



**COLORADO**

Department of  
Higher Education

**2014 LEGISLATIVE REPORT ON  
THE SKILLS FOR JOBS ACT**

**JANUARY 2014**

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**This report was prepared by The Colorado Department of Higher Education (DHE) pursuant to the requirements of §23-1-130 Colorado Revised Statutes.**

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## Introduction

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As Colorado continues to grow and evolve, it is important for our state to have a nuanced understanding of economic and educational forces, and to be able to meet the educational and training needs of individuals and the demands of the state's economy. In light of the Great Recession, the increasing cost of postsecondary education for the consumer, and a decade of wage stagnation for the majority of workers, the public and policy makers alike want to make informed decisions regarding the roles of postsecondary training and education in their lives and communities. While this report acknowledges recent postsecondary education and workforce patterns, its focus lies more on forecasts connecting postsecondary credential production and workforce needs. In turn, we hope this report sheds light on pressing concerns such as: Can college graduates find gainful employment? Are colleges and universities producing credentials that align with job vacancies and employers' needs? This report provides insight into how we can help position our citizenry for steady, rewarding employment while meeting the economic needs of our state.

Pursuant to statute (23-1-130 C.R.S.), the Colorado Department of Higher Education (DHE), in consultation with the Department of Labor and Employment and the Department of Regulatory Agencies, is required to submit a report concerning the state workforce need projections and credential production. In fulfillment of this requirement, this report identifies trends in the state's anticipated workforce needs and the number of degrees, certificates, and other credentials that have been or are expected to be produced. This report will be submitted to the Education Committees of the Senate and House of Representatives, the Economic and Business Development Committee of the House of Representatives, the Business, Labor, and Technology Committee of the Senate, and the Governor. Additionally, it will be sent to every public postsecondary governing board and be made available through the Department of Education to the state's public, private, and charter schools and districts, as well as be publicly available on the DHE website.

This report covers the following:

- Outlines national trends regarding postsecondary education and workforce needs, alongside Colorado-specific facts and figures.
- Assesses the state's anticipated workforce needs and the number of degrees, certificates, and other credentials that institutions expect to issue.
- Identifies workforce needs, at the macro level, which may or may not be met through postsecondary educational offerings in Colorado.

In presenting our analysis of these issues for our state, we highlight Colorado jobs with high expected annual openings from 2012 to 2020 that likely require postsecondary training, alongside related postsecondary award/degree completions. We then highlight three occupation groups as way to delve deeper into the nuances of these supply-demand relationships. Furthermore, we present findings on apparent shortages for specific occupation groups by credential level (mid-level or awards akin to certificates or associate's degrees, bachelor's level and graduate level).

Certainly, a report such as this has its limitations in scope. While we do orient this report as a statewide analysis, we recognize that unique regional trends exist. Region-specific briefs will be issued throughout 2014. In addition, a report focused specifically on Science, Technology, Engineering and Mathematics (STEM) program completions and related occupations will be issued this year to examine the nuances that exist in supply-demand relationships in STEM fields.

## Highlights

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- Experts project that by 2020, 74 percent of jobs in Colorado will require postsecondary education (Carnevale, Smith & Strohl, 2013).
- Colorado is ranked third nationally in terms of the percentage of jobs projected to require postsecondary education/training for employment.
- The state unemployment rate is considerably lower for people who have a postsecondary credential than for those who have a high school degree or less. This gap has continued to widen over the past decade.
- In 2012, public institutions in Colorado awarded 49,739 certificates and degrees, an impressive 8.7 percent increase from the year prior. Since 2007, postsecondary completions have seen an average annual growth rate of 5.6 percent.
- As more jobs require higher levels of education in the years to come, we will likely need to increase our postsecondary credential production by about two percent, or 1,000 additional credentials, annually.
- While we are likely meeting the demand for healthcare support and practitioners overall at the mid- and bachelor's level required occupations, we are at risk of an undersupply of professional level practitioners (i.e., physicians).
- Across STEM professions, program completions are meeting the demand for most occupation clusters. However, in order to meet projected demand for certain occupation categories, we need to increase completions for mid-level and bachelor's level computer science credentials.
- For skilled trades, manufacturing and production occupation groups, there are likely too few completions for certain occupations within this overall category.

## National Trends

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In recent years there has been a nationwide surge of research, reports and media attention surrounding postsecondary education and employment. Both the educational and economic landscapes of our country have shifted considerably in recent history, as the job market has developed an increasing need for the college-educated worker since the 1970s. However, other developed countries have surpassed the United States in the percentage of adults with a college degree, as we now rank 12<sup>th</sup> out of 36 member nations of the Organization for Economic Cooperation and Development (OECD), with 43 percent of our young adult workforce (ages 25-34) holding an associate's degrees or higher (OECD, 2013). Nationwide, it has been projected that by 2020, 65 percent of all jobs will require postsecondary education (Carnevale, Smith & Strohl, 2013). Colorado's projected workforce requirements even exceed the national average with 74

percent of all jobs requiring some level of postsecondary education/training by 2020. In fact, Colorado ranks third nationally in terms of our postsecondary training needs (Carnevale et al., 2013).

The national and Colorado-based conversations on workforce readiness and fulfilling employer's workforce needs have begun to recognize the imperative to shift perspectives on long held assumptions and biases towards different kinds of postsecondary education, and the pathways to supporting the success of our citizenry. According to research from Georgetown University's Center on Education and the Workforce on nationwide trends, when the projected postsecondary credential requirements for jobs in 2020 are more specifically defined, 36 percent of jobs will demand a baccalaureate degree or higher, while 30 percent will require a lesser degree of postsecondary training akin to an associate's degree or certificate award (Carnevale et al., 2013).

Ultimately, at the individual and state level, we all benefit from a well-educated workforce. Education supports an individual's employability and economic security. That individual can then afford to engage in the local economy through purchasing goods and services and paying taxes. Furthermore, during economic downturns, those with lower levels of educational attainment experience the most significant declines in employment and greater wage deterioration (Grusky, Red Bird, Rodrigues & Wimer, 2013), indicating one such way that a postsecondary education can often serve as an economic shield. We are at an interesting crossroads for our state's economy, as we are returning to pre-recession employment figures and have an opportunity to build upon and exceed previous economic accomplishments. This report and the 2013 College Measures report published in consultation with the Colorado Department of Higher Education, together with greater inter-agency collaboration, will enable us to more strategically support educational pathways and programs that fulfill the needs of our state's citizens and workforce.

### **Colorado's Supply and Demand for Educated and Trained Workers**

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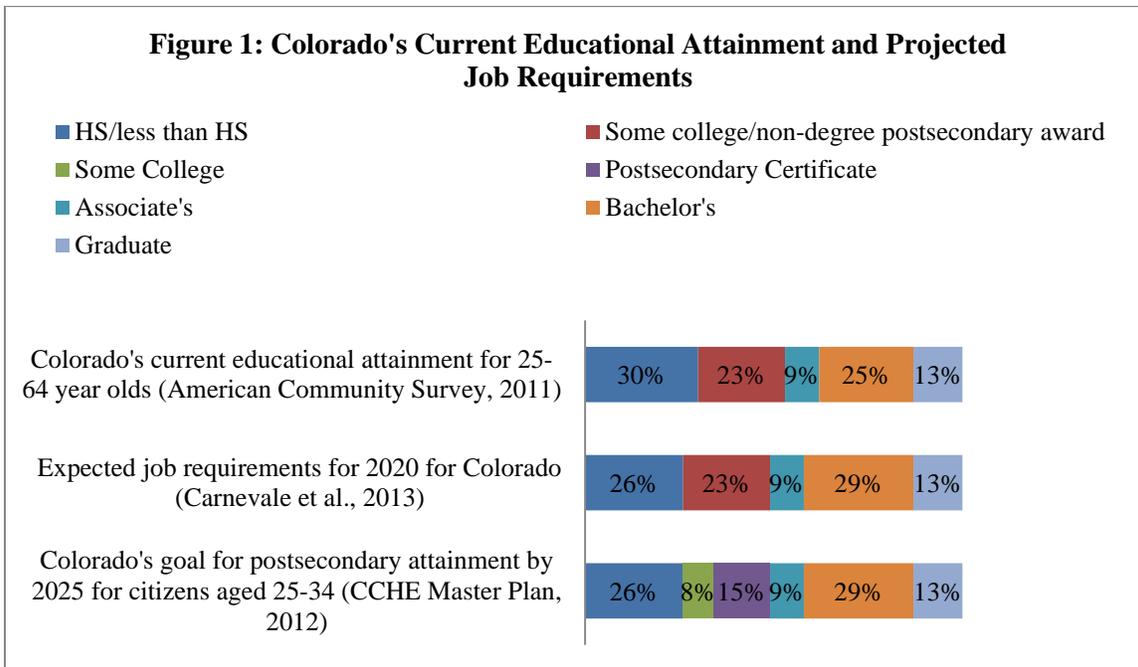
Colorado's economy is steadily growing, with nearly 2.6 million people currently employed in the state and an unemployment rate that has recently descended below seven percent, a decrease of one percent since 2012 (BLS, 2013). Demonstrating the demand for trained workers, American Community Survey (2011) data show that unemployment rates are considerably lower for people with a postsecondary credential as compared to those without any postsecondary educational experience. According to these data, unemployment in Colorado hovers at 8 percent for people with some college or an associate's degree, and at 4.5 percent for someone with a bachelor's degree or higher for 25 to 64 year olds—demonstrably lower than the unemployment rate for high school graduates (10.7 percent) and for those with less than a high school education (13.5 percent).

*...unemployment rates are considerably lower for people with a postsecondary credential as compared to those without any postsecondary educational experience.*

Further evidence of the demand for postsecondary training across the nation is demonstrated through the significant wage premium for degree holders: while degree holders have increased in

numbers, they still are likely insufficient to meet labor market demands (Carnevale, Jayasundera & Cheah, 2012).

When we look at the educational gap between our state’s current educational attainment for 25 to 64 year olds and the projected job requirements by 2020 (Figure 1), the difference does not seem so great in terms of percentage points of postsecondary degree holders, and we as a state are making progress in achieving the educational goals of our state—momentum we must strive to maintain. However, there are a series of elements that significantly impact this data that are important to remember.

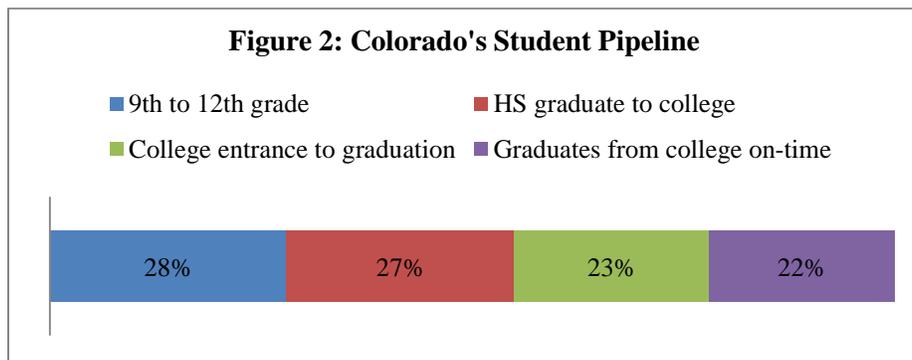


Source: American Community Survey (2011); Carnevale et al. (2013); CCHE (2012)

First, let’s translate percentages into absolute figures. In taking 25 percent of our state’s 2011 population of ages 25 to 64 we would have about 693,924 bachelor’s degree holders. At a population growth rate that hovers around 1.6 percent, in 2020, 29 percent of Coloradans ages 25 to 64 equals 892,435. This is an increase of nearly 200,000 bachelor’s degree holders. While this is an achievable goal, we must also consider that the workforce loses older degree holders to retirement each year, even though labor force participation rates continue to increase for our retirement age population. The category of “some college/non-degree postsecondary award” is admittedly rather nebulous and difficult to measure specifically as it includes a range of people, from those who do not complete the requirements for any type of postsecondary program to those who complete a one- or two-year certificate program, for example.

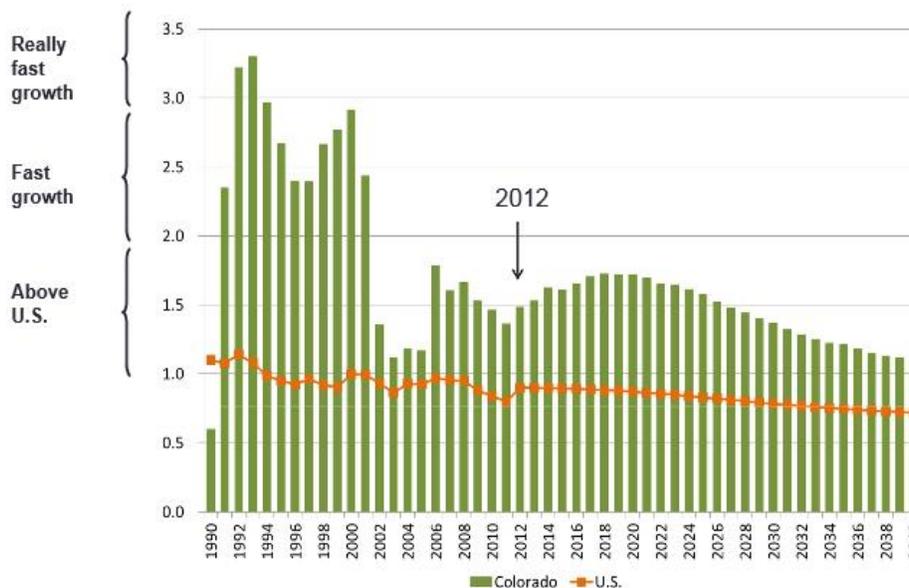
Our state also experiences what is commonly known as the “Colorado Paradox,” by which transplants who move here from other states tend to already have a postsecondary credential, thus significantly impacting the state’s overall levels of college graduates, while *Colorado* high school graduates are less likely to complete a college certificate or degree program. We can see from Figure 3 that although our state will continue to grow, by the end of this decade our growth

rate will begin to decline to a rate far lower than those seen throughout the dramatic growth and economic development in the 1990s. Furthermore, Colorado has a leaking educational pipeline, producing 22 postsecondary degree holders for every 100 students who enter a Colorado high school (see Figure 2). We also have a significant disparity in educational attainment levels between whites and most minority groups. Thus our state’s diversifying racial/ethnic composition will also mean more layers of support will be needed for students, especially those from underserved populations who tend to have lower educational attainment rates, in order to achieve higher levels of academic success. These factors dramatically impact the long-term sustainability of our educated workforce, which contribute to the development of our state economy.



Source: NCHEMS, 2009

**Figure 3: Colorado Average Annual Growth Rates**



Source: Colorado State Demography Office, 2012

Additionally, for our current educational attainment levels, Coloradans ages 25 to 34 tend to have slightly lower educational levels than older citizens<sup>1</sup>, and as baby boomers begin their retirement in the coming years, this differential has the potential to become magnified as those with higher education levels leave the workforce. Thus, looking towards the long-term success of our state, in order to maintain our levels of postsecondary completions we will need to be prepared to exert additional effort as we lose educated members of the workforce to retirement, as our in-migration levels of highly educated citizens eventually wane and as we work towards patching our educational pipeline.

Our country's current rate of producing college-educated workers increases by one percent annually; in order to meet projected demand, experts deem that our country must increase this rate to 2.6 percent annually (Carnevale & Rose, 2011). In 2012, public institutions in Colorado awarded 49,739 certificates and degrees, an impressive 8.7 percent increase from the year prior. Since 2007, postsecondary completions have seen an average annual growth rate of 5.6 percent. As more jobs require higher levels of education in the years to come, we will likely need to increase our postsecondary credential production by about two percent or about 1,000 additional degrees/credentials annually, if we want to be able to be more reliant on our homegrown citizens to fill our jobs.

Despite potential challenges we may face in terms of future degree production, we do have one of the most highly educated workforces in the country, and an economy that attracts an educated workforce and motivates many to acquire additional education. With our reliance on a supply of educated workers, it is important to look beneath the surface of degree levels awarded and examine the structural nuances of our degrees and credentials earned to assess if we have any gaps in certain areas of training.

### **Projected Demand by Occupational Classification**

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The following table isolates Colorado's top 30 occupations with the largest projected annual openings from 2012 to 2020 for which more than half of workers have some level of postsecondary training. We have also added additional Colorado-specific STEM occupations at the bottom of the table to provide a sense of how we are faring in select fields. *Mid-level* occupations include standard education levels akin to postsecondary certificates and similar non-degree awards/apprenticeships, some college completed and associate's degrees. *Bachelor's level* refers to four-year baccalaureate degree programs, and *graduate level* includes master's, doctoral and professional degrees. Based on related completions and projected annual demand, we denote whether or not supply is likely to meet demand. Where we are unable to provide a reasonable projection of whether supply is meeting demand due to data limitations, we have listed the outcome as "unknown." A report focusing on STEM-related occupations and programs supply and demand will be issued at a later date.

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<sup>1</sup>Forty-seven percent of Colorado adults (ages 25 to 64) hold an associate's degree or higher (American Community Survey, 2011). However, this level is lower for young adults between the ages of 25 and 34, as the same dataset reports it at 45.5 percent for this age group.

**Table 1: Top 30 Occupations with Highest Projected Openings with More than Half of Workers with Postsecondary Experience**

	Description	Annual Openings	2012 Jobs	2020 Jobs	Change	% Change	2012-2020 Openings	Annual Completions (2012)	Typical Education Level	Is Supply Meeting Demand?
1	Customer Service Representative	2,606	45,514	54,568	9,054	20%	20,846	- <sup>a</sup>	Mid-level	Unknown
2	Registered Nurses	2,209	42,688	53,092	10,404	24%	17,673	3,106	Mid-level	Yes
3	Secretaries and Administrative Assistants, Except Legal and Medical	1,735	82,702	86,501	3,799	5%	13,881	95 <sup>a</sup>	Mid-level	Unknown
4	Office Clerks, General	1,565	34,860	41,706	6,846	20%	12,519	- <sup>a</sup>	Mid-level	Unknown
5	Accountants and Auditors	1,311	33,659	37,654	3,995	12%	10,487	1,414	Bachelor's	Unknown
6	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1,208	32,894	35,689	2,795	8%	9,665	147 <sup>a</sup>	Mid-level	Yes
7	Business Operations Specialists, All Other	1,181	39,192	42,147	2,955	8%	9,446	- <sup>a</sup>	Mid-level	Yes
8	Elementary School Teachers, Except Special Education	1,180	23,757	28,431	4,674	20%	9,440	940 <sup>b</sup>	Bachelor's	Unknown
9	Postsecondary Teachers	1,099	26,134	30,681	4,547	17%	8,791	1,812	Graduate	Yes
10	General and Operations Managers	1,037	40,700	42,509	1,809	4%	8,300	10,561 <sup>c</sup>	Bachelor's +	Yes
11	First-line Supervisors of Office and Administrative Support Workers	953	19,576	22,570	2,994	15%	7,626	270 <sup>a</sup>	Mid-level	Unknown
12	Bookkeeping, Accounting, and Auditing Clerks	895	36,063	39,708	3,645	10%	7,163	363	Mid-level	No
13	Teacher Assistants	893	19,652	22,841	3,189	16%	7,142	4 <sup>a</sup>	Mid-level	Unknown
14	Sales Representatives, Services, All Other	818	16,697	18,859	2,162	13%	6,544	- <sup>a</sup>	Bachelor's	Unknown
15	Secondary School Teachers, Except Special and Career/Technical Education	745	16,100	18,183	2,083	13%	5,962	752 <sup>b</sup>	Bachelor's	Unknown
16	Nursing Assistants	725	17,825	21,476	3,651	20%	5,798	1,973	Mid-level	Yes
17	Electricians	668	13,725	15,497	1,772	13%	5,343	255	Mid-level	Unknown
18	Market Research Analysts and Marketing Specialists	651	9,340	12,199	2,859	31%	5,205	320	Bachelor's	No
19	Computer User Support Specialists	621	14,067	15,829	1,762	13%	4,964	1,024	Mid-level	Unknown
20	Middle School Teachers, Except Special Education and CTE	612	12,734	15,099	2,365	19%	4,898	768 <sup>b</sup>	Bachelor's	Unknown
21	Software Developers, Applications	594	20,561	23,333	2,772	13%	4,753	970 <sup>c</sup>	Bachelor's	Unknown
22	Insurance Sales Agents	554	13,786	15,153	1,367	10%	4,432	- <sup>a</sup>	Mid-level	Yes
23	Lawyers	525	14,809	16,284	1,475	10%	4,201	646	Graduate	Yes
24	Management Analysts	511	12,392	14,621	2,229	18%	4,086	10,283 <sup>c</sup>	Bachelor's +	Yes
25	Medical Secretaries	472	7,763	10,521	2,758	36%	3,775	2,123	Mid-level	Yes
26	Police and Sheriff's Patrol Officers	462	9,751	10,939	1,188	12%	3,696	301	Mid-level	Unknown
27	Computer Systems Analysts	460	11,215	13,014	1,799	16%	3,683	1,460 <sup>c</sup>	Bachelor's	Unknown
28	Medical Assistants	453	8,633	10,957	2,324	27%	3,624	2,787	Mid-level	Yes
29	Hairdressers, Hairstylists, and Cosmetologists	452	10,867	12,539	1,672	15%	3,612	1,533	Mid-level	Yes
30	Licensed Practical and Licensed Vocational Nurses	444	6,567	8,454	1,887	29%	3,550	280	Mid-level	No
38	Civil Engineers	383	7,243	8,880	1,637	23%	3,067	429	Bachelor's	Yes
46	Mechanical Engineers	288	5,080	5,923	843	17%	2,305	505	Bachelor's	Yes
107	Petroleum Engineers	156	1,363	2,269	906	66%	1,246	133	Bachelor's	Unknown
110	Environmental Scientists and Specialists	150	2,748	3,222	474	17%	1,204	468	Bachelor's	Yes
181	Aerospace Engineers	83	2,427	2,561	134	6%	666	250	Bachelor's	Yes
277	Atmospheric and Space Scientists	37	1,521	1,646	125	8%	292	63	Bachelor's	Yes

Source: EMSI data, 2013

### Table 1 Notes

<sup>a</sup> The National Center for Education Statistics either does not provide a specific match between SOC and CIP codes for this occupation or this is a particular occupation that receives workers from a wide range of educational backgrounds. Using business operations specialists as an example, we know that there is an abundance of business degree completions to projected openings for business occupations, overall, which suggests that we have adequate related completions for this occupation.

<sup>b</sup> Educator preparation programs can be difficult to delineate as to which level (elementary, middle or secondary) completers intend to teach, as many programs are K-12 endorsements. Essentially, in 2012 there were 940 completers for Elementary Education endorsements, 752 completers for endorsement areas that typically lead to secondary level positions, and 768 completers for endorsements for areas in K-12. These counts do not include completers for alternative certification programs or special education endorsements.

<sup>c</sup> Approximately one-third of these degrees awarded are graduate-level; therefore, these are not necessarily new entrants into the workforce. Nor are these degrees unique to this occupation—e.g., a MBA could be applied to many business-related occupations that may not be reflected in this table.

There are certainly limitations to this analysis; some involve the complexity of degree/certificate program codes feeding to multiple occupation codes, workforce participants that are completing credentials and are not necessarily new entrants into the workforce supply, and new or emerging industries/occupations that one cannot account for. Appendix A goes into more detail regarding technical information behind the analysis. In addition, while regional differences do exist, for the purposes of this report we focus on a statewide perspective. Future briefs will be oriented towards regional analysis.

When 2012 completions are taken at face value and viewed next to annual openings, it appears that we may be underserving or oversaturating certain occupational categories; however, in reality, the completions listed in this table can include a range of degree levels, so some completions may be people who are in the field already and advancing their education with a graduate level degree program. Further, some completions are from programs that could be applied to multiple occupations (for example, a business degree could be applied to many jobs—in this table alone, we see educational alignment between management roles and management analysts, and even sales). It can also be more challenging to quantify completions for certain occupations, such as a wholesale and manufacturing sales representative or an insurance sales agent, as there are many educational pathways that lead to either.

In general, though, when we analyze these 30 occupations it appears that we are currently meeting our state's overall needs for about half of them. For half of the listed occupations we have designated their definitive status as "unknown," as some occupations (e.g., office- or sales-related) are difficult to connect to program completions since candidates from a wide range of programs can be found in these areas. For three of the occupations supply clearly does not meet demand. Some occupations for which we may not be meeting the state's workforce demands are bookkeeping, accounting and auditing clerks, market research analysts/marketing specialists, and licensed practical nurses; however, it is also unlikely that supply is meeting demand for various levels of K-12 educators, software developers and computer systems

*When we analyze these 30 occupations with high projected openings, it appears that we are currently meeting our state's overall needs for about half of them.*

analysts. Bookkeeping, accounting, and auditing clerks are primarily mid-level occupations, thus the 363 completions (2012) are all for certificate and associate's level programs; however there are a number of professionals without a credential in this occupation, which adds complexity to analyzing this supply-demand relationship. While we are probably not producing enough completions for this occupation, one should bear in mind that the demand for bookkeeping, accounting and auditing clerks or accountants and auditors also demonstrates the economic benefits of obtaining certain technical degrees as entry into a career path.

Market research analysts and marketing specialists are found across diverse industries, and often as consultants, potentially providing them with room for movement based on different industry growth levels. This is an interesting occupation category, for with the proposed surge of "Big Data," market research specialists could certainly take advantage of this potential opportunity by expanding their skills or forming partnerships that could contribute complementary information.

While it appears that we are probably not training enough electricians, as there are 293 completions (2012) and 668 projected annual openings over the next eight years, it is unclear as to whether we still have unemployed electricians who are gradually reentering the workforce as construction jobs continue to increase following the substantial downturn in that industry specifically.

The supply-demand relationship for police and sheriff's patrol officers is also difficult to fully forecast. While there are fewer completions for programs than necessary to fulfill projected annual demand, other variables will impact this occupation, such as prolonged contraction of many police department budgets and the challenges associated with rural hard-to-fill positions.

There are a few strong growth occupations for which there is potential for oversaturating with completions, such as hairdressers, hairstylists and cosmetologists, medical secretaries, medical assistants and nursing assistants. While annual openings are projected at 452 for hairdressers, hairstylists and cosmetologists, there were 1,533 completions in cosmetology and hair styling in 2012. Furthermore, the demographics for these cosmetology occupations are heavily weighted towards younger women, with three-quarters of workers being under 44 years of age.

Analyzing whether or not we have an excess of completions for nursing assistants, medical secretaries or medical assistants can be complex. We have a 25 percent growth rate projected from 2012 to 2020 for healthcare and healthcare support occupations (put in annual terms, just over 3 percent growth per year—almost twice the 1.6 percent annual growth projected for Colorado's jobs overall). Indeed, there is the potential for such occupations to experience higher rates of growth than projected based on the impending expansion of the healthcare sector. However, we should also be aware that the related completions in 2012 for each of these occupations are up to five times the projected annual openings through the end of the decade; therefore, we are likely producing more than adequate numbers of completions in these occupations.

Of the six additional STEM occupations we added to the table, completions are likely meeting demand for civil engineers, mechanical engineers, environmental scientists, aerospace engineers and atmospheric and space scientists. The supply-demand relationship for petroleum engineers

warranted an “unknown” status, due to completions being very close to projected demand and a cyclical market.

This table of 30 high growth occupations definitely inspires reflection upon our state’s prospective economic and educational landscapes, and the challenges, successes and changes we may face along the way. Further discussion continues below focusing on the nuances of the fields of nursing/healthcare support positions, computer-related occupations and K-12 educators.

### **A Closer Look at High Demand Occupation Groups**

#### *Registered Nurses, Nursing Assistants, Licensed Practical and Vocational Nurses and Medical Assistants*

The healthcare industry is in a unique position in that it has experienced growth both during the recession and recovery, and projections continue an expectation of strong growth patterns. While Colorado has tended to have a younger population, because of our aging baby boomers we should anticipate a significant impact on employment demands of this industry: approximately 1,000,000 workers will be retiring over the next 20 years (Colorado State Demography Office, 2011), and if these retirees remain in our state, this population will have increased healthcare needs and require additional health support services in the coming years. In addition, about 25 percent of nurses are currently over the age of 55 themselves, and will transition from healthcare providers to consumers in this time period.

In terms of meeting such impending demands on the healthcare industry, we have a strong pipeline of completions for many educational levels of registered nurses, nursing assistants and medical assistants. Table 2 shows 2012 completions and annual openings projections until 2020 for registered nurses, nursing assistants, medical assistants and licensed practical/vocational nurses.

**Table 2: Openings and Completions for High Demand Healthcare Practitioners and Support Occupations**

<b>Registered Nurses - SOC: 29-1141</b>		<b>Medical Assistant - SOC: 31-9092</b>	
Annual Openings (2012-2020)	2,209	Annual Openings (2012-2020)	453
Annual Completions (2012)	3,106	Annual Completions (2012)	2,787
<i>Mid-level Completions</i>	<i>1,326</i>	<i>Mid-level Completions</i>	<i>2,787</i>
<i>Bachelor's Level Completions</i>	<i>1,595</i>		
<i>Graduate Level Completions</i>	<i>185</i>		
<b>Nursing Assistant - SOC: 31-1014</b>		<b>Licensed Practical/Vocational Nurse – SOC: 29-2061</b>	
Annual Openings (2012-2020)	725	Annual Openings (2012-2020)	444
Annual Completions (2012)	1,973	Annual Completions (2012)	280
<i>Mid-level Completions</i>	<i>1,973</i>	<i>Mid-level Completions</i>	<i>280</i>

Certainly over the past few years the media has highlighted a pervasive “nursing shortage” across the country. However, what may be true for one state or region may be quite different for another. Colorado is one such state that has consistently had an in-migration of highly educated workers overall, and as we can see by the figures above, also has a strong completion rate for various high demand healthcare occupations. Perhaps not surprisingly, as training for nursing assistants and medical assistants tends to require less time to complete, each area appears to have an overabundance of completers. In addition, 2,092 of the 2,787 credentials earned in 2012 that feed into medical assistant positions were from for-profit institutions; whereas 8 of the 1,973 credentials earned that feed into nursing assistant positions were from for-profit institutions.

*Perhaps not surprisingly, as training for nursing assistants and medical assistants tends to require less time to complete, each area appears to have an overabundance of completers.*

However, completions for licensed practical or vocational nurses have declined over the past decade, even though the training tends to be a one or two year program, as well, and is a valuable entry point into the nursing profession. Completions for registered nurses (once we take into account how many may be pursuing a bachelor’s or master’s level degree who are already in the field) appear to be precisely meeting our projected needs. If these completions for registered nurses remain stable or see growth through 2020, we should be prepared for the impending demand as baby boomers age. Yet we should also be aware of imbalances in completions for the aforementioned related occupations and recognize both the higher demand and benefits in quality of care that more advanced levels of training involve.

### *Computer-related Occupations*

Computer-related occupations account for a number of high growth jobs. In looking at the table of 30 occupations (Table 1) we have high demand for a number of computer-related occupations, yet the annual completions appear to exceed projected annual openings for each of these occupations individually. However, many of these recorded completions do overlap as there are common programs shared as pathways to these occupations; therefore, we do not believe this occupation group has supply meeting demand (see Table 3). During 2001 when the dot-com bubble burst and the most recent 2008 recession, this category of occupations experienced significant job loss, from which it is still rebuilding to pre-2001 levels. However, even with that being the case, this is a strong job sector for our state, and one that is also interwoven throughout many industries. Demand for workers in computer-related occupations will likely continue to be healthy, especially considering the fast pace of technological developments that impact business’ needs and high growth specializations such as database analytics. Furthermore, with the emergence of new technologies emerge, creation of new jobs will occur, potentially altering or creating new career paths.

**Table 3: 2012 Openings and Completions for Computer-related Occupations**

<b>Computer Occupations - SOC 15-1100</b>	
Annual Openings (2012-2020)	3,399
Related Completions (2012)	2,930
<i>Mid-level Completions</i>	<i>908</i>
<i>Bachelor's Level Completions</i>	<i>1,058</i>
<i>Graduate Level Completions</i>	<i>964</i>

When we look at related completions (2012) next to annual openings for computer occupations (SOC 15-1100) as a whole, it appears that we are not producing enough completions to meet projected openings through 2020. We can see that this is particularly true of mid-level and bachelor’s level completions in Figures 5 and 6 below.

*K-12 Educators*

K-12 educators comprise a large number of positions with an expectation for growth that is slightly higher than the state’s anticipated population growth rate through the end of this decade. Since many teacher endorsements that are awarded apply to K-12 as a whole, it is difficult to know the grade level(s) program completers plan to teach. For this general overview of the field, this report is not reviewing the specific high or low supply and demand patterns for individual endorsement subject completions and position openings. However, in Table 4 we can see that completions for teacher endorsements overall are slightly below projected job openings, with special education endorsements at nearly 50 percent of our state’s special education teacher openings.

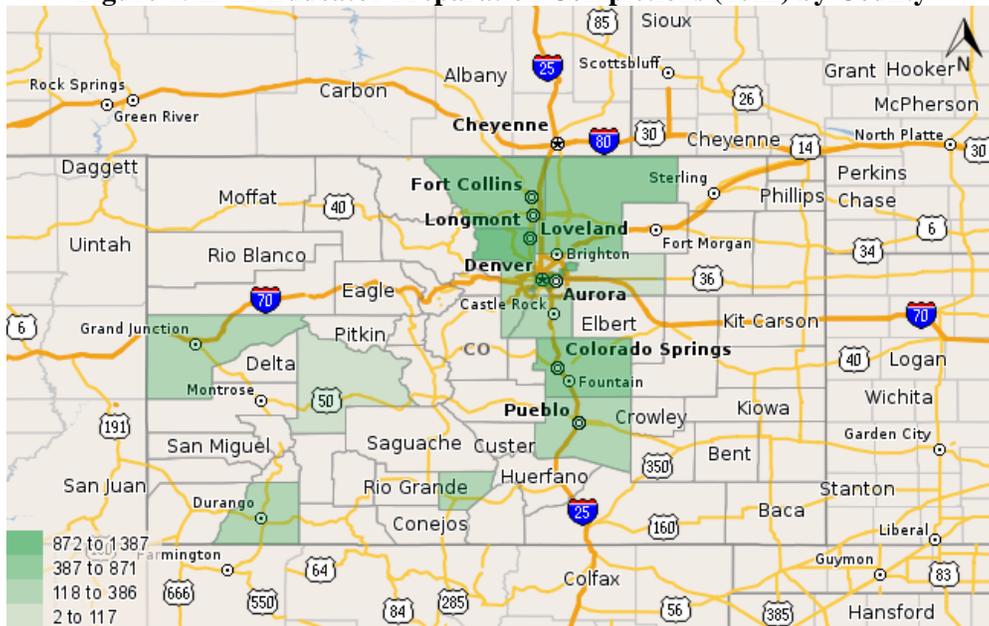
**Table 4: 2012 Openings and Completions for Educator Endorsements**

<b>K-12 - All Educators Except Special Education</b>		<b>Educators - Special Education Endorsement</b>	
Annual Openings (2012-2020)	2,537	Annual Openings (2012-2020)	503
Completions (2012)	2,460	Completions (2012)	217

For 2011-2012 license issuances by the Colorado Department of Education, 2,660 (76 percent of the total issued) were granted to teachers who completed in-state educator preparation programs and 827 (24 percent of the total) were issued to those who completed out-of-state programs. Over the past ten years, 71 percent of teachers issued licenses were trained in-state and 29 percent were trained out-of-state. These figures certainly suggest that we do not have enough completers of educator preparation programs to meet our state’s needs.

Another variable in the supply-demand relationship for educators is the demonstrated challenge to hire and retain qualified educators in rural districts, particularly for math and science subject areas, career and technical education, special education and support personnel for mandated services like speech pathology or occupational therapy. Figure 4 depicts the counties in which completions of K-12 educator preparation programs occur and to what degree.

**Figure 4: K-12 Educator Preparation Completions (2012) by County**



It is clear that the concentration of educator preparation programs is in the Front Range, and that the Eastern Plains in particular lacks local public four-year institution training for this profession. However, the Eastern Plains is also a less populated area that tends to experience slower growth rates than the rest of the state. Colorado Mountain College (CMC) was recently approved to offer a bachelor's level educator preparation program that could ease the challenges in cultivating locally trained educators in regions in which CMC will operate this program. In such rural areas like the plains or mountainous regions, districts face additional challenges like not being able to meet compensation levels akin to Front Range districts, a trait characteristic of the lifestyle experienced in rural communities. Career pathways that adequately support potential educators towards achieving licensure and efficacy in such hard to staff regions are an important consideration in developing quality education opportunities for the students served in those regions.

## Occupational Demand by Credential Level

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For our state to meet workforce demand, it is also important to understand where gaps exist in certain occupations by credential level. Here we examine occupation clusters as defined by Standard Occupational Codes (SOC) by level of postsecondary education. We use three education levels: *mid-level*, *bachelor's level* and *graduate level*.

There are two ways by which we analyze the demand by credential level:

- By education requirements assigned to occupations as typically categorized by the Bureau of Labor Statistics (BLS), which are described as *entry education levels*. This is represented by the red bars in the following graphs.
- By the actual education attainment percentage rates of people employed in these occupations, per ACS data. This, in a sense, shows the *competitive level* of education currently experienced in each occupation. This is represented by the blue bars in the following graphs.

It is especially helpful to consider credential-level supply and demand from both of these angles in our current economy. The economy is still rebounding from the Great Recession, and many employers are hiring candidates with higher levels of education for certain positions than prior to the recession. Essentially, for some occupations, the BLS education level designation is now an entry level requirement rather than a more typical requirement, whereas the education attainment level rates show the real world experience of people with that degree in the occupation category. Further, we must recognize that this section is examining general trends within large occupation groups, and that there certainly may be deficits or excesses in completions for individual occupations within larger groups.

*There are two ways by which we measure demand:*

*By **entry education level demand**—essentially, the education requirements assigned to occupations by the Bureau of Labor Statistics.*

*By **competitive education level demand**—the actual education attainment percentage rates of people employed in these occupations.*

*Mid-level*

Mid-level completions correspond to two-year associate’s degrees, as well as one or two year certificates and credentials acquired at community and technical colleges. Figure 5 shows occupation categories that have a projected demand that exceeds supply. There is an interesting discrepancy between supply and demand of credentialed persons in the skilled trades, with 3,667 completions for awards relating to these occupations, and projected annual openings ranging from 2,496 (based on actual education levels by those in these occupations) to 6,548 (based on entry education level), depending on measurement. This is a prime example of the difficulty in pinpointing actual demand for certain categories; however, with advancements in manufacturing technology thus demanding highly skilled workers, there may very well be too few completions for certain occupations within this general category. In September 2012, the U.S. Department of Labor awarded a \$25 million grant to a consortium of Colorado community colleges to develop advanced manufacturing programs, which could abate this potential issue.

**Figure 5: Mid-level Completions for Occupational Categories Not Meeting Projected Annual Demand 2012-2020 for Mid-level Occupations**

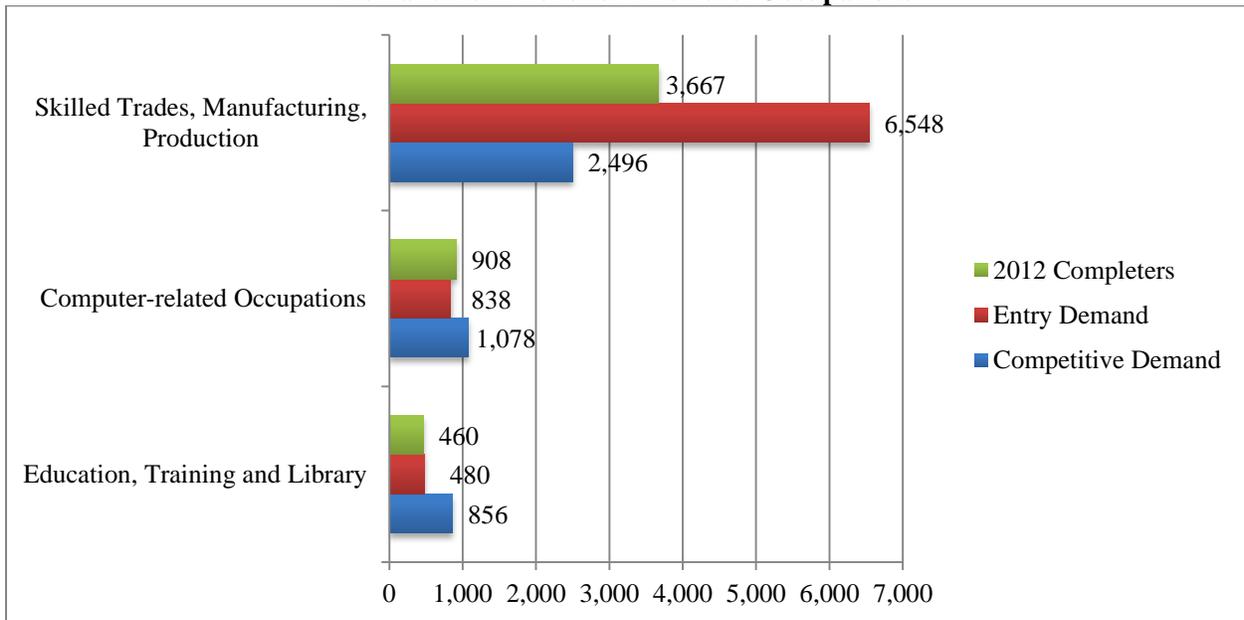


Figure 5 depicts other potential shortages in supply and demand. For computer-related occupations, the entry level demand is lower than the competitive demand—yet 2012 related program completions fall somewhere in between. For occupations in the education, training and library category, we see a similar pattern in terms of demand, yet supply falls below both demand categories.

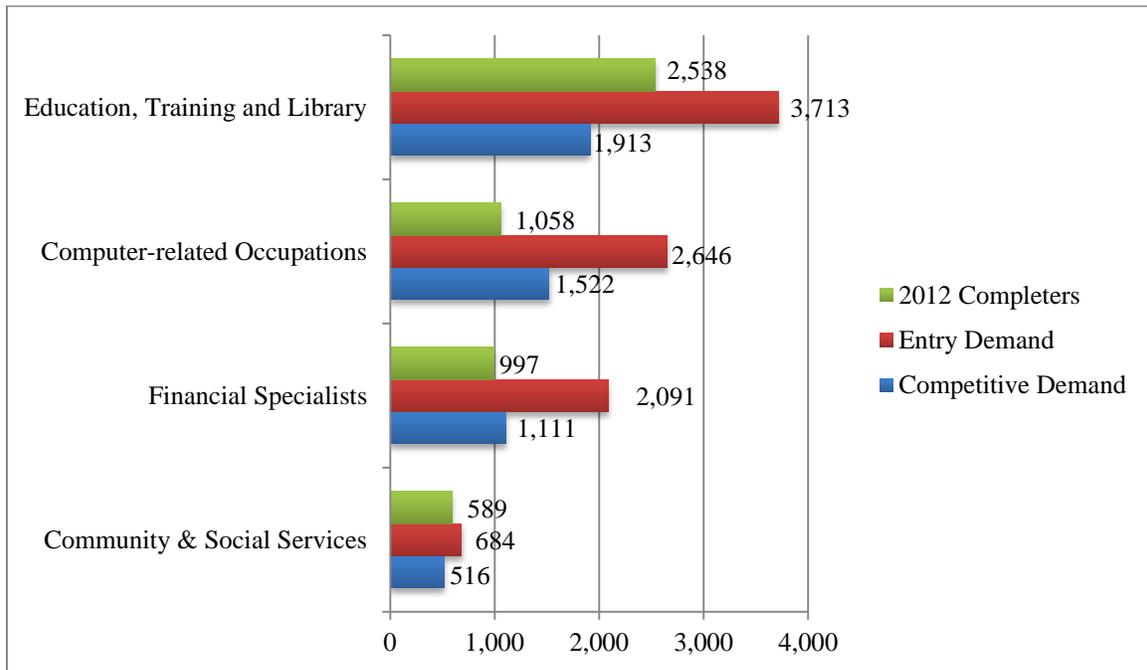
### *Bachelor's Level*

At the baccalaureate level there are a few SOC categories that we should be aware of in terms of inadequate completions to meet demand (see Figure 6). Figures for computer-related occupations show a notable lack of supply, as completions (1,058) are below both measurements of demand (2,646 for entry and 1,522 for competitive levels of education). It is likely that this is a highly competitive category, as those holding graduate level degrees in computer science or the like find employment in these occupations that are categorized as requiring a bachelor's degree for entry. However, regardless of this nuance, there still appears to be a significant supply deficit in this occupation category.

The education, training and library category presents similarly, in that demand by educational requirement is far higher than demand by actual attainment levels by those in the field; however, there is a degree of complexity in assessing actual supply and demand. Teachers can complete their preparation through a bachelor's or master's level program; furthermore, there are incentives for teachers to pursue master's degrees through payscale step increases. It is likely that educators pursuing graduate level credentials are greatly affecting actual attainment levels for this occupational category and thus the bachelor's level competitive education level is far below the bachelor's level demand by entry education level. To fully understand such nuances, further analysis would need to be conducted. The community and social services occupation category follows a similar pattern—2012 completers from related programs hover between the two measurements for demand.

The occupation category for financial specialists shows a deficit in supply for both entry and competitive education levels at the baccalaureate level. As depicted in the table of 30 high demand occupations that tend to require postsecondary education (Table 1), accountants and auditors are at the top of the list. Certainly, it is hard to forget that there can be a degree of volatility in the financial sector during economic downturns; however, since 2008 all of the occupations within this category have rebounded beyond pre-recession levels. Colorado also continues to be an attractive state for relocating or expanding companies in the financial sector due to our state's highly educated workforce. Examples of such businesses include Fidelity Investment's expansion in 2013 and Personal Capital's planned expansion. It will be important to support the educational pathways of finance-related professions if we wish to nurture the employability of a Colorado-educated workforce in this domain.

**Figure 6: Bachelor's Level Completions for Occupational Categories Not Meeting Projected Annual Demand 2012-2020 for Bachelor's Level Occupations**

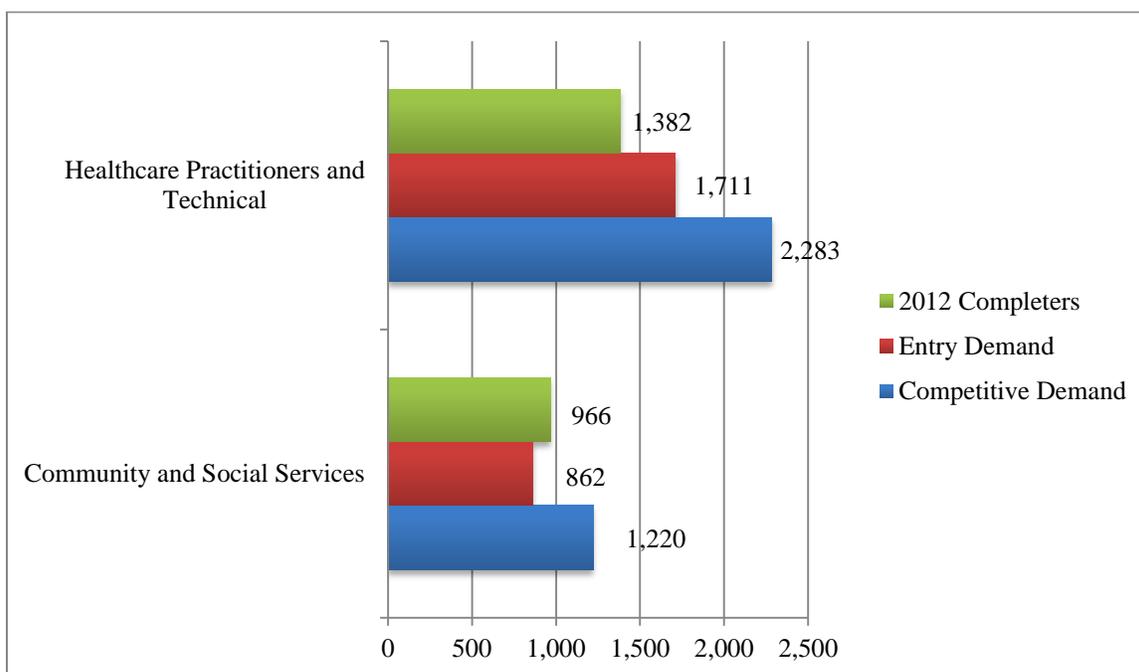


*Graduate Level*

At the graduate level the most notable discrepancy between supply and demand is for healthcare practitioners, with 1,382 completions in 2012, yet a demand ranging from 1,711 to 2,283 projected annual openings. Examination of such potential deficits in completions for these healthcare practitioner occupations is complicated by the fact that many of these occupations could require upwards of ten years of schooling. However, there are also many variables that impact these completion figures, such as the limited number of residency positions nationwide, which is compounded by the impending baby boomer population that will certainly face increasing healthcare needs, as well as by that of the potential increase in practitioner demand as a result of more insured patients under the Affordable Care Act.

The graduate level community and social services category generally represents various kinds of counselors and therapists. While there were 966 completions in 2012 for this occupational category, this supply figure exceeds projected annual openings by entry education level by about 100 completions, yet it falls below the competitive demand of 1,220. This is likely an appearance of more graduate degree holders now holding positions that used to be more commonly considered bachelor's level positions.

**Figure 7: Graduate Level Completions for Occupational Categories Not Meeting Projected Annual Demand 2012-2020 for Graduate Level Occupations**



## Two and Four Year Public Institution Profiles

Per additional evaluation as proposed by the Colorado Commission on Higher Education Master Plan, this report also includes the roles and missions, locations and service areas of public colleges and universities. Colorado is a state with diverse regions and regional economies and, as such, many Colorado state agencies use a common planning and management regional guideline, dividing the state into 14 regions. The first map below (Figure 8) orients us to main and satellite campus locations of two and four year institutions overlaying Colorado’s planning and management regions. The second map (Figure 9) shows sector partnerships by region, demonstrating where current and emerging industries exist across our state. Alongside supply-demand analysis, these maps provide a reference for potential institution-industry partnerships by regional need. Appendix B includes a table outlining each institution’s location, role and mission. While of course there is inter-regional activity, whether it be economic, educational or otherwise, all of our regions have one or more public postsecondary institutions that can play a role in serving region-specific demands. Seven regions have both community college and four year institution campuses (regions 2, 3, 4, 7, 8, 9, 11), one region has only a four year institution (region 10) and five regions have only main and/or satellite community college campuses (regions 1, 5, 6, 12, 13, 14). Subsequent briefs honing in on regional profiles and needs will be issued throughout the year, in hopes of further highlighting the diverse regional workforce demands and postsecondary programs across our state.





## Recommendations

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The state of Colorado has an interest and commitment to educating its citizenry for meaningful and instrumental roles in its burgeoning economy. While this report looks towards the future and, based on current data and information, makes inferences regarding prospects for Colorado, there is certainly room for a change of course in this fast evolving world. We conclude this report with various recommendations of issues and concerns that should be in our line of sight as we participate in, design and develop our state's economies and educational networks.

In considering means to implement these recommendations it is important to consider the work Colorado has done over the last three years towards alignment of education, workforce development and economic development to meet industry needs. According to Executive Order B2010-012, the Colorado Workforce Development Council (CWDC) is responsible for ensuring effective alignment of workforce development, education and economic development initiatives related to talent development for Colorado's businesses.

The Colorado Blueprint laid the foundation for an aggressive economic development plan for the State of Colorado, including Core Objective V, Educate and Train the Workforce of the Future, which is led by the Colorado Workforce Development Council (CWDC), the state's Workforce Investment Board. This is a collaborative approach of many partners including (but not limited to) CDHE, Colorado Department of Education, Colorado Legacy Foundation, Colorado Department of Labor & Employment, Colorado Department of Human Services, Colorado Department of Corrections, Colorado Community College System and Career & Technical Education, and the Office of Economic Development and International Trade, as well as local and regional partners of each of these state agencies. Through this structure CWDC is convening leaders and subject matter experts to develop aligned solutions, leverage resources and utilize data and industry input to ensure effective outcomes.

### ***State needs must be based on state-level data rather than national-level data***

Coloradans, in general, are better educated than people from other states, but that does not mean we are better prepared to meet our workforce needs. The job openings that need to be filled in Colorado both now and in the next decade are more likely to require postsecondary credentials than in most other states. We must focus on Colorado-specific data or we are at risk of failing to plan adequately, potentially producing an excess of graduates with certain skills and a shortage of graduates with much needed skills. Nurses and engineers are two good examples where national projections suggest more graduates are needed, but that does not appear to be the case in Colorado; whereas, we are likely to see a shortage of advanced manufacturing technicians and financial analysts and auditors.

### ***Strengthen data sharing relationships between Colorado's Department of Labor and Employment, Department of Education and Department of Higher Education***

Each of the Colorado Departments, Labor and Employment, Education and Higher Education, gather and store vast quantities of data that would facilitate greater planning and coordination among institutions and employers so that workforce needs will be met and graduates will have full employment opportunities. Current information may need to be supplemented, however,

with more detail about specific regional market needs and important distinctions within broad occupation categories. For example, as noted above, a broad examination of licensed educator demand and supply might lead one to conclude that Colorado will not have a need, yet it is clear that the state will, in fact, fall short of producing an adequate number of special education teachers, teachers in rural areas, and teachers of math and science at the secondary level throughout the state. Providing that level of detail to incoming education majors will help students make wise decisions about pursuing special areas of emphasis within their chosen academic subject area. Similarly, for nurses and other healthcare workers, a more detailed analysis of workforce demands will help ensure that Colorado has *the right kind* of licensed health professionals *in the right geographic areas* to meet the needs of our rapidly aging population.

### ***Develop effective career pathways***

While we are producing postsecondary graduates, we still are not graduating enough in certain program areas that meet the demands of our state's economy. Research has shown that countries with higher levels of educational attainment offer diverse pathways, as well as connect employers to the educational process to prepare students for certain careers (Symonds, Schwartz & Ferguson, 2011). Our state does have various career pathways in place and is planning to formally implement more. It is important to highlight the significance of this work and the essential continued support of it if we are to educate Coloradans and support their success in our state. As our state develops various career pathway tracks, we should bear in mind that places for entry and re-entry can be helpful for those who initially enter a field at a lower educational level and later desire to obtain additional credentials to enhance career opportunities (such as, one may have an accounting technician credential, but eventually pursues a bachelor's degree in finance/business, or a licensed vocational/practical nurse completed a one or two year program initially, but eventually pursues a registered nursing degree, etc.).

In addition to the creation of specific career paths, focus should be put on the current effort of state and local partners that are working to create a statewide tapestry of career pathways including all high demand occupations and opportunities for all Coloradans. This statewide Career Pathway System is currently receiving technical assistance from the U.S. Department of Adult and Vocational Education and has potential for integrating the various career paths, as well as the work of all education and workforce development partners.

### ***Continue to closely examine and address the supply-demand relationships of healthcare practitioners, as well as that of computer-related, financial and education professions***

Healthcare practitioners, computer-related professions, financial specialists and occupations in K-12 education are fields for which completion rates are likely to not meet the demand in our state in the years to come. If we do not rectify this by improving postsecondary program alignment with workforce demand or addressing systemic issues, we will otherwise continue to be reliant on skilled workers from out-of-state.

Furthermore, it will be important to continually examine healthcare occupations as influential variables fluctuate. While it appears mid-level and bachelor's level completions are meeting demand for most nursing positions, it will be important to maintain completion levels to meet

levels of demand. There are many variables that can affect our state's demand—from shifts in demographics as our nation's population ages, to the unknown impact the Affordable Care Act will have, to variances in regional ability to attract qualified practitioners—thus our continued attention in this area is in our best interest.

Existing sector partnerships (industry-specific regional partnerships) are addressing the supply-demand relationship and acute healthcare workforce shortages in the state. The Greater Metro Denver Healthcare Partnership serves as a pilot for the creation of Career Pathway templates in building out a statewide Career Pathway System. An overview of this strategic alliance can be found here: <http://www.youtube.com/user/DenHealthPartnership>

### ***Continue to build strong industry-institution partnerships***

When we look globally to best practices in cultivating an educated workforce that fulfill economic demand, strong industry-institution partnerships and earn-and-learn models continue to stand out as effective strategies for many kinds of career pathways. Often, we think of these models as connected to the skilled trades, and as we develop additional programs in advanced manufacturing, we should be aware of educational models that encourage completion rates and smooth transitions into employment. It is worthwhile to look towards innovative and adaptable business concepts that are particularly oriented towards real world skills that specific employers and fields want.

Colorado is recognized nationally as a leader in bringing industry together with education, workforce development and economic development to address these issues. Colorado's Sector Strategies, which support regional Sector Partnerships (see map on page 24), integrate the work of economic development and the needs of industry with education and workforce partners and efforts. The resulting outcomes are comprehensive career pathways that include all levels of education, training, applied learning, connections to work experience opportunities and placement in jobs.

### ***Colorado must find ways to increase higher education success for its fastest growing demographic groups***

As Colorado faces an increasing demand for well-educated and credentialed graduates of postsecondary institutions to meet the workforce demands of the future, it also faces a rapidly changing demographic in its K-12 primary and secondary pipeline. An increasing percentage of those students are members of minority groups and face other risk factors, such as being low income and coming from families where they will be the first to pursue higher education. In the past, those groups have not found postsecondary success at the same rate as their white peers. Colorado will not meet the workforce needs of the future unless it can improve the rate at which members of those underserved groups graduate from high school are ready to enroll in college-level classes, enroll in and persist through certificate or degree completion, and enter the workforce. For that to happen, Colorado must be prepared to invest resources not only into high quality academic programs, but also toward financial aid, controlling college costs so as to maintain reasonable tuition and fees and providing academic support systems to help students successfully complete their chosen programs of study.

### ***Provide students and families with the tools and knowledge to make informed decisions***

It is crucial to provide students and their families with the tools and information to support them through their decision-making processes regarding postsecondary education. By providing accessible information regarding completion rates, the job market, unemployment rates and the like to interested stakeholders, there is the opportunity for completions and economic demands to better align. Ultimately, if we can help students and jobseekers know where opportunities likely exist, then we can help them spend their education dollars wisely.

### ***Conclusion***

Overall, whether or not we are “meeting the numbers” is less of an issue than whether our institutions are able to maintain the momentum to provide a high quality education for all students. It is critical that our colleges and universities across Colorado focus on delivering high-quality graduates so that Colorado employers continue to respect and seek out the credentials of Colorado-educated graduates. Further developing partnerships between Colorado’s postsecondary institutions and Colorado’s employers is critical to the advancement of our state’s economy.

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## Appendix A: Technical Information

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### *Calculations*

In creating Table 1 (Top 30 Occupations with Highest Projected Openings with More than Half of Workers with Postsecondary Experience), we wanted to provide a list of occupations with projected high demand that tend to require postsecondary training/education in order to garner a sense of our state's proficiency with the most substantial supply-demand relationships. For this table we relied on the EMSI Analyst tool's projections for annual demand from 2013 to 2020. Completions were primarily accessed through EMSI, which sources data from IPEDS, thus we were able to present completions for all public and private Colorado-based institutions. However, for some occupations (teaching, in particular) it made more sense to use DHE data so as to improve specificity in the SOC-CIP crosswalk.

For the tables included in the closer look at high demand occupation groups, completions are based on the SOC-CIP crosswalk and then disaggregated by credential level. K-12 educator completions were derived from DHE data.

To develop our analysis of occupational demand by credential level, we had to take into account both the entry education level requirements and the actual educational attainment levels of those employed in the occupation (what we denote as the competitive education level) so as to provide a more accurate present day education level expectation. The EMSI Analyst tool and BLS data reflecting educational attainment percentages by Standard Occupational Classification (SOC) code were primarily used to reach our figures.

To analyze by credential level demand we first isolated occupations by SOC group. In most instances we disaggregated data by the SOC major group; however, some SOC sub-groups proved more useful in isolating occupation demand and related completions by Classification of Instructional Programs (CIP) code. For example, for the SOC major group 13 (business and financial operations occupations), greater specificity in the supply-demand relationship was yielded by conducting analysis separately for the two sub-groups (business operations specialists and financial specialists). Conducting analysis by SOC groups allows us to better account for CIP codes that align with more than one SOC code and to avoid duplicate counts as much as possible.

For each instance, we first isolated occupations by SOC group. We then calculated projected annual openings by typical educational level clusters (mid-level, bachelor's level and graduate level). Using the EMSI Analyst tool, we were able to seamlessly crosswalk SOC codes to associated CIP codes and establish completion figures by credential/degree level. This provides the supply (or completions) by credential level, as well as the projection by entry education level. To establish the competitive education figures, we calculated education attainment levels by percent for the group of SOC codes being analyzed and then translated the SOC group's total annual openings into absolute numbers by education level based on these education attainment percentages.

### *Limitations*

In reviewing the tables and figures in this report, these limitations should be considered:

- While data depict program completions as they are aligned to occupation codes by the National Center for Education Statistics (NCES) crosswalk, not all completers enter into the specific occupation to which the education program typically aligns, and some occupation codes simply do not seamlessly feed into a specific program code, or feed into multiple program codes. When possible, we try to avoid or we acknowledge such redundancy.
- Some completions do not enter Colorado's workforce immediately following graduation for various reasons, such as continuing education or pursuing opportunities out-of-state. Some completions are already members of the workforce and are perhaps pursuing an additional credential for professional development, to increase compensation potential and the like.
- Currently we are unable to produce a quality projection of anticipated postsecondary credential completions through 2020.
- We can only base projections upon what we know today. Projections are derived from algorithms that are based on current regional growth patterns. As exemplified by our most recent recession, our economic trajectory can shift dramatically and surprisingly in a short period of time, tossing aside any number of economic projections and models that are out there. Furthermore, without a crystal ball, we cannot account for new or emerging industries and occupations. Certainly we don't know the full extent of growth in areas such as big data or the potential renaissance of American manufacturing or whatever next great idea that is down the pike.
- Analysis in this report is state-wide. Individual regions may experience unique supply-demand relationships.

**Appendix B: Public Two and Four Year Postsecondary Institutions in Colorado**

<b>Institution</b>	<b>Main Campus, Region</b>	<b>Role/Mission</b>
Adams State University	Alamosa, Region 8	General baccalaureate institution with moderately selective admission standards. Offers undergraduate liberal arts and sciences, teacher preparation, and business degree programs, a limited number of master's level programs, and two-year transfer programs with a community college role and mission. Adams State University does not offer vocational education programs. Adams State University has a significant responsibility to provide access to teacher education in rural Colorado, and serves as a regional education provider. In addition, Adams State University offers programs, when feasible, that preserve and promote the unique history and culture of the region.
Aims Community College	Greeley, Region 2	Two-year local district college with three campuses. Offers courses designed to transfer to four year institutions, and career and technical education programs.
Colorado Mesa University	Grand Junction, Region 11	A general baccalaureate and graduate institution with selective admission standards. Colorado Mesa University offers liberal arts and sciences, professional, and technical degree programs and a limited number of graduate programs. Colorado Mesa University also maintains a community college role and mission, including career and technical education programs, and serves as a regional education provider.
Colorado Mountain College	Glenwood Springs, Region 12	Two-year local district college with 11 campuses serving nine counties in north central Colorado: Chaffee, Eagle, Garfield, Grand, Jackson, Lake, Pitkin, Routt and Summit. Offers select Bachelor's degrees to serve the needs of this region.
Colorado State University	Fort Collins, Region 2	Comprehensive graduate research university with selective admission standards offering a comprehensive array of baccalaureate, master's, and doctoral degree programs. Consistent with the tradition of land grant universities, CSU has exclusive authority to offer graduate and undergraduate programs in agriculture, forestry, natural resources, and veterinary medicine. The Colorado commission on higher education, in consultation with the board of governors of the Colorado state university system, shall designate those graduate level programs that are the primary responsibility of Colorado state university. Colorado state university has the responsibility to provide on a statewide basis, utilizing when possible and appropriate the faculty and facilities of other educational institutions, those graduate level programs.
Colorado State University - Pueblo	Pueblo, Region 7	A regional, comprehensive university, with moderately selective admissions standards. The university offers a broad array of baccalaureate programs with a strong professional focus and a firm grounding in the liberal arts and sciences. The university also offers selected master's-level graduate programs.
Colorado School of Mines	Golden, Region 3	A specialized baccalaureate and graduate research institution with high admission standards. Has a unique mission in energy, mineral, and material science and engineering and associated engineering and science fields. It is the primary institution of higher education offering energy, mineral, and material science and mineral engineering degrees at both the graduate and undergraduate levels.

<i>Community College System</i>		<p>The state board for community colleges and occupational education is charged to develop and establish state policy for occupational education and to govern the state system of community colleges. The board is responsible for the establishment of statewide vocational education policy for all the entities which provide that education and coordinates all aspects of vocational education in the state to assure quality programming and efficient delivery of such education. In its role as the governing authority for the state system of community colleges, the board assures a system of two-year program delivery throughout the state coordinated, where appropriate, with the local district colleges. In order to assist the board in carrying out its responsibilities, the general assembly provides for the establishment of local councils to advise the board on the operation of individual community and junior colleges from a local perspective. The function of the two-year college system is to conduct occupational, technical, and community service programs with no term limitations and general education, including college transfer programs with unrestricted admissions. It is further the intent of this article to develop appropriate occupational education and adult education programs in these and other postsecondary educational institutions, to maintain and expand occupational education programs in the elementary and secondary schools of the state permitting local school districts already having vocational schools to continue to operate them, and to develop work study and on-the-job training programs designed to acquaint youth with the world of work and to train and retrain youth and adults for employment. The general assembly intends that state agencies concerned with occupational education in the public schools shall cooperate with the board in planning and implementing occupational education programs, to the end that the state of Colorado has complete and well-balanced occupational and adult education programs available to the people of Colorado at all educational levels.</p>
Arapahoe Community College	Littleton, Region 3	
Colorado Northwestern Community College	Rangely, Region 11	
Community College of Aurora	Aurora, Region 3	
Community College of Denver	Denver, Region 3	
Front Range Community College	Westminster, Region 3	
Lamar Community College	Lamar, Region 6	
Morgan Community College	Fort Morgan, Region 1	
Northeastern Junior College	Sterling, Region 1	
Otero Junior College	La Junta, Region 6	
Pikes Peak Community College	Colorado Springs, Region 4	
Pueblo Community College	Pueblo, Region 7	
Red Rocks Community College	Lakewood, Region 3	
Trinidad State Junior College	Trinidad, Region 14	
Fort Lewis College	Durango, Region 9	<p>A public liberal arts college, with selective admission standards with a historic and continuing commitment to Native American education. Offers professional programs and a limited number of graduate programs to serve regional needs. The center of southwest studies provides a valuable regional, national, and international resource.</p>

Metropolitan State University of Denver	Denver, Region 3	A comprehensive institution with modified open admission standards at the baccalaureate level; except that nontraditional students at the baccalaureate level who are at least twenty years of age shall only have as an admission requirement a high school diploma, a GED high school equivalency certificate, or the equivalent thereof. Metropolitan State University of Denver shall offer a variety of liberal arts and science, technical, and educational programs. The college offers a limited number of professional programs and master's degree programs that address the needs of its urban service area.
University of Colorado Boulder	Boulder, Region 3	A comprehensive graduate research university with selective admission standards. The Boulder campus offers a comprehensive array of undergraduate, master's, and doctoral degree programs, and has exclusive authority to offer graduate programs in law. The Colorado commission on higher education, in consultation with the board of regents, shall designate those graduate level programs that are the primary responsibility of the Boulder campus of the university of Colorado. The university has the responsibility to provide on a statewide basis, utilizing when possible and appropriate the faculty and facilities of other educational institutions, those graduate level programs. The commission includes in its funding recommendations a level of general fund support for these programs.
University of Colorado Colorado Springs	Colorado Springs, Region 4	A comprehensive baccalaureate university with selective admission standards. The Colorado Springs campus offers liberal arts and sciences, business, engineering, health sciences, and teacher preparation undergraduate degree programs, and a selected number of master's and doctoral degree programs.
University of Colorado Denver	Denver, Region 3	An urban comprehensive undergraduate and graduate research university with selective admission standards. The Denver campus offers baccalaureate, master's, and a limited number of doctoral degree programs, emphasizing those that serve the needs of the Denver metropolitan area. The Denver campus has statewide authority to offer graduate programs in public administration and exclusive authority in architecture and planning.
University of Colorado Health Sciences Campus	Aurora, Region 3	Offers specialized baccalaureate, first-professional, master's, and doctoral degree programs in health-related disciplines and professions. Affiliated with the University of Colorado hospital and other health care facilities that offer settings for education, clinical practice, and basic and applied research. Has exclusive authority in medicine, dentistry, pharmacy, and physical therapy.
University of Northern Colorado	Greeley, Region 2	A comprehensive baccalaureate and specialized graduate research university with selective admission standards. The primary institution for undergraduate and graduate degree programs for educational personnel preparation in the state of Colorado. Offers master's and doctoral programs primarily in the field of education. The university has the responsibility to offer on a statewide basis, utilizing where possible and appropriate the faculty and facilities of other educational institutions, those graduate-level programs needed by professional educators and education administrators. As part of its mission as a graduate research university specializing in programs for educational personnel, the university of northern Colorado includes the education innovation institute.
Western State Colorado University	Gunnison, Region 10	A general baccalaureate institution with moderately selective admission standards. Offers undergraduate liberal arts and sciences, teacher preparation, and business degree programs and a limited number of graduate programs. Serves as a regional education provider.