colorado Health Access Survey, 52.7% of Coloradans received insurance through their employers—up from 49.4% in 2017.

This trend was disrupted in 2020 with economic turmoil associated with COVID-19. Unemployment increased across many sectors as people around the world significantly curbed demand for services including Health Care and Social Assistance, Retail Trade, Manufacturing, Educational Services, Accommodation and Food Services, and Construction. The Commonwealth Fund estimated job losses with employer-sponsored health coverage at 7.7 million nationally in June 2020. While there have been some encouraging job trends since that report, resurgence of COVID-19 in October 2020 could slow or even reverse job trends.

Another factor to consider is the impact of layoffs versus furloughs. In some cases, employees were furloughed but kept their healthcare coverage during their temporarily laid-off status. However, as the pandemic progresses some of these furloughs may shift to permanent layoffs. This would further drive down employer-based coverage numbers.

Individual and Family Coverage

There were 159,000 effectuated enrollments in the Colorado individual marketplace in August 2020 compared to 139,000 in August 2019, a 14% increase. Connect for Health Colorado attributes this increase to the COVID-19 special enrollment period that occurred in March and April of 2020, which increased enrollment by 14,000 members. 2020 growth in this individual coverage is disproportionately skewed toward the unsubsidized populations. This means that new enrollees are less likely to meet financial requirements to receive government subsidies in 2020. Approximately 22% of the population was unsubsidized in 2019 versus 34% in 2020.

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Medicaid and Uninsured

Colorado's Medicaid program, known as Health First Colorado, covers approximately 1.4 million people, which represents slightly more than one of every five people in the state. Among the enrollees, approximately 500,000 are children, 640,000 are adults without disabilities, and 175,000 are seniors and people with disabilities. Colorado also covers another 71,000 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 \$12 billion in state fiscal year 2020–21, including \$3.2 billion from the State's General Fund.

Since the beginning of the COVID-19 pandemic, Medicaid caseload has changed rapidly. Between March and September 2020, Medicaid caseload increased by 12.7%. 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. Concurrent with this requirement, the caseload has also grown as the unemployment rate has climbed. The state estimates a significant increase in individuals and families who will qualify for Medicaid and CHIP by FY 2022-23, with more than 250,000 more Coloradans expected to be served by the department, representing as much as a 20% increase in

members from the 1.3 million served in March 2020. While 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 7%. 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.

Medicaid caseload is a lagging indicator of economic conditions. Although unemployment spiked dramatically in March as businesses were shuttered due to the pandemic, Medicaid caseload grew much more slowly. As the economy recovers, program caseload falls slowly. There are several key reasons for this situation. First, federal and state requirements for transitional programs allow people to stay enrolled for up to a year. Second, economic recoveries tend to affect people with lower income expectations more slowly. This means that while major economic indicators (such as unemployment, gross domestic product, and stock market indices) may show that the economy is improving, people with less education and people who are competing for low-wage jobs will generally take longer to find work. As a result, Medicaid caseload tends to continue to increase for up to two years after a recession is officially over. Finally, people who leave public assistance programs during economic recoveries tend to be healthier and have lower costs than those people that remain. As a result, as caseload goes down, expenditure decreases by an amount lower than might otherwise be expected, because the people that are leaving have lower than average per capita costs. Collectively, this continues to put pressure on the State's General Fund and limits the opportunity to restore funding to other state programs that received funding reductions during recessions.

In many cases, people who qualify for Medicaid do not apply for benefits until they experience some type of adverse health event. As a result, Medicaid caseload has grown linearly month-over-month since the beginning



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of the pandemic, without any one-time surge. The state expects that caseload will continue to increase smoothly. As the recession abates, the state anticipates that Medicaid caseload will continue to rise for as much as 24 months after economic indicators show that the economy has recovered. This is typically because people with low-income expectations experience economic improvement later in a recovery.

One key factor in Medicaid eligibility growth has been Colorado's decision to increase Medicaid eligibility under the Affordable Care Act (ACA) beginning January 1, 2014; approximately 452,000 people are covered under the ACA provisions, which covered the full costs of newly eligible individuals from 2014–2016, and phased down to a 90% federal contribution in 2020.

Independent research indicates that the Medicaid expansion authorized by the ACA has had a positive impact on Colorado's economy. In a report for the Colorado Health Foundation, the Colorado Futures Center at Colorado State University found that Colorado's economy, as measured by state GDP, is \$3.8 billion (1.1%) larger as a result of Medicaid expansion. Furthermore, the center found that Colorado's economy added more than 31,000 jobs and that household earnings are \$643 per year higher due to the effects of the Medicaid expansion. A federal district court and a federal appeals court have ruled that the ACA is unconstitutional in its current form. This ruling is currently being reviewed by the Supreme Court; if it stands, the 452,000 people who are covered under the ACA provisions would lose eligibility and would need to find health coverage through another mechanism.

Technology in Health Care

With the emergence of COVID-19 in early 2020, many providers rapidly shifted to providing telehealth services for a variety of health care interactions. Prior to the pandemic, telehealth was much less prevalent as reimbursement rates were more favorable for in-person interactions. This rapid adoption of telehealth is an attempt to maintain a volume of patient visits even during physical

distancing measures in place during the pandemic. Most physician executives agree that telehealth will continue at increased rates past the pandemic and that virtual care needs to be integrated into the care delivery model. It has proven to be both convenient and effective for delivering care. One difficulty with a fully virtual model is diagnostic testing. Wider adoption of telehealth as a full-time care solution could drive further investment in digital diagnostic solutions, according to a report by Advisory Board, a health care research organization

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 three primary care delivery employers (this does not account for health insurance employers) include:

- Ambulatory health care services:
 - Establishments: 12,949
 - Q1 2020 Estimated Employment: 145,154 employees
 - 2029 Projected Employment: 161,837
- Hospitals:
 - Establishments: 175
 - Q1 2020 Estimated Employment: 104,714
 - 2029 Projected Employment: 115,202
- Nursing and residential care facilities:
 - Establishment: 957
 - Q1 2020 Estimated Employment: 45,481
 - 2029 Projected Employment: 50,869

Key occupations across these groups includes:

- 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
- Physical Therapists

Health care jobs declined precipitously between March and April of 2020 due to COVID-19. In the initial surge of cases, providers temporarily stopped performing non-emergent procedures. This created a financial shock for providers that have high margins on ambulatory services including physician office visits, dental visits, and other outpatient services. The Bureau of Labor Statistics (BLS) reported losses of 41,100 jobs or 13.4% across the Health Care and Social Assistance sector between March and April 2020. Ambulatory health care services reported losses of 31,800 jobs and hospitals lost 1,000 jobs. The early wave of COVID-19 was more prevalent in the urban areas. Rural hospitals didn't necessarily experience early spikes and were left virtually empty.

While employment fell 13.4% in March and April, employment increased 10.9% from April to October. Employment totaled 294,400 in October, down 3.7% year-over-year. This job recovery is promising. However, COVID-19 trends through early November 2020 are concerning, with daily totals far exceeding the initial COVID-19 wave in March and April. Many states are beginning to reinstate safety measures to try to curb rampant infection rates. Continued struggles to control the virus could cause volatility in health care jobs if states start shutting down services in an attempt to reestablish strict physical distancing measures.

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

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97,000 Coloradans were employed in hospitals in 2019, or about 28% of industry employment.

COVID-19 has significantly impacted hospital financial performance. In July 2020, the American Hospital Association estimated that hospital losses across the country could exceed \$323 billion in 2020. High costs to treat hospitalized COVID-19 patients, coupled with decreases in patient visits for non-COVID related health needs, are having a significant negative impact on hospital financial performance. Restrictions for non-emergent and ambulatory services helped to drive these losses up early in the pandemic.

Many rural hospitals have historically faced greater constraints than urban hospitals, with tighter resources and limited staffing. As COVID-19 continues to move through the country in a series of waves, many rural communities are experiencing high infection rates later than the initial wave that hit the more population dense urban areas. Seventeen rural hospitals have closed nationally in 2020 alone. Notably, no rural hospitals in Colorado have closed between 2005 and October 2020.

Health Insurance

There is some potential abrasion between hospitals and health insurance companies due to the diverging financial impacts of COVID-19 on these two components of the United States health care system. While many hospitals are experiencing negative financial impacts, health insurers are spending less on non-COVID related care and could see a positive financial impact for the year. However, health insurers have taken several steps to respond to COVID-19, including:

- Waived cost-sharing for COVID-19 related services including visits, testing, and treatment;
- Given premium refunds;
- Made donations to support research and treatment efforts;
- Launched technology solutions such as United-Healthcare ProtectWell to screen employees for COVID-19 and help limit spread;



Photo courtesy of National Cancer Institute/Unsplash.

- Distributed emergency funds to health care providers from the CARES Act on behalf of the federal government without payment (UnitedHealthcare);
- Accelerated claims payments;
- Targeted state support such as Kaiser donations to support contact-tracing work in California and Humana donations to community foundations and health and housing initiatives in Georgia.

Pharmacy

According to the American Journal of Health-System Pharmacy, in 2019 prescription drug spending in the United States was about \$507.9 billion. This was an increase of 6.7% over 2018 expenditures of \$476.2 billion. The drugs adalimumab (rheumatoid and psoriatic arthritis), apixaban (blood clot prevention), and insulin glargine (diabetes) were the three highest cost drugs for 2019.

Recent growth in pharmacy has been driven by new drugs, higher prices for existing drugs, and fewer patents expiring. Specialty drugs and cancer drugs remain primary contributors to continued expenditure growth.

According to the Peterson-Kaiser Foundation Health System Tracker, the top five conditions for enrollees of private insurance in 2018 include the following (average annual drug spend by the patient and the health plan):

- Blood diseases: \$7,220
- Cancers and tumors: \$4,749
- Digesting diseases: \$4,095
- Circulatory diseases: \$3,990
- Mental illness: \$3,740

New drug cost expenditures will result from COVID-19. Currently there are only a few drugs approved for treatment including remdesivir. This drug has a per dose cost of \$520 and the five-day treatment course costs \$3,120.

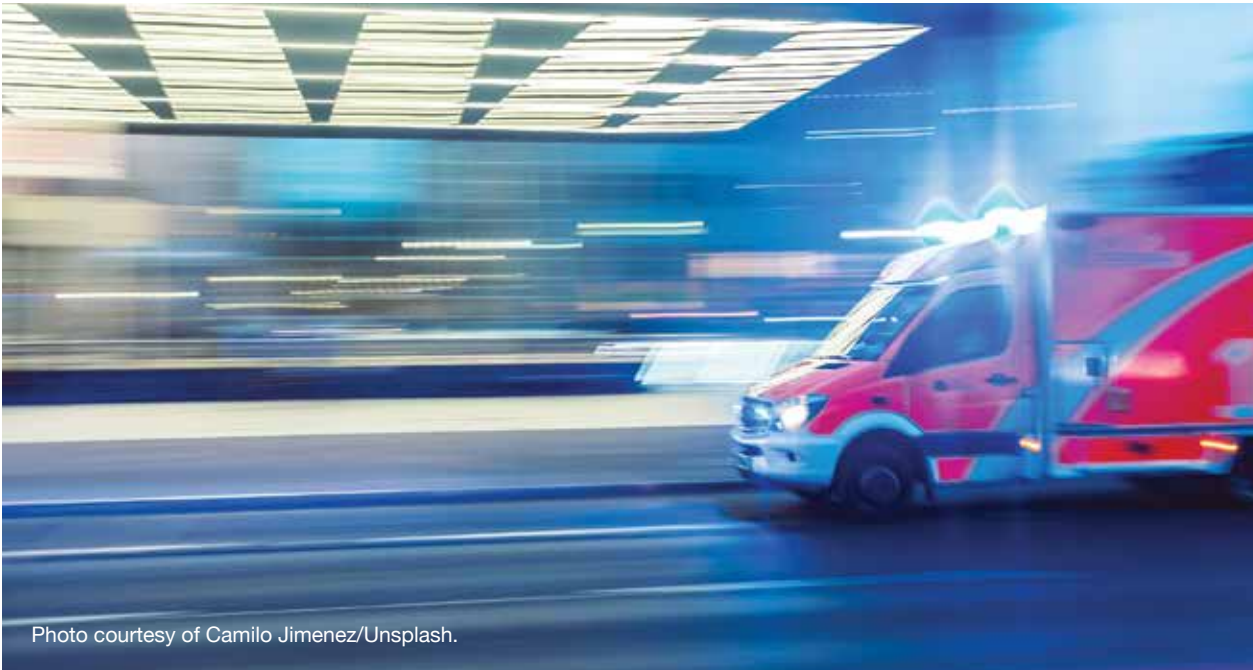


Photo courtesy of Camilo Jimenez/Unsplash.

No pricing is out yet for vaccines still in trial, but once vaccination becomes available, it will create notable increases in spending. Even if there is a low per unit cost, the broad distribution of a vaccine(s) over multiple years will have a noticeable impact.

Public Policy

The pandemic shaped Colorado's 2020 legislative session. As revenue projections fell, the General Assembly took actions to reduce spending, many of which affected health care services across public programs. Federal aid, such as an increase in the Federal Medical Assistance Percentage for Medicaid, did not fill the gap, but prevented even deeper cuts. In total, the State's General Fund appropriations fell by \$1.1 billion, or 9.3%, between FY 2019-20 and FY 2020-21. The Colorado Health Institute summarized the situation in the 2020 Legislative Preview

(www.coloradohealthinstitute.org/sites/default/files/file_attachments/LIR%202020_0.pdf).

As part of the State's budget process, legislators took action to reduce spending in Medicaid and other public assistance programs. Notably, from the FY 2020-21 budget: cut \$161 million in payments to hospitals from the Colorado Healthcare Affordability and Sustainability Enterprise (CHASE); cut more than \$10 million to substance use disorder programs, including medication-assisted treatment in jails; imposed reimbursement reductions to Medicaid providers; cut \$1 million in funds for training providers to assess patients for substance abuse risk; and cut \$1.2 million from the All-Payer Claims Database.

In addition to cuts through the budget, there were several bills passed that also reduced programs and spending. HB 20-1361 reduced the maximum per-person spending in the Medicaid adult dental benefit. HB 20-1364

repealed an opioid awareness program. HB 20-1371 delayed a grant program to counties for community substance use and mental health services. HB 20-1384 indefinitely delayed implementation for wraparound services for at-risk children in foster care and child welfare programs. HB 20-1390 discontinued two therapeutic and rehabilitative culture pilot programs for youth committed to the Department of Human Services.

Although many programs received reductions, there were several bills that allocated federal funding to provide assistance to Coloradans during the pandemic. These efforts included HB 20-1410, providing housing assistance; HB 20-1411, allocating federal funds for behavioral health; HB 20-1412, providing utility bill assistance; and HB 20-1422, providing grants for food pantries.

Despite the reductions to health programs and the need to allocate federal dollars to relief efforts, the General Assembly passed a significant number of health policy bills in 2020. Several bills affected the health insurance market. SB 20-215 established the "Health Insurance Affordability Enterprise," which extends and refinances the State's reinsurance program through a health insurance fee, expands subsidies for people who buy insurance on the individual market, and expands the number of people eligible for subsidies. HB 20-1061 removes barriers to HIV-prevention medication in pharmacies and insurance coverage. HB 20-1078 created new law to regulate pharmacy benefit managers and prohibit them from charging retroactive fees to pharmacies. HB 20-1158 mandated insurance coverage for infertility treatments, with exemptions for religious employers.

In addition, the General Assembly took other actions to make changes in the State's public assistance programs. HB 20-1017 requires the Department of Corrections and county jails to ensure continuity of care by providing resources to people exiting the criminal justice system to help transition to community providers. HB 20-1113

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required the Department of Law to create a process to route reports from students, parents, school staff, and community members, regarding their own safety or the safety of others to behavioral health and community programs, while removing certain requirements for those reports to be forwarded to law enforcement. SB 20-033 expanded the State's Medicaid Buy-in program to allow Coloradans with disabilities to maintain their enrollment in the buy-in program after they turn 65. SB 20-212 requires that the State's Medicaid program reimburse certain providers that provide services to underserved areas for telehealth services and made more types of services eligible for telehealth reimbursement.

The General Assembly also took several actions to improve public health. SB 20-163 tightened immunization requirements for schools. SB 20-204 imposed fees on certain sources of pollution based on emissions. SB 20-205 referred a sick leave proposal that mandates one hour of paid leave for every 30 hours of work, up to 48 hours per year, to voters as a ballot initiative. HB

20-1001 created statewide licensing and regulation of cigarettes, tobacco products, and nicotine products, including e-cigarettes. HB 20-1143 imposed higher fines for air and water quality violations and increased criminal penalties for water pollution. HB 20-1265 required polluters to alert residents in their area if they exceed air pollution standards.

Conclusion

2020 saw a significant shift in health services as the result of the COVID-19 pandemic. Expanded demand for health care services related to the pandemic have been somewhat offset by declines in the utilization of non-emergent care, causing significant financial struggles for health care entities related to care delivery. Previous gains in the employer-based coverage from 2017 to 2019 are eroding as unemployment forces more people into government health programs. With surging cases in late 2020 and no approved vaccines, states have started to reinstate physical distancing measures. This will likely

create renewed volatility in the economy and could erode jobs that have been rebounding since the initial losses between March and April 2020. There is also some possibility of a change in the strategy for managing the dual health and economic crisis posed by COVID-19 with a new presidential administration. This creates additional uncertainty on how each of these threats will evolve in 2021. Even with a vaccine, there will be a long process for immunization, and life will likely not go back to a pre-COVID-19 state before 2022. ❖

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Leisure and Hospitality

Overview

Leisure and Hospitality embodies Colorado's tourism industry: conventions and meetings, hotels, restaurants, gaming, skiing, and outdoor recreation. It includes performing arts, entertainment, sports, recreation, accommodations, and food services used by Colorado residents, tourists, and business travelers. As an industry that relies on person-to-person interactions, this industry has faced an over-sized share of the economic losses due to the COVID-19 pandemic. In March and April, this industry by far lost the greatest number of jobs, and recorded the greatest percentage decline—shedding 161,200 jobs, 46.7% of the industry, in just two months. Employment in the industry is estimated to total 273,400 in 2020, an annual decline of 71,200, or 20.7%. Industry recovery will be dependent on a vaccine and a resumption in consumer activities. Annual growth will resume in 2021, but the industry will remain well-below peak, growing 19,200 jobs, or 7%.

National Trends in the Tourism Industry

The U.S. Travel Association provides data on traveler sentiment, spending and jobs impacts, and outlook for leisure and business/conventions travel that is updated weekly.

As of October, 4.2 million travel-supported jobs have been lost since February—just before the pandemic hit—including indirect and induced travel benefits according to Oxford Economics. Approximately 39% of all jobs lost in the U.S. economy are attributable to declines in travel. The job losses in the travel industry are expected to continue throughout the rest of 2020, with a projected 50% of all travel-supported jobs lost by the end of the year.

Analysis by Tourism Economics shows that national weekly travel spending rose to \$13.1 billion the week ending October 10, the highest level seen since the onset of the pandemic (not including national holiday weeks). This was the third consecutive week of travel spending growth, a 2% increase following a 5% increase the prior week. While national weekly travel spending has been

improving, it is still down 41% compared to the same week in 2019—a \$9.1 billion loss.

Since the beginning of March, the U.S. travel industry has lost a cumulative \$415 billion. Hawaii, Washington D.C., New York, Massachusetts, and Illinois are some of the hardest hit states, with losses exceeding 50%. Cumulative losses are greatest for the South (\$138 billion), followed by the West (\$125 billion), Northeast (\$87 billion), and the Midwest (\$65 billion). The losses in the travel industry have impacted tax revenue, with a cumulative loss of \$53.3 billion in federal, state, and local taxes since March 1.

The travel industry has recovered since the lows but is still observing large monthly losses. The industry lost \$76.9 billion in May, but losses have declined to \$39.2 billion in September. October is on track to observe a \$41 billion loss.

According to Arrivalist's Daily Travel Index, which measures consumer road trips of 50 miles or more within the U.S., road travel was only down 5.5% year-over-year the week ending October 10. The index has been steadily improving since the lows of -70% year-over-year observed in early April, and the week marks the best performance since the start of the pandemic.

Domestic air and hotel bookings for future travel was down 62% year-over-year in the week ending October 5. Domestic bookings were down the most in New York (-81%), Massachusetts (-74%), and Maryland (-73%), according to ADARA's Travel Trends Tracker. International bookings for future travel to the U.S. were down 77% year-over-year.

According to a national tracking poll by Longwoods International, nearly half of Americans indicate they will stay home this holiday season. Of those who plan to travel, 41% plan to travel by car and 19% intend to fly. According to Engagious's Back to Normal Barometer, 34% of travelers would be much more likely to fly domestically if all passengers and employees tested negative for COVID-19 immediately before flying, while 26% of

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INDUSTRY SNAPSHOT LEISURE AND HOSPITALITY

Nominal GDP, 2019 (\$ Billions)	20.2
Real GDP, 2019 (\$ Billions, 2012 Dollars)	16.3
2019 Real GDP Growth Rate	2.0%
Total Employment, 2019 (Thousands)	344.6
2019 Employment Growth Rate	1.4%
Employment Growth National Rank	16
Share of Colorado Employment	12.4%
Share of National Employment	11.0%
Average Wage, 2019	27,131
Percent of Statewide Average Wage	43.5%
2019 Average Wage Growth Rate	4.8%

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

LEISURE AND HOSPITALITY EMPLOYMENT 2011-2021 (In Thousands)

Year	Arts, Entertainment, and Recreation	Total Accommodation and Food Services	Total Leisure and Hospitality ^a
2011	45.6	225.8	271.4
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 ^b	58.6	286.0	344.6
2020 ^c	48.0	225.4	273.4
2021 ^d	51.6	241.0	292.6

^aRevised. ^bEstimated. ^cForecast.

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

Leisure and Hospitality

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travelers would be much more willing to attend a conference if all attendees tested negative.

According to a weekly survey by Destinations Analysts, the pandemic is expected to have a significant impact on winter travel. Nearly 25% fewer Americans will be traveling for the holidays compared to 2019. About 68% of regular ski travelers plan to return to a destination for an overnight trip this season. In terms of convention/group meeting travel, 71% say they are unlikely to attend conventions until COVID-19 is more under control, which is at its lowest point since the start of the pandemic.

According to the iMeet Survey of Meeting Planners, 16% of planners believe they will resume face-to-face meetings by the end of the year, 40% of planners are targeting the first half of 2021, and the majority (33%) are targeting Q2.

Tourism in Colorado

The Colorado Tourism Office's (CTO) mission is to drive traveler spending through promotion and development of compelling, sustainable travel experiences throughout the state. During the first six months of FY20, CTO continued expanding the national reach of the highly successful "Come to Life" marketing campaign, generating its highest-ever return on investment and record-setting economic impact for Colorado. The campaign targets high-value travelers with the goal of increasing tourism spending and state and local tax generation in all parts of Colorado.

COVID-19 Impacts on Colorado Travel

Between March 8, the start of the COVID-19 containment in Colorado, and October 31, total Colorado travel spending was \$7.15 billion, compared with \$15 billion in 2019. This is a \$7.85 billion difference or a 52% decrease.

While mountain destinations had a busy summer, generally the state's mountain areas account for less than 25% of all traveler spending. Spending plunged in Denver and the northern Front Range, which in 2019 generated

nearly 60% of all traveler spending, with the Pikes Peak region accounting for another 11%.

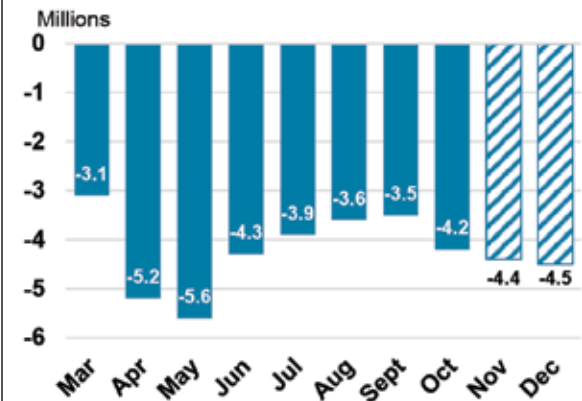
A Rocky Mountain Lodging Report showed a statewide hotel occupancy rate of 44.8% through August, compared with 72.1% during the same eight-month period in 2019. Denver's average occupancy rate was just 42.6%, down from 76.5%, with the average hotel rate down by a third.

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.

Colorado Tourism Highlights

- 2019 was the tenth-record setting year in a row for Colorado's tourism industry.
 - Research indicates the industry will take approximately three-to-four years to recover in terms of job growth and economic impact.
- Total direct travel spending in Colorado during 2019 exceeded \$24.2 billion, a 7.3% increase from 2018 and well above the national average increase of 4.3%.
- In 2019, Colorado welcomed a combined total of 86.9 million overnight and day visitors, up 2% from 2018.
- Overnight stays by discretionary leisure travelers—those targeted by tourism campaigns—were up to a record-high 20.9 million in 2019, a 7% increase from 2018. Colorado's share of these travelers ticked up from 3% to 3.3%, retaining its ninth-place ranking even as other major vacation states lost share. In 2009, Colorado held the 18th-largest share of this valued travel segment.
- Visitor spending continued to spur job creation in 2019, with travel spending directly supporting 181,400 jobs, a 3.1% increase from 2018. This increase is well above the national average of 1.1%.

2020 DECLINE IN U.S. TRAVEL EMPLOYMENT RELATIVE TO PRE-CRISIS LEVELS



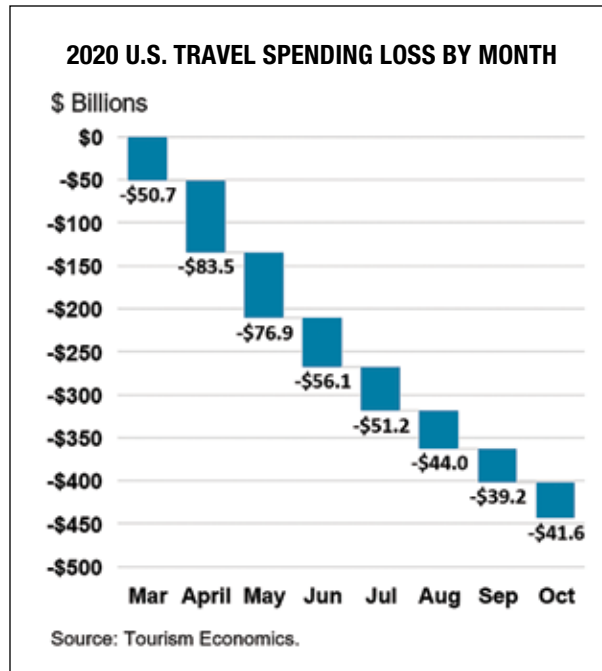
Source: Oxford Economics.

Note: November and December are estimated.

- Colorado's 78% visitor satisfaction rating continued to rank above the national norm, with especially high ratings for quality of attractions, accommodations, cleanliness, safety and security, and friendliness.
- Colorado is viewed as a leader in sustainability. A recent study reports that more than 80% of travelers indicate the state does a good job protecting and preserving its natural resources.
- CTO research continues to show more travelers report a destination's sustainability practices are important to their choice of destinations. A recent study indicates about half of consumers consider a destination's sustainability practices when planning a trip.

Colorado Tourism Program Updates

The CTO and Leave No Trace Center for Outdoor Ethics broadened its partnership last fiscal year by forming the



Care for Colorado Coalition, which encompasses about a dozen other statewide organizations committed to spreading awareness of destination stewardship through materials produced by CTO. Partners now include: the Colorado Hotel & Lodging Association (CHLA), Colorado River Association (CROA), the Colorado Dude & Guest Ranch Association (CDGRA), Colorado Association of Ski Towns (CAST), the Colorado Mountain Club (CMC), Colorado Association of Destination Marketing Organizations (CADMO), Bicycle Colorado, Bureau of Land Management Colorado (BLM), Colorado Campground & Lodging Owners Association (CCLOA), Colorado Parks & Wildlife (CPW), Colorado Scenic & Historic Byways Commission, Destination Colorado, Great Outdoors Colorado (GOCO), Tour Colorado (TOCO), USDA Forest Service Region 2 (USFS), and numerous other pending agreements.

In response to COVID-19, the CTO launched a new comprehensive interpretation promoting the state's new take on responsible travel, encouraging visitors to show care not only for destinations but for the people who call them home. The Care for Coloradans initiative includes a one-minute animated video, a new Responsible Travel edition of the "Are You Colo-Ready?" brochure, as well as a poster that now hangs in all Colorado Welcome Centers. Prepared with input from the Colorado Department of Public Health and Environment, the materials outline five critical components of safe travel, including physical distancing, facial coverings, cleanliness, staying home when sick and being aware of local guidance. All materials are being shared in a toolkit for use by anyone or any organization in Colorado.

The CTO continues to promote rural economic development. The CTO partnered with the Colorado Energy Office and the Colorado Department of Transportation to increase accessibility of electric vehicle charging stations along Colorado's 26 Historic and Scenic Byways.

The Colorado Tourism Office built and launched a new micro-site on Colorado.com to promote all of the state's 26 Scenic and Historic Byways. This project was the result of a \$141,293 grant from the State Historical Fund, and the CTO collaborated with multiple state agencies, Regional Byway groups, the State Byways Commission and Miles Partnership to complete the project. The new microsite includes travel itineraries, photos, local tips, videos and more.

In FY20, the CTO granted over \$680,000 to cultivate local tourism development and promotion in 27 counties across the state.

In 2019, the CTO created and launched the Colorado Concierge program as a free digital resource and training platform for all Colorado businesses to coach their front-line workers into being Colorado experts and develop their abilities to deliver Colorado-style hospitality. The CTO's research-based definition of Colorado hospitality is "a genuine, kind-hearted invitation to share in the life and wonder of Colorado."

International Travel to Colorado

In 2019, Colorado attracted more than 1.05 million international visitors to the state, slight growth from 2018. Those international travelers spent \$1.8 billion, a slight decline from the \$1.83 billion spent in 2018, largely due to a drop-off in travelers from Canada and Asia.

International visitors are Colorado's highest-value traveler, spending an average of \$1,706 per person per trip while visiting the state. Overseas travelers remain Colorado's highest-value visitor, spending an average of \$2,333 per person per trip.

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 international program is currently working with representation in overseas markets—Australia, Germany and the United Kingdom— with the highest economic impact to the state..

Mountain Destination Travel Trends

Destination travel in Winter 2020/21 at Colorado mountain resort towns is likely to vary widely over the course of the season. The usual wildcards of snow and the economy are further complicated by the incidence of COVID-19 and the management of both the cases and the messaging by local health authorities and other jurisdictional and business leaders. These conditions in both the feeder market (i.e., source of business) and the destinations themselves will continue to impact consumerism for the foreseeable future.

Summer 2020 wound down after a non-start in May and with tentative reopening that began in earnest in June. While pent-up demand drove visitation, overnight stays in mountain towns remained dramatically down for the summer, though occupancy levels gradually improved through August and September. Colorado mountain town occupancy from January to October 2020 was down 25.4% year-over-year compared to the same time

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last year (including a flat January and February), while lodging rates were up 7.7% (including the January and February pre-pandemic gains). Revenue was down 19.6% (also including January and February gains).

The improvements in demand and room rate in August and September carried over to early winter season bookings; however, while policy announcements from both towns and the major ski companies have triggered a start in earnest to the winter booking season, booking patterns have shifted dramatically from years past.

Changes in Booking Patterns

Booking lead times are much shorter than usual. The bulk of reservations transacted as of October 31 for winter are scheduled to arrive in late November and through Martin Luther King Jr. day in mid-January, with large concentrations around the Thanksgiving, Christmas, New Years, and MLK holidays. However, missing from the booking mix is a sustained, long-lead booking pattern for arrival mid-January through April 30. The result is short-lead booking strength for the early winter and sharp declines for the mid- and late-season bookings when compared to the same time last year. If the lead time compresses further, occupancy and revenue deficits will be difficult to recover. This is making it harder for destinations (and researchers) to predict beyond 65 days into the future, which impacts budgeting, staffing, supply lines, and marketing, among other things.

There is an increase in the number of guests arriving on Sunday, Monday, and Tuesday as guests take advantage of traditionally quieter times and the lower midweek rates. This is a very positive development and accomplishes something long sought after by many towns and operators, having the effect of flattening weekend and midweek occupancy variances, which are traditionally dramatic during the winter season.

Length of stay is extending by 0.22 nights per booking on average for any arrival date. Stays arriving on Saturday, Sunday, Monday, and Tuesday are all up, with Monday arrivals staying 1.25 nights longer than they were this time

DENVER LODGING STATISTICS						
	2018	2019	2020	2021	2022	2023
Occupancy	73.10%	73.9%	42%	54%	70%	73%
Percent Change		1.1%	-43.2%	28.6%	29.6%	4.3%
Average Rate	\$131.75	\$135.67	96	112	126	135
Percent Change		3.0%	-29.2%	16.7%	12.5%	7.1%
RevPAR	96.34	\$100.27	40	61	88	98
Percent Change		4.1%	-60.1%	52.5%	44.3%	11.4%

Source: Historical data (2018 and 2019) from STR, projections (2020-2023) from HVS.

last year. This is contributing to the distribution of guests and results in an additional night of revenue for every five nights booked, on average. Changes in work-from-home and school-from-home behaviors are both contributing to the changes in length of stay and arrival dates.

Tourism and Conventions in Denver

While Denver tourism in 2019 set new records, the impacts of the COVID-19 pandemic to tourism and conventions have been devastating. The year 2020 has also been a year filled with demands for social justice, an economic depression, and contentious election cycle. We can celebrate these recent successes but know that the realities of 2020 and the outlook for 2021 offer a much different picture for this vital sector of our local and state economy.

Looking back on 2019 (the latest figures available), research firm Longwoods International indicated that Denver welcomed 31.9 million total visitors, including 17.7 million overnight visitors, which were both new records. Since voter approval to increase tourism marketing dollars in 2005, Denver tourism has grown by 68% compared to 24% nationally. Travel spending by overnight visitors in 2019 was \$6 billion, and total visitor spending was \$7 billion, also new records. For the 16th straight year, the number of marketable visitors also grew,

increasing 5% from 2018. While 2020 numbers won't be available until mid-2021, analysis by Tourism Economics indicates that national travel spending will not recover to 2019 levels until sometime in 2023 or beyond.

Despite the extreme challenges created by the pandemic, Denver continues to receive awards and accolades specific to the tourism sector and for the city overall that point to a positive recovery:

- *Lonely Planet* named Denver one of the “Top Ten Cities in the World to Visit in 2020;” popular UK travel publication, *Rough Guides*, crowned Denver the “Top Worldwide City to Visit in 2020;” *Forbes.com* placed Denver among the “Top 25 U.S. Cities to Visit in 2020;” and AAA indicates that Denver is the “most planned destination in the U.S. for road trippers in 2020.”
- Moody's Analytics named Denver one of the “top ten cities best-positioned to recover from coronavirus” in the U.S., and *U.S. News & World Report* ranked Denver #2 on the list of *100 Best Places to Live*.

Denver Hotels and Lodgers' Tax

Denver's blockbuster tourism year in 2019 led to a record for lodgers' tax collections, generating \$130 million, up

nearly 12% from 2018. However, year-to-date 2020 lodgers' tax is down 65% and is projected to be down for the year nearly 70% compared to 2019. Forecasting for 2021 lodgers' tax, projections indicate a 50% decline compared to 2019.

According to Smith Travel Research (STR), through September 2020 occupancy in Denver was down from 78.3% to 44%. Over this same time period, the average daily rate (ADR) decreased 28.1% from \$160.68 to \$115.59 and revenue per available room (RevPAR) decreased 62.9%, to \$46.71 from \$125.89. For Metro Denver, occupancy decreased 41.9%, from 76.3% to 44.4%. ADR decreased 27.6%, to \$99.48 from \$137.34, and RevPAR decreased 57.9%, to \$44.14 from \$104.83. Looking ahead to 2021, Tourism Economics projects Denver hotels will recover 80% of 2019 demand levels and in 2022 will reach 95% of 2019's peak, with Denver room demand fully recovering in 2023.

Metro Denver opened 220 new hotel rooms in 2020, significantly less than in recent years. An additional 2,166 rooms are scheduled to open in 2021, with 3,958 rooms in the pipeline for 2022 and 720 in 2023. In 2020, the following properties began welcoming guests:

- Avid Hotel Denver Airport Area - 97 rooms
- Element Denver International Airport - 123 rooms

Convention Highlights

While 2020 began with a robust meetings and conventions calendar, signs of a dramatic shift were first noted when a large citywide convention canceled their event on February 29. Since that time, all conventions at the Colorado Convention Center (CCC) have been canceled through the end of 2020, and meetings at hotel properties have also been severely impacted.

- Looking back on 2019, it was a solid year finishing with 737,806 room nights, 1,026 meetings, and attendance of 396,107.

- Prior to the pandemic, 2020 was on pace to finish with all-time records of 796,407 room nights, 1,052 meetings, and 446,428 in attendance.
- To date, more than 500 cancellations have occurred, representing \$861 million in economic impact, more than 421,000 attendees and more than 645,000 total rooms. These cancellations represent business that was to take place between March and December 2020. The numbers are staggering and continue to grow each day.
- Since April, the exhibit level of the Colorado Convention Center (CCC) has been utilized as an Alternate Care Facility by the state, though it has not accepted any patients to date. Meeting rooms, the Bellco Theater, and the building's two ballrooms remain available for meetings. However, strict indoor event guidelines prevent most meetings from occurring at the CCC and hotel properties. While these gathering restrictions are in place to protect public health, the near absence of group meetings and conventions have had a dramatic impact on the center city and Denver overall.
- While short-term meetings have been impacted, Denver's long-term prospects in this market remain strong.
- Looking ahead to a bright spot in 2021, expansion of the CCC is proceeding. The facility will undergo a major expansion that will bring up to 80,000 square feet of new flexible meeting and ballroom space, as well as extensive new pre-function space and a rooftop terrace with views of the Rocky Mountains. The expansion will also provide best-in-class technology improvements. The project will begin in June 2021 with completion at the end of 2023. This major infrastructure investment sets up Denver to be in high demand as group meeting business recovers.

Tourism Highlights

All paid marketing activities for Denver were frozen in March as the pandemic spread, stay-at-home orders were issued, and much of the world locked down. Due to strict

gathering limits and other factors that constrain recovery of the meetings market, leisure tourism is currently leading Denver's recovery.

- A focus on supporting vital local tourism and hospitality partners, as well as the broader community, led to new initiatives in 2020 including ToGo Denver, highlighting nearly 1,000 restaurants offering delivery and take out, and the Love This City contest where more than 20,000 locals tested their Denver knowledge and received prizes from local businesses. In November, Denver will be hosting its first-ever fall Denver Restaurant Week to support the restaurant industry and Denver Arts Week(end) to support the city's diverse art and cultural scene. The annual Mile High Holidays campaign will continue to focus on safe and welcoming experiences for locals and visitors to enjoy.
- Paid marketing for Denver resumed in late June through the "You Deserve Some Denver" campaign targeted to audiences statewide in Colorado, short-haul visitors in regional markets and select long-haul markets like Chicago.
- Denver International Airport (DEN) has been consistently outperforming the nation in terms of TSA throughput, with DEN realizing a 52% reduction versus a national decline of 65% compared to 2019 levels through October. DEN's performance is bolstered by its strong domestic network.
- Denver's top art and cultural attractions were able to host blockbuster exhibits in 2020 with enhanced visitor safety considerations in mind. These exhibits included: *Norman Rockwell: Imagining Freedom at the Denver Art Museum* (DAM), Denver Museum of Nature & Science's *The Art of the Brick*, and Denver Zoo's *Nature Connects*®, *Art with LEGO® Bricks*. Closing out 2020 and looking ahead to 2021, *Frida Kahlo*, *Diego Rivera*, and *Mexican Modernism* will be at DAM, DMNS will host *Stonehenge: Ancient*

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Mysteries and Modern Discoveries and the reopening of the Denver Center for the Performing Arts, which has been dark most of 2020.

- The Denver Art Museum’s expansion will open in 2021 and the second installment of famed art collective, Meow Wolf, will be making its home in Denver next year as well.
- Denver is upgrading its infrastructure for the benefit of residents and visitors in many ways. These projects will also help drive Denver’s recovery from the pandemic. Projects include:
 - Widening of I-70 between I-25 and Chambers Road, which is under way and estimated to be completed in 2022;
 - Redevelopment of the National Western Center is currently under way with the first buildings set to open in 2022;
 - Reconstruction of the 16th Street Mall will begin in 2021;
 - Expansion of the Colorado Convention Center will begin in June 2021 and is estimated to be completed by the end of 2023; and
 - DEN is adding 39 new gates spread among the three concourses, which will increase overall capacity by 30% for domestic and international routes and become operational in 2021 and 2022.

Challenges to Denver’s Tourism Industry

The outlook for the tourism and hospitality sector, and the economy overall, is uncertain for a variety of factors outlined above. Additional challenges include:

- The state has the ability to extend its lease of the Colorado Convention Center as an Alternate Care Facility through the first quarter of 2021. Gathering restrictions and capacity limits continue to have the most dramatic impact on the meetings industry, which drives hotel occupancy and average rates throughout the metro area. These restrictions also

impact other indoor and outdoor events—including sports and entertainment—restaurants, and other businesses and attractions that are critical to the economic recovery of our industry and state.

- A significant unknown for the meetings and conventions sector is the role of hybrid and virtual meetings. These alternative forms of gathering have allowed for continued collaboration, education, and networking during the pandemic. Trends indicate that hybrid meetings will not be a negative long-term impact to in-person meetings and conventions but will be a complement to grow interest in conference education, programming, and business development to a new audience.
- 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, leading to some challenges in how the city is marketed.
- 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.
- There is significant concern about how the pandemic will impact businesses this winter and the ski businesses and the ski industry this winter, including visitors who spend time before and/or after their ski vacation enjoying Denver.
- All visitor segments—business, leisure and groups—are being held back by fear and economic constraints.

Colorado Hotel Market

The global COVID-19 pandemic and the related restrictions on travel, business activity, and individual movement had a significant impact on Colorado’s 2020 lodging industry performance, employment, and transactions, similar to the composite nationwide

effects. The national economic downturn, which ensued following the pandemic-related shutdowns and restrictions, similarly resulted in a disruption of Colorado’s lodging demand drivers. Forecasting a recovery of hotel performance will be tied to shifts in the overall Colorado and national economies, including the reopening of businesses, removal of travel and gathering restrictions, resurgence in travel, and restoration of disposable income for leisure travel.

The lodging industry is extraordinarily resilient. While past “shock” events and downturns have caused business to plummet, the industry’s performance has always recovered. Even though the pace and degree of the COVID-19 downturn is unprecedented, market participants believe the hospitality industry will recover and, as in the past, this cycle will create the opportunity for strong returns through well-timed and well-executed investment strategies. Like the U.S., the Colorado lodging market bottomed out in April 2020, with total RevPAR down over 80%. Slow and steady improvement has ensued, although year-to-date 2020 occupancy, average daily rate (ADR), and RevPAR metrics remain well below 2019 levels. RevPAR equates to the product of occupancy and ADR. As of the third quarter 2020, year-over-year RevPAR levels were down approximately 30% to 40% compared to 2019 for the Denver Metro Area hotel submarkets. According to STR, while the Downtown Denver and DTC submarkets incurred greater YTD occupancy declines as compared to the Airport/East, North, South, and West submarket, ADR for Downtown and DTC hotels discounted less.

The RevPAR metric reflects a blend of more severely depressed urban hotel performance and more resilient performance of hotels in destination and mountain locations. Similarly, the extended-stay product type and the economy hotel class have illustrated bright spots amidst the spectrum of property types and price points. As RevPAR or top-line trends reflect severe declines compared to 2019, EBITDA has concurrently illustrated declining and even negative levels year-to-date.



Photo courtesy of Henry Desro/Unsplash.

Accordingly, owners and lenders have been monitoring hotel loans, with some loan workouts and extensions in progress. Similarly, the pace of hotel sales transactions has been severely stifled, as uncertainty has suppressed expectations. The new hotel pipeline will also affect performance levels of existing supply and the pace of recovery. As of mid-year 2020, over 10,000 new hotel rooms were forecast to open in the six Denver hotel submarkets over the next few years, with the downtown and airport areas reflecting over half of that volume. Nonetheless, as several proposed hotel projects that were in the early stages of planning or in the financing phase have been placed on hold or canceled, the competitive impact on existing hotels in the near term may ease.

Global hospitality industry consulting firm HVS expectations for recovery and normalization of Colorado hotel performance levels rely on a resurgence in demand fostered by shifts away from business and travel restrictions,

containment and management of the COVID-19 virus, and restored consumer confidence to proceed with business and leisure travel. HVS lodging forecasts for Colorado also anticipate that urban hotel ADR will take longer to recover than in prior cycles given the magnitude of the rate declines and the discounting practices that ensued in 2020. Furthermore, ADR will represent a key marketing tool to stimulate demand recovery. The availability of the shadow supply (Airbnb, Sonder, etc.), which was not a factor in prior cycles, may also influence ADR recovery.

Denver International Airport

DEN served 69 million passengers in 2019, ranking it the fifth-busiest airport in North America and the 16th-busiest in the world. This was the highest number of annual passengers in DEN's history. Passenger traffic increased by 7% in 2019 compared to 2018, primarily driven by

growth in international traffic and DEN's largest carriers: United, Southwest, and Frontier. The COVID-19 pandemic in 2020 has caused massive negative impacts to the air travel industry. For the year-to-date period ending September 2020, DEN's passenger traffic has declined 53% as compared to the same period in 2019. Airline passenger traffic at DEN is expected to remain at this greatly decreased pace through the end of 2020 and well into 2021. Twenty-one airlines have provided nonstop service so far this year to 210 destinations from DEN, although many international carriers and destinations have temporarily paused their DEN nonstop service due to COVID-19.

Tourism in Colorado Springs

Colorado Springs and the Pikes Peak region fared well compared to other U.S. destinations in 2020. Before the pandemic hit, hotel occupancy numbers were similar to 2019. Starting mid-March, occupancy dropped drastically. Colorado Springs hit its all-time hotel occupancy low in April at just 18%. However, this metric increased month-to-month after April.

In mid-July, Colorado Springs had the highest hotel occupancy rate of 165 U.S. cities surveyed by STR, the leader in global hospitality benchmarking. Most of this growth was attributed to the region's wide-open spaces and outdoor activities, as well as the ongoing marketing and advertising strategy by Visit Colorado Springs and top region attractions. By mid-August, STR still ranked Colorado Springs among the highest in U.S. hotel occupancy across the country, with a rate of 82% for the weekday occupancy and 93% for the weekend occupancy. The overall August hotel occupancy was 66%, according to the Rocky Mountain Lodging Report, which was down from 88% in August 2019. In September and October, the hotel occupancy rate is still lower than 2019, but the percentage decline continues to shrink, pointing to recovery.

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The Lodgers and Automobile Rental Tax was down 41% through August compared to 2019. While most business travel and events were canceled, the five largest hotels in the region were still able to hold a total of 340 meetings this summer.

Even through the pandemic, the Pikes Peak region has proven to be a top destination for those looking for plentiful opportunities to escape to the outdoors and stay socially distanced. Visit Colorado Springs launched the Peak of Safety pledge in August 2020 to help keep visitors, residents, and local businesses safe. The Pikes Peak Small Business Development Center released a “Bundle Up for Small Business” cold weather toolkit in October to support retail businesses and restaurants and help them stay open in the colder months.

Despite the hardships of 2020, the region was still able to open new attractions such as the U.S. Olympic & Paralympic Museum and the rebuilt Flying W Ranch. Many restaurants, including trendy new spots like CO.A.T.I. food hall, Uva Wine Bar, Mood Tapas and Stellina Pizza Café, opened throughout the year. At the end of 2020, boutique hotel Kinship Landing opens in downtown Colorado Springs, bringing even more lodging options to the city.

Colorado Springs anticipates a strong recovery in 2021. Southwest Airlines is beginning service to and from Colorado Springs Airport starting in March 2021, which will support the local tourism economy by opening up additional flight and fare options for visitors and residents. In May 2021, the new Pikes Peak Visitor Center at the summit of America’s Mountain will open, as well as The Broadmoor Manitou and Pikes Peak Cog Railway, rebuilt over the last three years. The Pikes Peak region continues to grow and add more attractions, restaurants, and activities that will draw visitors for years to come.

Casinos

Like so many in the hospitality and tourism industry, the steady economic growth that Colorado casinos and

COLORADO CASINOS 2010–2020

Year	Casinos Open	Devices (Thousands)	Adjusted Gross Proceeds ^a (In Millions)			
			Black Hawk	Central City	Cripple Creek	Total
2010	39	15.4	\$559.4	\$65.7	\$134.4	\$759.6
2011	39	14.7	550.9	67.8	131.4	750.1
2012	41	15.0	558.5	74.6	133.2	766.3
2013	40	14.6	553.1	67.6	128.0	748.7
2014	36	14.2	560.6	62.3	123.4	746.3
2015	36	13.8	595.8	66.2	128.0	790.1
2016	35	13.5	609.8	69.6	131.4	810.8
2017	34	13.0	621.4	71.9	134.7	828.1
2018	33	12.7	626.9	75.3	136.7	838.9
2019	33	12.8	613.4	79.7	140.6	833.7
YTD. Sept. 2019	33	12.7	466.5	60.9	108.2	635.7
YTD. Sept. 2020	35	10.4	274.4	38.7	73.5	386.6

^aAGP calculated on an annual basis, hence different from the state fiscal year.

Source: Colorado Division of Gaming.

the gaming sector had experienced was abruptly halted with their closure in 2020 due to COVID-19. Despite reopening with tight restrictions, 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 to increase visitation including offering nongaming amenities.

The inception of sports betting, which became legal in Colorado in May, has proven to be an asset to the many

in Colorado who avail themselves to sports and gaming, as well as the many beneficiaries who enjoy the taxes paid by the casinos. Most of the revenue from sports betting will go toward the Colorado Water Plan, legislation that was passed in 2019 to help meet the water needs of the state’s growing population. According to the Colorado Division of Gaming, more than \$200 million was wagered in Colorado on sports betting in September (the largest since legalization), with mobile betting constituting 98% of wagers made. Currently, Colorado has 15 licensed online operators and 11 retail operators operating mobile and in-person sportsbooks.

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 including community colleges and the state's historic preservation program. These gaming tax revenues help bolster their budgets and maintain their commitments to enhancing quality education for students at a more affordable price and preserving Colorado landmarks. The gaming tax also continues to fund the tourism promotion budget for the Colorado Tourism Office at \$15 million annually.

For the fiscal year ending in June 2020, Colorado casino adjusted gross proceeds (AGP), which is defined as the amount wagered by players less payout from the casinos to all players, were \$617 million. Gaming taxes paid to the state were \$80 million, reflecting a decline from last year due to the pandemic.

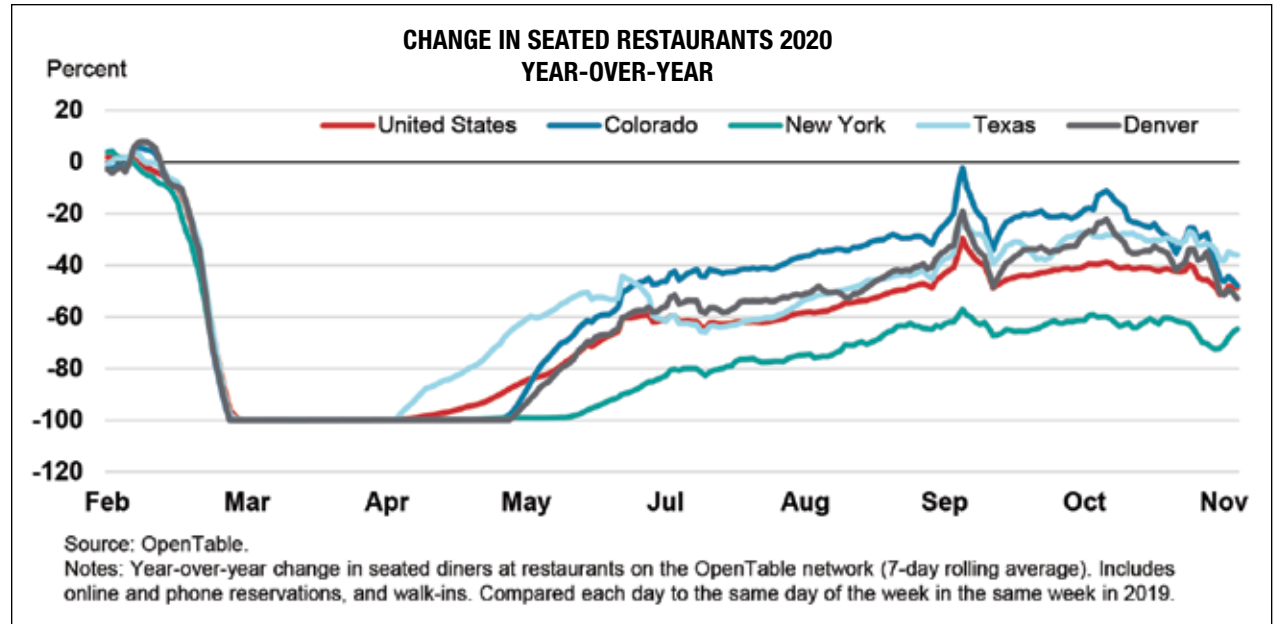
Black Hawk continues to dominate the Colorado casino sector with 15 casinos, 6,947 devices, and a majority of the AGP. Cripple Creek has 12 casinos and 2,542 devices and Central City has 6 casinos and 1,191 devices.

The gaming industry remains threatened by the occupancy and game limitations due to COVID-19 restrictions. The continued attempts to expand gaming to the Front Range, either by authorizing video lottery terminals and keno machines, or instant racing machines at racetracks and other locations, also looms ever present.

In November of 2020 voters across the state overwhelmingly approved Initiative 77, which allows local gaming towns to determine additional games and bet limits in the gaming communities. This will provide an opportunity for those towns most devastated by the closures of casinos to increase gaming tax revenues and begin the return to economic growth.

Colorado Restaurant Industry Outlook

COVID-19 is the most challenging crisis the restaurant industry has faced in living memory. Colorado's restaurants brought in \$14.5 billion in revenue in 2019, but the industry is on track to lose billions in 2020. March



brought a crushing statewide dine-in shutdown that lasted for more than two months. Nearly \$1 billion was lost in April alone because of a statewide dining room shutdown. When restaurants were allowed to reopen in late May, they were required to operate at 50% capacity or 50 people indoors, whichever was lower. While outdoor dining helped some restaurants add to their total number of seats over the summer, fall's colder weather coincided with a virus spike that brought further indoor capacity restrictions to many municipalities.

According to the National Restaurant Association, at least one in six restaurants (nearly 100,000 restaurants) in the nation are projected to close in 2020, and the industry is on track to lose \$240 billion this year. In August, the Colorado Restaurant Association estimated staffing levels were at about two-thirds of what they had been in August 2019, which means the industry shed nearly 90,000 jobs. In October, restaurant sales were still down an average of 40% statewide. Hundreds of restaurants

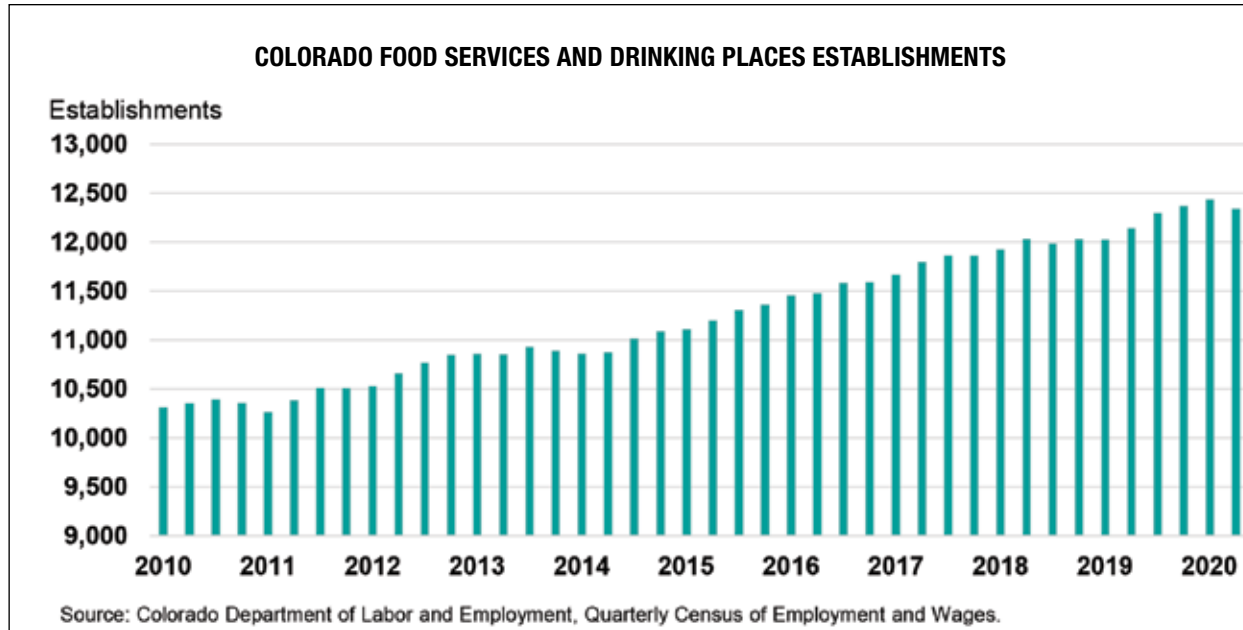
have closed, and thousands are under threat—in October 50% of restaurants said they would have to consider closing within six months. If indoor capacity were to be restricted to 25%, as it has been in several counties, that number would jump to 70%.

The Paycheck Protection Program (PPP)—the main federal relief program aimed at small businesses—was not ideal for restaurants. Early forgiveness requirements were predicated upon using 75% of the loan on payroll—a challenge for restaurants that had been forced to shut down and lay off their staffs. By the time the rules changed to make the program more friendly to restaurant owners, many had already used their loans. Still, this infusion of cash allowed many to stay afloat, and more than 40% of restaurants cite another line of cash relief like the PPP as their number one need for survival.

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Restaurants have experienced different levels of distress depending on their geography. The timing of the shutdown gravely affected resort area restaurants, as it came at the height of the ski season. However, over the summer, mountain areas saw a massive influx in tourism which they were able to capture thanks to expanded patios. In those months, mountain restaurants were more likely to report they were breaking even or up in revenue compared with past summers, while Front Range restaurants continued to report average losses of 40% (and some much more). This has affected future outlook, too, as mountain restaurants report they are more likely to survive the winter.

A Hastened Move to Takeout and Delivery

Takeout and delivery were growing rapidly before COVID-19 hit, but the shutdown and capacity restrictions have catapulted their expansion, including in restaurants that had never before run takeout programs. Colorado restaurants now report that 30% of their sales are coming from takeout and delivery, compared with 15% before the pandemic.

New Regulations Allow New Revenue Streams

In the immediate aftermath of the shutdown, the State of Colorado changed restrictions to temporarily allow restaurants to sell alcohol-to-go and provisions. In May, 87% of restaurants reported they were making some revenue

off alcohol-to-go, and 20% were making a significant portion of their revenue from it. In a survey, 85% of Colorado adults support making alcohol-to-go permanent.

New Costs Have Put Additional Pressure on Restaurants Running Short on Cash

In July, restaurants said they had spent, on average, more than \$4,500 on personal protective equipment so they could comply with new guidelines. They reported that they will have to spend an average of \$5,500 to winterize patios to capitalize on more space—and some say they will have to spend tens of thousands of dollars. Additionally, the supply chain has seen some strain—the National Restaurant Association reported that wholesale costs were up about 0.5% year-over-year in September.

Restaurants Say They Need Two Things to Better Their Chances of Survival: Cash and Capacity

Pleas for more cash and more capacity have been consistent refrains throughout the pandemic. Moving into 2021, the Colorado Restaurant Association partnered with the State of Colorado on a winter patio expansion and grant program aimed at chipping away at both needs. However, it is not a silver bullet—many restaurants do not have patio space to expand, and even with a grant program to help cover costs, many report they will need to spend well over \$10,000 to winterize their space. The industry continues to look for additional cash assistance at the federal level, including a second round of PPP and an industry-specific grant program. Without this – and without the lifting of capacity limits, which are currently being tightened – we expect to see more restaurant closures.

Parks and Outdoor Recreation

If there was a bright spot in the Leisure and Hospitality super sector amid the COVID-19 pandemic, it had to have been outdoor recreation. Both in terms of actual visitor numbers and anecdotally, parks and outdoor spaces saw a record number of visitors in 2020.

COLORADO PUBLIC LAND VISITS
2011–2021
(In Thousands)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 ^a	2021 ^a
Colorado State Parks ^b	12,300	12,200	11,500	11,900	13,200	14,296	15,398	14,924	14,891	18,646	16,286
National Parks and Sites											
Bent's Old Fort NHS	27	26	23	25	26	32	26	24	22	13	21
Black Canyon of the Gunnison NP	168	193	176	183	209	238	307	309	433	318	478
Colorado NM	435	455	409	420	588	391	375	376	397	411	343
Curecanti NRA	924	863	814	931	945	983	1,041	932	836	1,084	859
Dinosaur NM ^c	158	224	203	185	216	225	234	225	221	189	246
Florissant Fossil Beds NM	61	63	58	63	69	74	72	80	77	30	87
Great Sand Dunes NP	280	255	243	272	300	388	487	443	528	447	638
Hovenweep NM ^c	11	12	11	12	15	19	18	18	16	10	18
Mesa Verde NP	572	489	460	502	547	584	614	563	556	289	593
Rocky Mountain NP	3,177	3,230	2,991	3,435	4,156	4,518	4,437	4,590	4,670	3,247	5,236
Sand Creek Massacre NHS	4	4	5	7	6	7	7	6	6	4	6
Total Visitors to Parks and Sites	5,819	5,811	5,394	6,035	7,077	7,457	7,618	7,564	7,761	6,043	8,526
Bureau of Land Management	6,844	7,310	6,963	7,536	7,694	7,739	8,310	8,708	9,553	9,644	10,052
National Forest ^d	27,000	27,000	27,000	27,000	27,000	27,000	26,100	31,000	31,490	31,490	31,490
Total Public Land Visitation ^e	51,963	52,321	50,857	52,471	54,971	56,492	57,426	62,196	63,696	65,822	66,354

^a2020 is forecasted with limited data and 2021 is estimated based on trends. 2020 data was not included in the trend analysis for 2021.

^bState parks managed by Colorado Parks and Wildlife.

^cDinosaur 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.

^dYearly visitor numbers were not available; reported numbers based on limited data.

^eDue 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.

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Throughout the pandemic crisis, Governor Polis, as well as local, state, and national leaders, encouraged people to get outdoors and promoted outdoor recreation as a safer alternative to other activities that had a greater chance of spreading COVID-19. Even amid a record setting wildfire season, many outdoor recreation sites and public lands saw record setting numbers.

Colorado Parks and Wildlife (CPW) manages 41 state parks throughout the state. Over 18.6 million people visited Colorado state parks in 2020, a 25% increase from 2019. Throughout the pandemic, Colorado state parks remained open; although visitor centers, camping, and other facilities were closed for some time between March and May 2020 based on local public health orders and guidelines. Despite the actual facility closures, people continued to visit trails, streams, and lakes.

CPW also experienced a significant increase in the number of fishing licenses sold. Between January and August 2019, CPW sold over 815,000 fishing licenses. During the same period in 2020, CPW sold over 989,000 fishing licenses; an increase of 21%. Of the fishing licenses sold, 253,000 were to first-time customers for Colorado Parks and Wildlife.

Anecdotally, U.S. Forest Service, Bureau of Land Management, and local parks and open spaces all reported record numbers of visitors at trailheads, picnic areas, golf courses, tracks, and other outdoor venues. Many places reported increased damage due to the large number of recreationists visiting outdoor spaces. To help educate these outdoor enthusiasts, Governor Polis declared August 31 – September 7 as Colorado Recreates Responsibly Week. A coalition made up of Colorado Parks and Wildlife, Colorado Tourism Office, Colorado Outdoor Industry Office, National Park Service, U.S. Forest Service, and the Bureau of Land Management encouraged people to recreate responsibly and the hashtag #Care-ForColorado trended that week.

Although most outdoor recreation areas saw huge increases, the National Park Service reported an overall decrease of 1.7 million visitors or 22%. Part of this



Road bikers in Mesa Verde National Park. Photo provided courtesy of Region 9 Economic Development District of SW Colorado.

decrease came from many National Park Service locations being closed for parts of March through May. The majority of the decline came from decreased visitation to Rocky Mountain National Park. On June 4, 2020, Rocky Mountain National Park implemented a timed-entry system requiring visitors to reserve a time to enter the park. The park used this entry method as a tool to better manage crowds amid the COVID-19 crisis. The timed entry was lifted on October 13, 2020.

On October 30, 2020, CPW opened the 42nd state park, Fishers Peak State Park, located near Trinidad, CO. Currently, there are very limited recreation opportunities at Fishers Peak; however, in 2021, more options will become available. Over time, this park should provide an economic boost to Trinidad.

In 2021, outdoor recreation will continue to see increases. Although it's not known how outdoor recreation may impact other sectors in Leisure and Hospitality, other super-sectors, like Retail, should continue to see positive trends from outdoor recreation spending in 2021.

Skiing Industry

Ski resorts in the U.S. recorded 51.1 million downhill skier and snowboarder visits during the COVID-19-shortened 2019/20 winter season, a decline of 13.9% from 2018/19, and the lowest visitation since the snow-challenged 2011/12 season, according to the National Ski Areas Association (NSAA). Premature resort closures in mid-March cut short what was otherwise a promising ski season, as the industry was on pace for its fourth-highest visitation prior to the pandemic.



Photo courtesy of
Curt Nichols/Unsplash.

In Colorado, the state's 31 ski areas were on pace for a second consecutive record season through February, bolstered by good snow conditions, increases in affordable season pass sales, and robust economic conditions, among other factors. However, the season was cut short due to escalating concerns about the pandemic, culminating in a March 14 order by Governor Jared Polis for downhill ski areas to suspend operations. Ongoing COVID concerns prevented resorts from reopening, with the exception of Arapahoe Basin, which reopened on a limited basis from May 27 to June 9.

The up-and-down fortunes of the Colorado ski industry last winter were reflected in resort town taxable sales. Most major resort communities saw taxable sales fall year-over-year for the winter as a whole (November through April. Aspen was down 7.6%, Breckenridge

down 10.4%, Frisco down 5.8%, Snowmass Village down 10.2%, Steamboat Springs down 1.8%, Telluride up 2.3%, Vail down 14.3%, and Winter Park down 9.7%. However, breaking the season apart, taxable sales in these communities as a whole were up 6.9% year-over-year in November through February, before plummeting 41.4% in March and 48.3% in April.

The summer period (May to October) is also important to ski resort communities, accounting for a lower, secondary peak in economic activity. COVID-19 continued to negatively impact resort communities this summer, although its effects grew less severe as the summer progressed. Total taxable sales across the same eight communities were down 21.2% year-over-year in May, down 19.4% in June, and down 7.7% in July, before turning up 0.1% in August. Colorado ski resort communities, along

with other outdoor destinations and activities, benefited from heightened interest in outdoor recreation and outdoor settings as a comparatively safe alternative during the pandemic. The industry has 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, resorts have been developing new safety protocols and operating plans—in coordination with local and state authorities—to ensure a safe environment for ski area employees and guests in the 2020/21 ski season. Within overarching state guidelines, the plans are being developed at the individual resort and county level to best reflect the unique operating circumstances of each resort and community. These plans include efforts to manage the number of guests during peak periods so that social distancing can be maintained. As these plans are finalized and approved, resorts are undertaking significant educational efforts to inform guests of what will be the same and what will be different about the ski experience this season. Safety will be unequivocally the top priority and will hopefully enable resorts to offer a full season of operations to visitors.

Business prospects for the upcoming ski season provide reason for tempered optimism, as well as caution. Guest interest in skiing appears to be strong, consistent with this summer's heightened interest in outdoor recreation, as well as pent-up demand after last winter's abrupt closures and other deferred or canceled travel plans since the pandemic hit. Advance season pass sales appear to be strong, although lodging and flight bookings are lagging, as skiers shorten their trip decisions and booking lead times.

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Additional likely tailwinds for the Colorado ski industry this season include the following:

- anticipated completion of the 12-mile Westbound I-70 Mountain Express Lane, a managed toll lane running from the Veterans Memorial Tunnels to the Empire interchange,
- significant resort investments ahead of this season (despite COVID-19), including snowmaking expansions and new lifts,
- selected positive developments regarding air access, including new flights by Southwest Airlines from Denver to Hayden and Montrose, as well as more attractive airfares,
- the potential for a strong drive market, both in-state and among large destination markets within driving distance of Colorado,
- the explosive growth of uphill skiing/alpine touring at ski resorts in the last three to five years, a pattern that might continue to expand with COVID and might receive more intensive management from resort operators, and
- strong momentum from recent prior ski seasons.

Conversely, challenges are likely to include the following:

- the uncertain and likely shifting course of the pandemic and associated shifts in consumer sentiment and behaviors, local health and safety precautions, and related dynamics,
- general consumer caution with regards to travel, as reflected in reduced flight, hotel, and selected other types of travel demand nationwide.
- guest caution with regards to travel to mountain and ski destinations specifically, contributing to shorter travel booking lead times and an expansion of flexible cancellation and refund policies by travel providers,
- sharply reduced international visitation due to travel restrictions and potentially reduced demand from more distant domestic flight markets,



Photo courtesy of Holly Mandarich/Unsplash.

- shifts pertaining to in-resort guest behavior, which may provide both challenges and opportunities, such as the potential for more demand for restaurant take-out and delivery, shifting preferences and behaviors regarding local transportation, changes in off-mountain activity patterns, etc.; and,
 - although showing progress toward recovery, the U.S. and state economies continue to be significantly impacted by the pandemic, impacting consumers' ability and willingness to spend.
- As always, weather and snow conditions can also provide positive or negative momentum to the season. In its October 15 U.S. winter forecast, the National



Photo courtesy of Maarten Duineveld/Unsplash.

Oceanic and Atmospheric Administration noted that a La Niña pattern is “well established and expected to persist through the upcoming 2020 winter season.” 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 has presented major challenges for the Colorado ski industry in the near term, 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. In addition to having the nation’s busiest ski areas, Colorado is also home to 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.

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. 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 impact of congestion and travel delays along the I-70 corridor, and maintaining a welcoming atmosphere for international visitors remain top of mind for Colorado resorts. ❖

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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, 2011-2021 (In Thousands)

Year	Repair and Maintenance Services	Personal and Laundry Services	Religious, 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 ^a	26.8	30.3	56.1	113.1
2020 ^b	26.7	23.8	55.4	106.0
2021 ^c	27.0	25.5	54.0	106.5

^aRevised. ^bEstimated. ^cForecast.

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.

In the first quarter of 2020, approximately 17,570 businesses were classified in the Other Services supersector. In 2019, total employment for this super sector in Colorado averaged 113,100, up 1.9% from the previous year, marking the ninth consecutive year of growth. However, the supersector has faced significant headwinds during the pandemic in 2020, down 8.4% in October year-over-year. Many Other Services businesses were deemed non-essential during lockdowns in March and April and have had to alter their operations to accommodate public health mandates in the months since. In March and April, the supersector lost a total of 21,500 jobs and was down 19% from January. Personal and Laundry Services continues to record the greatest losses, followed by Religious, Grantmaking, Professional, and Similar Organizations, as these sectors rely heavily on person-to-person interactions. The industry is projected to decline 6.3% in 2020, and grow just 0.5% in 2021.

Religious, Grantmaking, Civic, Professional, And Similar Organizations

Industries in the Religious, Grantmaking, Civic, Professional, and Similar Organizations subsector group are establishments that organize, support, and/or promote various professional, social, and political causes. It accounts for the largest portion of the Other Services supersector, employing 49.6% of the Other Services employees in 2019. 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. Social advocacy groups and giving services have expressed waning expectations for the future. According to the Association of Fundraising Professionals, 56% of charities expect to raise less money in 2020 than in a typical year, and that figure jumps to 72% for 2021. Likewise, communities of faith have faced dramatic changes in 2020. The 2018-19 National Congregation Study conducted by Duke University found that 33.5% of congregations

INDUSTRY SNAPSHOT OTHER SERVICES

Nominal GDP, 2019 (\$ Billions)	9.0
Real GDP, 2019 (\$ Billions, 2012 Dollars)	7.3
2019 Real GDP Growth Rate	2.1%
Total Employment, 2019 (Thousands)	113.1
2019 Employment Growth Rate	2.0%
Employment Growth National Rank	13
Share of Colorado Employment	4.1%
Share of National Employment	3.9%
Average Wage, 2019	42,381
Percent of Statewide Average Wage	68.0%
2019 Average Wage Growth Rate	3.4%

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

reported having no savings or reserves, and 24.1% did not prepare a formal budget. Additionally, 46.6% of churches reported total income less than \$100,000. Meanwhile, congregations were restricted from gathering in person and mandated to shift online, sparking legal controversy. The Supreme Court of the United States rejected a California church's challenge to lockdowns in May. More recently, however, a Colorado federal judge ruled that the state's public health orders requiring face masks and limiting the number of worshippers at in-person gatherings violated the first amendment.

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. As stay-at-home orders and work-from-home reduced

the number of daily commuters, however, the subsector experienced a temporary drag on business. Nationally, retail sales for vehicles and motor parts dropped 58.5% year-over-year in April; in Colorado, the sector lost 1,700 jobs in April. Retail vehicle sales, and in turn the Repair and Maintenance subsector, have bounced back from pandemic-related setbacks faster than counterparts in Other Services. As of October, vehicle sales have grown 40.6% since their low in April, though they are still 11.6% lower year-over-year. The subsector grew 3% annually in 2019, and given the subsector's speedy recovery, it is likely it will continue growing at its historical pace for the remainder of 2020.

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. At the start of the pandemic, many of the subsector's notable industries, such as hair, nail, and skin care services, were deemed non-essential and forced to temporarily close, causing a major shock to the subsector's employment. As Colorado businesses emerged from lockdowns, these services were tasked with finding ways to effectively socially distance, and while businesses were able to reopen and recover many of the lost jobs, employment in Personal and Laundry Services remains well below its 2019 level. Industry growth in this sector is based on changes in population, income, and consumer confidence. On a national basis, Real Disposable Personal Income Per Capita has increased 4.9% year-over-year in September 2020, boosted by the \$1,200 one-time stimulus check in April that, at the time, increased per capita disposable income 15.9% year-over-year. As Americans have waited for a second round of stimulus, disposable income has steadily



Photo courtesy of m0851/Unsplash.

declined, and many economists fear it will continue to fall in the absence of further fiscal intervention. Consumer Confidence has taken a hit from the pandemic; year-over-year in October 2020, consumer confidence nationally and in the mountain region has fallen 20% and 21.4%, respectively. In Colorado, Personal and Laundry Services have experienced the strongest pandemic-related impact in the Other Services supersector.

Recovery for this subsector is largely dependent on the health of the overall economy and consumer behavior, and it is likely the industry will experience fundamental shifts over the coming years. ❖

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Government

The Government Supersector includes federal, state, and local workers and is the second-largest provider of jobs in Colorado, representing roughly one in six jobs. Government activities include a variety of services ranging from space research and technology to public safety, program administration, and education.

In 2019, Government employment in Colorado increased 2.2%, to 455,300. Local government, including public K-12 education, represented 59.7% of government employment, followed by state government, including higher education, with 28.7%. Federal government made up the remaining 11.6%. Government was uniquely hindered by the pandemic—as tax revenue fell, jurisdictions balanced budgets mid-cycle by cutting spending and implementing furloughs and layoffs. Government employment fell just 2.2% from February to April; however, since April, Government recorded the greatest number of job losses and the largest percentage decline of the industries in the state. Government employment is expected to decrease 4.8% to 433,600 in 2020 then decrease 1.6% to 426,600 in 2021.

Federal Government

In 2019, total federal government employment in the state was 53,000, up 0.3% from the previous year. Due in large part to conducting the decennial census, federal employment spiked in 2020, but this is only temporary, as the hiring for the Census has concluded. The U.S. Census Bureau hired hundreds of thousands of people across the nation to conduct the Census throughout 2020, and as of the week of October 18-24, there were 60,755 paid temporary Census workers, with 13,478 in the Denver region. The decennial census is conducted every 10 years by the United States Census Bureau to update important population and housing count data in order to determine the number of seats for each state in the House of Representatives, to draw congressional and state legislative districts, and to distribute federal funds.

The federal government has instituted numerous programs in 2020 to help weather the recession caused by the

COVID-19 pandemic. Chief among those was the Coronavirus Aid, Relief, and Economic Security (CARES) Act, an over \$2 trillion program that provides economic assistance for workers, families and small businesses and preserves jobs. The CARES Act provided \$1,200 Economic Impact Payments to many Americans, the Paycheck Protection program for small businesses, and funding to state, local, and tribal governments through the Coronavirus Relief Fund. The Paycheck Protection Program (PPP) is coordinated through the Small Business Administration and was designed to provide a direct incentive (through forgivable loans) for businesses to keep their workers on the payroll. Between April 3 and August 8, the last day to apply to the program, more than 5 million PPP loans were approved totaling \$525 billion, according to data from the Small Business Administration.

INDUSTRY SNAPSHOT GOVERNMENT

Nominal GDP, 2019 (\$ Billions)	47.4
Real GDP, 2019 (\$ Billions, 2012 Dollars)	40.1
2019 Real GDP Growth Rate	2.4%
Total Employment, 2019 (Thousands)	455.3
2019 Employment Growth Rate	2.2%
Employment Growth National Rank	2
Share of Colorado Employment	16.3%
Share of National Employment	15.0%
Average Wage, 2019	58,962
Percent of Statewide Average Wage	94.6%
2019 Average Wage Growth Rate	3.5%

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

U.S. FEDERAL DEBT AS A PERCENTAGE OF GDP



Source: Congressional Budget Office.

Over 109,000 Colorado businesses and nonprofits borrowed over \$10.4 billion from the PPP, which will reportedly help retain almost 872,000 jobs in the state, according to the Small Business Administration. Full-Service Restaurants were the major industry recipient receiving loans of \$150,000 or more, followed by Offices of Physicians, and Plumbing, Heating, and Air-Conditioning Contractors. The Professional, Scientific, and Technical Services sector reportedly received the greatest benefit in terms of jobs retained with 122,382, followed by Construction (122,011), and Health Care and Social Assistance (109,252).

Government spending has ballooned as the government looks toward fiscal policy to help ease the effects of the economic downturn. According to the Congressional Budget Office (CBO), outlays have risen sharply in 2020, while revenues have fallen, and the deficit for this year will total \$3.3 trillion, or 16% of GDP—11 percentage points higher than the 2019 shortfall and the largest deficit recorded since the end of World War II. The CBO projects

the deficit to decline to 8.6% of GDP in 2021. Additionally, federal outlays in 2020 are projected to total \$6.6 trillion—\$2.2 trillion (50%) more than in 2019—and federal debt held by the public is projected to increase to 98% of GDP in 2020, over 100% in 2021, and 107% in 2023—compared to 79% in 2019 and 35% in 2007.

The U.S. Government Accountability Office's (GAO's) Federal Fiscal Outlook and the Congressional Budget Office's (CBO's) 2020 Long-Term Federal Fiscal Outlook shows that the United States will continue to record unsustainable debt levels in the coming decades due to major revenue and spending imbalances under current fiscal policy. The CBO projects that large budget deficits over the next 30 years will drive federal debt held by the public to unseen levels. Deficits are projected to increase to 13% of GDP by 2050, and federal public debt will increase from 104% of GDP in 2021 to 195% of GDP by 2050—45 percentage points higher than the CBO projected last year. Future policy by the new presidential administration

will have a significant impact on future deficits, as well as navigating the uncertain economic times faced by the pandemic-caused recession.

Health care spending and net interest continue to grow and absorb more resources. This is a continuing trend that lawmakers have not comprehensively addressed and will need to develop solutions. Health care spending is growing, with the nation's aging population driving spending increases, and the rising cost of health care is driving debt growth, which may negatively affect future interest rates. It is concerning that while interest rates are currently near historic lows, they are expected to rise over the long term.

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

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GOVERNMENT EMPLOYMENT IN COLORADO, 2011–2021 (In Thousands)

Government Sector	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^a	2020 ^b	2021 ^c
Federal	54.4	54.1	53.0	52.1	52.8	53.5	53.5	52.9	53.0	54.9	53.2
State	95.4	97.6	107.8	109.6	112.8	116.4	121.3	125.9	130.6	121.6	119.4
State General	33.2	34.0	42.7	43.2	44.2	45.5	47.3	50.1	51.0	49.0	48.4
State Education	62.2	63.6	65.1	66.4	68.6	70.9	74.0	75.8	79.6	72.6	71.0
Local	242.7	242.7	242.4	246.3	250.9	258.2	261.9	266.8	271.7	257.0	254.0
Local General	116.6	117.3	115.2	116.4	118.1	122.8	125.4	128.3	130.8	125.0	124.0
Local Education	126.1	125.4	127.2	129.9	132.8	135.4	136.5	138.5	140.9	132.0	130.0
Government	392.4	394.3	403.2	407.9	416.5	428.1	436.7	445.6	455.3	433.6	426.6

^aRevised. ^bEstimated. ^cForecast.

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.

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centers in the nation. These laboratories employ 7,800 direct 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 labs also contribute greatly to the state's high-tech industries, stimulating significant tech-transfer opportunities for higher education and area companies in critical areas, such as renewable energy, space science, and natural resource management. Colorado's federally funded labs face an uncertain future as questions about funding levels in the new administration and next year's budget remain.

State Government

The state government industry consists of a variety of public sector activities, such as higher education, law, law enforcement and security, road and other public infrastructure construction, and a range of government administrative services. In 2019, total state government employment was 131,600, up 3.7 percent from the previous year. Excluding public higher education employment, state government employed nearly 51,000 people in 2019, a 1.8% increase from the prior year. In many communities across the state, state government is the largest employer with competitive wages and benefits. State employment has been steadily increasing over the past decade and typically grows with population growth as tax revenues allow.

The impacts of the COVID-19 pandemic resulted in significant state budget actions during the 2020 legislative session. In September, the governor announced that most state government workers would be required to take between one and four unpaid furlough days to help address the state's budget tightening and postpone any potential layoffs. In addition, some state agencies have hired additional employees to aid in the COVID-19 response. State government employment, excluding higher education, is expected to increase 2.5% to 52,300 jobs in 2020 and remain relatively flat in 2021. The state General Fund budget still faces an uncertain outlook with

both upside and downside risks that will challenge state hiring decisions. While economic and revenue collections have exceeded expectations in recent months, the near- and longer-term impacts of the pandemic on Colorado's economy and state revenue remain uncertain.

Higher Education

Employment in Colorado's public higher education system accounts for slightly more than 60% of total state government employment. These workers include both part- and full-time faculty and nonfaculty staff. Higher education employment growth has accelerated due to the University of Colorado Hospital System adding hospitals around the state in recent years and the addition of the UCHealth Yampa Valley Medical Center in Steamboat Springs in 2017. Job growth in Colorado's public higher education sector increased by 5% in 2019. However, in 2020, the outbreak of the COVID-19 pandemic has become a major disruption to colleges and universities, and most have canceled or significantly reduced in-person classes. State higher education employment is expected to decline by 8.8% in 2020 and pick up slightly (0.9%) in 2021 but remain below pre-COVID-19 levels as the pandemic continues to affect college and university enrollment.

Restrictions connected to the COVID-19 pandemic have reduced state funding for higher education and increased costs as institutions have implemented public health measures and expanded their operations for distance learning. In addition, lower enrollment and distance learning requirements have reduced demand for auxiliary services, such as residence halls, dining services, and parking services. Preliminary data from the Colorado Department of Higher Education shows that overall enrollment across the state's public higher education institutions is down approximately 5-10% in the fall of 2020. While some institutions have started mandatory unpaid furlough days for most staff and faculty, in other instances positions have been eliminated due to lack of work. In October, the

number of state government educational service jobs was down almost 21% from the same month one year prior.

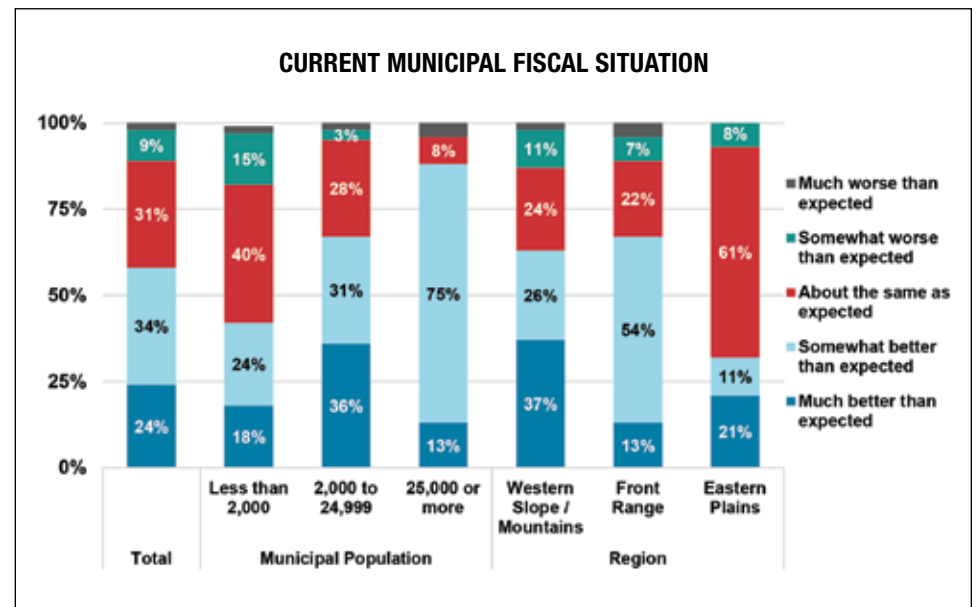
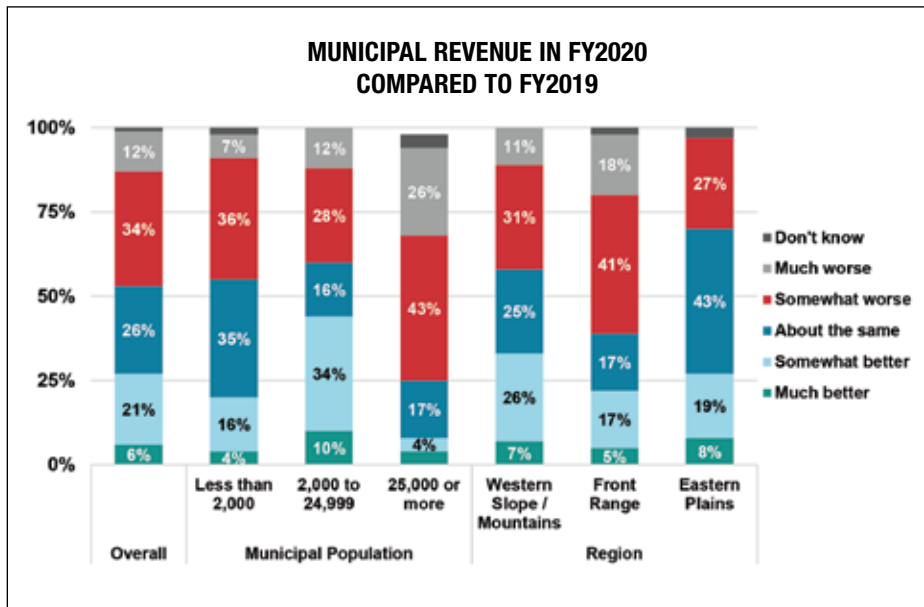
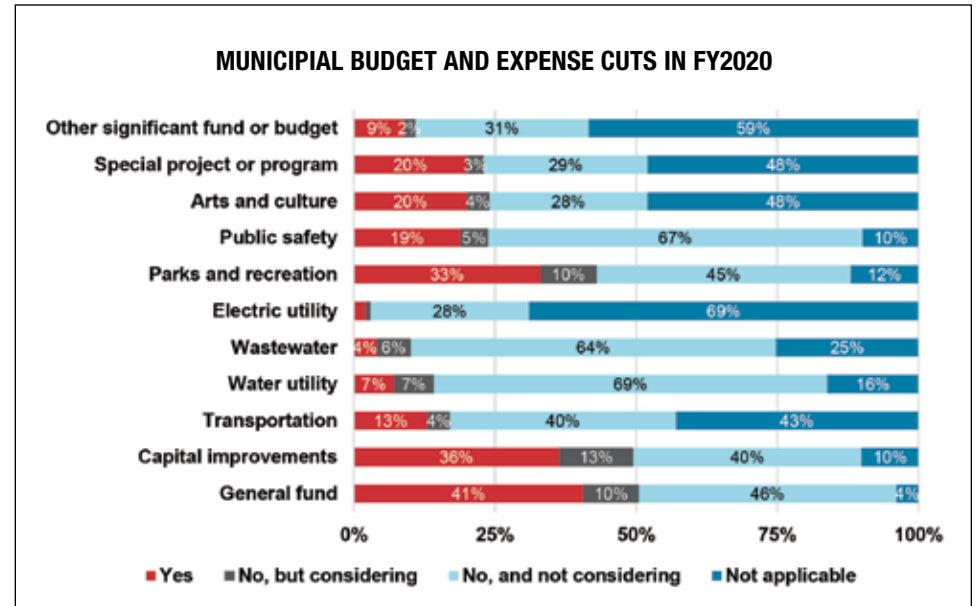
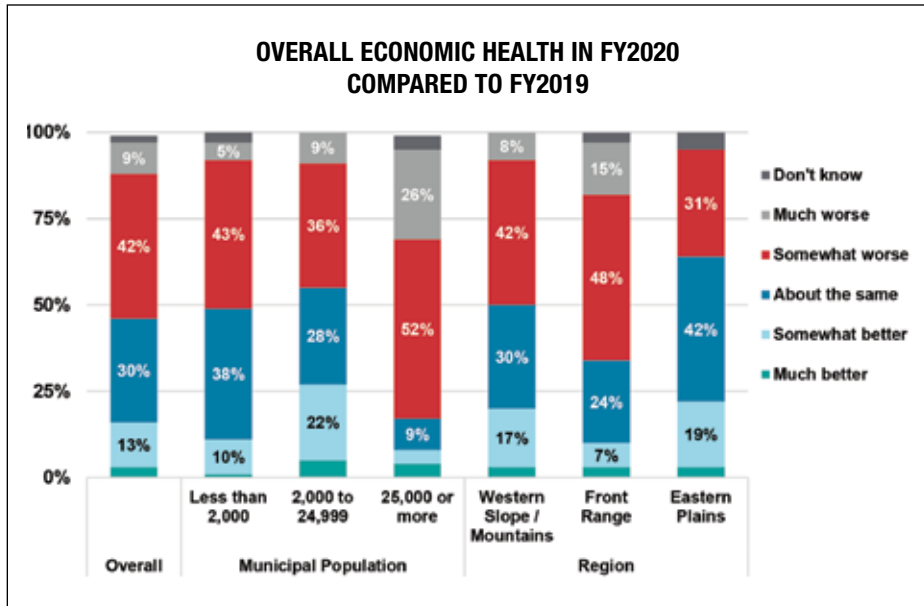
The forecast assumes a decline of nearly 7,000 higher education jobs, or 8.8%, in 2020 as COVID-19-related restrictions reduce state funding and demand for student services. In 2021, employment in Colorado's higher education system is expected to pick up slightly from 2020 as elevated unemployment increases enrollment. 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.

Local Government

County Government

There's a colloquial saying in the world of county governments that goes like this: "If you've seen one county, you've seen one county." This sentiment captures the diversity of county communities in Colorado and is a reminder to avoid generalizations based on the reality of a few. In this spirit, the following attempts to capture the range of financial activity counties are experiencing as they head into 2021.

Counties rely heavily on property taxes to get the job done for their communities. Like every other level of government and industry sector, the property tax outlook will depend on commercial vacancy rates, agricultural supply chains, contractions in natural resource development, and the ability for key sectors like ski resorts and casinos to remain open during the pandemic. Negative news in any of these areas will result in a reduced property tax base and ultimately fewer financial resources to meet community needs. The passage of Amendment B will help counties that were on the brink of a shrinking tax base.



Source: Colorado Municipal League.

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Certainty around the residential (7.15%) and non-residential (29%) assessment rates positions counties to better plan for the long-term.

Another increasingly important revenue stream for counties is sales tax. Over the last two years, the number of tangible products that are subject to the county's sales tax has increased. This is because of Colorado's implementation of 1.) destination-based sourcing and 2.) the South Dakota vs. Wayfair Decision, which authorized the collection of sales taxes on remote sales. The rollout of these two policy changes has helped to offset losses in sales tax revenue due to COVID-19-induced changes in consumer behavior. Generally speaking, counties have seen zero to single-digit increases in their sales tax revenue in 2020 and are planning for flat to modest sales tax growth in 2021.

The Highway Users Tax Fund (HUTF) is another source of revenue that counties are watching carefully. HUTF revenues pay the lion's share of local road and bridge maintenance and construction costs. Disrupted driving patterns attributable to the pandemic led to a projected 10% decrease in HUTF revenues for the 2020 calendar year. For 2021, the Colorado Department of Transportation is projecting a 7% decrease in HUTF revenue.

Apart from property and sales tax and HUTF, counties rely heavily on the state general fund to pay for services mandated by the state and federal government. Counties provide services to those in need, maintain hundreds of thousands of miles of roads and bridges, provide access to justice through county courts and district attorneys, and respond to public health crises and natural emergencies. This work can only be accomplished in partnership with the state. As such, reductions in state funds equates to a loss in services at the local level.

Most counties anticipate their 2021 budgets to be flat or slightly worse than their 2020 budgets. Unlike municipalities and the state, both of which saw the immediate impact of COVID-19 in their sales and income tax collections, respectively, property tax collections tend to respond slower to economic conditions. This has allowed counties to adjust their budgets proactively in anticipation for

the 2021 budget year. Counties have cut capital projects, reduced travel and conference expenses, delayed equipment purchases, scaled back operational budgets, reprioritized existing staff to essential services, and are reconsidering lease agreements based on the lessons learned about working at home. Reductions that began for many counties in the spring of 2020 will carry over into 2021 and perhaps beyond.

Municipal Government

Each year, the Colorado Municipal League (CML) conducts a statewide survey titled The State of Our Cities and Towns as a way 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 results of this year's survey paint a very different portrait compared to last year when economic confidence was at an all-time high among municipalities across the state. Unquestionably, the fiscal challenges currently experienced by Colorado's cities and towns are directly related to the COVID-19 pandemic that has swept across the country and throughout the world.

Of the 173 municipalities that participated, over half feel their economy is worse now than it was in 2019. Two in five large cities felt their economy was much worse than last year, whereas small towns seemed to be more ambivalent about their present fiscal situation, with 38% saying their economy was about the same. Most survey respondents also expected revenue sources to decrease or stay the same next year. Few revenue categories were expected to increase much, with the exception that 38% of municipalities expected sales and use tax to increase, and 28% expected property tax to increase.

In order to adjust to the new economic realities of COVID-19, a number of cities and towns across Colorado implemented cost-saving and austerity measures to reduce costs and balance their budgets. About 9% of all responding municipalities furloughed full-time employees, 6% laid-off full-time employees, 13% reduced hours of full-time employees, and about one-third of municipalities have not filled full-time positions due to the pandemic. Furthermore, nearly one-quarter of municipalities have frozen employee salaries due to COVID-19, with nearly half of large municipalities taking this step.

In order to balance their budgets, two in five municipalities were required to make cuts to their general fund—including 2% that were forced to take the painful step of cutting it by one-third or more. Additionally, 10% have not cut their general fund but are considering it. Fortunately, 46% of municipalities have not, and are not, considering cutting their general fund. Capital improvements and parks and recreation funds were the second and third most commonly cut expenditures, followed by arts and culture and public safety.

If a silver lining can be gleaned from the survey results, it is that the fiscal situation of Colorado's cities and towns is better now than administrators had originally anticipated. Close to 60% of municipalities indicated their fiscal situation was better than expected, compared to their outlook in late spring, with 24% saying "much better" than expected. Only about 10% said their fiscal situation was worse than expected. Many of the small towns and most towns on the Eastern Plains were doing about the same as expected.

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 to the state. While federal

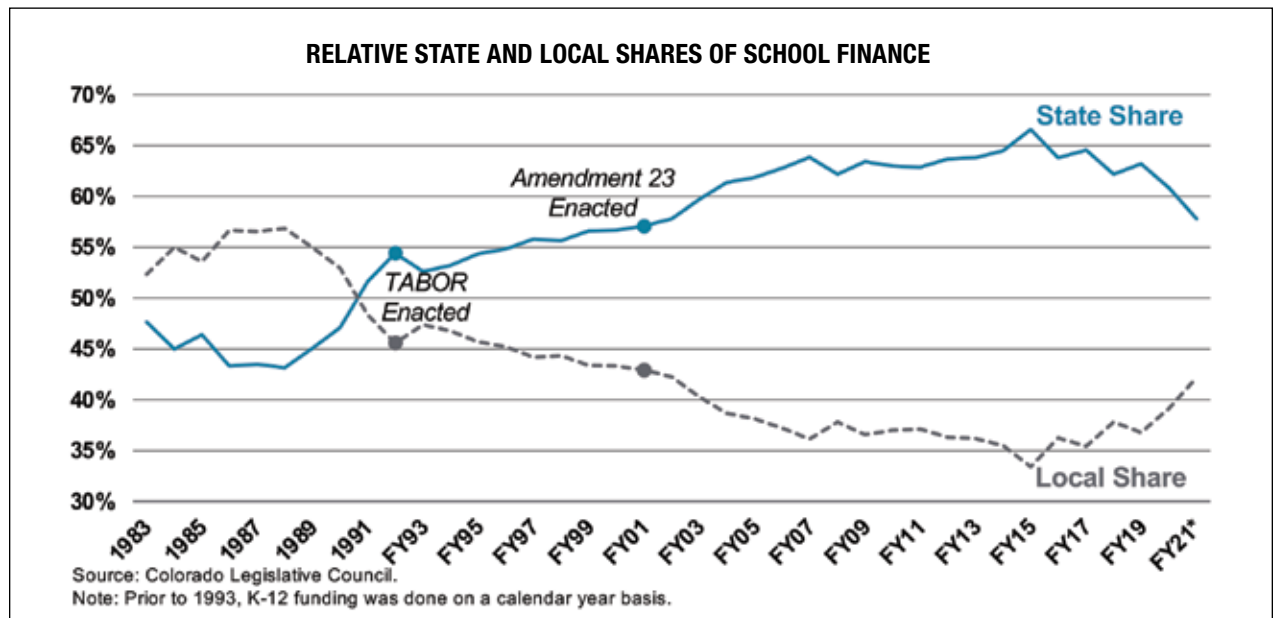
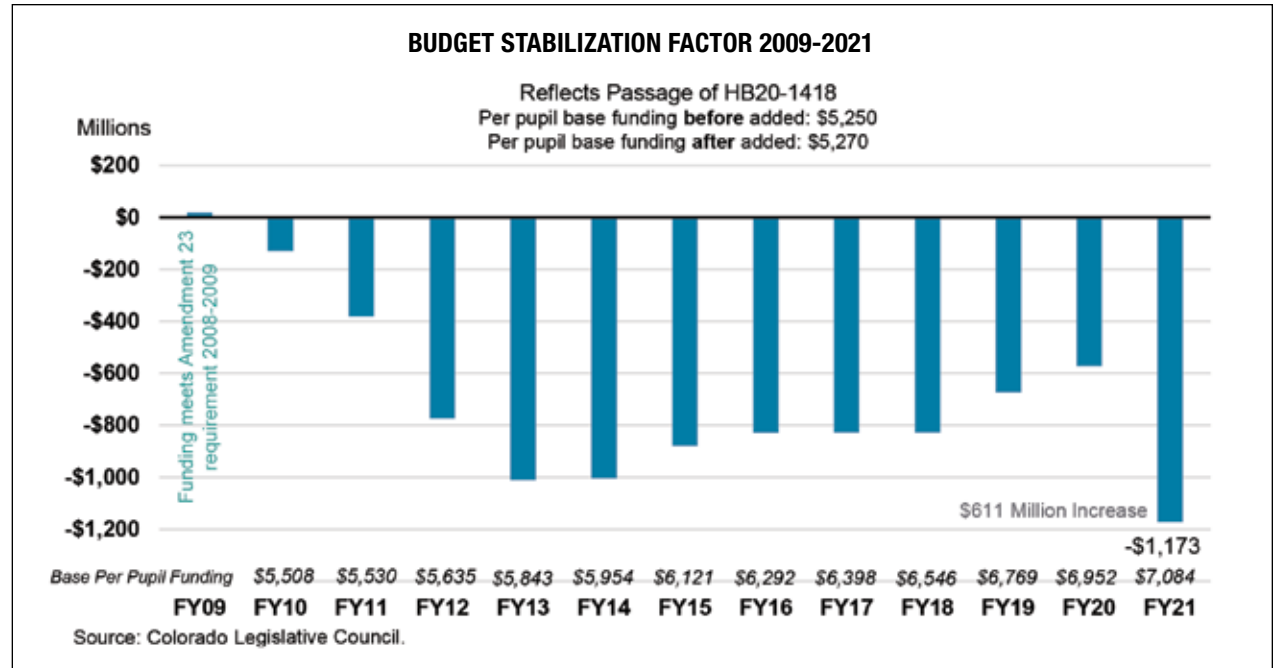
education law is well established and sets strong requirements for public education, federal dollars are a small overall component of public school funding.

Since March of 2020, public education, like many sectors of the economy, has experienced dramatic changes in the delivery of services. These tectonic shifts, all a result of the global pandemic, are influenced by a multitude of inputs such as health department requirements, safety measures, and capital infrastructure changes, to name a few. Parents and guardians have navigated these shifts, discovering along with teachers what it means to have “home learning,” “hybrid learning,” “remote learning,” and “online education.”

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 \$2,100 to \$2,800 less per pupil than the U.S. average in FY2016, 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 voter’s willingness to support public education. The total revenue that 1 mill of property tax assessed in a district will generate ranges from \$5,852 to \$20.7 million. Or to look at it on a per student basis, 1 mill will generate \$20 to \$6,667 per student (based on Colorado Department of Education - 2019-20 data). These disparities are a result of residential development, non-residential development, oil and gas resources, and the number of students in a district.

An additional impact to school district funding is the interplay of the recently repealed Gallagher Amendment, taxing constraints required by the TABOR Amendment, and local school district general fund mill rates to support education. The rapid rise in the Colorado population

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and residential construction activity since the early 1990s has pushed the residential assessment rate down from 14.34% in 1992-93 to 7.15% currently, while the nonresidential rate has remained at 29% in order to maintain the 45/55% split between residential and nonresidential assessed values. The drop in statewide assessment rates, when coupled with the TABOR taxing constraints, has forced the local millage rates in some districts to drop while others have remained constant. The current range of general fund mills is 1.68 mills to 27 mills. That means there is a significant disparity in the tax burden between what taxpayers contribute to the local share of education funding. All these factors together have shifted the burden of funding onto the state and the more volatile revenue streams of income and sales tax.

2020 Impacts

The economic crash brought on by the pandemic in the spring of 2020 necessitated massive cuts to all aspects of state government. Since K-12 public education makes up about 36% of state general fund spending, the cut to K-12 education was a significant \$611 million. This more than doubled the Budget Stabilization factor, or the amount cut from the School Finance Act formula from \$572.4 million to \$1.17 billion. This is a 4.8% year-over-year reduction in per pupil funding, or about \$411 per pupil. While this may seem like a relatively small percentage of a reduction, all the expectations to deliver educational services in a safe and welcoming environment remained in place.

Undoubtedly, the \$500 million in CARES Act funds that Governor Polis distributed to school districts created short-term funding to allow districts to purchase technology devices, increase learning opportunities for students, and provide personal protective equipment, cleaning supplies, and additional cleaning staff to provide a safe and productive learning environment. The challenge is that these non-recurring Coronavirus Relief Fund resources must be used by December 30, 2020, which limits their usefulness for the continued expenditures related to the pandemic such as increased utility costs for improved air

circulation, deep cleaning of facilities, substitute teachers, and addressing student learning deficiencies.

Original state revenue projections for 2020-21 indicated a more severe drop in state revenue collections than came to fruition. As of the September revenue forecast, the state had collected nearly \$900 million above the June projection. This improvement significantly reduces the likelihood of a midyear rescission of funding for school districts. Funding cuts in the middle of the fiscal year prove to be very challenging with employees already hired and students already in classrooms, as well as spending over 50% completed for the year.

One significant challenge in the current year is the abrupt loss of students from what was projected during the development of the state and district budgets. Original projections showed statewide growth at about 1,000 students or 0.1% of the nearly 900,000 students in the state. Projections varied by district, with some areas seeing decline and others seeing growth. Typically, kindergarten enrollment happens over the summer and at the start of the school year. Due to the pandemic, parents and guardians chose to hold students out of preschool and kindergarten, which is not compulsory in Colorado, while others transitioned to full online schooling options. It should be noted there is a difference between the “home learning” or “remote learning” implemented by districts and a fully online educational program, with different instructional models and student engagement. Overall, many districts are experiencing a 2% to 3% decline in enrollment, largely focused on the early grades. This loss of students will translate into a reduction in funding unless the legislature acts early in the 2021 session to pass a supplemental midyear budget that maintains the net investment in public education passed in the original 2020-21 state budget. Increasing the per pupil funding amount will provide districts the much-needed resources in the current year to address the mounting expenses to maintain conditions for a safe educational environment in public schools—PPE, cleaning supplies, custodial services, additional educational supports, technology, health services, contact tracing,

utilities for increased air circulation, filter changes, outdoor classrooms, etc.

2021 Outlook

The outlook for the 2021-22 fiscal year has improved dramatically from June. Enrollment may continue to be subdued with uncertainties regarding vaccine availability, choices around homeschooling, and overall comfort level with sending children to school. Despite the uncertainties, the projected enrollment decline is very slight from the current year of approximately 1,000 students. Governor Polis’ 2021-22 budget proposal, as released on November 2, restores K-12 funding back to 2019-20 levels, with increases for inflation. This proposal totals a funding restoration of \$811 million and brings the budget stabilization factor back to the amount in 2019-20 of \$572.4 million, translating into an average of \$492 per pupil more than 2019-20 funding, or a 5.8% increase. While the funding outlook remains positive for the time being, the upcoming FY21 state revenue forecasts in December 2020 and March 2021 will determine where the legislature is able to set the budget for K-12 education in 2021-22.

Fixed Income Market – Local Governments

In 2020, Colorado local governments were presented yet another challenge related to the COVID-19 pandemic that is expected to last through 2021—lower investment earnings. When the Federal Open Market Committee (FOMC) lowered the Federal Funds Target Range in March from 1.50% - 1.75% down to 0.00% - 0.25%, investment income for local governments in Colorado also experienced a significant decrease. With the FOMC indicating that the target range will remain low for an extended period until inflation and unemployment reach their target numbers, investment income is also expected to remain low for local governments in 2021, adding to the decrease in income expected in budgets for local governments.

This time last year, local government investment pools, money market funds, and bank deposits were yielding well above 1%. As we approach the end of 2020, many of the



Photo courtesy of Chronis Yan/Unsplash.

same liquid investment options in Colorado are yielding less than 0.30% while U.S. Treasuries with a maturity of less than five years are also yielding around 0.30% as of the end of October. Compared to the last two years, budgets are seeing a noteworthy decrease further compounded by lower tax collections through the end of Q1 and Q2 2020. With bank deposit, CDs, and other allowable investments under the Colorado Revised Statutes paying low yields, local governments are flocking toward the highest allowable yield under state statute to capture return.

Colorado Local Governments Funding

Bond Issuance Landscape

Regarding bond ratings, many of the bond rating agencies, such as Moody's, view Colorado as stable, but decreased revenues due to COVID-19 may have an impact on municipal debt ratings in 2021. Shortfalls in tax revenues

for local governments are expected through 2021, with many local governments expected to have drawdowns in reserves, federal assistance, and spending cuts to navigate through 2021 and into 2022. As a result, local governments may be forced to decrease their workforce and/or delay capital projects to counteract the decreases in revenues.

Bond ratings are expected to remain stable through 2021. The main components of a potential upgrade would be reserve funds seeing continued stability or substantial increase of liquidity in addition to voter intervention that would boost the state's financial health, providing flexibility. On the other hand, fading fund balances, a conservative approach from voters limiting the state's ability to ensure financial flexibility, and significant decreases in liquidity at the local government level stand as potential headwinds affecting bond ratings in 2021. Another

component of a change in stable bond ratings would be a significant decrease in Colorado's diverse economic sectors for a sustained period through the end of 2021 and into 2022.

Although Colorado is faring well compared to other states of comparable population, economic diversity, political landscape, and revenue sources, bond issuances could slow, and ratings could decline should the impact of COVID-19 continue through 2021.

Special Districts

Special districts are a form of local government in Colorado that date back to the early mining camps when the residents 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 3,074 special districts in Colorado.

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For Colorado special districts, property tax is the primary source of tax revenue, although 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, like their county and municipal counterparts, the Taxpayer Bill of Rights (TABOR) constitutional provisions apply to special districts and require voter approval for taxes and debt. For local governments reliant on property tax, however, TABOR interacted with the Gallagher Amendment to further restrain government growth. Finally, special districts 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 revenues – and, as such, some of these districts may have been structured as government enterprises for which the voter-approval provisions of TABOR do not apply.

Looking into 2021, Colorado's special districts face historic challenges. 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 COVID-19 crisis. These special districts faced additional operational costs, supply-chain issues (with personal protective equipment, sanitizing supplies, and other health or medical equipment), and staffing challenges (employees being quarantined, or

additional work demands leading to increased need for staffing). Other districts, such as Library Districts and Parks and Recreation Districts, had their operations halted by necessary stay-at-home public health orders, leading to a virtual cessation of business and an unanticipated decrease of budgeted user-fee revenues. Once the safer-at-home orders were in place that reopened public facilities and programs, these districts responded by offering access and programming that required many new health and safety protocols (and the attendant cost-drivers). *For a more detailed discussion, please see the “Snapshot of Local Government Fiscal Impacts from COVID-19 Survey Summary, April 2020,” which was prepared by the Colorado Department of Local Affairs, in partnership with Colorado Counties, Inc., Colorado Municipal League, and Special District Association of Colorado.* Finally, the 2020 wildfire season was one of the worst in Colorado's history, destroying private and public property (and lives), using enormous resources, and testing the capacity of state and local wildfire response.

There is good news to temper the ongoing public health crisis and worsening wildfires. First, by executive order, the Department of Local Affairs provided federal funding from the Coronavirus Aid, Relief, and Economic Security (CARES) Act to local governments, including special districts. For districts demonstrating urgent needs, \$27,390,000 of CARES Act funding was available to provide relief for the unanticipated expenditures (but not reduced revenues). The burdens of responding to the public health crisis could be further helped if the U.S.

Congress takes action in 2021, including the provision of additional reimbursements for COVID-related costs and relief for impacts to local government revenues. One final piece of good news is that voters approved Amendment B at the 2020 statewide general election, repealing the constitutional requirements of assessment ratios in the Gallagher Amendment. Absent that approval, special district property tax revenues would have been greatly impacted by the expected formulaic reduction in the residential assessment rate (RAR) in 2021, from 7.15% to less than 6%. For a discussion of the revenue impacts from RAR changes, as well as the disparate impacts by region, please see “Fiscal Impacts of the Gallagher Amendment, July 30, 2020,” by Marc Carey of the Colorado Legislative Council. The approval of Amendment B and SB20-223 (the moratorium on adjusting the RAR, keeping the rate at 7.15%, which took effect upon approval of Amendment B) will provide significant relief for special districts levying taxes in 2021 for collection in 2022. ❖

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International Trade

As may be expected given the ongoing global public health crisis and recession caused by the COVID-19 global pandemic, international trade in 2020 performed poorly, even when compared to 2019—which itself marked a negative inflection point in trade trends for the U.S. and Colorado. Values at the national and state levels finished 2019 about 2% to 3% lower than in 2018 as market participants at home and abroad adjusted to a shifting U.S. foreign policy, increasing tariffs, and other disruptive geopolitical and economic events worldwide (such as the democratic protests in Hong Kong, crude oil price volatility driven by oversupply worries, and Brexit). While the pandemic was the main driver of lower trade values in 2020, these ongoing geopolitical and economic events certainly continued to create downward pressure as well. Before the decline in 2019, trade values had recorded strong consecutive annual growth in 2017 and 2018 as markets recovered from the global crude oil price collapse of late 2014 and 2015.

National

Nationally, exports in goods and services were down 17% year-to-date through September 2020 from the previous year, while imports in goods and services were down 12%. Trade in services fared worse throughout 2020 than trade in goods. Services exports and imports were both down 21%, while goods exports and imports were down 15% and 10%, respectively. In 2018, goods accounted for 66% of exports and 82% of imports nationally. The U.S. real trade deficit in goods and services, which broke the Q3 2006 record of -\$932 billion in Q4 2018 when it reached -\$937 billion, began to improve in Q1 2020 before plummeting. In Q3 2020, the most recent with data, it was at a new record: -\$1 trillion.

For goods trade, year-over-year figures in January and February 2020 continued to follow the declining trend that began in March 2019, with both exports and imports posting losses or weak growth. Services, which remained strong throughout 2019, began 2020 in the positive, but relatively weak. In March, with the onset of COVID-19



in the U.S., both goods and services began to fall dramatically. Exports posted a 12% year-over-year decline and imports an 11% year-over-year decline. These declines worsened through May, which marked the trough for U.S. international trade activity, despite many indicators like employment and retail sales reaching a trough in April. In May, exports were down 33% and imports were down 24% from May 2019. From May through September, year-over-year values continued to be negative, but to a diminishing severity. In September, exports were down 18% and imports were down 9% year-over-year.

Ten of the 11 major services categories reported by the U.S. Census Bureau (Census) and the Bureau of Economic Analysis (BEA) were down year-to-date for exports and seven were down for imports. Travel and transport, together accounting for about 34% of services exports and down 56% and 37% year-to-date, respectively, led these declines. Together these categories

account for over 41% of services imports and were down 68% and 35%, respectively.

For goods trade, both export and import volumes were dragged down by large losses in automobiles, aircraft, oil and petroleum products, jewelry, and consumer electronics, such as cellphones and televisions. Most major trading partners experienced year-to-date declines for both exports and imports. Canada and Mexico led the way in these drops but were followed by many of the nation's top trading partners including France, Germany, the Netherlands, Japan, Brazil, and India. The United Kingdom and Switzerland were notable exceptions in Europe, recording year-to-date growth figures in excess of 100%. China showed strong losses as an import source for the U.S. but was up more than 3% year-to-date as an export destination.

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International Trade

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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—perhaps stronger than that of the U.S. as a whole—is travel. The most recent passenger reports for Denver International Airport (DEN) reflected a similar reality as the travel services trade data at the national level: year-to-date passenger counts through September were down 53%. Such estimates for services trade, were they able to be aggregated with the Colorado goods trade figures that follow, would likely worsen the total trade estimates year-to-date.

For goods trade, the change in Colorado's import values matched the nation's change at about a 10% decline year-to-date, but state exports seemed to have performed much better, recording nearly 1% growth year-to-date. However, a closer inspection of the year-over-year values show that these were bolstered by two satellite deliveries to French Guiana and United Arab Emirates from Colorado-based companies in January and February, which together summed to about \$500 million—around 6% of typical annual value. These two months posted 59% and 36% gains, respectively, from the prior year. In March, Colorado year-over-year figures began following a similar trend as the nation's, with exports down 5% and imports down 8% from the prior year. At Colorado's trough, also in May, exports were down 29% and imports were down 36% year-over-year. From May to September, trade seemed to have improved faster in the state than in the nation overall, with September exports and imports both equal to values from September 2019 (nationally, goods exports were down about 10% year-over-year and imports down 2%). Nonetheless, without the two satellite deliveries discussed above, Colorado's goods exports would be down by about 8% year-to-date.

TOP 15 COLORADO EXPORTS, 2016-2020 YTD
(In Millions of Dollars)

Description	2016	2017	2018	2019	Sep 2019 YTD	Sep 2020 YTD	Percent of Total
Meat	\$1,037	\$1,227	\$1,238	\$1,257	\$931	\$982	16.1%
Precision Instruments	1,251	1,170	1,282	1,313	966	874	14.3
Electrical Equipment	1,119	1,213	1,170	1,145	846	871	14.2
Industrial Machinery	1,024	1,088	1,159	1,189	866	834	13.6
Aircraft/Spacecraft	200	202	278	336	287	795	13.0
Plastics	164	209	220	200	145	162	2.7
Aluminum and Articles Thereof	147	187	203	147	111	129	2.1
Articles Of Iron Or Steel	143	173	207	272	208	128	2.1
Pharmaceutical Products	101	118	120	120	92	120	2.0
Vehicles	113	141	119	130	94	89	1.5
Photo/Cinematographic Goods	270	241	225	191	148	85	1.4
Misc Chemical Products	136	141	100	103	79	78	1.3
Organic Chemicals	91	96	92	98	72	73	1.2
Rubber And Articles Thereof	49	54	75	59	45	48	0.8
Food Industry Residues/Waste	50	64	65	62	42	47	0.8
Total Top Fifteen	5,897	6,321	6,554	6,621	4,932	5,316	86.9
All Others	1,673	1,733	1,777	1,476	1,133	799	13.1
Total All Commodities	\$7,569	\$8,054	\$8,331	\$8,097	\$6,066	\$6,116	100.0%

Source: U.S. Census Bureau.

The top five products made up 71% of Colorado export volume year-to-date and included (in order) meat (primarily beef), electrical equipment, precision instruments (optical, medical, or surgical instruments), air/spacecraft, and industrial machinery including computers. Of these, all but air/spacecraft have each accounted for between 14% and 16% of exports since 2017. Air/spacecraft, though, ranked fifth from 2017 through 2019, jumping from about 4% in 2019 to 13% in 2020 year-to-date due to the satellite deliveries previously noted. Precision instruments and industrial machinery were down year-to-date, by 10% and 4% respectively, but the rest were up. Meat, which lost the top spot in 2019 to precision instruments,

was back on top and up 5% year-to-date. The rest of the top 10 also fared relatively well, with only two other product categories down year-to-date: articles of iron and steel (down 38%) and vehicles (down 6%).

Outside of the top 10, losses were much more widespread, hitting 40 of the next 50 products ordered by total value. Losses in ores, slag, and ash; mineral fuels; and articles of plaster, stone, and cement were particularly dramatic (down by more than 60% year-to-date) and likely due to decreased exploration and production caused by a weak and unstable global crude oil market (which was already experiencing imbalances prior to the demand crash during the pandemic). Other large losses

**MAJOR DESTINATIONS FOR COLORADO EXPORTS OF MANUFACTURED GOODS, MINERALS,
AND AGRICULTURAL PRODUCTS, 2016-2020 YTD**
(In Millions of Dollars)

Country	2016	2017	2018	2019	Sep 2019 YTD	Sep 2020 YTD	Percent Change	Country Share of Total
Canada	\$1,356.7	\$1,390.2	\$1,446.9	\$1,445.3	\$1,110.8	\$951.4	-14.4%	17.4%
Mexico	1,065.3	1,315.7	1,254.2	1,059.3	780.3	706.9	-9.4	15.1
Malaysia	366.6	417.3	392.3	468.2	345.1	409.0	18.5	4.7
South Korea	400.0	389.0	493.7	541.8	397.2	399.1	0.5	5.9
French Guiana	0.0	0.0	0.0	1.7	0.0	354.9	NM	0.0
China	588.9	585.8	576.8	524.3	380.9	335.8	-11.8	6.9
Japan	444.0	445.0	455.5	399.2	313.9	297.1	-5.4	5.5
Germany	321.3	314.0	300.9	280.3	205.3	223.8	9.0	3.6
Netherlands	228.4	275.8	304.9	331.3	255.3	213.2	-16.5	3.7
United Arab Emirates	58.9	49.8	50.2	64.3	51.7	193.5	274.6	0.6
Taiwan	205.4	208.3	223.1	232.3	175.5	161.3	-8.1	2.7
United Kingdom	219.3	220.5	220.5	242.8	176.4	150.9	-14.5	2.6
Switzerland	230.3	171.0	191.1	201.0	148.7	140.5	-5.6	2.3
Australia	142.5	168.6	146.4	122.9	93.3	120.6	29.2	1.8
Hong Kong	207.0	233.7	243.3	201.9	151.0	100.3	-33.5	2.9
Total Top 15 Countries	5,834.7	6,184.6	6,299.7	6,116.6	4,585.3	4,758.2	3.8	75.6
All Other Countries	<u>1,734.7</u>	<u>1,869.8</u>	<u>2,031.4</u>	<u>1,980.7</u>	<u>1,480.2</u>	<u>1,357.4</u>	<u>-8.3</u>	<u>24.4</u>
Total All Countries	\$7,569.5	\$8,054.5	\$8,331.1	\$8,097.3	\$6,065.6	\$6,115.6	0.8%	100.0%

Source: U.S. Census Bureau

continued trends that had begun before and are likely independent of the pandemic (though not unaffected by it), including in raw hides and skins, photographic and cinematographic goods, and beverages (see the International Trade section of the Leeds School of Business 2020 Economic Outlook for an explanation of recent beverage export declines).

The top five export destinations accounted for about 46% of Colorado volume year-to-date, with the top two, Canada and Mexico, accounting for 27% alone. However, when taken as a bloc, the European Union was Colorado's second largest export destination, with 15%. Following Canada and Mexico, Malaysia, South Korea, and

French Guiana completed the top five. Despite strong declines since 2018, China would still be in the top five if not for the dramatic rise of French Guiana, which was due solely to the delivery of one of the two satellites that, as described above, were responsible for keeping Colorado's year-to-date growth in the positive. From 2015 through 2018, French Guiana ranked among the bottom of Colorado's export destinations and averaged \$64,000 per year. The satellite, which was launched in French Guiana, but delivered to a Japanese company, registered a value of \$355 million. The other satellite delivery went to the United Arab Emirates and caused the country to jump from 23rd to ninth in Colorado's export profile.

This analysis preferred to use 2018 rather than 2019 to make comparisons because the latter year saw much more disruption from typical trade patterns due to foreign policy and other geopolitical considerations. While trade never occurs in a vacuum, it could be argued that 2018 was more reflective of "natural" trade for Colorado and the U.S., while 2019 was much more of an "artificially skewed" environment.

Growth across destinations was largely negative. Of the 51 destinations to which Colorado exported at least \$10 million in 2018, 34 were down year-to-date, including four of the top five of that year. Canada, Mexico, Hong Kong, the Philippines, and China saw the largest nominal declines of \$159 million, \$73 million, \$51 million, \$45 million, and \$45 million, respectively. The Netherlands, France, Chile, Argentina, the United Kingdom, Taiwan, and Japan also all recorded drops over \$14 million. Of these, Chile, Argentina, the Philippines, and Hong Kong represented the largest percentage declines, ranging between 34% and 64%. Canada, Mexico, and China—the top three Colorado export destinations over the last few years—shed 9% to 14% of value year-to-date.

Of the remaining 17 destinations that experienced positive growth year-to-date, only three—South Korea, Malaysia, and Germany—ranked higher than 15th in 2018. The top five for nominal growth included the United Arab Emirates (again, as a result of one satellite delivery), Malaysia, Australia, Ireland, and Vietnam at \$142 million, \$64 million, \$27 million, \$24 million, and \$23 million, respectively.

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;

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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 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 63% of Colorado import volume year-to-date and included (in order) electrical equipment, industrial machinery, mineral fuels, precision instruments, and air/spacecraft. Of these, only electrical equipment recorded year-to-date gains, which were up by 6%. Mineral fuels saw the largest decline, down by more than 31%. Among the rest of the top products, furniture, vehicles, articles of iron and steel, and pharmaceuticals were all down by double-digits.

The top five import sources accounted for 61% of Colorado volume year-to-date, with the top, Canada, accounting for 24% alone. Canada was followed by China, Mexico, Switzerland, and Taiwan, but when taken as a bloc, the European Union took the second spot. Canada and Mexico were down by more than 20% year-to-date, China and Switzerland were down by 8%, and Taiwan was up by 3%. Vietnam, South Korea, France, Malaysia, and Thailand—all among Colorado's top sources—posted double-digit growth from the same period in 2019 (with Thailand nearly reaching 80% year-to-date).

Colorado Food & Agriculture Exports

Year-to-date through August 2020, Colorado exports in food and agriculture totaled \$1.1 billion, roughly equivalent to the same timeframe in 2019. Considering the declines in employment, sales, the international trade values of most commodities, and other economic indicators, this was a strong result. It was likely due to the relative inelasticity of demand of food products: people need to eat.

The top five export markets for Colorado food and agriculture goods included Canada, South Korea, Mexico, Japan, and China. Top export commodities were beef, hides and skins, animal feed products, cereal grains, and value-added foods.

While the value of these food and agricultural products were on track for this year compared to last, the fundamental change—driven, like many changes to economic activity in 2020, by COVID-19—was how the goods were getting to the end user.

Food service saw dramatic declines in activity in 2020, with many venues and restaurants around the world shutting down for periods of time and working under artificial capacity constraints when open. Restaurant closures and restrictions led to increased reliance on cooking at home and, consequentially, increased demand for grocery stores, causing a rapid drop in food service and concurrent spike in retail. Producers in Colorado were forced to quickly adjust to this shifting landscape and some industries and market participants were more successful at doing so than others. Part of the difficulty for some came in the form of supply issues of supporting or complementary products.

A good example of an industry trying to pivot to this new reality was the beverage industry. Colorado breweries, for which on-premise sales are the main source of revenue, suddenly faced a dramatic decrease in demand at their physical locations. To survive, many expanded their retail sales (selling to grocery stores, liquor stores, and other similar locations). This resulted in a large increase in demand for cans that overshot supply; the four major U.S. can suppliers did not foresee this development or ramp up production in a timely manner to quickly alleviate the imbalance. Facing the shortage, breweries adapted again by using bigger cans, which did not face the same shortage issue, but also are not as popular in retail settings. The spirits industry, facing a similar drop in on-premise demand, was able to adapt rapidly by manufacturing hand sanitizer and cleaning products. However, like the can shortage caused by the shift in



breweries' sales strategies, this led to unforeseen shortages in alcohol and ethanol production.

Food and agricultural exports were also supported, to an extent, by virtual tradeshow and meetings through 2020. However, human interaction, food tastings, and pairings are vital for success in this arena. Online tradeshow and meetings proved a good supplement for the industry to continue but will not replicate the growth that in-person meetings would provide.

Interest Rates, Exchange Rates, & Crude Oil 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.

After cutting interest rates three times in 2019, the Federal Reserve held its upper bound federal funds rate

target at 1.75% from November 2019 through February 2020. In March, in response to the growing health and economic concerns of the pandemic, it cut rates twice to target a range of 0% to 0.25% and developed special purpose vehicles through which it aimed to stabilize the U.S. commercial paper market and lend to Americans, among other goals. In subsequent meetings, the Federal Open Market Committee (FOMC) committed to holding rates at the near-zero target until the economy showed signs of a prolonged recovery from the crisis (which its projections committee forecasted will occur in about two to three years). At the end of August, 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. Central banks around the world followed similar policy interventions throughout the year, including the European Central Bank, Bank of Japan, and Bank of England, all of which all have lowered and maintained their target rates to near or even below zero.

In 2019, the dollar generally appreciated, though it recorded a couple of peaks and troughs and grew overall at a much slower pace than 2018. The real trade-weighted broad dollar index increased by about 3 percentage points from January to September 2019, before falling to end the year with a 1 percentage point increase (in 2018, this index increased by about 7 percentage points). In 2020, the index increased from 106.4 in January to 113.4 in April, comparing to similar increases during the Great Recession (December 2007 through June 2009) and the crude oil price collapse (July 2014 through February 2016). These increases all came when global markets were reeling from catastrophic events, for which the U.S., while also in the midst of the crises itself, was still viewed as a safe haven. However, beginning in May, the real trade-weighted broad dollar index began to drop significantly as the U.S. surpassed almost all other countries in the spread and severity of COVID-19 and lost its typical “safe haven” status. In October, the last month of data,

the index registered 107.5, just over 1 percentage point higher than the beginning of the year.

From the beginning of January to the beginning of November, the U.S. dollar depreciated against the euro by about 6% and against both the Chinese yuan renminbi and Japanese yen by about 5%. It stayed about level with the Canadian dollar and the British pound, but appreciated against the Indian rupee by about 4%, the Mexican peso by about 9%, and the Brazilian real by a dramatic 35%.

A strengthening dollar means that U.S. exports are more expensive for foreign markets and imports are relatively cheaper for U.S. consumers.

Trade Agreements & Negotiations

The Trump administration, while overall shifting foreign policy to one more closely aligned with protectionism, began negotiations with several trading partners in 2019 and 2020 to form (mostly) bilateral trade and investment agreements. In general, such agreements reduce barriers, align regulatory compliance, and streamline processes to facilitate greater trade volumes.

Perhaps the biggest trade accomplishment of the 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, which came into effect in 1994. The overall impact of the new agreement is yet to be seen, though it 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.

The Trump administration also accomplished the signing of the “Phase One Agreement” with China in January 2020, after nearly two years of tit-for-tat tariff brinkmanship that saw dramatic reductions in trade between the two countries. The agreement, though at times vague and without a strong enforcement mechanism, outlined a set of obligations between the U.S. and China that, among other things, stopped further escalation of tariff rates, addressed China’s investment and tech transfer practices, aligned regulations on intellectual property protection and agricultural safety standards, and committed China to purchasing \$200 billion in a variety of U.S. exports by 2022. Such provisions should have positive impacts for Colorado producers. Indeed, the commitment to purchase American goods is likely a prime reason that export volumes to China from the U.S. and Colorado were steadied throughout 2020 (though still down from before the “trade war”), while many other destinations saw strong declines.

Other negotiations in 2020 to secure trade deals included Japan, the UK, and the EU. Colorado beef producers may gain substantially from deals in these markets due to the

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level of existing consumption and current agreements, including the Comprehensive and Progressive Trans-Pacific Partnership (CP-TPP) and the EU single market and customs union areas, which set stiff barriers for agricultural products coming from outside of the bloc. In Japan, the opportunity comes from reducing the price disadvantage that Colorado meat producers face against Australia—a major competitor market—which enjoys lower tariffs to Japan as a member of the CP-TPP. In Europe, the hope is that the new agreement with the UK will allow for meat imports from the U.S. at a much lower rate than was previously available within the EU. Further, certain programs internal to the EU, like “Farm to Fork,” encouraged local purchasing, while current trade tensions and tariff actions (like the tit-for-tat dispute over Airbus and Boeing subsidies) are further dampening the outlook for exports to the EU.

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.

The number of international students studying in the United States and in Colorado increased steadily in the decade leading to the 2019-2020 academic year. In the United States as a whole, the number of international students grew from approximately 670,000 to over one million, while the percentage of the student body made up by international students grew from approximately 3.5% to 5.5%. Similarly, in Colorado, the number of students nearly doubled in the same period to 11,888 in academic year 2018-19. However, beginning in 2016, the number of new students enrolling in Colorado institutions began to decline, and many experts had already forecast a decline in the total number of students by Fall 2020, even without the significant impact of COVID-19.

There are several reasons for the decline in numbers, including increasing competitiveness of other countries; affordability of U.S. higher education; and actual and

INTERNATIONAL STUDENT ENROLLMENT AT SELECT COLORADO INSTITUTIONS

Institution/Year	'12/13	'13/14	'14/15	'15/16	'16/17	'17/18	'18/19	'19/20	Percentage Change
University of Colorado Boulder	1,910	2,163	2,614	2,951	3,424	3,654	3,789	3,886	2.6%
Colorado State University	1,598	1,793	2,148	2,305	2,495	2,501	2,416	2,446	1.2%
University of Colorado Denver	1,590	1,617	1,690	1,446	1,051	1,068	1,398	1,288	-7.9%
University of Denver	1,348	1,457	1,463	1,688	1,494	1,404	1,278	1,122	-12.2%
Colorado School of Mines	660	767	823	875	800	818	856	866	1.2%

Sources: Institute of International Education, annual Open Doors report.

perceived barriers to obtaining a student visa to study in the United States. COVID-19, with its attendant embassy closures and travel restrictions, has meant that the number of new students coming to the United States in 2020 dropped precipitously. At the same time, in 2020, a number of new policies and policy proposals issued by the federal administration further discouraged international students from considering studying in the United States, even as institutions and states sought to maintain welcoming images to potential students abroad.

Almost all Colorado institutions saw a decrease in international student enrollment in academic year 2019-2020 compared to the previous year, totaling a 2.2% decrease statewide; though notably, the state’s largest public institutions—the University of Colorado Boulder and Colorado State University—saw modest increases. With COVID-19 hitting mid-academic year, institutions braced for a further and more significant decrease in Fall 2020 (along with overall enrollment decreases). Preliminary analyses show that 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 approximate 20% decrease in international enrollments in Fall 2020.

The trend over the past few years and the more significant impact of COVID-19 have serious implications for Colorado’s global competitiveness. Not only are institutions losing crucially needed tuition dollars, but there is a broader economic impact to the state. International student expenditures in Colorado totaled almost \$430 million per year before the pandemic; that figure will decline as the number of students declines. Moreover, Colorado has always attracted top science and engineering students, many of whom contribute to the over \$1.4 billion in innovative research in Colorado’s institutions of higher education. While the vast majority of international students return to their home countries when they complete their degrees, those who stay provide a source of talent that helps U.S. businesses thrive. This talent has helped drive Colorado’s success in cyber security, aeronautics, health and biomedical, and other science and technology fields. As global competition in science and technology is increasing, Colorado and the United States risk losing out to other countries that have strategies aimed at attracting global talent.

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



Photo courtesy of Helena Lopes/Unsplash.

Colorado Department of Higher Education. The State, too, has taken action, including submitting comments and joining in multi-state lawsuits, to oppose some federal rule changes that would increase barriers for international students.

International Trade Outlook for 2021

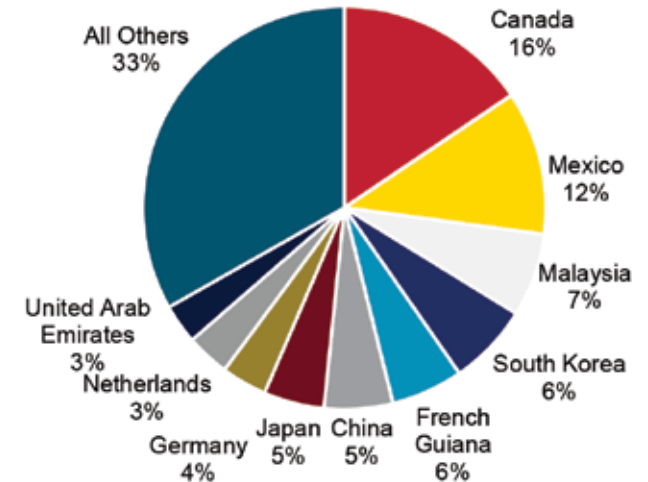
With the global pandemic still growing in spread and severity, political tensions, and other disruptive geopolitical shifts of the last few years still in flux, the outlook for 2021 is highly uncertain.

International Projections

Forecasters at the IMF and World Bank continue to struggle with these and other unknowns. Nonetheless, they periodically report forward-looking estimates for GDP growth and exports for regions around the world. In some of the most recent projections, they predict slowdowns for the whole of 2020, 2021, and 2022, but not as severe as was expected earlier in the year.

The IMF's latest forecast (October) predicts that the world economy will have shrunk in 2020 by 4.4%, which was an improvement from the 4.9% contraction they predicted in June. Their outlook for the U.S. improved even more from an 8% decline predicted in June to a 4.3% decline predicted in October. For 2021, the IMF expects growth to rebound, with output increasing by 5.2% globally and 3.1% in the United States. However, these projections assume another significant stimulus package will be passed in the United States. China's growth is expected to be barely positive with a 2020 growth rate of 0.5%, compared to its 2019 rate of 5.9%. The rate for 2021 is expected to rise significantly to 6.9%. For all of the East Asia Pacific area, the 2021 growth rate will be close to the 2019 figure. Other important U.S. trade partners show similar patterns, with 2020 output declining in Mexico by 7.5% and 8% in Brazil. GDP in the UK and Spain are both projected to decline by 9.8% and 12.8%, respectively, in 2020 as well. India is still projected to grow by 4.2%, but with a decline of 3.2% in 2021.

TOP 10 EXPORT DESTINATIONS SEPTEMBER 2020 YTD



Source: U.S. Census Bureau.

The World Bank developed similar, but mostly more pessimistic forecasts for 2020 and 2021. Their U.S. forecasted real GDP rates for 2020 and 2021 are -3.7% and 4%. For 2022 and 2023, the projections are for very modest growth at 3% and 2.5%, respectively.

The World Economic Forum in April 2020 estimated that the global merchandise Trade Index will fall from a rate of 110 to 96 under its optimistic scenario, and to 75 under its pessimistic scenario for end-of-year 2020. The trend at the end of 2019 had indicated a 2020 rate of 115. Based on second quarter estimates, the likely final figure will be near the mid-point of the forecast.

COVID-19 underlies all of these forecasts and its progression in the near-term will further validate or disrupt

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these estimates. The sooner an effective vaccine is made available, the less severe the economic reaction over the next few years. However, if cases continue to mount and states and countries impose further restrictions, the economic impact will be more severe. At the time of writing—early November—COVID-19 case counts in Colorado, the U.S., Europe, and many countries around the world have been increasing dramatically since the beginning of October and are reaching new record highs. There is growing discussion for the need to impose new restrictions on travel and commerce to fight this newest surge. France, for example, recently entered into another national lockdown on November 6, similar to those imposed in many countries, including the U.S., from late March through April. Those first lockdowns resulted in unprecedented declines in economic activity and international trade. If restrictions become widespread or take hold in the U.S., it is likely that trade values for the nation and the state will follow a similar trajectory and further decline into the first half of 2021.

In this atmosphere of high uncertainty and many unknowns, one thing that the World Bank is monitoring closely is the level of accumulated private-sector debt. Given that the private sector debt to GDP of the 76 largest countries is now at 120%, the debt overhang will serve as a drag on the ability of countries to grow, even once the pandemic has become controllable. Globally, there has been a sharp rise in the number of insolvencies, even with record low interest rates. Already, younger generations have been hit the hardest, with 10 million to 15 million additional young workers not able to find jobs due to COVID-19. Likely, they will further have to bear this burden.

The U.S. Presidential Election

At the time of writing, the U.S. presidential election has been called by most jurisdictions in favor of the democratic challenger, Joe Biden. Nonetheless, President Trump has thus far refused to concede the results and has taken legal and executive action to delay or disrupt the

transfer of power. His team has filed lawsuits in several locations to demand recounts, have ballots invalidated, or otherwise change the outcome of close contests, such as Pennsylvania. His Attorney General, William Barr, overturned tradition by circulating a memo stating that federal prosecutors should investigate fraud in the election and only dismiss investigations if they seemed “specious, speculative, fanciful, or far-fetched.” The memo led to the resignation of the Richard Pilger, head of the election crimes unit in the Justice Department Public Integrity Section.

This outcome was not unforeseen. During this campaign cycle, President Trump repeatedly, and without concrete evidence, pointed to the mail-in ballot system as a potential avenue for mass fraud, called on his supporters to illegally monitor polling stations, and refused to state that he would endorse the results of the election if he lost. At the same time, early voting counts broke records as Americans used the mail-in and early voting systems to avoid crowd exposure that carried a higher risk of contracting COVID-19.

It is unclear how long this contested period will last and what the exact outcome will be. Such uncertainty is unwelcome to business and trade, which rely on careful estimations of potential gain and loss. The current climate is not conducive to such estimations. This, in and of itself, may put downward pressure on international trade at the end of 2020 and in the beginning of 2021.

Of course, the outcomes will almost certainly lead to different trajectories for international trade for the U.S. and Colorado due to seemingly different ideologies on foreign policy and trade. Over the last few years, the Trump administration has 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—particularly those that are protectionist in nature—are thought to have contributed to the decline in international trade in 2019.

If the current results are reversed and President Trump wins reelection, then it is likely that these protectionist types of programs will continue and even increase. It seems likely that his administration will impose more tariffs and will become more brazen in its rhetoric and action against international organizations. Such actions, which increase barriers and reduce trust, are likely to continue to drag international trade down. On the other hand, it is far more likely that some of the bilateral agreements that began under President Trump—including the agreements with China, the UK, the EU, and Japan outlined in the “Trade Agreement” section—will continue if he retains office. These agreements, when complete, are likely to have a positive impact on international trade, as they tend to reduce barriers and align regulatory regimes between trading partners in a way that facilitates growth.

If the presumptive President-Elect, Joe Biden, retains the election results, it is uncertain how much of the shifts of the Trump administration will remain in place. It is generally thought that his administration would roll back tariffs, expand the issuance of visas to their previous levels, and restore the U.S. to its multilateral agreements, but he has yet to deliver concrete statements affirming such intentions. Some of the other measures may even remain in place. For example, Biden has put forward rhetoric condemning China and its unfair business practices. It does not seem improbable that his administration would continue to push CFIUS to apply heightened

scrutiny to investments from China, even while reducing the tariffs or renegotiating the “Phase One Agreement.” And another: Biden, as vice president, worked with President Obama to secure the Trans-Pacific Partnership (from which President Trump withdrew). It does not seem outlandish that he would seek to rejoin this deal (now the CP-TPP) or pursue similar multilateral agreements and direct the U.S. Trade Representative to stop all bilateral negotiations underway.

Brexit & Europe

In Europe, the manner of Britain’s exit from the EU continues to be unresolved, with British Prime Minister Boris Johnson negotiating for more favorable agreements for the UK. As of this writing, the UK faces the prospect of a “no-deal” Brexit, which would throw the trading relationship between the UK and the EU into turmoil with the imposition of high tariffs and other barriers to trade into the European single market. The UK would have no specific trade deal with the EU, but rather would trade with the EU under general WTO rules. The period of the UK’s transition from an EU member to a non-member is set to expire at the end of 2020.

On the one hand, Brexit represents an opportunity for the U.S. to secure a more favorable deal for trade with each side of the divorce. The U.S. and UK began negotiations on such a bilateral trade deal in 2020 but have yet to make significant progress due to COVID-19 and disagreements over several issues, such as agriculture and food standards. Further, President-Elect Joe Biden and U.S. Congressional Democrats have already indicated an unwillingness to accept any trade deal with the UK if the

terms lead to the return of a hard border between the Republic of Ireland and Northern Ireland, an issue which is still being debated and which has delayed Brexit more than once already. This assumes that a Biden administration would continue the bilateral trade negotiations that had begun under his predecessor, which is itself uncertain.

On the other hand, a disorderly Brexit could have severe impacts on the European economy, which could dampen U.S. and Colorado trade. The EU, taken as a bloc, is a top three partner at both the national and state level, and the UK, alone, is within or near the top 10. Many Coloradans rely on these markets for export income or import products and services, and they may need to find new trade avenues (likely from a less optimal partner).

China & Asia

Over the last few years, China has begun to exercise its power over historically claimed territory. According to the Council of Foreign Affairs’ Global Conflict Tracker, reports and satellite imagery have detailed the expansion of existing or creation of new islands, and the construction of ports, military installations, and airstrips through the South China Sea (though concentrated on the Paracel and Spratly Islands). Such activities are igniting disputes with other Asian countries, including Vietnam, the Philippines, Indonesia, and Malaysia, and, to a lesser extent, Japan and South Korea—strong trading partners nationally and for the state.

In early 2019, Hong Kong proposed the Fugitive Offenders and Mutual Legal Assistance in Criminal Matters Legislation Bill, which created a mechanism to extradite

fugitives out of Hong Kong, including to mainland China. The bill was seen as a way for China to exert control on the autonomous region before its special administration status was to end in 2047, under the “One Country, Two Systems” arrangement, and was immediately met with massive protests that have continued until today. The consequential disruption to Hong Kong’s economy was evident in the declines in trade volumes to and from the country over the last two years.

Further, in the Xinjiang autonomous region of Northwest China Uighur Muslim internments in the Xinjiang autonomous region and continuing to put forth harsh rhetoric toward Taiwan, which China considers a part of its country.

These actions, which are often viewed as imperialistic from a Western perspective, may further strain the current tenuous relationship between the U.S. and China going forward. They may lead to further barriers of trade and investment, or even worse, lead to military conflict in the region. ❖

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Summary

Employment is estimated to close down 5.3%, or 148,800 jobs, once data revisions take effect in early 2021, illustrating the destructive impact of COVID-19 on jobs. While Colorado will mark job growth in 2021, employment will remain below peak. The recovery, especially for the services industries, is highly dependent on a vaccine. Colorado will add 40,500 workers in 2021, or growth of 1.5%.

In 2021, the two private-sector industries projected to add the most jobs and grow at the fastest pace: Leisure and Hospitality, and Trade, Transportation, and Utilities. These two industries were among the hardest hit by the pandemic-induced recession and are projected to grow from a much smaller base.

Agriculture—While the Agriculture sector worked to maintain a supply of food for consumers in 2020, the industry faced downstream processing issues, as well as price volatility and poor weather (wide-spread drought,

freezes, and early snow). Net farm income is estimated to fall by \$200 million despite additional government assistance. However, gross farm revenue and net farm income are both projected to grow in 2021, with growth in livestock offsetting a decline in crops.

Natural Resources and Mining—The estimated 40% decline in value of production and 23.9% decline in jobs in 2020 reflect an industry impacted by soft demand, a decrease in prices, and a shift in policy. While output is not projected to grow in 2021, more favorable pricing will help increase the value of production 17%, to nearly \$13 billion—still well below 2018 and 2019 values. Colorado ranked fifth in 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 fell an

estimated 9.6% in 2020. The demand for housing units remained strong, with residential permits up an estimated 3.3%. However, the supply of new homes and other new construction will decrease in 2021 as COVID-19 has a lagging impact on the industry, with migration slowing, public funding for infrastructure curtailing, and demand for some commercial assets falling.

Manufacturing—Colorado's mix of manufacturing industries has contributed to the sector outperforming national industry growth. Through October 2020, Colorado's average employment year-to-date was down less than 1% compared with a 4.6% national contraction. In 2021, the sector will return to employment levels not seen since 2003, built on industry strengths ranging from food to aerospace.

Trade, Transportation and Utilities—COVID-19 uniquely impacted the industry, driven in part by a government-mandated shutdown that impacted retail and transportation, part by changes in consumer behavior

ANNUAL EMPLOYMENT CHANGE IN NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT SECTORS 2011-2021 (In Thousands)

Sector	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 ^a	2021 ^b
Natural Resources and Mining	3.5	2.4	0.3	3.5	-3.4	-7.0	2.1	2.8	0.3	-6.9	0.4
Construction	-2.6	3.3	11.7	14.7	6.6	6.5	8.4	9.5	5.6	-3.8	0.0
Manufacturing	3.9	2.8	1.9	3.8	4.4	1.7	1.6	3.2	2.6	-0.8	2.3
Trade, Transportation, and Utilities	4.1	7.9	10.7	12.5	13.0	8.3	7.3	9.1	7.0	-10.6	14.7
Information	-0.6	-1.6	0.1	0.4	0.4	1.2	0.0	3.3	0.8	-1.5	-1.1
Financial Activities	-0.5	2.8	4.3	2.9	5.1	4.9	4.2	3.5	2.3	-3.4	2.5
Professional and Business Services	10.7	15.4	15.7	14.0	11.8	7.3	7.1	11.1	16.1	-8.4	4.4
Education and Health Services	9.0	8.9	4.1	12.1	15.3	12.5	8.3	6.6	6.9	-13.3	4.5
Leisure and Hospitality	8.4	8.3	9.7	11.0	12.4	10.8	9.6	6.5	4.9	-71.2	19.2
Other Services	1.3	2.3	1.7	3.2	3.3	3.1	1.3	2.3	2.2	-7.1	0.5
Government	-1.0	1.9	8.9	4.7	8.6	11.6	8.6	8.9	9.7	-21.7	-6.9
Total ^{c,d}	36.2	54.4	69.1	82.8	77.5	60.9	58.5	66.8	58.4	-148.8	40.5

^aRevised. ^bEstimated. ^cForecast. ^dDue to rounding, the sum of the individual sectors may not equal the total.

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

shifting purchasing habits to ecommerce, and part by government stimuli that propped up consumer spending. Industry employment and retail sales are projected to rebound in 2021.

Information—Employment declined in 2020 but has weathered the downturn better than other industries as technology companies have started to resume hiring and see this as an opportunity to invest in new products and innovation. The sudden increase of remote working has skyrocketed demand for connectivity, which has challenged existing infrastructure but also presents an opportunity for more employment. Around 90% of Coloradans have access to broadband at speeds of 100mbps or faster—ranking 25th in the nation—but only 87% of rural residents do, presenting an ongoing challenge for economic development in the state. Whether companies continue to embrace remote work will help determine the sector's performance in 2021, as Colorado has seen an influx of tech workers who can work remotely.

Financial Activities—Despite historical volatility in the capital markets, Colorado banks remain on solid ground and were critical in assisting a path to recovery by administering over 109,000 Paycheck Protection Program (PPP) loans valued at \$10.4 billion to Colorado businesses. Employment in Finance and Insurance continued to increase, while Real Estate and Rental and Leasing employment was heavily impacted by the downturn. Record-low interest rates helped sustain and fuel the residential real estate market in the state; however, the changing work environment has brought an abrupt change to the commercial real estate market. The sector's performance in 2021 will be heavily influenced by how the uncertainty around COVID-19 and a possible additional round of fiscal stimulus affects the capital markets, real estate, and consumer behavior.

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. The highly skilled and highly educated workforce has allowed the sector's employees to quickly adapt to remote

work, mitigating the pandemic's impact. In 2021, a continued pandemic could dampen business services demand and staffing, which could influence employment, 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 observed a large shock from the pandemic, as education institutions were forced to operate online, and health care providers stopped performing non-emergency 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. Another apparent wave of COVID-19 cases threatens to shut down medical services again, which could force another decline in health care employment in 2021.

Leisure and Hospitality—The industry was one of the hardest hit from the COVID-19 pandemic, as service-based businesses were forced to shut down and fear of the virus muted consumer activity. Colorado's travel spending since March was down over 50% in October, DEN passenger traffic was down 53% in September year-to-date, restaurant sales were down an average 40% statewide in October, hotel occupancy rates were down 34.3 percentage points from 2019 in September, and over 500 conventions have been canceled. These large declines in activity are expected to bring job losses in the sector to 71,200 in 2020. While industry employment is expected to post gains in 2021, Colorado's tourism industry isn't expected to fully recover for years, with continued consumer caution hindering the sector.

Other Services—Another hard-hit industry because of the person-to-person interactions (e.g., hair and nail care, religious organizations), this industry will face a bumpy road to recovery with each opening and closing of the economy.

Government—State and local government were negatively impacted by the decrease in tax revenue that negatively impacted most, but not all jurisdictions. Public education faced additional costs to make COVID-19

accommodations, while also facing shifts in enrollment. The budget impact will carry through 2021.

National and International

- U.S. output will record strong growth in 2021, but real GDP growth of 3.8% will keep the economy below the pre-recession peak.
- Personal consumption and investment are expected to post moderate gains as the economy heals.
- Colorado's goods imports were down 10% in September year-to-date; however, Colorado's goods exports are up 1%. Record-low interest rates and fluctuating prices of currencies and commodities, will continue to bring large uncertainty to International Trade in the year ahead.

Colorado

- Colorado will likely fall out of the top 10 states for employment growth in 2020 and 2021 given the service sector impact.
- Employment growth is projected in nine of the 11 industries in 2021.
- Changing consumer preferences, from housing to shopping, will continue to have disparate impacts on Colorado communities.
- Work-from-home behaviors will impact commercial real estate, transportation, retail sales, and workplace dynamics.
- Population in 2021 will grow by the lowest number since 2003. The state will still add an estimated 53,300 people, with just 35,100 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 2.7% and 1.9%, respectively. In September 2020, all of the regional states posted year-over-year job losses with New Mexico, Wyoming, and Colorado posting the largest declines of 6.9%, 5.6%, and 4.8%, respectively. Utah saw the lowest annual employment decline of 1.0%.

Regarding MSAs, the Wichita MSA, the Kansas City MSA, and the Denver-Aurora-Lakewood MSA posted the largest year-over-year employment declines of 4.7%, 4%, and 3.8%, respectively, in September 2020. The Lincoln MSA saw the smallest annual decline of 0.4%.

In terms of real GDP growth, Wyoming and Kansas saw the largest annual declines of 11% and 8.7%, respectively, year-over-year in Q2 2020. Utah's GDP saw the smallest

REGIONAL STATES

September 2020 Total Employees (In Thousands)	2,862.0 Arizona	2,665.2 Colorado	1,552.4 Utah	1,360.4 Kansas	1,000.4 Nebraska	802.4 New Mexico	467.7 Montana	273.9 Wyoming
Employment CAGR September 2010 - September 2020	2.7% Utah	1.9% Arizona	1.8% Colorado	0.9% Montana	0.6% Nebraska	0.2% Kansas	0.1% New Mexico	-0.4% Wyoming
Employment % Change September 2019 - September 2020	-1.0% Utah	-2.5% Nebraska	-3.1% Arizona	-3.6% Montana	-4.4% Kansas	-4.8% Colorado	-5.6% Wyoming	-6.9% New Mexico
September 2020 Unemployment Rate ^a	9.4% New Mexico	6.7% Arizona	6.4% Colorado	6.1% Wyoming	5.9% Kansas	5.3% Montana	5.0% Utah	3.5% Nebraska
2019 Average Annual Pay	\$61,820 Colorado	\$53,807 Arizona	\$50,766 Utah	\$49,880 Wyoming	\$48,060 Kansas	\$47,854 Nebraska	\$47,043 New Mexico	\$44,883 Montana
Personal Income Q2 2020 (Millions of Dollars)	\$382,952 Colorado	\$372,245 Arizona	\$173,080 Utah	\$168,016 Kansas	\$114,212 Nebraska	\$101,234 New Mexico	\$60,285 Montana	\$38,577 Wyoming
GDP Q2 2020 (Millions of Current Dollars)	\$365,009 Colorado	\$350,141 Arizona	\$182,895 Utah	\$161,464 Kansas	\$119,692 Nebraska	\$93,367 New Mexico	\$47,721 Montana	\$33,233 Wyoming
Real GDP Percentage Change Q2 2019 - Q2 2020	-4.6% Utah	-5.6% Arizona	-6.3% Colorado	-7.2% New Mexico	-7.5% Nebraska	-7.8% Montana	-8.7% Kansas	-11.0% Wyoming

Sources: Bureau of Economic Analysis, Colorado Department of Labor and Employment, and Bureau of Labor Statistics (CES, QCEW, and LAUS data). ^aNot seasonally adjusted. Unless noted, all data is seasonally adjusted. Based on preliminary data.

decline in Q2 2020 (-4.6%). In 2018, the Phoenix-Mesa-Chandler MSA led the MSAs in the region, with growth of 4.5% in 2018 (most recent available data), followed by the Denver-Aurora-Lakewood MSA (3.7%) and the Salt Lake City MSA (3.4%). There were no MSAs that recorded year-over-year losses in 2018.

In 2019, Colorado's \$61,820 average annual earnings exceeded all states in the region, followed by Arizona, with \$53,807. Boulder and Denver-Aurora-Lakewood led Colorado with above-average annual pay levels exceeding \$64,000. This far surpasses other MSAs in the region. ❖

REGIONAL METROPOLITAN STATISTICAL AREAS

Total Employees September 2020 (In Thousands)	2,128.0 Phoenix-Mesa- Scottsdale	1,486.4 Denver-Aurora- Lakewood	1,053.9 Kansas City	738.9 Salt Lake City	389.6 Albuquerque	291.8 Wichita	192.3 Lincoln	45.7 Cheyenne
Employment CAGR September 2010 - September 2020	2.4% Phoenix-Mesa- Scottsdale	2.3% Salt Lake City	2.2% Denver-Aurora- Lakewood	1.1% Lincoln	0.9% Kansas City	0.5% Cheyenne	0.5% Albuquerque	0.2% Wichita
Employment % Change September 2019 - September 2020	-0.4% Lincoln	-2.6% Salt Lake City	-2.9% Albuquerque	-2.9% Phoenix-Mesa- Scottsdale	-3.4% Cheyenne	-3.8% Denver-Aurora- Lakewood	-4.0% Kansas City	-4.7% Wichita
September 2020 Unemployment Rate ^a	8.9% Albuquerque	8.0% Wichita	6.5% Denver-Aurora- Lakewood	6.3% Phoenix-Mesa- Glendale	5.2% Salt Lake City	4.9% Kansas City	4.9% Cheyenne	3.2% Lincoln
2019 Average Annual Pay	\$68,173 Denver-Aurora- Lakewood	\$57,100 Salt Lake City	\$56,001 Phoenix-Mesa- Scottsdale	\$55,402 Kansas City	\$48,791 Cheyenne	\$48,060 Albuquerque	\$47,531 Wichita	\$46,431 Lincoln
Personal Income 2018 (Millions of Dollars)	\$224,000 Phoenix-Mesa- Chandler	\$189,000 Denver-Aurora- Lakewood	\$115,000 Kansas City	\$63,249 Salt Lake City	\$38,960 Albuquerque	\$35,833 Colorado Springs	\$33,061 Wichita	\$23,932 Boulder
GDP 2018 (Millions of Current Dollars)	\$255,212 Phoenix-Mesa- Chandler	\$214,158 Denver-Aurora- Lakewood	\$132,704 Kansas City	\$94,307 Salt Lake City	\$42,896 Albuquerque	\$36,699 Wichita	\$19,411 Lincoln	\$5,743 Cheyenne
Real GDP Percentage Change 2017 - 2018	4.5% Phoenix-Mesa- Chandler	3.7% Denver-Aurora- Lakewood	3.4% Salt Lake City	3.3% Wichita	2.1% Albuquerque	2.0% Kansas City	1.3% Lincoln	0.8% Cheyenne

Sources: Bureau of Economic Analysis, Colorado Department of Labor and Employment, and Bureau of Labor Statistics (CES, QCEW, and LAUS data). ^aNot seasonally adjusted. Unless noted, all data is seasonally adjusted. Based on preliminary data.

Around the State

COLORADO METROPOLITAN STATISTICAL AREAS						
September 2020 Total Employees (In Thousands)						
1,486.4	294.3	184.7	165.4	107.3	65.0	61.8
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Fort Collins	Greeley	Grand Junction	Pueblo
Employment CAGR September 2010 - September 2020						
3.2%	2.2%	2.1%	1.9%	1.5%	1.1%	0.8%
Greeley	Denver-Aurora-Lakewood	Fort Collins	Colorado Springs	Boulder	Grand Junction	Pueblo
Employment % Change September 2019 - September 2020						
0.0%	-2.0%	-3.3%	-3.8%	-5.3%	-6.2%	-7.8%
Grand Junction	Colorado Springs	Pueblo	Denver-Aurora-Lakewood	Fort Collins	Greeley	Boulder
September 2020 Unemployment Rate ^a						
7.5%	6.5%	6.3%	5.9%	5.7%	5.3%	5.2%
Pueblo	Denver-Aurora-Lakewood	Greeley	Colorado Springs	Grand Junction	Boulder	Fort Collins-Loveland
2019 Average Annual Pay						
\$73,962	\$68,173	\$54,303	\$53,918	\$52,336	\$45,857	\$45,111
Boulder	Denver-Aurora-Lakewood	Greeley	Fort Collins	Colorado Springs	Grand Junction	Pueblo
Personal Income 2018 (Millions of Dollars)						
\$189,000	\$35,833	\$23,932	\$18,994	\$14,512	\$6,884	\$6,619
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Fort Collins	Greeley	Grand Junction	Pueblo
Personal Income 2018 (Per Capita)						
\$73,394	\$64,287	\$54,188	\$48,492	\$46,172	\$44,935	\$39,511
Boulder	Denver-Aurora-Lakewood	Fort Collins	Colorado Springs	Greeley	Grand Junction	Pueblo
GDP 2018 (Millions of Current Dollars)						
\$214,158	\$37,939	\$27,534	\$19,760	\$18,783	\$7,017	\$6,888
Denver-Aurora-Lakewood	Colorado Springs	Boulder	Greeley	Fort Collins	Grand Junction	Pueblo
Real GDP Percentage Change 2017 - 2018						
9.4%	4.7%	4.2%	3.7%	3.2%	2.9%	2.5%
Greeley	Grand Junction	Fort Collins	Denver-Aurora-Lakewood	Colorado Springs	Boulder	Pueblo

Sources: Bureau of Economic Analysis, Colorado Department of Labor and Employment, and Bureau of Labor Statistics (CES, QCEW, and LAUS data). ^aNot 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 unprecedented COVID-19 global public health emergency affected individuals, businesses, and institutions throughout Boulder County in 2020. 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 help individuals and businesses address and adapt to the impacts of COVID-19. 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 will aid in 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 9.7% in April 2020. In September 2020, the Boulder County

unemployment rate was 5.3% (not seasonally adjusted) compared to state unemployment of 6.2% and a national rate of 7.7% (not seasonally adjusted). Between September 2019 and September 2020, Boulder County employment decreased 7.8%, representing a loss of 15,700 jobs.

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 2019 median household income for Boulder County residents was \$88,535, compared to \$77,127 for Colorado residents and \$65,712 for U.S. residents.

Real Estate

Commercial and industrial real estate vacancies in Boulder County increased in 2020. Office vacancy for the area rose to 10.4% in Q2 2020 from 9.3% the year prior, according to Newmark Knight Frank research. During that same period, industrial/flex vacancy in Boulder County increased to 9.5% from 8.3%, and retail vacancy increased to 4.2% from 3.4%.

While single family residential sales increased 5.3% through August 2020, sales of multifamily homes remained nearly unchanged from 2019. The Federal Housing Finance Agency All-Transactions House Price Index for Boulder County increased 1.6% from midyear 2019 to 2020—the slowest rate since 2012.

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. While deposits in FDIC-insured institutions increased significantly, due in part to federal stimulus payments, venture capital funding received by Boulder County companies decreased in 2020.

As of June 30, 2020, Boulder County had 32 FDIC-insured financial institutions with 100 offices and \$12.6 billion in deposits, representing 7.3% of the state total. 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. By comparison, deposits held in Colorado institutions increased 20.8% from 2019 to 2020 and 3.6% 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, \$243 million in venture capital funding was received by Boulder County companies in the first three quarters of 2020, a year-over-year decrease of 53% from 2019—a banner year. Venture capital funding received by Boulder area companies represented 33.4% 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—Boulder County has 43 aerospace companies employing nearly 6,000 people—a concentration of employment 11 times the national average, according to the Metro Denver EDC. Notable aerospace companies in Boulder County include Ball Aerospace, Blue Canyon Technologies, Custom Microwave, DigitalGlobe, Lockheed Martin, Northrop Grumman, EnerSys, Redstone Aerospace, and Sierra Nevada Space Corporation.

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—Boulder County has a high concentration of employment in the biotechnology industry. There are an estimated 88 medical devices and diagnostics companies employing nearly 4,000 people (nearly six times the U.S. average concentration) and roughly 100 pharmaceutical companies employing 1,700 people (over 2.5 times the U.S. average concentration) in the area. Major employers include Agilent Technologies, Array BioPharma, Avista Pharma, ChromaDex, CordePharma, Global Healthcare Exchange, Huvepharma, KBI Biopharma, Medtronic, Molecular Products Group, Novartis Gene Therapies, 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, CableLabs, Google, HP Enterprise, IBM, Intrado, LogRhythm, 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, and TechStars, as well as Tinker-Mill, the largest makerspace/hackerspace in Colorado.

Natural and Organic Products—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, Boulder Organic Foods, Celestial Seasonings, Chocolate, Fresca Foods, 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—Boulder County has a high concentration of manufacturers, distributors, retailers, marketing and media, and other service providers focused on the outdoor recreation industry. Widely recognized as an industry hub, 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, Fjällräven, Gaiam, HEAD USA, K2 Sports, La Sportiva, Newton Running, Pearl Izumi, Polar Bottle, Salewa, Sea to Summit, Spyder Active Sports, Tenkara, and Thule.

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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. US 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*. ❖

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Kit Carson County

Production agriculture is the main economic driver in Kit Carson County, and wind farm development is putting the county on the renewable energy map. Located east of Denver along Interstate 70, the county covers 2,160 square miles adjacent to the Kansas state border. The region is still moisture deprived from very little rainfall or snow accumulation and driving winds, but wind farm development continues to grow.

As COVID-19 reached the county in March 2020, businesses closed and schools moved to online learning. The total impact on the rural region is not yet known, but the resilience and resourcefulness of residents will help businesses recover from the downturn.

Wheat and corn harvests are now complete, and commodity prices remain low. This year's corn harvest was complete before the typical harvest time even arrived. Hemp production has been limited in the region as access to hemp-processing plants continues to present challenges.

Information from the Colorado State Demography Office (SDO) shows Kit Carson County's population growth is weak compared to other counties. The county population decreased slightly from 7,165 in 2018 to 7,128 in 2019, with net outmigration of 65. Data from the Bureau of Labor Statistics, Quarterly Census of Employment and Wages, show a 2.8% year-over-year increase in average employment in Q1 2020. The county seat, Burlington, has a potential project to replace the retail space vacated last year, which would increase employment opportunities. However, low unemployment exacerbates the hiring concerns.

After peaking at 4.6% in June, the unemployment rate of 2.4% (not seasonally adjusted) in September remains much lower than the state average of 6.2%. The labor force, however, has seen an evident decline from 4,277 in January to 3,906 in September.

This region continues to fight the battle to offer affordable housing. Housing development is slowly improving, but often the homes are not affordable to low-income wage earners. Rental demands remain high as few people have funds to purchase a home with 20% down and may have poor credit scores.

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. Farm and sole proprietor businesses represent significant employment in the county each year. The wind farms of Cheyenne Ridge, Bronco Plains, and Crossing Trails are wrapping up construction, or have already started energy production, so these temporary jobs are tapering off.

Burlington's Colorado Welcome Center suffered as the virus shut down the economy, but as summer arrived, travelers started coming to the area. Retail sales in the county have increased in 2020 from \$306.4 million year-to-date in August 2019 to \$324.8 million year-to-date in August 2020 (an increase of 6%). State net taxable sales also grew over the same period, from \$75.3 million

year-to-date in August 2019 to \$92 million year-to-date in August 2020 (22.2%). ❖

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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 154,933 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—Although still recovering from a COVID-induced national recession, Mesa County continues to outperform the nation and the state in this economic downturn and recovery.

The Mesa County unemployment rate peaked in April at 12.6%, falling to 5.7% by September 2020. This was lower than the state (6.2%) and the nation (7.7%), all non-seasonally adjusted. This comes after a strong labor market year for Mesa County in 2019, with an average unemployment rate of 3.4%. Total nonfarm employment decreased 10.9% from January to April but then recouped nearly all of the job losses, according to preliminary September estimates from the Bureau of Labor Statistics.

Unemployment insurance claims are an important real-time data point to measure the rate of change of employment losses during the recession. As of Q3, initial unemployment claims have fallen drastically from their

April peak of 2,583 to 159 in mid-August, according to data from the Colorado Department of Labor and Employment. Initial Unemployment Claims in Mesa County have been steady since the week ending July 25, 2020. These claims have consistently been in the mid to low 100s for 11 consecutive weeks, which is a good sign; however, it also shows the recovery may be slow, according to the Mesa County Workforce Center.

Continued Unemployment Claims show the number of people who continue to collect unemployment including all federal unemployment assistance programs. Continued claims are falling more slowly, peaking at 5,801 in early May and dropping to 3,462 in early August, according to the Q3 2020 Mesa County Economic Update. They have been on the decline in Mesa County for 12 consecutive weeks. Continued claims for the week ending October 3, 2020, were 2,906. This is the lowest number for Mesa County since the week ending March 28, 2020, (1,667). Although the Continued Unemployment Claims number is declining at a slower pace, it is an encouraging sign that the local economy is coming out of the COVID-19 pandemic.

Since March 14, 19% of unemployment claims have come from the Leisure and Hospitality industry and another 19% from Trade, Transportation and Utilities, where retail is a primary contributor.

Sales taxes are down from last year but are better than expected after government shutdowns and capacity limitations were widespread. As of Q3, year-to-date Mesa County sales taxes are up 1.5%, while Grand Junction's are down 3.5%. This is 6.5% lower than the City of Grand Junction's originally budgeted amount for 2020. The sales tax numbers generated by businesses in August and collected by the city in September show even better results, with a 1% increase over the same period in 2019.

In September, Colorado Mesa University (CMU) and the Grand Junction Economic Partnership (GJEP) released the results of a valley-wide survey conducted in July to assess the impact of COVID-19 on local business and assist with post-pandemic recovery efforts for Mesa

County. The survey was distributed to 500 businesses across industries (excluding the hospitality industry) and yielded 276 responses. The total workforce represented by the survey was 9,836 employees. Colorado Mesa University used the data to forecast Mesa County's recovery. The highlights include:

- 55-60% of businesses report less than a 25% loss due to COVID-19;
- 13-15% report catastrophic (over 75%) losses (primarily among food service and recreation businesses);
- 68% of businesses applied for and received federal assistance through the Payroll Protection Program, while 26% did not apply for any type of assistance;
- Access to Internet and/or technology for online sales or remote workforce was not considered a problem to conduct business; and
- Using business survey responses, businesses forecast a 3% total job loss by the close of 2021, or an estimated 2,089 job losses by the end of 2021.

Gross Domestic Product—In 2018, Mesa County's GDP grew 4.7% from 2017, building on the 4.8% growth in GDP from 2016 to 2017. This ranks Mesa County 11th in real GDP out of all counties in Colorado. The 4.7% growth rate is higher than the national GDP growth rate of 3% and the state's GDP growth rate of 4.4% from 2017 to 2018.

Wage Trends—The average annual wage in Mesa County was \$46,275 for the four quarters ending in Q1 2020, according to the Bureau of Labor Statistics, growing 3.9% year-over-year. Most of the increase came from the health care industry. The oil and gas industry continues to lose jobs and wages. Oil and gas jobs have the highest weekly wage of all industries in Mesa County, so the last several quarters of losses are significant.

Employment and Labor Force—As of September 2020, Mesa County's labor force was 79,482—an 11-year high. The number of employed increased from 2018 to

2019, making four years of strong employment growth. Examining the Local Area Unemployment Statistics data based on the household survey, employment peaked in September 2019 at 75,359 before falling to 64,875 in April 2020, but quickly returned to near previous highs in September 2020 (74,947).

Business Community—While the pandemic greatly impacted the local economy, the business community is resilient. Businesses are still interested in relocating to the valley, particularly digital companies with remote workforces and outdoor recreation companies. 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 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 July, the State of Colorado approved legislation to extend the Rural Jump-Start Zone program for five more years, as well as ease the current competition clause that will make the program more accessible. This program is an important tool for rural economic development.

ProStar, a local geospatial technology company, earned a four-year extension on its Rural Jump-Start tax incentive. ProStar is the first in the state to successfully complete the first four-year term and receive an extension on the performance-based incentive.

Since the program officially launched in 2016, GJEP has facilitated the approval of 18 companies in Mesa County for the Jump-Start tax credit (11 remain active). In 2020, three new businesses were approved for the Rural Jump-Start program.

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Health Care—Health care is Mesa County’s largest industry, making up 16% of the county’s total employment. This is expected to increase by 3.4% in 2021, according to the Q3 2020 Mesa County Economic Update.

Of the top 10 employers in the County, five are in the health care industry: St. Mary’s Hospital (2nd), Community Hospital (4th), VA Medical Center (7th), Family Health West (8th), and Hilltop Community Resources (9th).

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 the largest employer in Mesa County. Each day, over 2,500 employees serve more than 22,000 students in 43 schools. District 51 had an 80% graduation rate for the class of 2019.

Colorado Mesa University (CMU) is the fifth largest employer in Mesa County. CMU is a regional public higher education institution offering more than 225 academic programs ranging 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. CMU awarded \$79 million in financial aid last year and awarded 51% of first-time students a scholarship (2018 - 2019). CMU has the third-lowest tuition among four-year colleges in Colorado.

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.

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 Pali-sade 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 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 has been 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—These industries make up 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 the peach crops and other fruit orchards. The full extent of the loss will not be clear until later this fall. 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. Violet Gro is among the companies participating in the Colorado Rural Jump-Start Program. They hired two employees in 2020 and are expecting to ramp up hiring in 2021.

General Manufacturing—The manufacturing industry represented 5% of Mesa County’s total employment in Q1 2020. The industry is expected to increase by 1.3% in 2021.

Capco, a designer-developer-manufacturer of highly-engineered mechanical and energetic devices, has doubled the number of active programs and products they are producing and have increased jobs by almost 20% over the past few years. In April 2020, Capco received a \$33.6 million contract to continue producing the M320 40mm grenade launcher for the U.S. Department of Defense.

CoorsTek, a global manufacturer of engineered technical ceramics, is broadening their manufacturing footprint in the Grand Junction facility. With the relocation of their ceramic armor product lines, CoorsTek has invested over \$16.5 million in new equipment in Grand Junction, which will significantly increase their local employment base. Full production capacity will be coming online in 2021.

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 January, Canfield Bikes, a high-end bike manufacturer from the State of Washington, relocated to Fruita. Kappius Components and Broken Carbon followed suit in June, moving to Grand Junction from Boulder. Kappius Components designs, manufactures, and sells high-end bicycle wheels, and Broken Carbon specializes in the repair of damaged carbon fiber bikes. In September, ProStart, a French manufacturer of gates and related accessories primarily for Bicycle Motocross (BMX), selected Grand Junction for its first U.S. office.

Colorado Mesa University created a new, multi-disciplinary outdoor recreation industry studies program to help create the next generation of business leaders. The program began with the fall 2020 semester.

MRP, a manufacturer of high-end bike components located in Grand Junction, continues to experience growth. Over the last five years, they averaged 10% growth annually, with expectations to exceed that this year. They opened up three new countries in 2020 for aftermarket distribution, growing their export distribution to 37 countries. Over the past two years, MRP invested \$570,000 in new equipment for production/manufacturing in Grand Junction, as well as \$240,000 in preparation for new products launching in 2021.

Energy—The energy industry made up 2.4% of Mesa County’s total employment in Q1 2020, and this is expected to decrease slightly in 2021. Employment in the oil and gas industry has fallen from a peak of 2,583 in Q4 of 2017 to 1,491 jobs in Q1 2020, the lowest number since 2008. These numbers reflect a pre-COVID economy, with only the last two weeks of March impacting this data. Western Slope drilling activity is on pace for record-low permitting, with the 2020 year-to-date numbers lagging behind the 2019 year-to-date numbers. Oil and gas permits and employment are not expected to pick up in the near future, according to the Q3 2020 Mesa County Economic Update.

For the clean-tech economy, there were 1,164 clean energy jobs in Mesa County at the end of 2019, according to the Clean Jobs Colorado report. These include solar, wind, energy efficiency, clean vehicles, battery storage, advanced biofuels, and low-impact hydro.

Aviation, Aerospace and Parts Manufacturing—These industries make up 0.8% of Mesa County’s total employment, which is expected to increase by 2%.

SG Aerospace & Gas was on track to achieve a 30% increase in sales prior to the pandemic. With the drop in aerospace volume during the pandemic, they were able to maintain a similar pace as 2019. SG Aerospace & Gas decided to innovate and add Swiss manufacturing capabilities to allow them to break into a new market. This type of manufacturing allows for high-volume smaller parts. Previously, SG Aerospace & Gas used out-of-state suppliers to manufacture, but now they can produce these aerospace and space components in-house. SG Aerospace & Gas also continues to increase sales with Lockheed Martin—the total dollar sales increased from 2019 to 2020 by approximately 25%.

Technology/Software—The Summer 2020 issue of Innovation & Tech Today features Grand Junction and Mesa County in its “Best of Tech Zone.” The magazine chose eight communities across the U.S. that were already hot spots for technology and innovation and that have shown resilience and ingenuity in light of the COVID-19 pandemic, emerging more quickly and with more promise than most.

In July 2020, INFOCU5—a software as a service (SaaS) company headquartered in Telluride—was approved by the State of Colorado for the Location Neutral Employee (LONE) incentive to ramp up to more than 400 employees over the next three years. INFOCU5 decided to fully relocate and centralize their operations and growth efforts to the Western Slope of Colorado, moving their California office to Grand Junction.

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 through the foreseeable future. The COVID-19 pandemic caused builders to pause in the spring, but it’s apparent that builders have returned with a renewed confidence. Homebuyers have also returned.

The demand for new housing continues to outpace supply. The inventory for residential real estate is low, homes for sale are down 47% compared to last year, while demand is high due to increasing in-migration and low interest rates, even though appreciation and new construction costs show significant increases. The median sales price rose by 8.9% to \$285,317, with the Freddie Mac house price index showing that Grand Junction home values increased faster than both the state and the nation, which has been the trend for the past three years. The September 2020 Bray Report shows that residential home sales are down 2%, foreclosure filings are down 52%, and building permits are up 4% year-to-date compared to the same period in 2019.

According to the Q2 2020 Bray Commercial Report, Q1 and Q2 had 24 commercial permits pulled—the highest number since 2009. Ten of these permits were for a large, multifamily projects that will have 196 units.

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 towards 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 restaurant and retail adjacent to the business park.

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Photo courtesy of Kendra Cook.

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 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 - 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 passengers traveled through GJT (511,000). The direct economic contribution of GJT is estimated to be over \$710 million (based on the economic impact study released by CDOT in 2019).

As of September, GJT passenger traffic was outperforming the national and state average. Airport traffic was down by 45% year-over-year in September, while total domestic traffic was down 67%. GJT expects traffic to be down by less than 40% in October 2020.

The airlines continue to add more flights back in response to the growing demand in the western Colorado market.

Other Community Highlights—In July 2019, Interior Secretary Bernhardt announced that the Bureau of Land Management (BLM) would move its headquarters to Grand Junction. The BLM manages more than 245 million acres of public land located primarily in 12 Western states. The office opened in Grand Junction in January 2020.

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. The full Plunge trail will open Spring 2021.

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. ❖

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Northern Colorado

Summary—Northern Colorado continues to grow in technological innovation and entrepreneurship supported by its increasingly diverse and highly educated population. The region's stability and resilient economy are attributed to industry and employment diversity. Northern Colorado's historically high level of patent production 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 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 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 two state-designated creative districts, Fort Collins and Greeley, where the arts and creative industries are celebrated.

Population—Northern Colorado's population continues to grow, with a 2019 population of nearly 681,000 (2.4% one-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 278,900.

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—Prior to 2020, Northern Colorado's job growth outpaced the national rate, and this recent job growth across multiple sectors remains a strength during our present uncertain times. Northern Colorado's top industries by employment are Manufacturing, Health Care, Construction, Accommodation and Food Services, and Retail. 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 6.8% between 2017 and 2018 (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 September 2020, the combined unemployment rate in Larimer and Weld counties was 5.7% (not seasonally adjusted). The labor force has declined since January 2020 by approximately 1% (September 2020, 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 have 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. 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 3,900 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 2018–2019 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. ❖

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Pueblo County

Economic indicators for Pueblo County showed impressive strength prior to the COVID-19 pandemic. The countywide unemployment rate averaged 4.1% in 2019 and was 4.3% in February 2020. During the COVID-19 pandemic the countywide unemployment hit a record-high 11.7% in April but has since fallen to 7.5% in September 2020—the highest of all metropolitan statistical areas in the state. Overall, Pueblo has weathered the pandemic well in that Pueblo's sales tax revenue is up 1.5% from 2019.

Employment in the Pueblo MSA totaled 61,800 in September 2020, a decline of 3.3% year-over-year, according to data from the Bureau of Labor Statistics Current Employment Situation (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,



Photo courtesy of Visit Pueblo.

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 short line 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.

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. ❖

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Southern Colorado

Employment—The unemployment rate in El Paso County stood at 5.9% on a non-seasonally adjusted basis at the end of September 2020. This compares to an unemployment rate of 2.8% in September 2019. The labor force increased from 345,755 to 350,901 from September 2019 to September 2020, a change of 5,146. Over the same period, employment decreased from 335,904 to 330,123 for a loss of 5,781 employed. El Paso County unemployment during the COVID-19 pandemic peaked in April with a 12.5% unemployment rate and 41,569 people unemployed. Given the severity of the COVID-19 shutdown, it is somewhat remarkable that El Paso County is back down to a low single-digit unemployment rate and an actual increase in the labor force. This positions the region well for an economic recovery in 2021.

The UCCS Economic Forum calculates the number of new jobs needed per year in order to match population growth in the working-age cohorts. For this calculation,

Quarterly Census of Employment and Wages (QCEW) data from the Bureau of Labor Statistics are used, which excludes the sole proprietors who are counted in the labor force and employment numbers above. For 2019, the targeted ideal number of new jobs was 5,600, and this threshold assumes a “natural rate” of unemployment of around 4%. El Paso County has been performing well in this metric since 2013. New jobs totaled over 5,000 in 2013 and 2014 and averaged over 7,000 from 2015 to 2017. From 2018 to 2019, there were around 7,000 new jobs in El Paso County and around 7,000 new jobs again were added from Q1 2019 to Q1 2020. We do not yet know the impact of the pandemic on job growth.

Specific Sectors—Sixteen of the 21 QCEW industry sectors in El Paso County saw job gains in 2019. The most significant gains were in Health Care and Social Assistance; Professional, Scientific, and Technical Services; Educational Services; Construction; and Accommodation and Food Services. Health Care and Social Assistance, combined with Professional, Scientific, and Technical Services were the super sectors that represented 42% of total job gains in the county, which has been the general trend in the region. Job losses occurred in five sectors, with the most notable losses in Retail Trade.

Average annual pay across all categories increased in El Paso County, from \$50,480 in 2018 to \$52,619 in 2019. This 4.2% wage increase was higher than the national average (3.4%). Average annual pay in Colorado increased by a larger percentage: 4.9%. Despite these gains in El Paso County, the average wage was 14.9% below the 2019 state average of \$61,828 and 11.1% below the U.S. average of \$59,209. 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, military spouses who work 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 life.

Although salaries still have a long way to go to reach parity with the U.S. or Colorado, it is important to point out the gains that were made during 2019. Average annual wages increased in all 21 sectors in El Paso County in 2019. Average wage growth was strong in Mining (up \$28,600, to \$97,864); Management of Companies and Enterprises (up \$13,936, to \$203,320); Agriculture, Forestry, Fishing and Hunting (up \$8,216, to \$47,892); Information (up \$4,836, to \$80,028); Professional, Scientific, and Technical Services (up \$4,472, to \$95,212); and Wholesale Trade (up \$4,212, to \$71,136).

Per Capita Personal Income—Per capita personal income is not necessarily a good measure of income for the El Paso County region. The denominator in these calculations includes all residents regardless of age. El Paso County has a much lower median age (34.6) than the United States (38.4) in 2019. The lower local median age will skew per capita person income downward. Per capita personal income for El Paso County was \$48,467 in 2018 (most current data available).

Residential Real Estate— From October 2019 through September 2020, a total of 4,526 single-family permits were issued in the region. This is an increase of 721 permits issued (up 18.9%) compared to the number issued from October 2018 through September 2019. Through September 2020, permits for 83 multifamily projects and 919 units were pulled. As of Q2 2020, average monthly rents for apartments were \$1,246 per

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month in the Colorado Springs Metropolitan Statistical Area (MSA). Colorado Springs rental rates are no longer significantly lower than Denver. For Q2 2020, Denver's average monthly rent for apartments was \$1,506.

There were permits for 5,388 dwelling units (both single-family homes and multifamily units) pulled in 2019 in the Pikes Peak region, and this high pace of building is projected to continue even in the context of COVID-19. The UCCS Economic Forum has estimated that for the population size and the demographic composition of the county, approximately 5,817 permits for dwelling units (both single-family homes and multifamily units) is appropriate. It is likely that local building will reach this threshold in 2020, although local builders say they are still having trouble meeting demand. Several have noted that there is much in-migration from other states and from Denver. It is difficult to project how the pandemic will permanently impact migration patterns, but it appears likely that Colorado Springs will benefit from the migration away from larger, more expensive first-tier cities. There is some early moving-company data to substantiate what the builders are saying. Despite the region's relative affordability, price increases are likely to continue to outpace the nation. Local residential developers say that the high cost of labor and materials, as well as the dwindling supply of vacant developed land, has limited the construction of new homes (but not a lack of demand).

Home prices in the Pikes Peak region continue to increase. In Q2 2020, the median price for a single-family home in Colorado Springs was \$353,400, an 8.3% increase from Q2 2019. By way of comparison, the U.S. median home price was \$291,300 with a 4.2% increase over the same period. A few years ago, Colorado Springs home prices were well below U.S. median home prices. Now Colorado Springs median home prices are 21.3% higher than the U.S.

Foreclosures decreased 8.8% in 2019 to 827—the tenth-consecutive year foreclosures declined in El Paso County. Through September 2020, foreclosures totaled 258

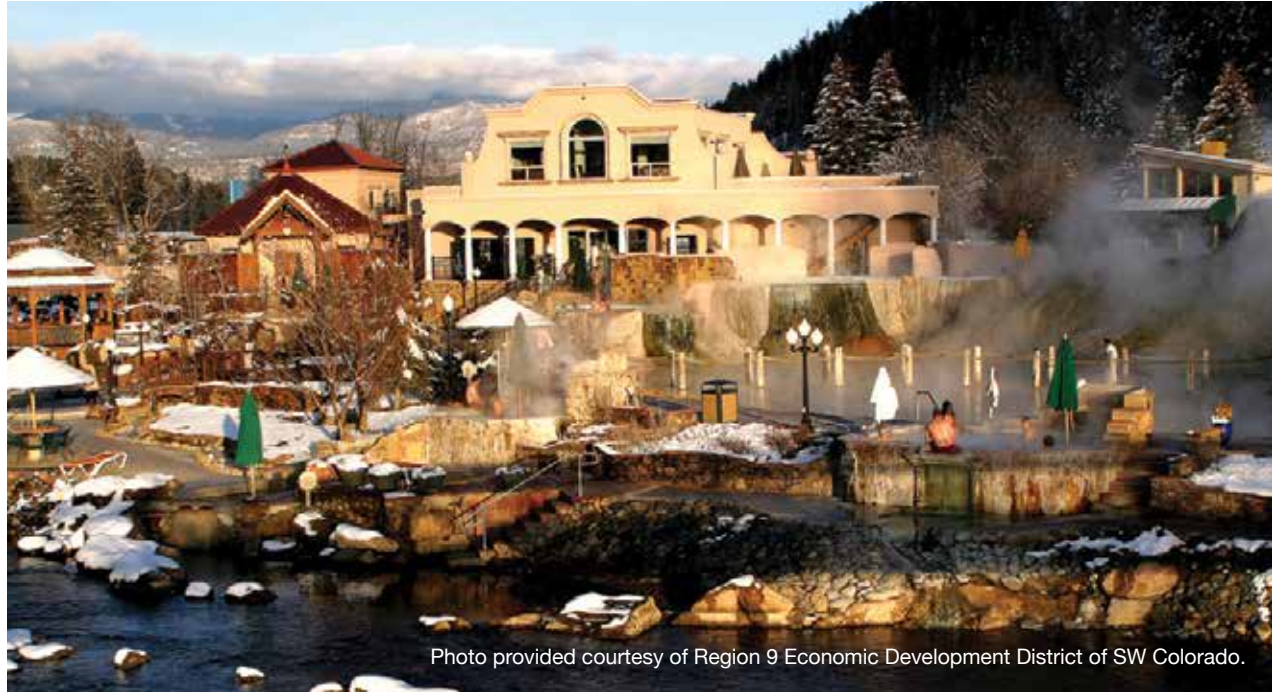


Photo provided courtesy of Region 9 Economic Development District of SW Colorado.

compared to 659 through September 2019. It appears likely that foreclosures may increase with the pandemic and resulting economic fallout although it is difficult to estimate the impact at this time.

Commercial Real Estate—Average commercial office vacancy rates in Colorado Springs declined to 8.5% in 2019 from 9.4% in 2018. Through September 2020, the vacancy rate stayed fairly flat at 8.6%. At the same time, average triple net lease rates increased from \$15.85 per square foot in 2018 to \$17.58 per square foot in 2019. They continued to rise to \$21.23 per square foot in Q3 2020. 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 4.7% in 2019 from 6.7% in 2018. Through September 2020,

the rate continued to decrease to 3.9%. Average rents fell slightly from \$7.53 per square foot in 2018 to \$7.46 per square foot in 2019. They began to rise, to \$7.93 per square foot, in Q3 2020.

Average retail vacancy rates stayed flat at 4.6% in 2018 and 4.7% in 2019. Rates have risen to 6.5% through September 2020. Average rents increased slightly from \$13.22 in 2018 to \$13.39 in 2019. They increased to \$14.43 per square foot in Q3 2020.

Average medical office vacancy dropped from 7.9% in 2018 to 7.5% in 2019. Through September 2020, it dropped to 6.5%. Average rents increased in this property type, from \$17.41 in 2018 to \$20.70 in 2019. In Q3 2020, they continued to increase to \$23.96.

It is worth noting that commercial real estate lease rates are significantly lower in Colorado Springs compared to Denver, and this may be providing an incentive for businesses to expand or relocate to Colorado Springs. As of Q3 2020, retail space was 35.2% lower in Colorado Springs, office space was 34% lower, and medical office space was 4.4% lower. The future of commercial real estate is highly dubious with the warp-speed movement to work-from-home arrangements. This is especially true for office space. Likewise, the downfall of retail space that was already happening is now simply happening more quickly. Vacancy rates in both of these categories has edged up more recently (2020 Q3) in Colorado Springs.

Sales and Use Tax—The City of Colorado Springs benefits from strong, growing taxable retail sales because more than 50% of the city’s budget dollars come from these collections. City sales and use tax collections increased 2.4%, or \$4.3 million, to \$185.5 million in 2019. Despite COVID-19, sales and use tax collections are up 1.9% in September 2020 compared to September 2019.

Education—In 2019, 11 of the 17 school districts in the Colorado Springs MSA exceeded the state of Colorado’s average high school graduation rate of 81.1%. The U.S. high school graduation rate in 2018 was 85%. In 2018, 10 of the 17 school districts matched or surpassed this national graduation rate.

In 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?

At this time, it would be unfair to prognosticate where Colorado Springs, the state, or the nation will be in the coming months. The pandemic has forced many business

SOUTHWEST COLORADO AVERAGE LIVING EXPENSE BY COUNTY, 2019

County	Adult	Adult and Preschooler	Two Adults, Preschooler, and School-age
Archuleta	\$25,572	\$51,048	\$61,860
Dolores	24,684	39,155	51,672
La Plata	27,984	55,472	68,120
Montezuma	23,088	43,225	53,953
San Juan	28,308	50,339	62,231

Source: Economic Development District of Southwest Colorado.

closures and as stimulus runs out for households, we may have a wave of personal bankruptcies. As if a pandemic is not enough, 2020 is also a “highly contentious” election year. For these reasons, no specific forecasts are being made. It is worth noting, however, that early data shows that Colorado Springs has regained a higher proportion of jobs than Denver, Boulder, or the nation. It is likely that the high representation of aerospace and defense (private sector) contractors has kept job losses low. Also, Colorado Springs has become quite diverse in terms of industries and this too has cushioned the pandemic’s blow. Lastly, the region is very active and united in its workforce efforts, particularly around building short-term training and job placement programs for those vulnerable workers in COVID-impacted sectors. ❖

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Southwest Colorado

Preserving a small-town and traditional heritage, taking care of natural resources, and providing opportunities for next generations are important values in the southwest corner of Colorado, which includes a five-county area known as Region 9. The region includes Archuleta, Dolores, La Plata, Montezuma, and San Juan

Counties, as well as the Southern Ute and Ute Mountain Ute Indian Tribes, and encompasses 6,584 square miles, or 6.3% of the total land area in Colorado.

Environmental considerations play a key role in the area’s economic development activities. The residents of Region 9 value the high quality of life, including clean air and water, scenic views, and easy access to public lands. The available natural resources make the region an attractive place to live and work and are a draw to outdoor enthusiasts. The region is home to Mesa Verde National Park, as well as four national monuments. Public lands and open space are considered vital economic assets across the region, providing direct employment that supports agricultural/natural resource development enterprises, recreation, and tourism.

Land ownership strongly influences the local economy. Publicly managed lands make up 45% of the district; 38% is in private ownership and 17% is tribal lands. The public lands include the San Juan National Forest, an area of over 1.8 million acres including the 499,771-acre Weminuche Wilderness – the largest designated wilderness area in Colorado.

Currently the region is experiencing drought of epic proportions, second only to a lengthy dry spell in the 1500s. Additional complications from climate change, which is expected to move storms farther north and raise temperatures in the Southwest, raise concerns about water availability and intensified wildfire seasons.

The regional population totaled 99,197 in 2019, averaging 0.9% annual growth since 2010. The area is largely rural, so communities depend on one another to provide goods and services within the larger regional economy. La Plata County (specifically Durango) is the regional work center, with more workers commuting into the county than out. Locals often commute long distances to neighboring states to take advantage of

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job opportunities, better shopping, or lower real estate prices. The resulting inter-connected economy extends to the entire “Four Corners” area, including southwest Colorado, northwest New Mexico, northeast Arizona, and southeast Utah.

Job growth in the region was steady at about 2% to 4% per year until the recession of 2007–2009. Employment in the local area reached a low of 50,280 jobs in 2010 during the depth of the recession. It took 10 years for the region to reach pre-recession job levels. In 2019, there were an estimated 57,375 jobs, including those held by commuters. Top employment sectors vary by county: in Archuleta it is Retail Trade; in Dolores it is Agriculture; in La Plata and Montezuma Counties Government provides the greatest employment share, and in San Juan it is Accommodation and Food Services. The fastest-growing industries through 2022 are projected to be Other Services (except Public Administration), Manufacturing, Educational Services, and Management of Companies and Enterprises according to EMSI, an economic modeling firm. It is important to note that the COVID-19 pandemic may change these projections.

Equation for Economic Recovery

Like much of the state, southwestern Colorado has seen enormous growth and change in recent years, providing a catalyst for new opportunities. Region 9 works within this framework to encourage flexible and resilient economic development strategies. A long-standing regional goal has been to minimize the relative impact of any sudden change in fortunes, hence employment, of any (large) firm or industry. Events such as a housing bubble or a recession, changes to water quality and availability, or catastrophic events such as wildfires or a global pandemic, can move the region into unfamiliar and potentially costly scenarios. As such, strategies meant to encourage economic development in this rural region must be flexible and resilient to respond to the unexpected and be open to emerging opportunities.

History suggests that economic shocks are unavoidable. Look at Region 9—the decline of mining/energy industries; manmade disasters like the Gold King Mine Spill; and weather events like floods, drought, avalanches, and the ongoing wildfires.

The pandemic-related economic shock is unlike others, but its impacts have similarities to past economic crises. Locally, economic developers have embraced the principals of *Coping with Adversity: Regional Economic Resilience and Public Policy* (Wolman et al. 2017), which assesses over 1,500 disasters between 1978 and 2014 and how impacted communities responded. This includes events such as the downturn of the steel industry, the Great Recession, the 1980s savings and loan crisis, and numerous weather disasters.

The good news is there is no “secret sauce” for economic recovery. The strategies proposed by Wolman and his colleagues are based on core economic development practices. When studying those 1,500 disasters, researchers looked at how each community recovered and what common components were present in the communities that were the most successful. The formula derived for economic recovery and resilience success was the equation: Recovery equals talent plus infrastructure, plus entrepreneurship, plus business retention/expansion (Recovery = T + I + E + BRE).

Talent development was important in Region 9 before COVID-19 and will continue to be so. Recovery occurs when talented people build/rebuild great companies that generate new jobs and new wealth for communities. This means that continued and expanded investments in workforce and education programs are essential. There will be new ways of working such as more remote workers, and according to the Colorado Demography Office, recruiting remote workers is now a top focus for rural counties throughout the country. Region 9 has the natural and built amenities to attract talent.

Prior to COVID-19, most discussions on talent development within the region related to training and education. That emphasis will remain relevant but

thinking more broadly about how to provide a stronger social safety net for workers is needed, especially for those engaged in the gig economy or the independent workforce. Communities and regions might consider their own social safety net programs (e.g. such as housing, health care support, or subsidies) as one means to attract or retain talent. Investments in community amenities (as noted above) will also be a core part of these talent-focused strategies.

In terms of infrastructure, the COVID-19 crisis has made it clear that broadband is the missing piece, and closing the access gap needs to be top priority for any underserved location. The pandemic has forced many people working in various industries to work from home via the Internet. It also has drastically changed school operations throughout Region 9 and Colorado, with many students attending school partially or fully online.

In October 2020, the U.S. Department of Agriculture (USDA) announced it is awarding \$6.3 million to expand broadband Internet access in Dolores, San Miguel, and Montezuma counties. The funding will be provided to Emery, a Utah-based telecommunications company, for use in expanding Internet access in southwest Colorado.

The grant is a part of the USDA’s ReConnect Program, which aims to expand broadband infrastructure and Internet access throughout rural America. According to the agency, the grant will be used to expand high-speed broadband to more than 1,600 people living in the three counties. In addition to connecting residents and households to broadband, the USDA said the broadband infrastructure expansion will connect 91 farms, 52 businesses, three fire stations, and two post offices throughout the area. Moving forward, Region 9 will work to treat broadband as truly essential infrastructure.

Entrepreneurship is also key in the recovery equation. Can someone who wants to live in the region find a job, and if not, create their own? Many communities have co-working spaces, accelerators, incubators, and the business support tools to grow their entrepreneurial landscape. In today’s changing world, jobs are following

people rather than people following jobs, so easing the transition to open and grow a business is critical. Post COVID-19, this means assisting with ownership transitions. Many business owners, primarily baby boomers, are thinking now would be a good time to retire. Instead of closing these businesses, assistance is needed for new entrepreneurs to take over. New owners tend to be innovative, see new opportunities, and have new ideas and energy.

The region is already seeing a continued return and an emphasis on supporting local business. As more people work from home or pursue independent work, the hunger for connections will also grow. Investment is expected in “third places” where home-based workers can convene, connect, and collaborate. These new third places, which might be coworking sites or other convening spaces, will serve as a lifeline for local workers and help to build stronger business networks as well.

Finally, there is business retention/expansion. Investing in the strengthening of local companies already in business is important in a recovery. Small businesses are more likely than large businesses to fail after a

major disaster. Existing businesses are already invested and committed to a community, and it is cheaper to retain companies than to recruit new ones. If every business were able to support one additional employee, communities would see tremendous benefits. A related set of strategies focuses on improving the competitiveness of local firms. Major global firms were already rethinking the globalization of supply chains before COVID-19. Efforts to reshore and secure supply chains is something for even rural areas to explore—where local companies already fit, or could fit, in new supply chain structures.

Enhancing the local talent base will help in business retention and expansion, but firms will also benefit from strategies that help them capture new markets, develop new products and services, and learn new skills. There are a lot of excellent programs available already, including federal programs like the Manufacturing Extension Partnership, which provides consulting support to small manufacturers, the Small Business Development Center network, and various export promotion programs that help firms identify and capture

new global markets. At the local level, various Business Retention and Expansion (BRE) programs help provide opportunities to check in and invest in strengthening local companies.

Region 9 is serious about helping business recovery and needs to back intentions with real money utilizing all programs in the federal business support toolkit such as the Small Business Administration (SBA), Economic Development Administration (EDA), and the U.S. Department of Agriculture (USDA). In addition, state and local government efforts will need additional support that can be quickly deployed through existing program infrastructure, such as Community Development Block Grants (CDBG). All of these programs have a proven track record and can provide an essential lifeline to struggling businesses. The communities in Region 9 aim to be more than just survivors—they will be leaders in recovery and beyond. 🍀

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