

## **Draft Review Guidelines**

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Consider the environmental impact of printing this report.

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- It is only necessary to indicate iterative revisions (for example, capitalizing a word, which we have consistently not capitalized) at the first instance, not at every instance.
- Before sending us suggested revisions, if you have received feedback from multiple people, please be sure that their suggestions do not contradict each other.








# San Bernardino Community College District

Program Demand Gap Analysis:  
Environmental Scan and  
Review of Academic Programs

January 2020

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Emsi is a leading provider of labor market data to professionals in higher education, economic development, workforce development, talent acquisition, and site selection. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. Our data are used to solve a variety of problems: align programs with regional needs, equip students with career visions, understand regional economic and workforce activity, and find and hire the right talent. We serve clients across the U.S., the UK, and Canada.



# Executive Summary

The San Bernardino Community College District (SBCCD) is one of the 72 community college districts which, together, provide affordable and accessible higher education to all Californians. SBCCD serves an area centered on the city of San Bernardino, along with the surrounding region of San Bernardino and Riverside Counties, referred to as the SBCCD Service Region. It provides its services primarily through two community colleges – San Bernardino Valley College and Crafton Hills College. This report outlines the region's economy and provides a program demand gap analysis to determine how well SBCCD's program offerings satisfy regional workforce demand. The following figures and table display key findings of the analyses.

## RECOMMENDATIONS

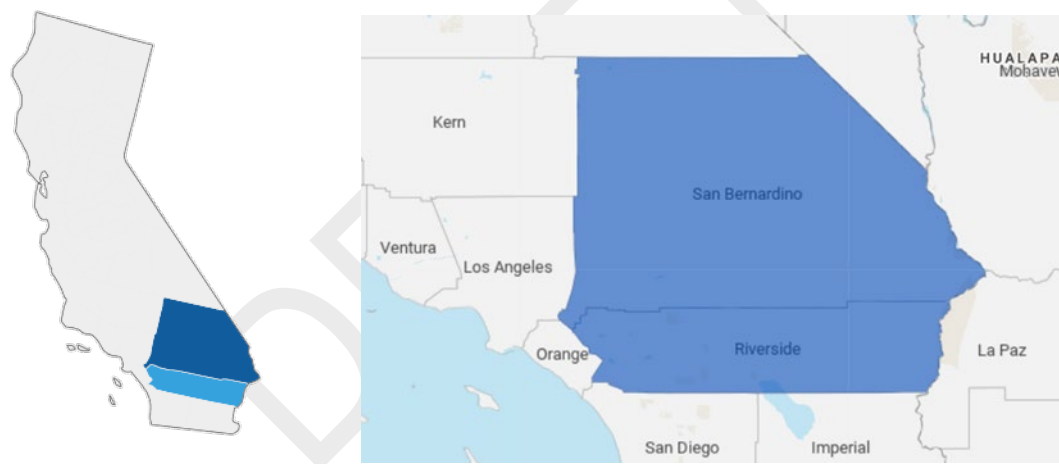
<p><b>HIGH DEMAND, LOW SUPPLY</b></p> <p><i>How can we expand these program opportunities?</i></p> <p>Cooking &amp; Related Culinary Arts, General (CERT &amp; ASSOC)</p> <p>Machine Tool Technology/Machinist (CERT &amp; ASSOC)</p> <p>Real Estate (ASSOC)</p> <p>Electrical/Electronics Equipment Installation &amp; Repair, General (ASSOC &amp; T-T)</p>	<p><b>HIGH DEMAND, HIGH SUPPLY</b></p> <p><i>Can we maintain focus on program quality &amp; student success?</i></p> <p>Welding Technology/Welder (CERT)</p> <p>Emergency Medical Technology/Technician (EMT Paramedic) (CERT)</p> <p>Automobile/Automotive Mechanics Technology/Technician (ASSOC)</p> <p>Information Technology (ASSOC &amp; T-T)</p>
<p><b>LOW DEMAND, LOW SUPPLY</b></p> <p><i>Should we discontinue these programs?</i></p> <p>Philosophy (ASSOC)</p> <p>Astronomy (T-T)</p>	<p><b>LOW DEMAND, HIGH SUPPLY</b></p> <p><i>Are we connecting these programs to opportunities outside the region?</i></p> <p>Criminal Justice/Police Science (CERT)</p> <p>Social Sciences, General (ASSOC)</p> <p>Anthropology (T-T)</p>

Source: Emsi program demand gap model.

## INTRODUCTION

For purposes of this analysis, SBCCD serves a region, called the SBCCD Service Region, comprised of two counties in California: Riverside County and San Bernardino County. This report conducts an environmental scan and uses the region's average annual projected job openings between 2020 and 2030 as a measurement of labor market demand. When job openings are compared to the region's supply of educational program completions, the analysis determines how well SBCCD's program offerings satisfy regional workforce demand. In addition, this report offers recommendations for new program development. In its entirety, the analysis is a starting point for SBCCD as the district continues to develop programs using data-based decision-making strategies. The following figures and table display key findings of the analyses.

Figure 1: Map of the SBCCD Service Region

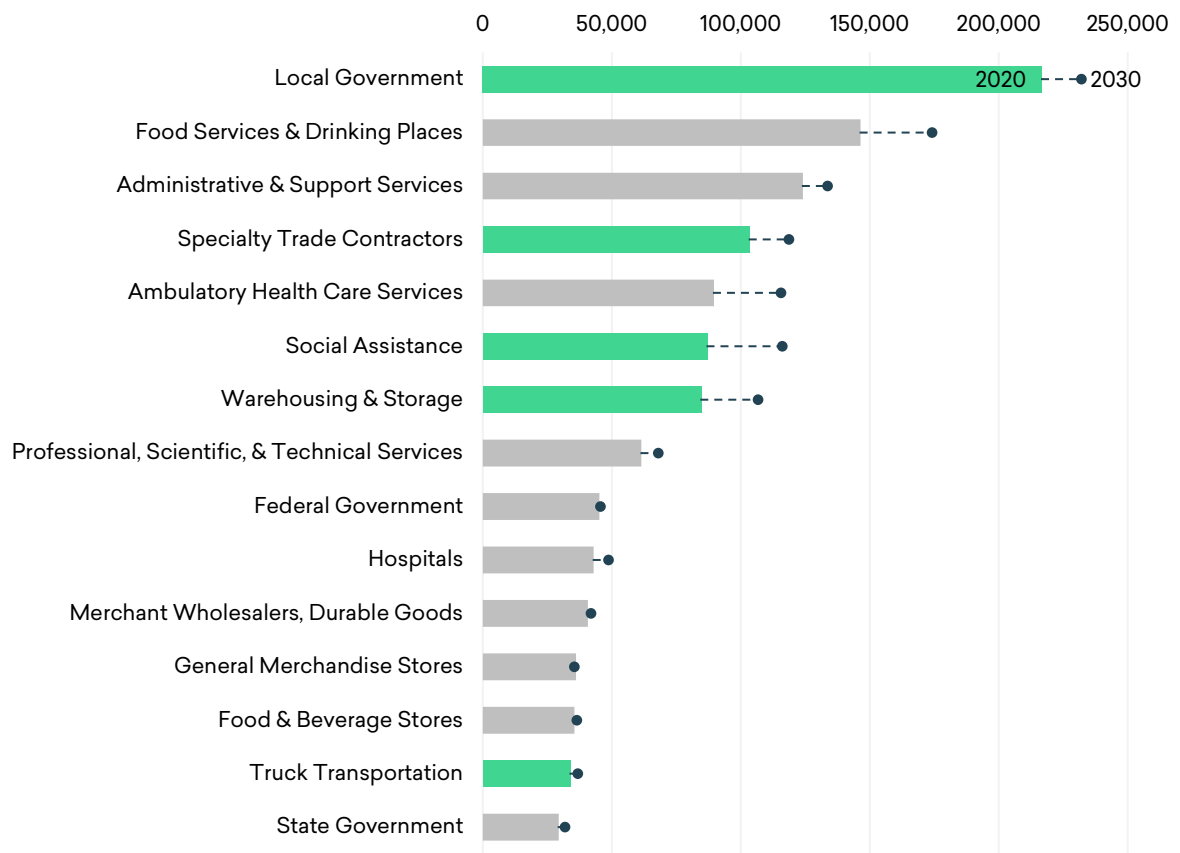


Source: Emsi Analyst. Region provided by SBCCD.

## ENVIRONMENTAL SCAN

Figure 2 displays the top industry subsectors in terms of employment in the SBCCD Service Region, and Figure 3 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or potentially to other regions.

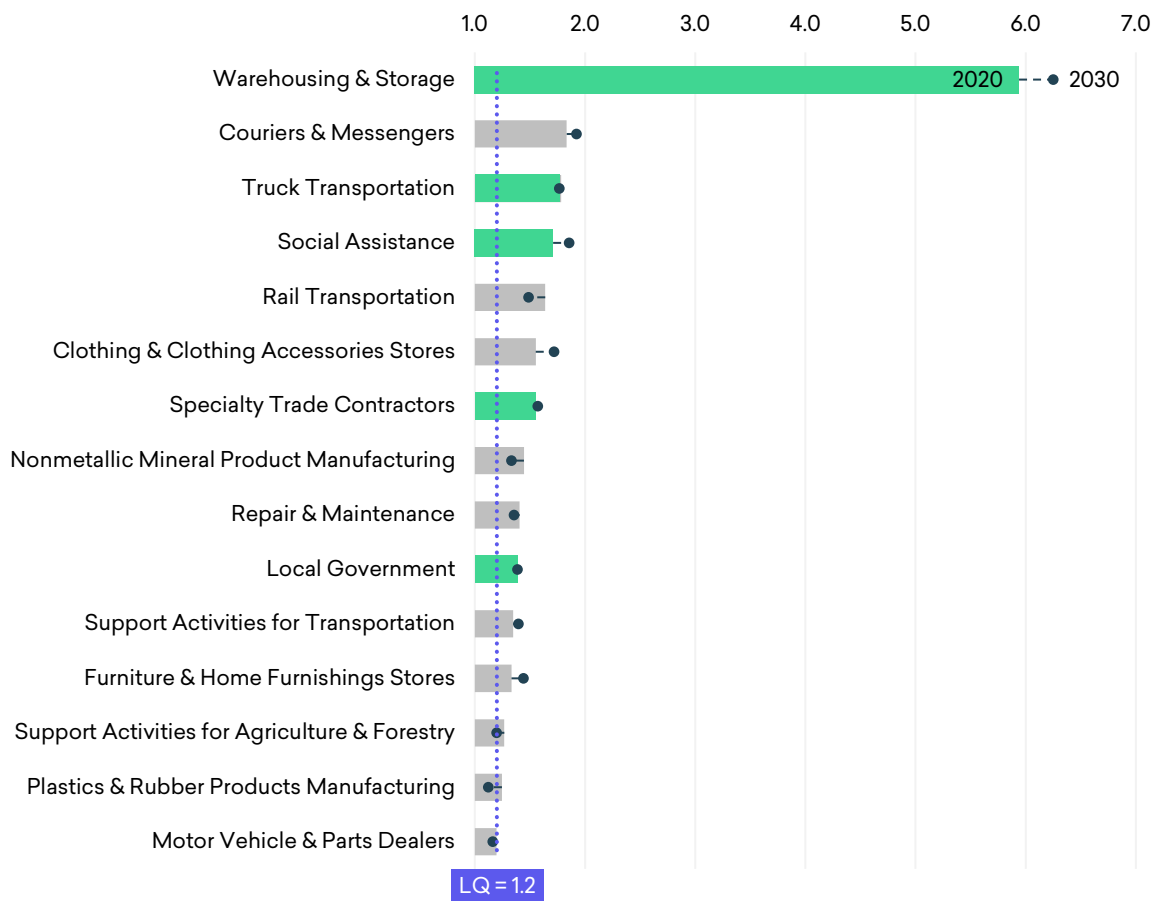
Figure 2: Top Industry Subsectors in the SBCCCD Service Region by Jobs



Source: Employees & Self-Employed 2020.3.



Figure 3: Top Industry Subsectors in the SBCCD Service Region by Employment Concentration (LQ)



Source: Employees & Self-Employed 2020.3.

Note the green bars in the figures. Across all of the SBCCD Service Region's industry subsectors, five are within the top 15 in terms of jobs with relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers the district insight into potential employment opportunities for its students. These industry subsectors, ranked by 2020 jobs, are:

- Local Government;
- Specialty Trade Contractors;
- Social Assistance;
- Warehousing & Storage; and
- Truck Transportation



## PROGRAM DEMAND GAP ANALYSIS

The program demand gap analysis provides results across all of SBCCD's certificate and associate degree level programs, which have been classified by their formal CIP code.<sup>1</sup> The analysis connects the district's program completers with the availability of regional job openings. Furthermore, the analysis focuses on the gaps and surpluses in the programs by award level. A gap or surplus larger than 500 is considered beyond normal labor market fluctuations and therefore an area of consideration for program development.

SBCCD offers 46 certificate level programs, twelve of which have a significant gap above the 500-openings level of significance. Many of which should be expanded to meet the current and future needs of employers in the SBCCD Service Region, emphasis should be placed on programs with high median hourly wages. No programs at this award level have a significant surplus. Figure 4 displays the gaps at Crafton Hills College and figure 5 shows the top ten gaps at San Bernardino Valley College, both at the certificate level.

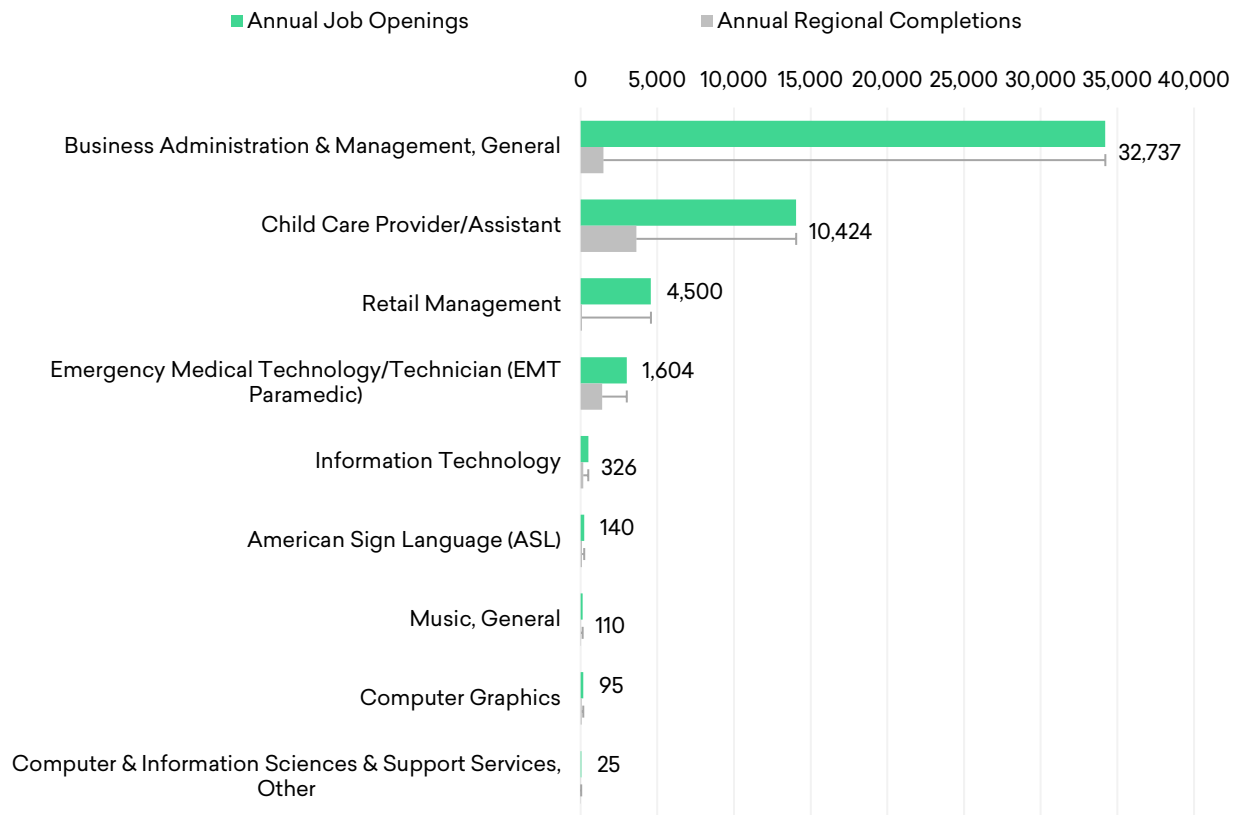
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<sup>1</sup> CIP refers to the Classification of Instructional Program and was originally developed by the U.S. Department of Education's National Center for Education Statistics (NCES).

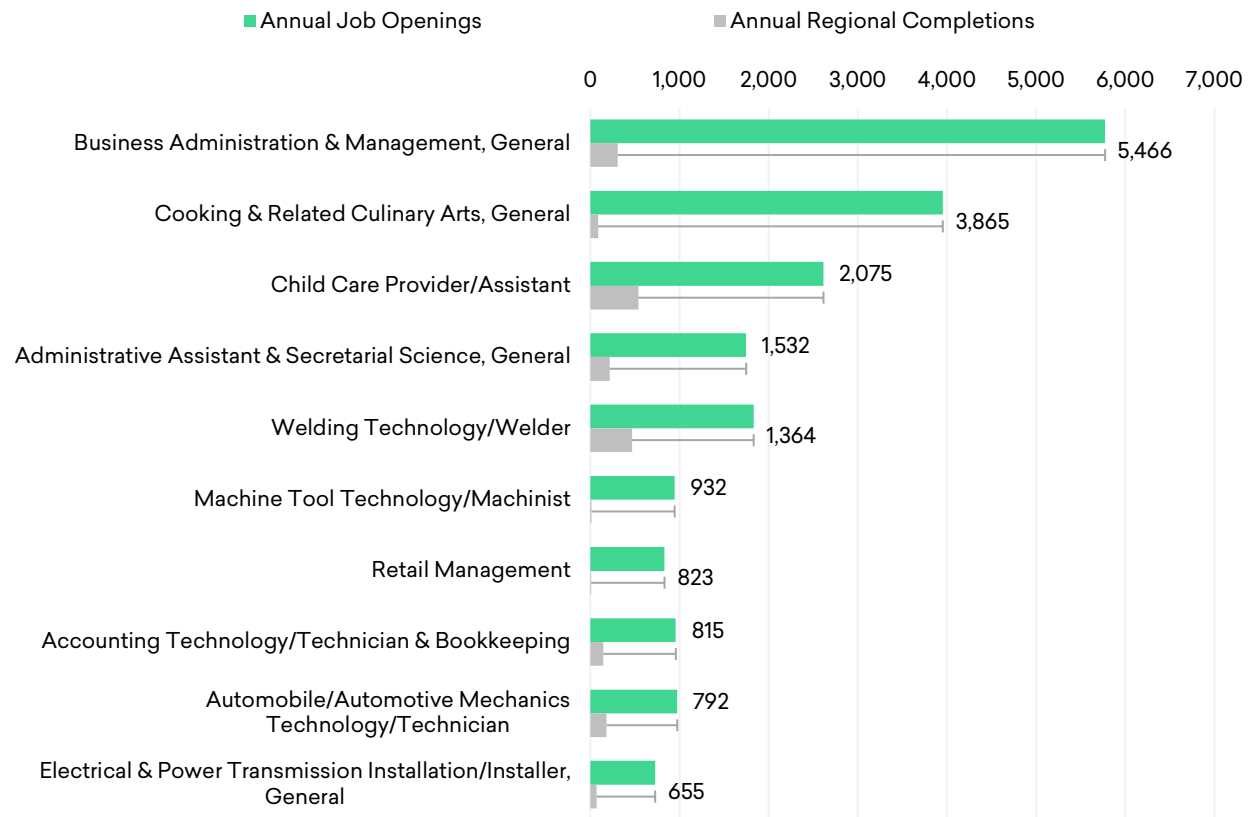


Figure 4: Certificate Level Gaps for Crafton Hills College



Source: Emsi program demand gap model.

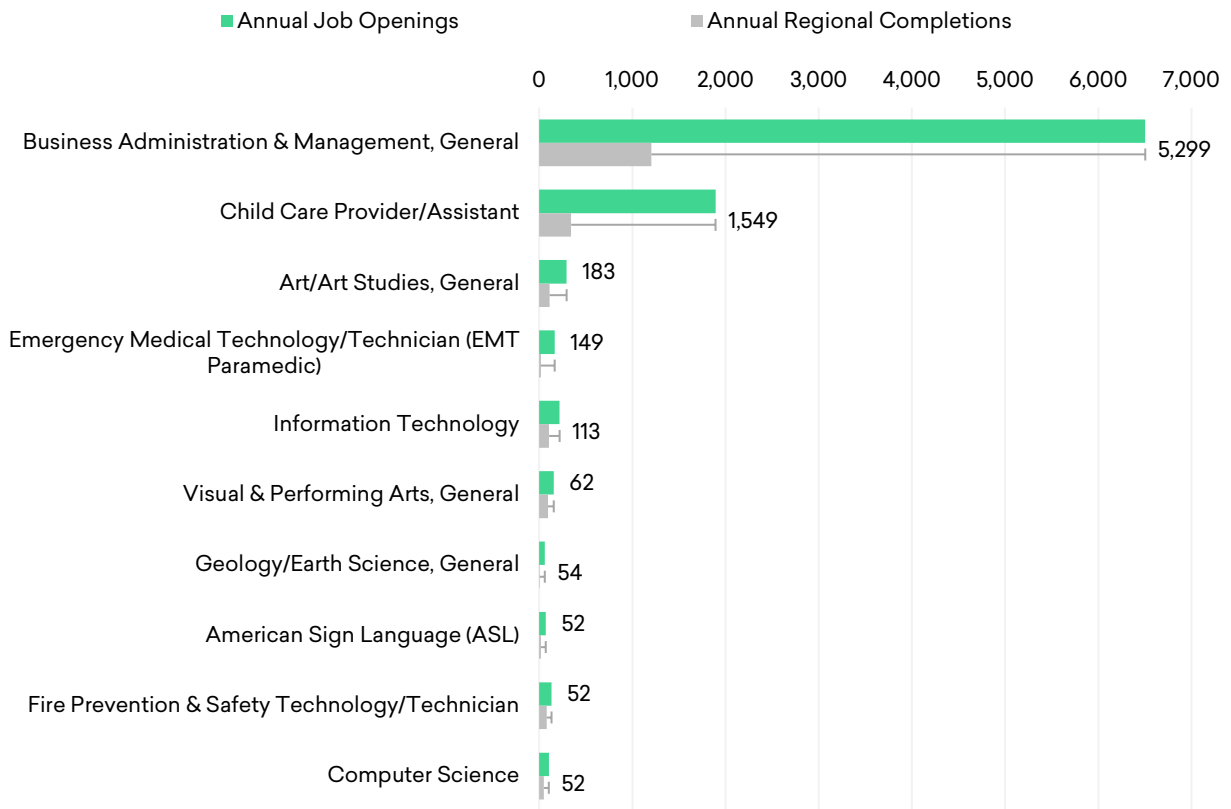
Figure 5: Top 10 Certificate Level Gaps for San Bernardino Valley College



Source: Emsi program demand gap model.

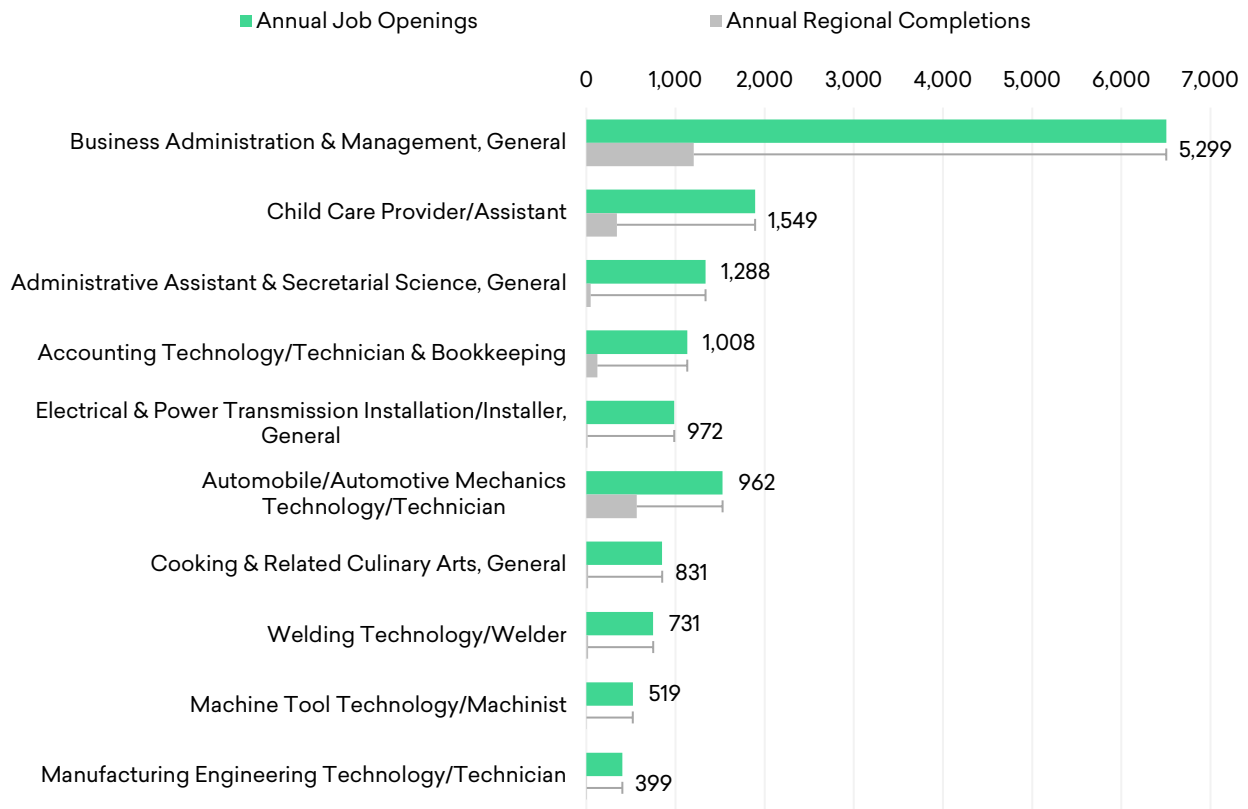
At the associate degree level, nine programs have a significant gap. Figure 6 displays the top ten gaps at Crafton Hills College and figure 7 shows the top ten gaps at San Bernardino Valley College, both at the associate degree level. Several should be considered for a district-wide expansion, many of which are related to other associate degree level programs without a significant 500-openings gap. Many should be considered for expansion, with more priority given to the programs with a significant gap and high median hourly wage. Furthermore, if the associate degree level program is associated with a formal industry-specific certificate, permit, or license required for employment, it is also recommended for expansion. One program at this award level has a significant surplus.

Figure 6: Top 10 Associate Degree Level Gaps for Crafton Hills College



Source: Emsi program demand gap model.

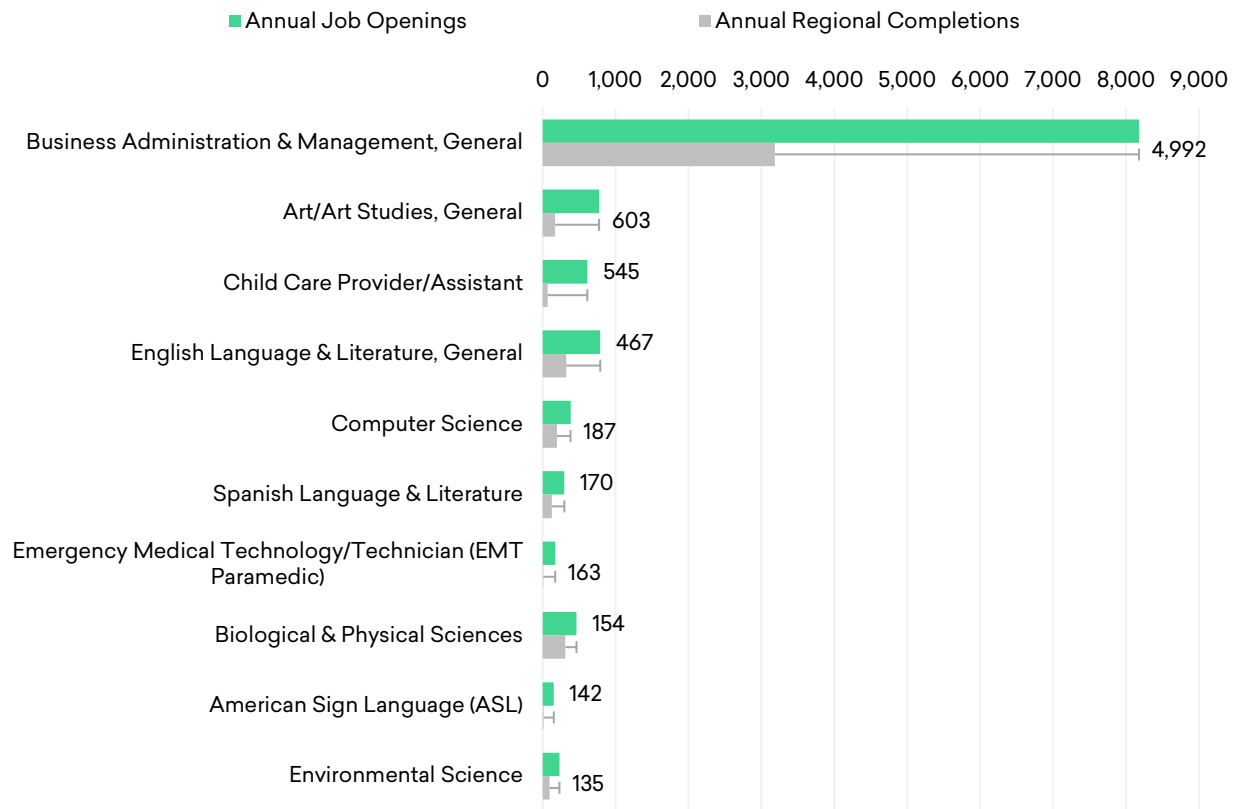
Figure 7: Top 10 Associate Degree Level Gaps for San Bernardino Valley College



Source: Emsi program demand gap model.

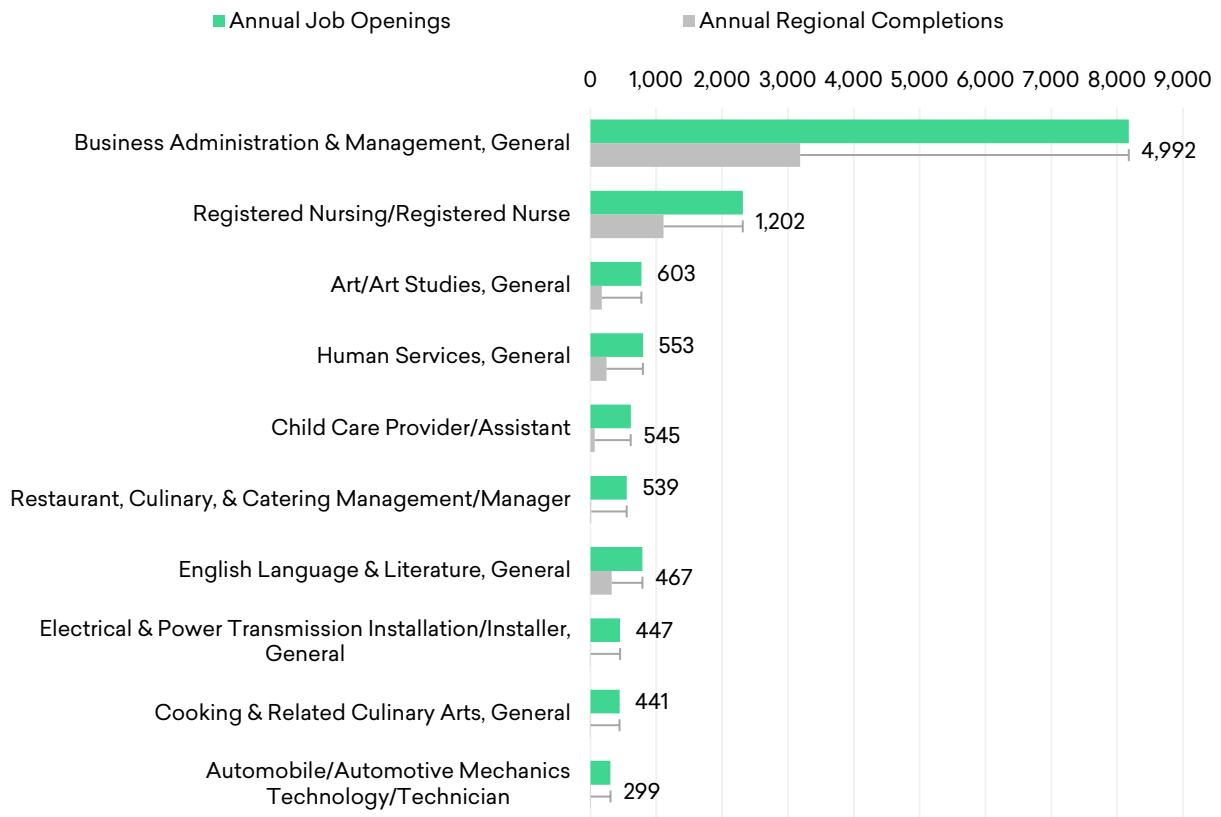
All of SBCCD's associate degree programs have also been analyzed at the transfer-track level where the openings are measured as if a completer goes on to complete a bachelor's degree. At this bachelor's degree level six programs have a significant gap above the 500-openings level of significance. Figure 8 displays the top ten gaps at Crafton Hills College and figure 9 shows the top ten gaps at San Bernardino Valley College, both at the transfer-track level. A program expansion should consider the process by which SBCCD's students transfer into regional bachelor's degree level programs. Administrative and academic support measures at SBCCD would enable student success. One program at this award level has a significant surplus.

Figure 8: Top 10 Transfer-Track Degree Level Gaps for Crafton Hills College



Source: Emsi program demand gap model.

Figure 9: Top 10 Transfer-Track Degree Level Gaps for San Bernardino Valley College



Source: Emsi program demand gap model.

A liberal arts program expansion is not recommended at this time, but SBCCD administrators should be aware that students can find success in a variety of business-related occupations. Using Emsi's Profile Analytics database, many liberal arts program completers are currently employed as retail salespersons, administrative assistants, and customer service representatives, as well as a variety of managers and supervisors. These occupations have a considerable number of job openings in the SBCCD Service Region. The colleges' liberal arts program, therefore, serves as a starting point to students' career goals beyond an associate degree level of education.



## PROGRAM ADDITIONS

A variety of certificate level programmatic areas of opportunity have been identified in the program demand gap analysis, many of which are related to Installation, Maintenance, & Repair Occupations; Office & Administrative Support Occupations; and Construction & Extraction Occupations. At the associate degree level, there are fewer opportunities for new



programs, considering the district's current offerings. Nonetheless, SBCCD should consider new programs related to Healthcare Practitioners & Technical Occupations, whether its focus is on job openings in the SBCCD Service Region or California. A variety of transfer-track degree level programmatic areas of opportunity were identified in the program demand gap analysis, many of which are related to Business & Financial Operations Occupations; Sales & Related Occupations; and Architecture & Engineering Occupations. For all award levels, many program additions are related to the district's current program offerings, which indicates an opportunity for a curriculum adjustment to better align with the region's current and projected labor market demand. A selection of these occupations, which have the most regional job openings by award level, appear in Table 1.

Table 1: Program Additions by Education Level

SOC TITLE	2020 JOBS	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE	ED. LEVEL
Heavy and Tractor-Trailer Truck Drivers	31,981	3,160	4	3,156	\$22.56	CERT
Carpenters	22,088	1,648	8	1,641	\$22.54	CERT
Construction Laborers	19,914	1,582	8	1,574	\$18.73	CERT
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	8,838	760	0	760	\$27.06	CERT
Medical Secretaries and Administrative Assistants	8,571	655	106	549	\$17.76	CERT
Painters, Construction and Maintenance	7,190	479	3	476	\$17.77	CERT
Operating Engineers and Other Construction Equipment Operators	4,445	416	2	414	\$39.51	CERT
Nursing Assistants	8,438	912	542	369	\$16.23	CERT
Order Clerks	3,045	252	1	251	\$17.39	CERT
Dental Assistants	6,316	604	436	168	\$17.46	CERT
Dental Hygienists	1,988	117	50	67	\$45.73	ASSOC
Respiratory Therapists	1,885	99	38	61	\$35.33	ASSOC
Occupational Therapy Assistants	367	44	0	44	\$35.16	ASSOC
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	9,919	706	8	697	\$21.90	T-T
Insurance Sales Agents	5,693	311	0	311	\$21.14	T-T
Office and Administrative Support Workers, All Other	5,089	295	0	295	\$15.99	T-T
Production, Planning, and Expediting Clerks	5,112	287	0	287	\$22.31	T-T
Securities, Commodities, and Financial Services Sales Agents	3,375	210	2	208	\$23.81	T-T

SOC refers to the Standard Occupational Classification system used to classify occupations. Average annual job openings represent regional data from 2020 to 2030. Numbers may not sum due to rounding.

Source: Emsi program demand gap model.



# Introduction

An efficient labor market requires a seamless flow of skilled workers, the postsecondary educational institutions that educate and train them, and the employers that hire them. One factor behind workforce misalignment stems from when the needs of the employers evolve differently than the programs that train their workers. These misalignments may happen at different times and for different reasons:

- Employer training becomes more tailored and comprehensive;
- Businesses come and go, and certain educational programs become more or less pertinent to a specific region;
- Rapid advances in technology and business create curriculum needs that few educational institutions possess; and
- As economic conditions shift, businesses have different hiring requirements of their employees.

In light of these dynamics, an up-to-date understanding of the economy and the demand for skilled labor is vital to the planning efforts of colleges and universities seeking to adapt their program offerings to the requirements of an ever-changing workforce.

To gain better insight into economic conditions and workforce trends, San Bernardino Community College District (SBCCD) partnered with Emsi, a labor market analytics firm, serving higher education, economic and workforce development, talent acquisition, and site selection. In this report, Emsi conducts an environmental scan of the region's economy, provides a program demand gap analysis of SBCCD program offerings, and makes recommendations for new program development.

The program demand gap analysis is performed by assessing the supply and demand of skilled workers and identifying the educational programs that need to be adapted in order to fill any existing or future gaps. The analysis weighs the educational output of SBCCD and other postsecondary educational institutions in the region against the number of job openings related to the district's program offerings to determine whether a deficit or an oversupply of skilled workers exists. The goal of the analysis is to provide SBCCD with relevant data and information that it can use when solving problems and making decisions about current and future program development.

## IMPORTANT NOTE

This analysis is intended to serve as a starting point for SBCCD as the district discusses regional workforce needs. A deficit (gap) or oversupply (surplus) of workers in a particular occupation category represents a potential problem for the region, making it important for each program and occupation group to be evaluated by the district on a case-by-case basis. The purpose of this analysis is, therefore, to initiate the conversation on evaluating program effectiveness. Once evaluated internally within the district, specific implications may be considered for programs with substantial gaps or surpluses.

It must be noted that our analysis does have its limitations in that only the education supply pipeline is considered. This is due to data availability at the region and institutional levels. However, other sources—unemployed workers, industry trained pipelines, workers migrating to the region, and job changers from other occupational categories—can also be a source of skilled workers. These types of considerations are useful when evaluating specific types of occupations. Publicly available data sources are limited in accounting for this, and consequently these labor sources are unavailable for Emsi analysis. Primary data collection methods (i.e., interviews and surveys) are among the only ways to obtain information on the other sources for skilled workers.

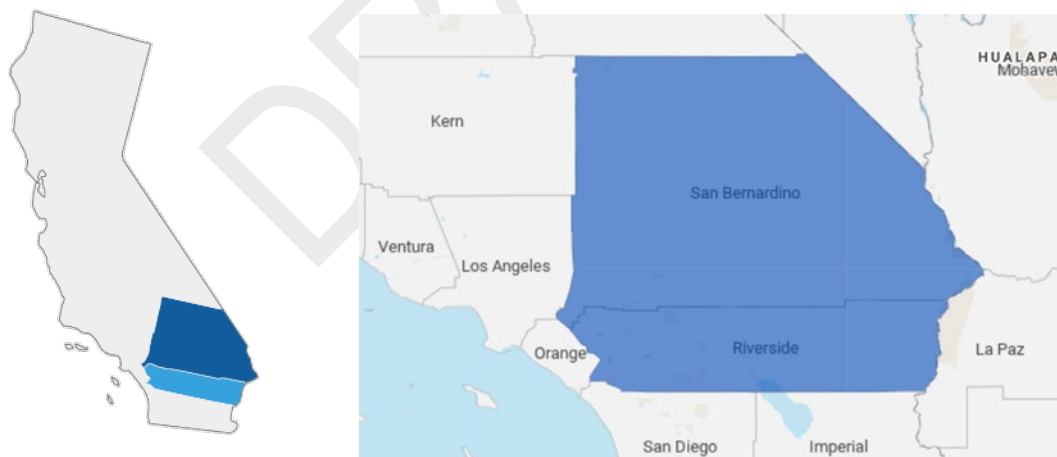


# Environmental Scan

Before looking at the results of the program demand gap analysis, SBCCD should first consider the economic structure of its region, referred to in this report as the SBCCD Service Region and defined as Riverside and San Bernardino Counties in California (Figure 2.1). Identifying the economic conditions within the region is an important first step for several reasons:

- help SBCCD understand where the district should logically target its efforts;
- reveal whether there are industries that may be overlooked as a result of recent economic growth;
- identify the top occupations within those key driving industries; and
- give the district a deeper understanding of the region's population characteristics and the socioeconomic background of current and future SBCCD students.

Figure 2.1: Map of the SBCCD Service Region



Source: Emsi Analyst. Region provided by SBCCD.

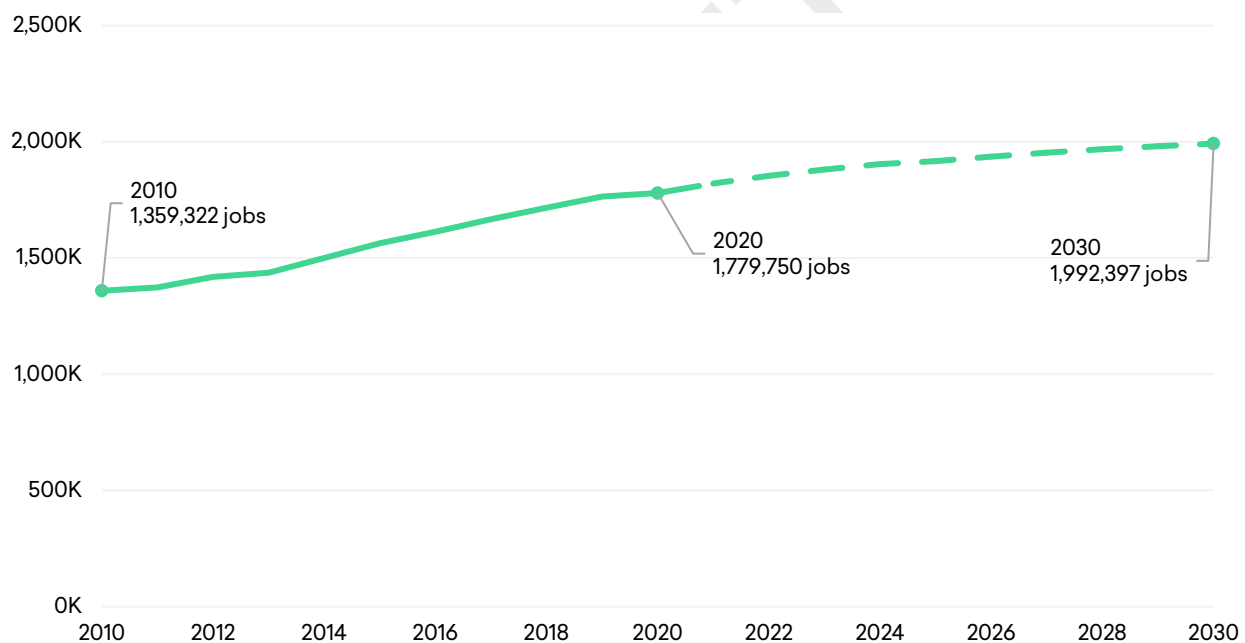
To these ends, this chapter provides an overview of the SBCCD Service Region's total jobs and jobs within its industries, unemployed workers, commuting patterns, population demographics and socioeconomic indicators, and the highest educational attainments of its adult residents. Tables and figures, in some cases, also present data in California and the U.S.

## TOTAL JOBS

Job counts and the changes in jobs over time provide insight into the SBCCD Service Region as an attractive region for job seekers, employers, and economic developers. Figure 2.2 shows regional jobs from 2010 to 2030. In addition, Figure 2.3 presents data on jobs in the SBCCD Service Region for the same time period but highlights the region's job change, using 2010 as a base year.

As shown in Figure 2.2, the SBCCD Service Region supported 1.4 million jobs in 2010. By 2020, that number increased to 1.8 million jobs for a 30.9% job increase. For context, Southern California, alone, supported 10.7 million jobs and California supported 20.2 million jobs in 2020. In addition, the region is projected to add another 212,650 jobs from 2020 to 2030 for an 11.9% job growth.

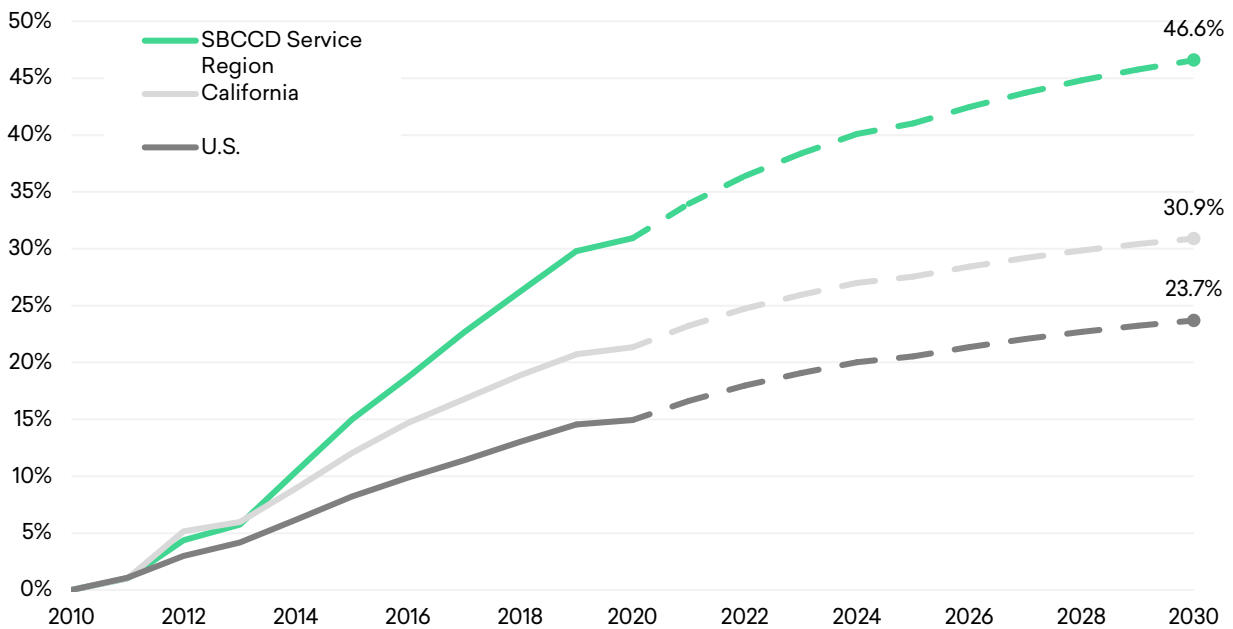
Figure 2.2: Historical and Projected Jobs in the SBCCD Service Region, 2010 to 2030



Source: Emsi Employees & Self-Employed 2020.3.

Figure 2.3 displays the historical and projected job change, by percent, for the region, state, and U.S. between 2010 and 2030, with 2010 serving as the base year. The SBCCD Service Region's job decline in the years following the 2008 Recession was similar to that of California and the U.S. But after 2015, the region's job growth and job growth in the state far outpaced that of the U.S. Using Emsi's job projections, job growth from 2010 to 2030 in the SBCCD Service Region, California, and the U.S. are expected to be 46.6%, 30.9%, and 23.7%, respectively.

Figure 2.3: Percent Job Change from 2009 in the SBCCCD Service Region, California, and the U.S.



Source: Emsi Employees & Self-Employed 2020.3.

## INDUSTRY COMPOSITION

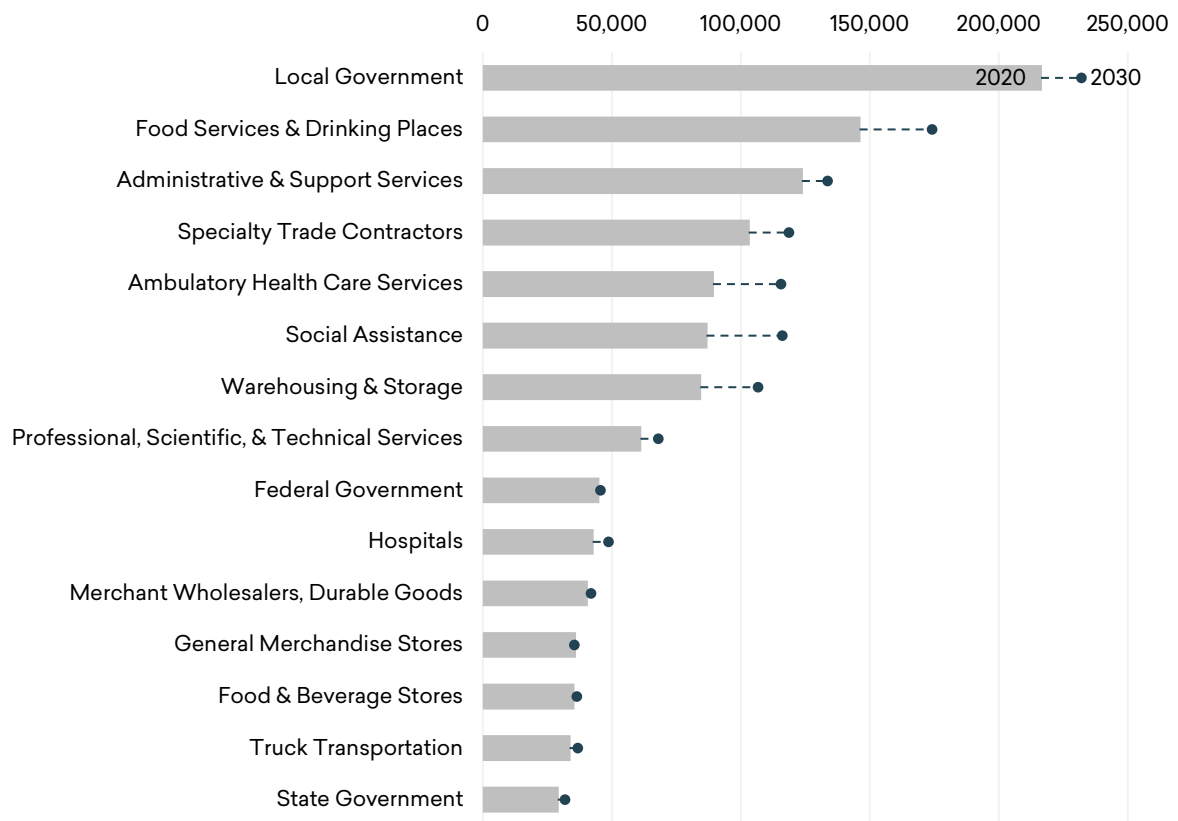
Evaluating current and future employment by industry provides information on the region's economic diversity. Understanding the industry mix is important for drawing connections to the occupations and companies that are in-demand, and students are likely to find employment in the largest regional industries. The North American Industry Classification System (NAICS) is the structure used by federal agencies to classify business establishments based on their production process (although the final product or service is usually similar for the firms in a given industry). NAICS applies a six-digit hierarchical coding system to organize nearly 1,000 detailed industries in the U.S. For the analysis in this section, Emsi has aggregated industries into their three-digit NAICS codes, referred to as industry subsectors.<sup>2</sup>

Figure 2.4 presents the 15 largest industry subsectors in the SBCCCD Service Region, by their 2020 job counts, and also shows the industry subsectors' projected change over the next decade. As shown in the figure, Local Government is the largest employer, with 216,800 jobs

2 In Emsi data, all establishments in the main NAICS hierarchy are private-sector only. Jobs in Educational Services and Ambulatory Health Care Services, for example, are not associated with local, state, or federal government jobs. Jobs for public school teachers and city firefighters are in Local Government, whereas college professors and forest firefighters are commonly employed by State Government. Mail carriers and transportation security screeners are examples of jobs in Federal Government.

in 2020 and is expected to remain the top regional employer. The Food Services & Drinking Places and Administrative & Support Services industry subsectors are the next largest, with 146,460 and 124,080 jobs in 2020, respectively. As for growth, Social Assistance is projected to add the most jobs of the top 15 industry subsectors, with a 10-year increase of 29,000 new jobs for a 33.3% job growth. On the other hand, one of the top 15 industry subsectors is expected to contract between 2020 and 2030 – the General Merchandise Stores industry subsector.

Figure 2.4: Jobs by Industry Subsector in the SBCCD Service Region, 2020 and 2030



Source: Employees & Self-Employed 2020.3.

The employment concentration of the SBCCD Service Region's industry subsectors is measured by a location quotient (LQ). LQs are used to assess competitiveness by comparing the concentration of employment in an industry in the region against the employment concentration for that same industry in the U.S. An LQ equal to 1.0 means that the percentage of total employment comprised by an industry in the SBCCD Service Region matches the percentage of total employment of that industry in the U.S. An LQ greater than 1.0 means that the industry has a greater employment share relative to that of the U.S. High LQs, which are typically greater than 1.2, are an indication that the region has a comparative advantage or specialization in an industry.

The industry subsectors with the 15 highest LQs in the SBCCD Service Region are shown in Figure 2.5. The Warehousing & Storage industry subsector had the highest LQ in 2020 at 5.9. The industry subsector is expected to increase in employment concentration between 2020 and 2030. The Couriers & Messengers, Truck Transportation, and Social Assistance industry subsectors also have relatively large employment concentrations, with LQs of 1.8, 1.8, and 1.7 in 2020, respectively. As for 10-year growth, Clothing & Clothing Accessories Stores is projected to increase in LQ by 10.7% from an LQ of 1.6 to an LQ of 1.7, which is the largest percent increase among the top 15 industry subsectors in the figure. On the other hand, seven industry subsectors are expected to drop in LQ between 2020 and 2030. Plastics & Rubber Products Manufacturing has the largest percent decrease (9.9%). Despite the declines, most of the region's top 15 industry subsectors will remain above the 1.2 high-LQ threshold.

Figure 2.5: Employment Concentration (LQ) by Industry Subsector in the SBCCD Service Region, 2020 and 2030



Source: Employees & Self-Employed 2020.3.

Industry earnings are defined as total wages, salaries, supplements (such as additional employee benefits), and proprietor income. Workers in various industry subsectors see



different average wages, so identifying the SBCCD Service Region's top industries by earnings is another method of evaluating an industry's strength. Table 2.1 shows the region's top 15 industry subsectors in descending order of 2019 earnings, as well as additional jobs data.

Local Government had the highest earnings in the SBCCD Service Region (\$19.5 billion), which accounted for 16.9% of the region's total earnings (\$115.4 billion). The next largest industry subsector was Ambulatory Health Care Services, bringing in 6.0% of the region's total earnings. Specialty Trade Contractors and Administrative & Support Services had the third and fourth largest earnings with 5.7% and 5.0% of the region's total earnings, respectively. It could be argued that no one industry subsector accounted for a relatively large share of regional earnings, as illustrated in Figure 2.6, an indication of the region's economic diversity.

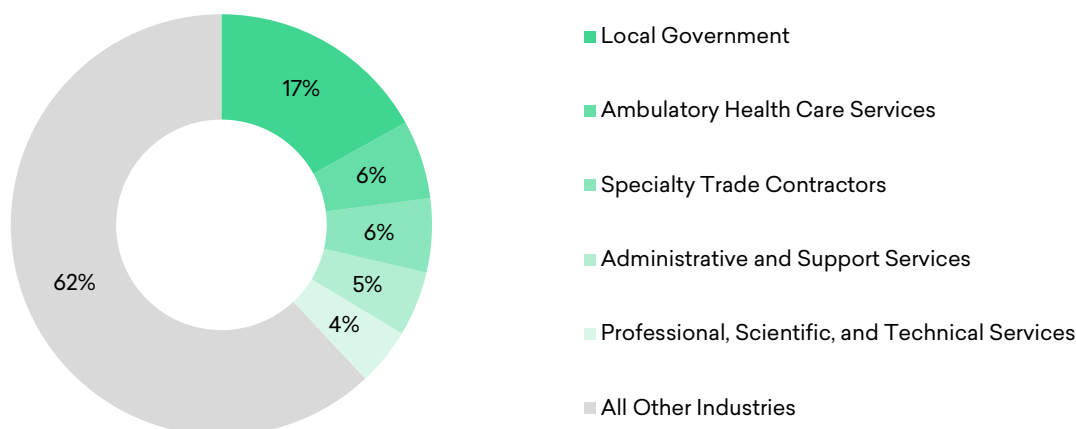
Table 2.1: Industry Subsector Earnings in the SBCCD Service Region

NAICS TITLE	2019 EARNINGS (\$ MILLIONS)	% 2019 EARNINGS	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE
Local Government	\$19,538	16.9%	215,197	229,839	14,642	6.8%
Ambulatory Health Care Services	\$6,967	6.0%	85,766	111,204	25,438	29.7%
Specialty Trade Contractors	\$6,542	5.7%	100,686	113,851	13,164	13.1%
Administrative and Support Services	\$5,742	5.0%	124,290	137,635	13,346	10.7%
Professional, Scientific, and Technical Services	\$5,100	4.4%	60,483	66,907	6,424	10.6%
Warehousing and Storage	\$4,215	3.7%	82,213	110,825	28,612	34.8%
Real Estate	\$3,889	3.4%	22,088	24,388	2,300	10.4%
Hospitals	\$3,746	3.2%	42,049	47,898	5,849	13.9%
Food Services and Drinking Places	\$3,603	3.1%	141,190	169,274	28,084	19.9%
Federal Government	\$3,555	3.1%	44,976	45,886	910	2.0%
Truck Transportation	\$3,453	3.0%	33,897	37,525	3,628	10.7%
Merchant Wholesalers, Durable Goods	\$3,139	2.7%	39,884	40,872	988	2.5%
State Government	\$2,754	2.4%	29,599	32,886	3,287	11.1%
Merchant Wholesalers, Nondurable Goods	\$2,279	2.0%	25,777	28,664	2,887	11.2%
Social Assistance	\$1,917	1.7%	82,492	113,280	30,787	37.3%
All other industries	\$38,959	33.8%	649,028	681,462	32,424	5.0%
<b>Total</b>	<b>\$115,399</b>	<b>100.0%</b>	<b>1,779,615</b>	<b>1,992,396</b>	<b>212,771</b>	<b>12.0%</b>

Numbers may not sum due to rounding.

Source: Employees & Self-Employed 2020.3.

Figure 2.6: Top Five Industry Subsectors by Earnings in the SBCCD Service Region (\$ millions)



Numbers may not sum due to rounding.  
Source: Employees & Self-Employed 2020.3.

## OCCUPATIONS WITHIN KEY INDUSTRY SUBSECTORS

Five industry subsectors are found in both Figures 2.4 and 2.5 because they are large employers and have high LQs. Altogether, the industry subsectors represent 29.0% of the SBCCD Service Region's jobs. These industry subsectors, in descending order of 2020 jobs, are:

- Local Government;
- Specialty Trade Contractors;
- Social Assistance;
- Warehousing & Storage; and
- Truck Transportation.

Their appearance in the figures provides an indication of their relative strength in the SBCCD Service Region, and thus, we identified the most common occupations within the five industry subsectors, called a staffing pattern.<sup>3</sup> The industry subsectors' staffing patterns provide insight into not only the region's labor market demand, but by extension, the demand for the district's program offerings.

The Local Government industry subsector in the region supported 216,800 jobs in 2020 and had an LQ of 1.4. It is comprised of five industries at the six-digit NAICS code level. The

3 The top occupations, in terms of the percent of total jobs in an industry, are identified using data from the National Occupational Employment Statistics program, projections from the National Industry-Occupation Employment Matrix, and Emsi's proprietary employment data.

largest industry is the Elementary & Secondary Schools (Local Government) industry, with 51.4% of jobs in the industry subsector. The top occupation employed by the Local Government industry subsector is elementary school teachers, except special education, which constitutes 9.8% of the industry subsector's jobs. It is followed by teaching assistants, except postsecondary (7.4%) and substitute teachers, short-term (6.1%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- correctional officers & jailers (\$39.35);
- firefighters (\$31.12);
- maintenance & repair workers, general (\$19.68);
- secretaries & administrative assistants, except legal, medical, & executive (\$19.55); and
- substitute teachers, short-term (\$18.01).

The top three highest paying occupations that require a bachelor's degree are:

- education administrators, kindergarten through secondary (\$63.23);
- registered nurses (\$49.75); and
- police & sheriffs patrol officers (\$48.99).

The Specialty Trade Contractors industry subsector in the region supported 103,470 jobs in 2020 and had an LQ of 1.6. It is comprised of 19 industries at the six-digit NAICS code level. The largest industry is the Plumbing, Heating, & Air-Conditioning Contractors industry, with 17.2% of jobs in the industry subsector. The top occupation employed by the Specialty Trade Contractors industry subsector is carpenters, which constitutes 12.1% of the industry subsector's jobs. It is followed by construction laborers (10.4%) and electricians (7.0%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- operating engineers & other construction equipment operators (\$39.51);
- structural iron & steel workers (\$32.00);
- first-line supervisors of construction trades & extraction workers (\$29.59);
- cement masons & concrete finishers (\$27.96); and
- sheet metal workers (\$27.57).

The top three highest paying occupations that require a bachelor's degree are:

- general & operations managers (\$48.16);
- personal service managers, all other; entertainment & recreation managers, except gambling; & managers, all other (\$33.80); and
- construction managers (\$31.60).

The Social Assistance industry subsector in the region supported 87,100 jobs in 2020 and had an LQ of 1.7. It is comprised of nine industries at the six-digit NAICS code level. The

largest industry is the Services for the Elderly & Persons with Disabilities industry, with 76.7% of jobs in the industry subsector. The top occupation employed by the Social Assistance industry subsector is childcare workers, which constitutes 8.9% of the industry subsector's jobs. It is followed by preschool teachers, except special education (2.2%) and marriage & family therapists (1.6%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- licensed practical & licensed vocational nurses (\$26.94);
- secretaries & administrative assistants, except legal, medical, & executive (\$19.55);
- industrial truck & tractor operators (\$17.40);
- office clerks, general (\$17.36); and
- teaching assistants, except postsecondary (\$17.36).

The top three highest paying occupations that require a bachelor's degree are:

- registered nurses (\$49.75);
- general & operations managers (\$48.16); and
- healthcare social workers (\$35.38).

The Warehousing & Storage industry subsector in the region supported 84,700 jobs in 2020 and had an LQ of 5.9. It is comprised of four industries at the six-digit NAICS code level. The largest industry is the General Warehousing & Storage industry, with 96.2% of jobs in the industry subsector. The top occupation employed by the Warehousing & Storage industry subsector is laborers & freight, stock, & material movers, hand, which constitutes 25.2% of the industry subsector's jobs. It is followed by stockers & order fillers (17.9%) and industrial truck & tractor operators (14.2%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- transportation, storage, & distribution managers (\$40.99);
- project management specialists & business operations specialists, all other (\$31.07);
- sales representatives, wholesale & manufacturing, except technical & scientific products (\$27.86);
- first-line supervisors of office & administrative support workers (\$27.19); and
- heavy & tractor-trailer truck drivers (\$22.56).

The top three highest paying occupations that require a bachelor's degree are:

- general & operations managers (\$48.16);
- first-line supervisors of transportation & material moving workers, except aircraft cargo handling supervisors (\$27.06); and
- production, planning, & expediting clerks (\$22.31).

The Truck Transportation industry subsector in the region supported 34,010 jobs in 2020 and had an LQ of 1.8. It is comprised of six industries at the six-digit NAICS code level. The largest industry is the General Freight Trucking, Local industry, with 31.9% of jobs in the industry subsector. The top occupation employed by the Truck Transportation industry subsector is bus & truck mechanics & diesel engine specialists, which constitutes 3.1% of the industry subsector's jobs. It is followed by first-line supervisors of transportation & material moving workers, except aircraft cargo handling supervisors (2.9%) and office clerks, general (2.6%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- transportation, storage, & distribution managers (\$40.99);
- first-line supervisors of transportation & material moving workers, except aircraft cargo handling supervisors (\$27.06);
- bus & truck mechanics & diesel engine specialists (\$23.55);
- bookkeeping, accounting, & auditing clerks (\$20.31); and
- cargo & freight agents (\$20.23).

The top three highest paying occupations that require a bachelor's degree are:

- general & operations managers (\$48.16);
- personal service managers, all other; entertainment & recreation managers, except gambling; & managers, all other (\$33.80); and
- human resources specialists (\$29.88).

## UNEMPLOYMENT

Unemployment data identify areas in which skills may mismatch with the region's current employment opportunities or where SBCCD could provide appropriate training programs best suited to transitioning unemployed workers into in-demand occupations. The tables and figures in this section present unemployment in the SBCCD Service Region as the number of people unemployed by two-digit industry sector and by two-digit occupational group.<sup>4</sup>

Emsi industry- and occupation-specific unemployment estimates are derived from several federal sources. They are Characteristics of the Insured Unemployed (CIU) at the Department of Labor, Employment, & Training Administration; Local Area Unemployment

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<sup>4</sup> Industry data reported elsewhere in the analysis are at the three-digit NAICS code level, referred to as industry subsectors. Occupation data reported elsewhere are also at a more detailed level, simply referred to as occupations at the six-digit SOC code level.

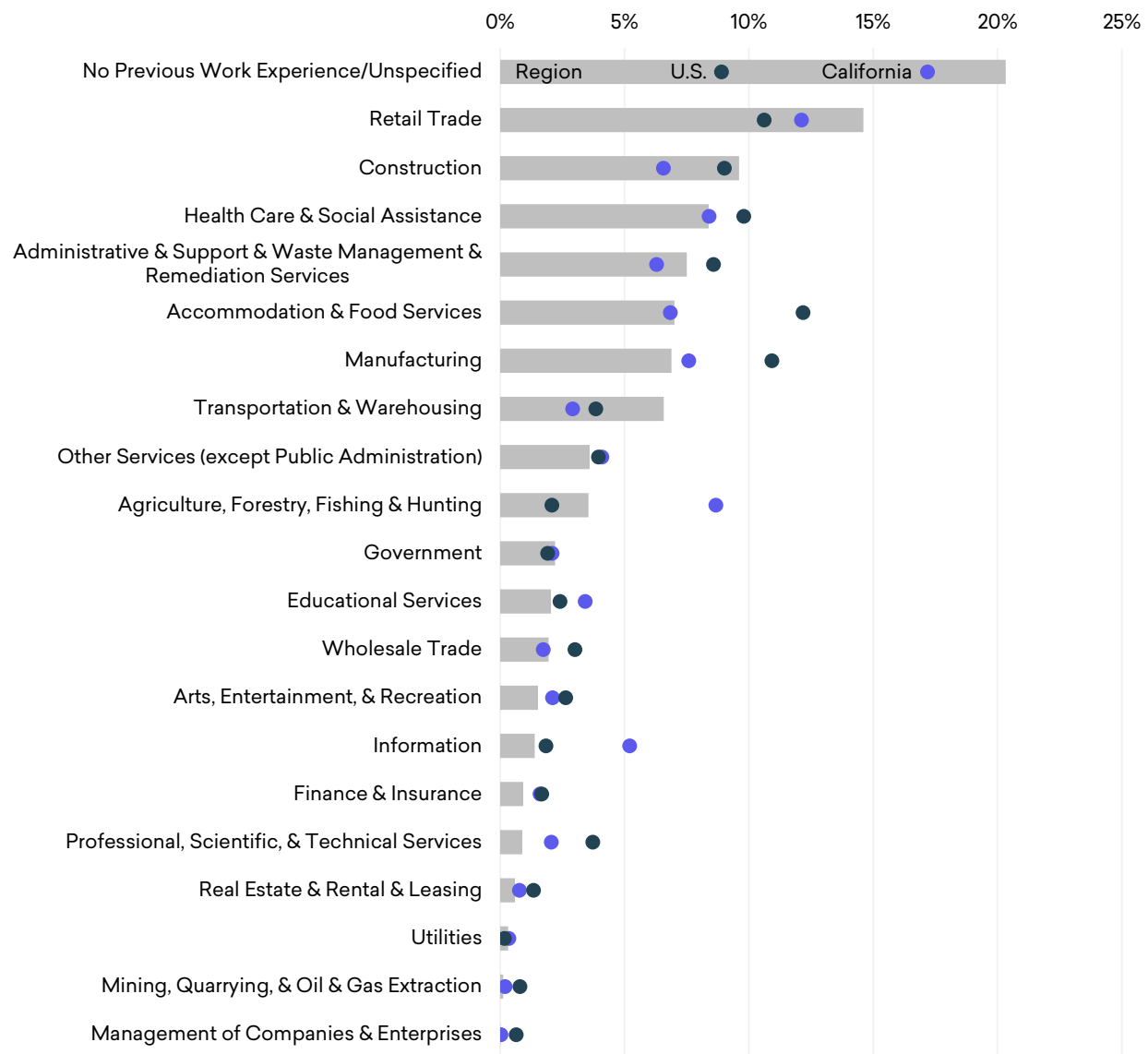
Statistics (LAUS) from the Bureau of Labor Statistics (BLS); and the Current Population Survey (CPS) at the Census. Emsi final industry and occupation data, as well as state-specific data, are also used. The numbers and percentages reflect monthly estimates (July 2020) and follow the same methodology as federal statistical agencies. The unemployment rate is not provided because it is difficult to accurately determine the size of the labor force in an industry or occupation every month. However, it appears for a full region in a following section titled Socioeconomic Indicators. In this section, rather than the unemployment rate, the percent of all unemployed workers in the region, state, and U.S. are provided.

Table 2.2: Unemployed Workers by Industry Sector in the SBCCD Service Region with State and National Comparisons

NAICS CODE	NAICS TITLE	REGION UNEMPLOYED	REGION % UNEMPLOYED	CA % UNEMPLOYED	U.S. % UNEMPLOYED
99	No Previous Work Experience/Unspecified	31,252	20%	17%	9%
44	Retail Trade	22,443	15%	12%	11%
23	Construction	14,764	10%	7%	9%
62	Health Care & Social Assistance	12,881	8%	8%	10%
56	Administrative & Support & Waste Management & Remediation Services	11,542	8%	6%	9%
72	Accommodation & Food Services	10,764	7%	7%	12%
31	Manufacturing	10,590	7%	8%	11%
48	Transportation & Warehousing	10,113	7%	3%	4%
81	Other Services (except Public Administration)	5,533	4%	4%	4%
11	Agriculture, Forestry, Fishing & Hunting	5,450	4%	9%	2%
90	Government	3,387	2%	2%	2%
61	Educational Services	3,146	2%	3%	2%
42	Wholesale Trade	2,991	2%	2%	3%
71	Arts, Entertainment, & Recreation	2,335	2%	2%	3%
51	Information	2,144	1%	5%	2%
52	Finance & Insurance	1,422	1%	2%	2%
54	Professional, Scientific, & Technical Services	1,361	1%	2%	4%
53	Real Estate & Rental & Leasing	918	1%	1%	1%
22	Utilities	487	0%	0%	0%
21	Mining, Quarrying, & Oil & Gas Extraction	178	0%	0%	1%
55	Management of Companies & Enterprises	12	0%	0%	1%

Source: Emsi Total Unemployment (July 2020).

Figure 2.7: Unemployed Workers by Industry Sector in the SBCCD Service Region with State and National Comparisons



Source: Emsi Total Unemployment (July 2020).

Table 2.2: Unemployed Workers by Occupational Group in the SBCCD Service Region with State and National Comparisons

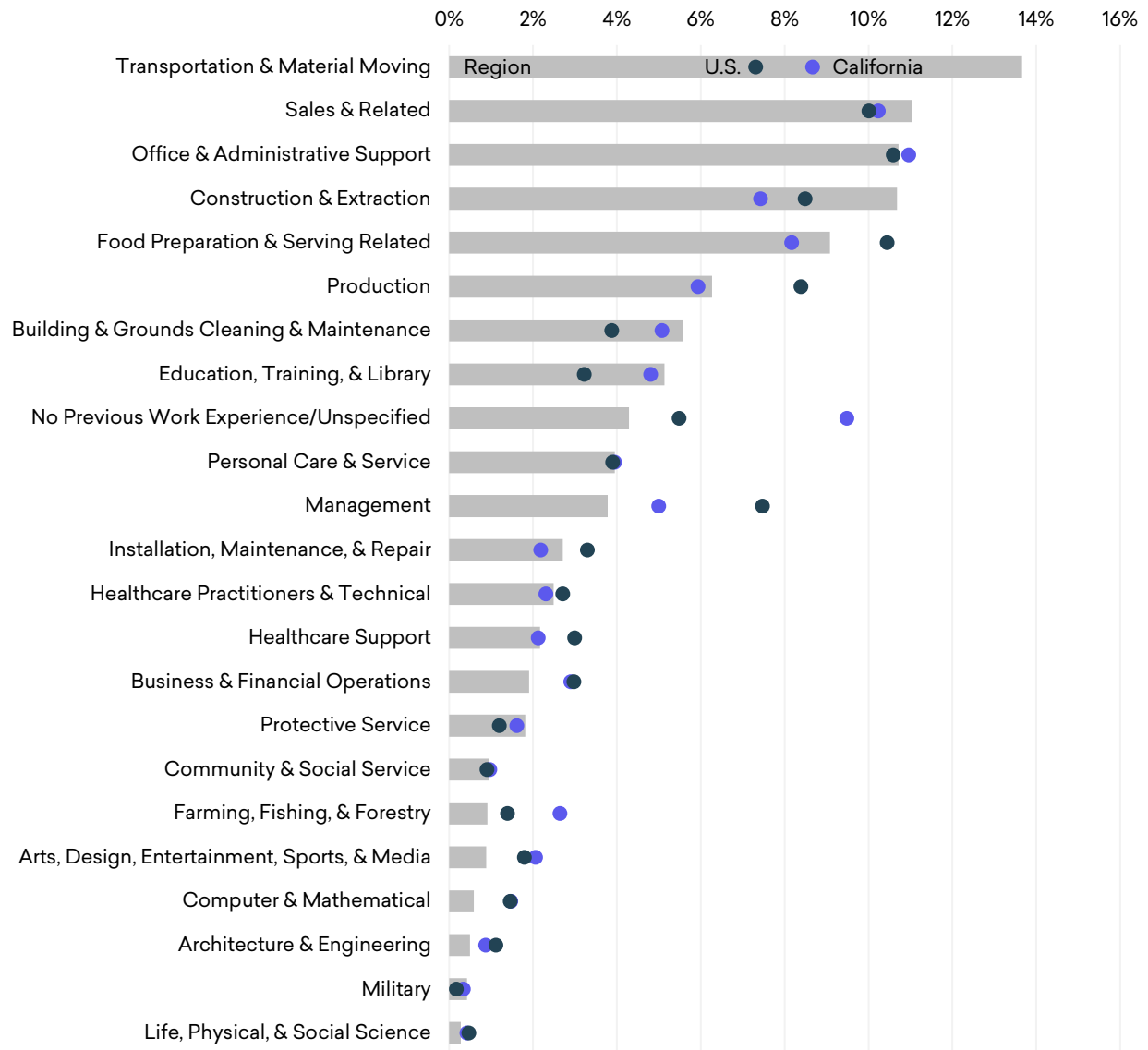
SOC CODE	SOC TITLE	REGION UNEMPLOYED	REGION % UNEMPLOYED	CA % UNEMPLOYED	U.S. % UNEMPLOYED
53-0000	Transportation & Material Moving	20,995	14%	9%	7%
41-0000	Sales & Related	16,961	11%	10%	10%
43-0000	Office & Administrative Support	16,470	11%	11%	11%
47-0000	Construction & Extraction	16,412	11%	7%	8%

SOC CODE	SOC TITLE	REGION UNEMPLOYED	REGION % UNEMPLOYED	CA % UNEMPLOYED	U.S. % UNEMPLOYED
35-0000	Food Preparation & Serving Related	13,958	9%	8%	10%
51-0000	Production	9,640	6%	6%	8%
37-0000	Building & Grounds Cleaning & Maintenance	8,577	6%	5%	4%
25-0000	Education, Training, & Library	7,894	5%	5%	3%
99-0000	No Previous Work Experience/Unspecified	6,597	4%	9%	5%
39-0000	Personal Care & Service	6,073	4%	4%	4%
11-0000	Management	5,809	4%	5%	7%
49-0000	Installation, Maintenance, & Repair	4,167	3%	2%	3%
29-0000	Healthcare Practitioners & Technical	3,829	2%	2%	3%
31-0000	Healthcare Support	3,326	2%	2%	3%
13-0000	Business & Financial Operations	2,933	2%	3%	3%
33-0000	Protective Service	2,789	2%	2%	1%
21-0000	Community & Social Service	1,461	1%	1%	1%
45-0000	Farming, Fishing, & Forestry	1,400	1%	3%	1%
27-0000	Arts, Design, Entertainment, Sports, & Media	1,356	1%	2%	2%
15-0000	Computer & Mathematical	903	1%	1%	1%
17-0000	Architecture & Engineering	760	0%	1%	1%
55-0000	Military	651	0%	0%	0%
19-0000	Life, Physical, & Social Science	427	0%	0%	0%

Source: Emsi Total Unemployment (July 2020).



Figure 2.8: Unemployed Workers by Occupational Group in the SBCCD Service Region with State and National Comparisons



Source: Emsi Total Unemployment (July 2020).

## WORKFORCE COMMUTING PATTERNS

The Longitudinal Employer-Household Dynamics (LEHD) program<sup>5</sup> at the U.S. Census Bureau provides information on the residential and employment locations of workers. Such data show the commuting patterns of regional employees. More specifically, the LEHD data demonstrate the extent to which employees commute to the SBCCD Service Region for work and how many residents commute to surrounding communities for work. Workers from outside the region could be filling current employment gaps, or the region's residents could be out-commuting when there is a surplus of available jobs. The concepts of a "gap" and "surplus" are discussed in greater detail in the first section of Chapter 3.

Figure 2.9 presents the inflow and outflow of jobs to and from the SBCCD Service Region. LEHD data identify 1.3 million jobs in the region, with 954,570 jobs filled by residents and 359,280 jobs filled by people living outside the region. In addition, 640,330 jobs are held by the region's residents outside the SBCCD Service Region. In other words, 640,330 residents commute outside the region for work. The job counts represent primary jobs, as opposed to all jobs, and differ slightly from job counts in the previous sections, which use Emsi's complete employment data (see industry data in Appendix 2). As shown in the figure, more workers out-commute than in-commute.

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5 LEHD is an innovative program that uses modern statistical and computing techniques to combine federal and state administrative data on employers and employees with core Census Bureau censuses and surveys while protecting the confidentiality of people and firms that provide the data.

Figure 2.9: SBCCD Service Region Job Inflow and Outflow

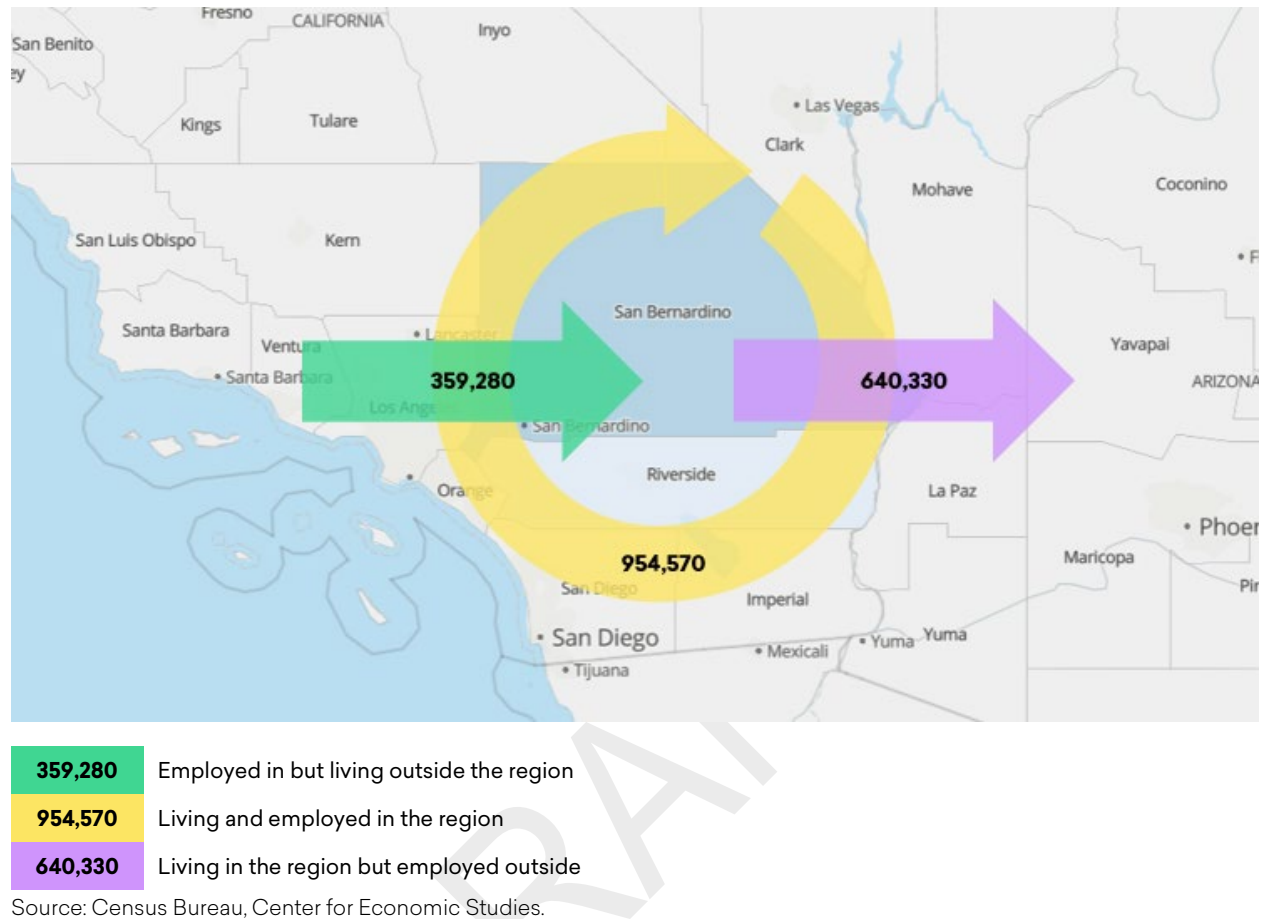


Table 2.4 provides further insight into the places where the region's residents work. As shown in the figure, the region's residents are out-commuting to neighboring counties for work, but the greatest number of residents work in Riverside County (30% of all jobs). Table 2.5 also shows commuting patterns, except the data highlight the counties in which the region's workers reside.

Table 2.4: Counties where SBCCD Service Region Residents Work

COUNTY OF EMPLOYMENT	JOBS	% JOBS
Riverside County, CA	483,280	30%
San Bernardino County, CA	471,290	30%
Los Angeles County, CA	292,630	18%
Orange County, CA	176,710	11%
San Diego County, CA	81,060	5%
Ventura County, CA	9,690	1%

COUNTY OF EMPLOYMENT	JOBS	% JOBS
Kern County, CA	7,250	0%
Alameda County, CA	6,810	0%
Santa Clara County, CA	5,350	0%
Sacramento County, CA	4,630	0%
All Other Counties	56,190	4%
<b>Total Primary Jobs, Residents</b>	<b>1,594,910</b>	<b>100%</b>

Source: Census Bureau, Center for Economic Studies.

Table 2.5: Counties where SBCCD Service Region Workers Live

COUNTY OF RESIDENCE	JOBS	% JOBS
Riverside County, CA	512,750	39%
San Bernardino County, CA	441,820	34%
Los Angeles County, CA	164,070	12%
Orange County, CA	75,830	6%
San Diego County, CA	48,930	4%
Ventura County, CA	9,300	1%
Kern County, CA	9,030	1%
Imperial County, CA	4,620	0%
Alameda County, CA	3,460	0%
Sacramento County, CA	3,190	0%
All Other Locations	40,870	3%
<b>Total Primary Jobs, Workers</b>	<b>1,313,860</b>	<b>100%</b>

Source: Census Bureau, Center for Economic Studies.

## OCCUPATIONS OF REGIONAL RESIDENTS

This section combines occupational data with employment information on SBCCD Service Region residents. Essentially, the data identify the occupational groups that SBCCD's programs should be targeting based upon the jobs of the region's residents. The final results, which appear in Tables 2.6 and 2.7, show which occupational groups are undersupplied or oversupplied by the region's residents, respectively. As for the source of the data, the number of jobs within an occupation is based on Emsi's industry data and staffing patterns, and we use data from LEHD Origin-Destination Employment Statistics (LODES) to determine how many SBCCD Service Region residents are employed in the region's occupations.

Specifically, the LODES originate from Origin and Destination (OD) data, Regional Area Characteristics (RAC), and Workforce Area Characteristics (WAC).

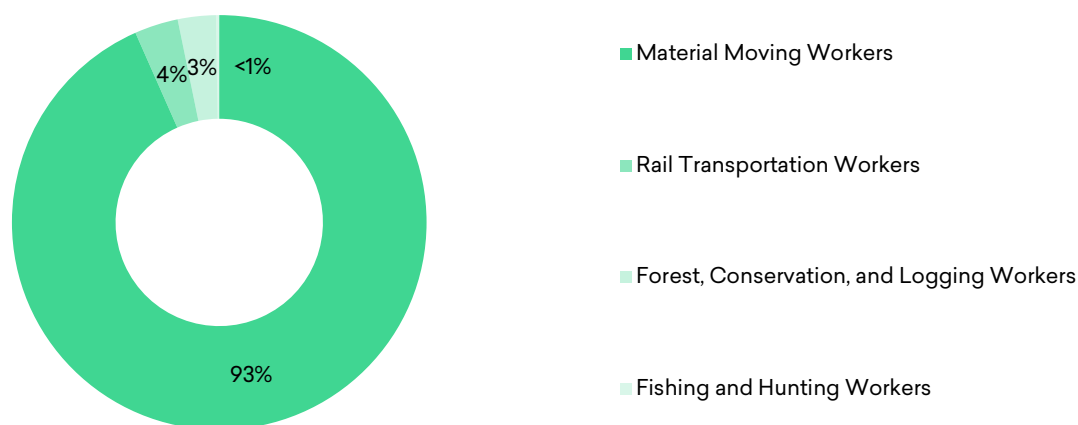
Material moving workers were the highest-ranked occupational group, in terms of their need for non-regional residents (Table 2.6). As shown, 149,650 SBCCD Service Region residents were employed in the occupational group in 2020, but the region supported 150,640 such workers. Therefore, 990 non-regional residents were employed in the occupational group in the SBCCD Service Region in 2020, accounting for 93% of the region's net in-commuters (Figure 2.10). Rail transportation workers and forest, conservation, & logging workers were the second and third highest-ranked occupational groups, with 40 and 30 net in-commuters, respectively.

Table 2.6: Top Occupational Groups by Net In-Commuters for Jobs in the SBCCD Service Region

SOC CODE	SOC TITLE	2020 NET IN-COMMUTERS	2020 RESIDENT WORKERS	2020 JOBS	2030 JOBS	JOB CHANGE
53-7000	Material Moving Workers	988	149,653	150,641	173,703	23,062
53-4000	Rail Transportation Workers	36	1,745	1,781	1,829	48
45-4000	Forest, Conservation, and Logging Workers	31	289	321	340	19
45-3000	Fishing and Hunting Workers	3	85	87	95	8

Source: Emsi Employees & Self-Employed 2020.3.

Figure 2.10: Top Occupational Groups by Net In-Commuters for Jobs in the SBCCD Service Region



Source: Emsi Employees & Self-Employed 2020.3.

On the other hand, construction trades workers were the lowest-ranked occupational group, in terms of their need for non-regional residents (Table 2.7). As shown, 108,690 SBCCD Service Region residents were employed in the occupational group in 2020, but the region

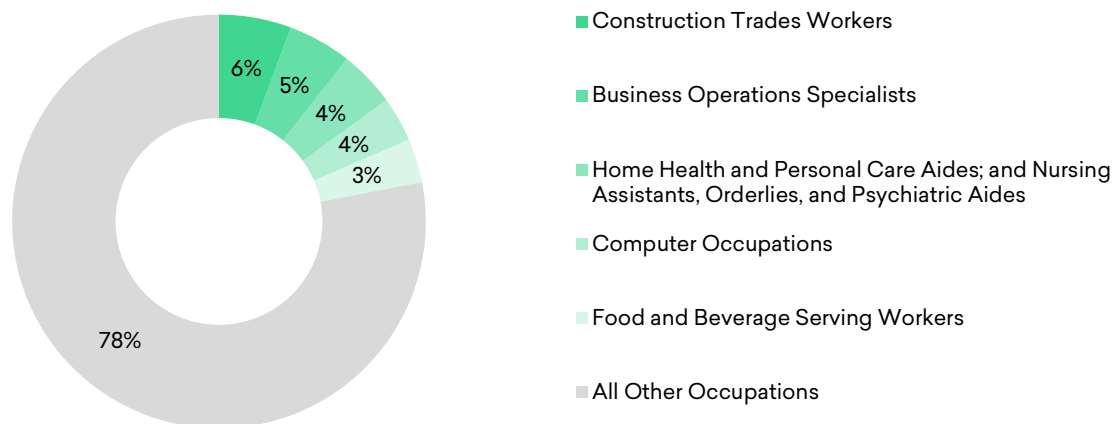
supported only 92,280 such workers. Therefore, 16,410 residents were employed in the occupational group elsewhere in 2020, representing 6% of the region's net out-commuters (Figure 2.11). Business operations specialists and home health & personal care aides; & nursing assistants, orderlies, & psychiatric aides were the second and third ranked occupational groups, with 5% and 4% of the region's net out-commuters, respectively. When the values in Tables 2.6 and 2.7 are compared, there were about 275 times more net out-commuters than in-commuters, an indication of the district's need for further program development.

**Table 2.7: Top 15 Occupational Groups by Net Out-Commuters for Jobs in the SBCCD Service Region**

<b>SOC CODE</b>	<b>SOC TITLE</b>	<b>2020 NET OUT-COMMUTERS</b>	<b>2020 RESIDENT WORKERS</b>	<b>2020 JOBS</b>	<b>2030 JOBS</b>	<b>JOB CHANGE</b>
47-2000	Construction Trades Workers	(16,415)	108,691	92,276	103,292	11,016
13-1000	Business Operations Specialists	(14,427)	62,232	47,805	52,920	5,115
31-1100	Home Health and Personal Care Aides; and Nursing Assistants, Orderlies, and Psychiatric Aides	(12,777)	82,290	69,513	100,467	30,954
15-1200	Computer Occupations	(10,211)	30,314	20,103	22,860	2,757
35-3000	Food and Beverage Serving Workers	(9,988)	90,887	80,899	98,523	17,623
29-1000	Healthcare Diagnosing or Treating Practitioners	(9,696)	66,995	57,300	68,181	10,882
43-9000	Other Office and Administrative Support Workers	(8,918)	50,081	41,162	42,844	1,682
37-2000	Building Cleaning and Pest Control Workers	(8,617)	47,677	39,060	41,782	2,722
43-4000	Information and Record Clerks	(8,406)	56,024	47,618	50,856	3,239
11-9000	Other Management Occupations	(8,396)	48,345	39,949	44,802	4,853
43-6000	Secretaries and Administrative Assistants	(8,119)	44,033	35,913	36,723	809
41-2000	Retail Sales Workers	(7,929)	115,466	107,537	112,302	4,764
13-2000	Financial Specialists	(6,630)	24,550	17,920	19,211	1,291
35-2000	Cooks and Food Preparation Workers	(6,328)	52,180	45,852	51,605	5,753
21-1000	Counselors, Social Workers, and Other Community and Social Service Specialists	(6,081)	34,844	28,763	34,167	5,404

Source: Emsi Employees & Self-Employed 2020.3.

Figure 2.11: Top Five Occupational Groups by Net Out-Commuters for Jobs in the SBCCD Service Region



Source: Emsi Employees & Self-Employed 2020.3.

## POPULATION DEMOGRAPHICS

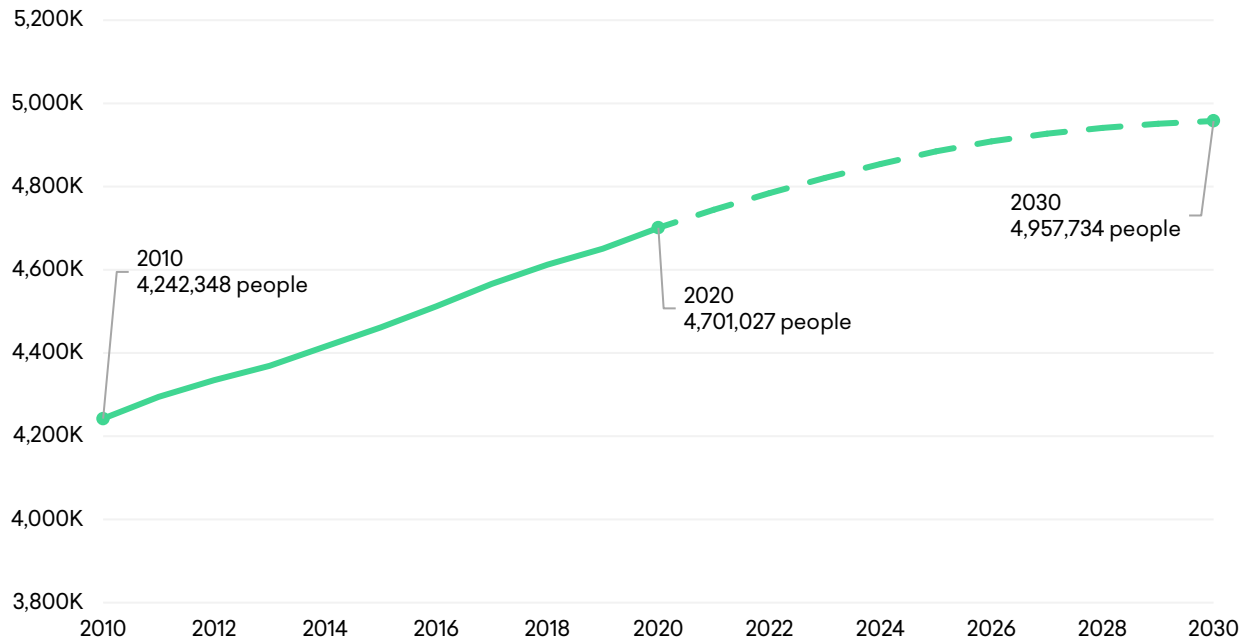
Population demographics can also be used to anticipate the future demands of a regional labor market. For example, it is important to know if employers are adding new jobs because they need more workers or if there is a significant need for workers to fill vacancies left by retirees and those changing careers. Emsi's job openings, discussed in greater detail in the next chapter, reflect both job growth and replacement needs.

In this section, population data for the region, state, and U.S. are shown, as well as race/ethnicity data for people 25 years and above living in the SBCCD Service Region. The data are based on Emsi's demographic data and publicly available sources from state and federal agencies, including annual population estimates and population projections from the U.S. Census Bureau and birth and mortality rates from the U.S. Health Department. Demographic information relies on the annual results of the American Community Survey.

Historical and projected changes in the regional population are presented in the following figures. In 2010, 4.2 million people lived in the SBCCD Service Region, and 5.0 million people are projected to live in the region by 2030 (Figure 2.12). Using 2010 as the base year, this reflects a 16.9% growth rate (Figure 2.13). California's population is projected to increase by 9.0% over the same 20-year period, and the population in the U.S. is projected to increase by 10.2%.

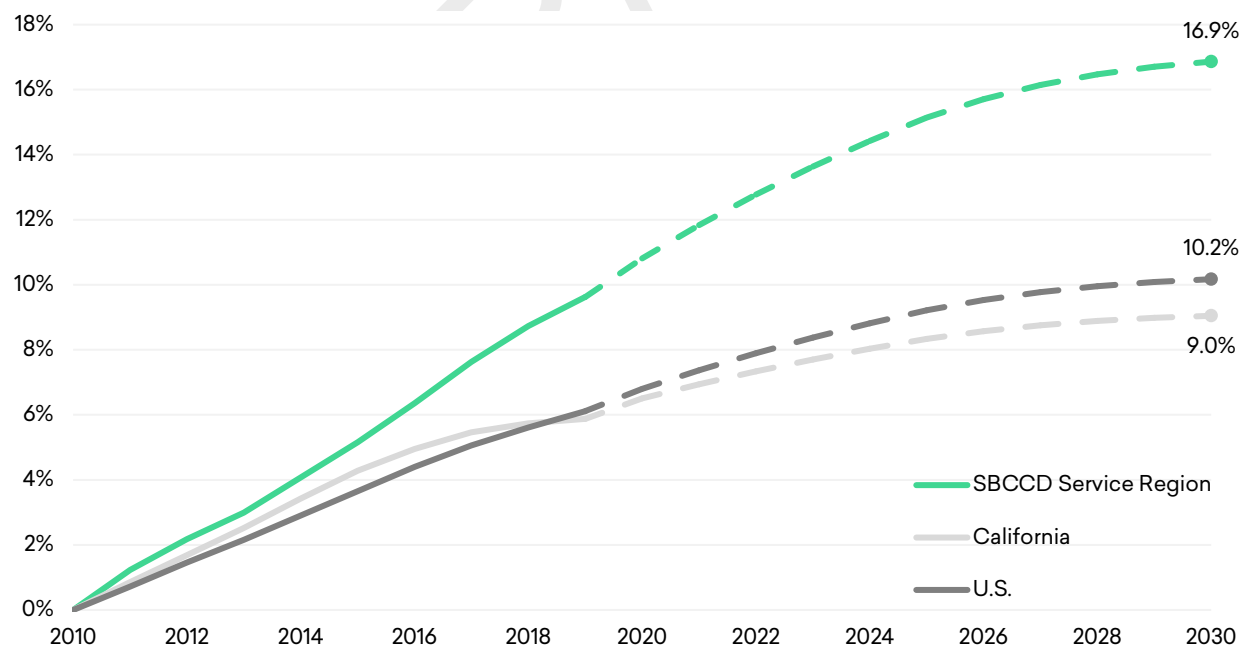
Figure 2.14 shows the year-over-year changes in population, by percent, for the SBCCD Service Region, California, and the U.S. The three regions are projected to grow by 0.9%, 0.4%, and 0.5% from 2020 to 2021, respectively.

Figure 2.12: Historical and Projected Population in the SBCCD Service Region, 2010 to 2030



Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

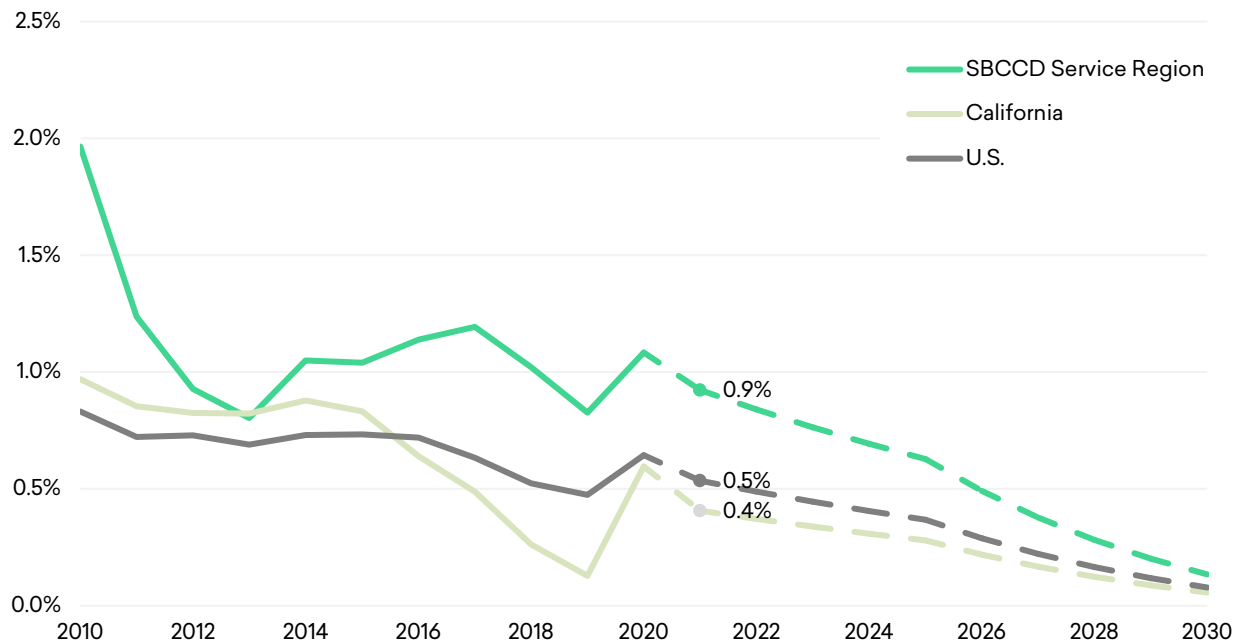
Figure 2.13: Percent Population Change from 2010 to 2030 in the SBCCD Service Region, California, and the U.S.



Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.



Figure 2.14: Annual Percent Population Change in the SBCCD Service Region, California, and the U.S., 2010 to 2030



Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

## EDUCATIONAL ATTAINMENT

Educational attainment data are useful for targeting specific population groups with low education levels. The population and educational attainment numbers in this section are based on Emsi's demographic data and publicly available sources from state and federal agencies. Sources include annual population estimates and population projections from the U.S. Census Bureau and birth and mortality rates from the U.S. Health Department. In addition, demographic information relies on the annual results of the American Community Survey. Educational attainment data cover the population in the SBCCD Service Region aged 25 years or more, referred to as adults, and indicate the highest award level achieved.

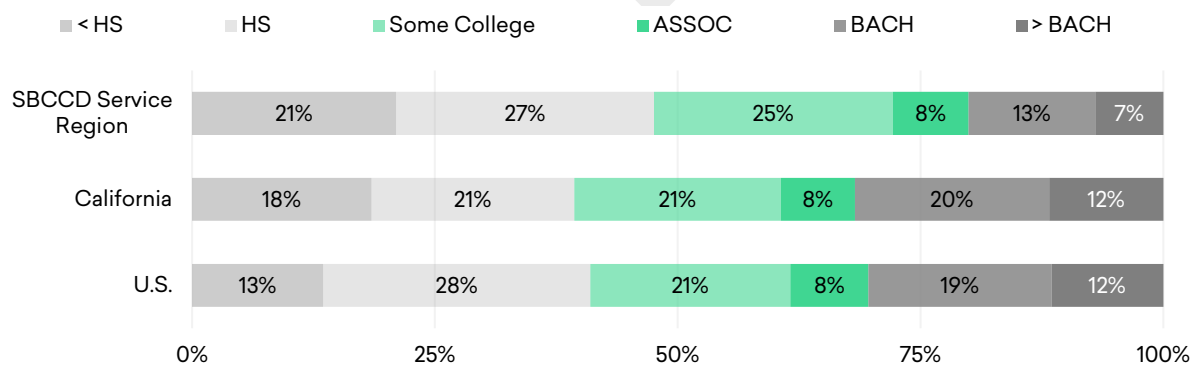
Demographic information is presented by gender and the major race and ethnic groups, and educational attainment data are broken out according to the following award categories:

- Less than a high school diploma (<HS);
- High school diploma or equivalent (HS);

- Some college;<sup>6</sup>
- Associate degree (Assoc);
- Bachelor's degree (Bach);
- Greater than a bachelor's degree (>Bach).

About 3.1 million adults live in the SBCCD Service Region, and Figure 2.15 displays their educational attainments, without reference to gender and the major race and ethnic groups. State and national data are also presented for context. In the region, 47.6% of adults have a high school diploma or less, which is more than the state average (39.4%) and more than the national average (41.0%). Out of all the award categories in the figure, the people who are most likely to seek education and training from SBCCD are those in the “Less than High School Diploma,” “High School Diploma,” and “Some College” categories. Together, these categories total 2.2 million people, or 72.1% of the region’s adults.

**Figure 2.15: Highest Educational Attainments of Adults in the SBCCD Service Region, California, and the U.S.**



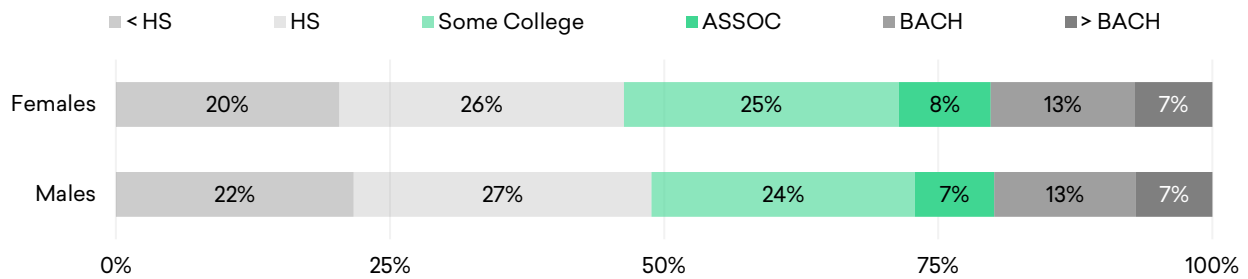
Numbers may not sum due to rounding.

Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Between female and male adults in the SBCCD Service Region, there is little variation in the distribution of their award categories. Twenty-five percent of the region’s female adults and 24.0% of the region’s male adults have some college education but no degree, which represent 391,010 females and 360,470 males. Eight percent of female adults 7.0% of male adults in the region have an associate degree as their highest award level. This information appears in Figure 2.16.

6 The “Some College” category includes individuals who attended college but did not successfully obtain a degree and individuals who have received a postsecondary vocational award or professional certification but did not receive an associate or bachelor’s degree.

Figure 2.16: Highest Educational Attainments of Adults in the SBCCCD Service Region by Gender



Numbers may not sum due to rounding.

Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

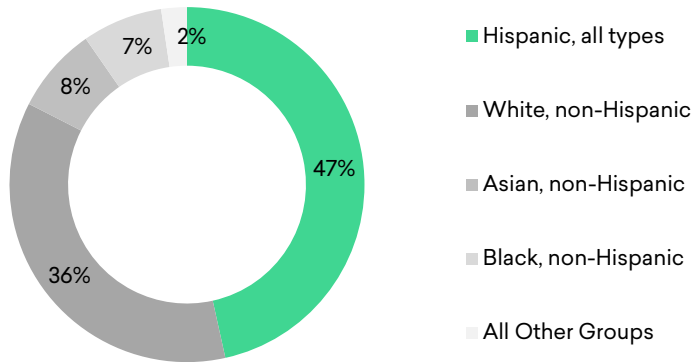
Table 2.8 and Figure 2.17 show the adults in the SBCCCD Service Region by the major race and ethnic groups. As shown, 46.5% of the region's adults are Hispanic, all types. Another 36.0% of adults are White, non-Hispanic, and 7.8% are Asian, non-Hispanic, the next largest groups. Altogether, less than 3.0% percent of the region's adults are Two or more races, non-Hispanic; American Indian or Alaskan Native, non-Hispanic; and Native Hawaiian or Pacific Islander, non-Hispanic.

Table 2.8: Adults in the SBCCCD Service Region by Major Race and Ethnic Groups

GROUP	POPULATION	% POPULATION
Hispanic, all types	1,423,951	46.5%
White, non-Hispanic	1,101,083	36.0%
Asian, non-Hispanic	239,697	7.8%
Black, non-Hispanic	223,996	7.3%
Two or more races, non-Hispanic	48,097	1.6%
American Indian or Alaskan Native, non-Hispanic	14,073	0.5%
Native Hawaiian or Pacific Islander, non-Hispanic	9,400	0.3%
<b>Total</b>	<b>3,060,298</b>	<b>100%</b>

Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

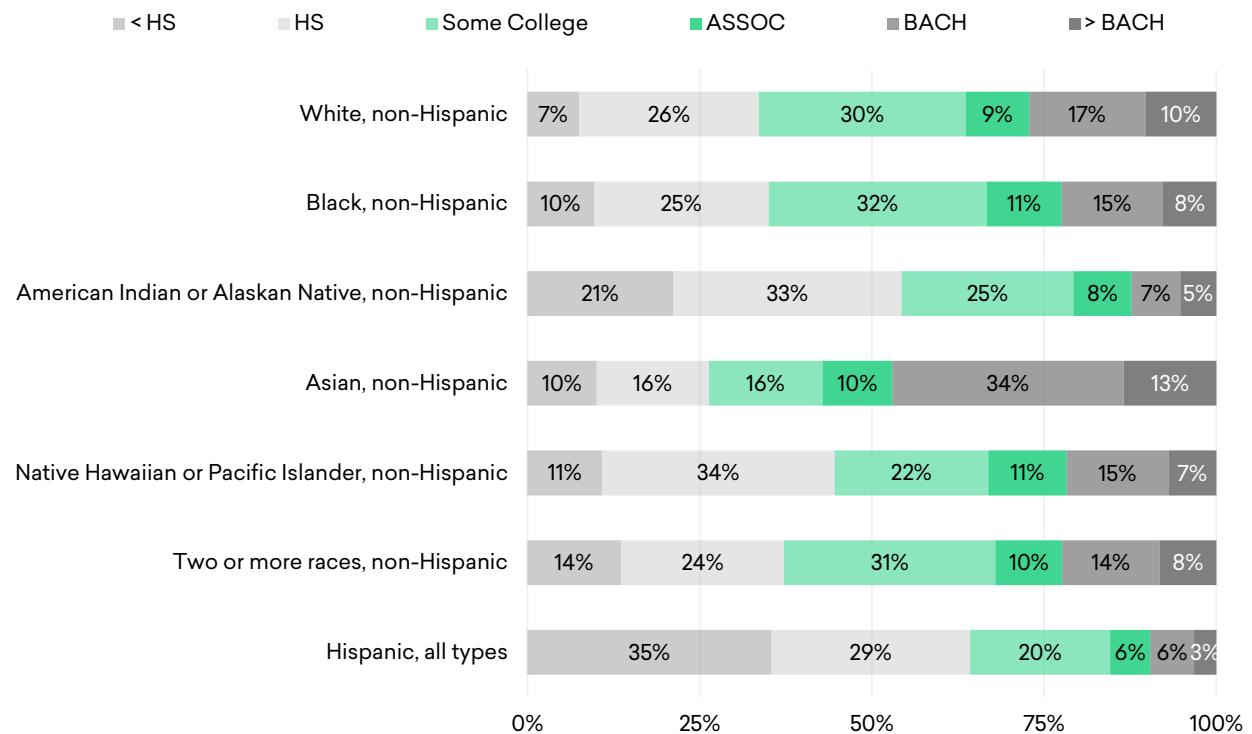
Figure 2.17: Adults in the SBCCCD Service Region by Major Race and Ethnic Groups



Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Figure 2.18 displays the highest educational attainment of the SBCCCD Service Region's adults by their major race and ethnic groups. Asian, non-Hispanic adults have the highest percentage of adults with a postsecondary education (73.6%) among all the groups. The White, non-Hispanic group follows with 66.4%. Hispanic, all types adults and American Indian or Alaskan Native, non-Hispanic adults have the lowest levels of educational attainment in the region. For these groups, only 35.8% and 45.7%, respectively, of the adults in the groups have had education beyond high school. Across all groups, these data suggest that there are many opportunities to increase the educational attainments of the region's adults, whether such actions involve outreach to local high schools or supporting SBCCCD students who plan to transfer into a bachelor's degree level program.

Figure 2.18: Highest Educational Attainments of Adults in the SBCCD Service Region by Major Race and Ethnic Groups



Numbers may not sum due to rounding.

Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

## SOCIOECONOMIC INDICATORS

The SBCCD Service Region's high job growth, productive industries, and growing population are positive economic attributes. The data in this section show several of the region's socioeconomic indicators. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. The unemployment rate is an annual estimate, unlike the monthly percentage of workers unemployed in a previous section. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. Finally, data on poverty are also presented in this section. The data come directly from American Community Survey five-year estimates.

Table 2.9: Income, Unemployment, and Poverty Characteristics for Census County Subdivisions in the SBCCD Service Region

CENSUS COUNTY SUBDIVISION	MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE	PER CAPITA INCOME	POVERTY ALL PEOPLE
Riverside County	\$67,005	7.5%	\$28,596	13.7%
Blythe	\$44,669	8.0%	\$24,042	24.5%
Cathedral City-Palm Desert	\$60,017	6.3%	\$43,075	15.0%
Chuckwalla Valley	\$40,685	22.3%	\$6,794	23.6%
Coachella Valley	\$47,612	10.4%	\$27,252	19.2%
Corona	\$82,449	5.2%	\$32,311	10.0%
Desert Hot Springs	\$37,189	8.8%	\$20,503	25.9%
Elsinore Valley	\$77,632	7.2%	\$27,769	13.0%
Hemet-San Jacinto	\$45,918	10.9%	\$20,532	19.4%
Idyllwild	\$51,012	8.9%	\$28,866	18.9%
Jurupa	\$85,263	7.2%	\$26,825	10.9%
Lake Mathews	\$87,400	5.9%	\$27,861	16.4%
Murrieta	\$96,093	6.8%	\$34,960	7.2%
Norco	\$104,078	3.9%	\$34,290	7.6%
Palm Springs	\$52,017	8.8%	\$44,789	18.2%
Perris Valley	\$68,584	7.5%	\$24,370	13.0%
Riverside	\$66,771	7.2%	\$24,814	14.3%
San Gorgonio Pass	\$61,334	7.1%	\$27,334	14.8%
San Bernardino County	\$63,362	7.7%	\$25,215	16.0%
Barstow	\$46,085	7.4%	\$21,846	28.5%
Big Bear	\$53,644	5.4%	\$30,165	15.9%
Lake Arrowhead	\$62,947	5.8%	\$33,625	14.2%
Mount Baldy-Wrightwood	\$63,636	6.1%	\$37,498	13.0%
Needles	\$33,832	10.1%	\$21,078	24.4%
Newberry Springs-Baker	\$54,158	14.9%	\$21,193	13.4%
Ontario	\$80,184	5.6%	\$30,684	10.6%
San Bernardino	\$59,417	8.1%	\$22,376	17.7%
Searles Valley	\$37,917	9.9%	\$23,718	23.1%
Twentynine Palms-Yucca Valley	\$41,890	11.6%	\$23,706	23.1%
Victorville-Hesperia	\$54,793	11.0%	\$21,267	19.5%
Yucaipa	\$69,297	4.3%	\$30,605	10.2%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data.

## HOUSING DATA

Table 2.10 displays housing data related to the census county subdivisions within Riverside and San Bernardino County. The total housing units, homeowner vacancy rate, rental vacancy rate, median monthly mortgage cost, and median monthly rental costs are reported.

Census County Subdivision	Housing Units	Homeowner Vacancy Rate	Rental Vacancy Rate	Mortgage Cost Median	Rent Cost Median
Riverside County					
Blythe	6,963	2.8%	9.2%	\$1,349	\$760
Cathedral City-Palm Desert	100,817	4.4%	6.3%	\$1,987	\$1,258
Chuckwalla Valley	2,572	6.3%	0%	\$1,153	\$1,000
Coachella Valley	84,362	1.9%	7.2%	\$1,734	\$1,030
Corona	56,774	1.2%	2.9%	\$2,387	\$1,621
Desert Hot Springs	26,848	4.3%	2.2%	\$1,349	\$1,000
Elsinore Valley	37,969	1%	3.4%	\$2,204	\$1,533
Hemet-San Jacinto	59,648	3%	4.7%	\$1,529	\$1,142
Idyllwild	9,329	5.6%	4.2%	\$1,511	\$1,001
Jurupa	41,391	0.8%	3.3%	\$2,330	\$1,572
Lake Mathews	7,784	1.7%	5.6%	\$2,195	\$1,518
Murrieta	99,678	1.3%	4%	\$2,421	\$1,830
Norco	7,046	2.2%	0%	\$2,644	\$1,858
Palm Springs	37,192	4%	9.3%	\$2,091	\$1,106
Perris Valley	87,088	1%	3.9%	\$1,886	\$1,490
Riverside	139,610	1.1%	5%	\$1,827	\$1,396
San Geronio Pass	35,430	1.1%	2.3%	\$1,821	\$1,089
San Bernardino County					
Barstow	17,436	2.7%	7.8%	\$1,245	\$816
Big Bear	30,898	7.7%	3.5%	\$1,551	\$1,111
Lake Arrowhead	19,836	9.4%	7.3%	\$1,788	\$1,077
Mount Baldy-Wrightwood	3,931	2.6%	11%	\$1,921	\$1,170
Needles	5,740	1.8%	7.2%	\$997	\$635
Newberry Springs-Baker	4,888	0%	3.5%	\$1,074	\$1,328
Ontario	207,936	1%	3.6%	\$2,292	\$1,626
San Bernardino	251,645	1.2%	3.5%	\$1,759	\$1,204
Searles Valley	1,232	3.2%	1.3%	\$922	\$625
Twentynine Palms-Yucca Valley	35,266	2.6%	6.2%	\$1,183	\$942
Victorville-Hesperia	122,332	2.3%	4.3%	\$1,487	\$1,188
Yucaipa	19,617	1.7%	2.9%	\$1,887	\$1,178

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data.

## KAISER PERMANENTE FACILITY

Kaiser Permanente will bring a new 60,000 square foot facility to the Yucaipa Ponte Unified Commercial Center.<sup>7</sup> This new facility will create demand for new jobs both within the facility and create additional jobs in the surrounding area. The purpose of this section is to address how employment in the SBCCD Region may change due to the addition of this facility. There was no report on how many people will be directly employed by the new facility although a 100,000 square foot facility in Waldorf, Maryland is expected to employ 300 people.<sup>8</sup> Based on the size and employment at that facility it can be estimated that the facility in Yucaipa would employ around 180 people directly. Table 2.11 shows the top 25 occupations employed by HMO Medical Centers in the SBCCD Service Region along with an estimation how employment across the occupations for the 180 new jobs created by the facility.

Table 2.11: Top 25 Occupations for HMO Medical Centers in the SBCCD Service Region and Estimation of Employment by the Kaiser Permanente Medical Center by Occupation

SOC CODE	SOC TITLE	% of Total Jobs in Industry	EST. KAISER JOBS	MEDIAN HOURLY EARNINGS	ED. LEVEL
29-1141	Registered Nurses	19.2%	35	\$49.75	BACH
31-9092	Medical Assistants	9.8%	18	\$16.01	CERT
29-2098	Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	8.5%	15	\$20.95	CERT
43-6013	Medical Secretaries and Administrative Assistants	6.3%	11	\$17.76	HS/GED
29-2061	Licensed Practical and Licensed Vocational Nurses	4.2%	8	\$26.94	CERT
11-9111	Medical and Health Services Managers	2.8%	5	\$57.63	BACH
43-4171	Receptionists and Information Clerks	2.0%	4	\$14.77	HS/GED
29-1171	Nurse Practitioners	1.9%	3	\$62.64	MA
43-4051	Customer Service Representatives	1.7%	3	\$17.70	HS/GED
29-2034	Radiologic Technologists and Technicians	1.6%	3	\$38.16	ASSOC
29-1228	Physicians, All Other; and Ophthalmologists, Except Pediatric	1.5%	3	\$91.82	DOCT
43-1011	First-Line Supervisors of Office and Administrative Support Workers	1.4%	3	\$27.19	HS/GED
29-1071	Physician Assistants	1.3%	2	\$62.42	MA
29-2055	Surgical Technologists	1.3%	2	\$27.39	CERT
43-3021	Billing and Posting Clerks	1.2%	2	\$17.78	HS/GED
31-9091	Dental Assistants	1.2%	2	\$17.46	CERT
43-9061	Office Clerks, General	1.2%	2	\$17.37	HS/GED
29-2052	Pharmacy Technicians	1.2%	2	\$18.71	HS/GED

<sup>7</sup> [https://www.newsmirror.net/news/yucaipa-planning-approves-cup-for-a-new-kaiser-permanente-facility/article\\_27570656-1497-11eb-8d92-2bea2975f384.html](https://www.newsmirror.net/news/yucaipa-planning-approves-cup-for-a-new-kaiser-permanente-facility/article_27570656-1497-11eb-8d92-2bea2975f384.html)

<sup>8</sup> <https://wtop.com/business-finance/2020/12/kaiser-permanente-plans-100-million-medical-center-in-waldorf/>



21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	1.1%	2	\$23.32	BACH
29-1031	Dietitians and Nutritionists	1.1%	2	\$34.83	BACH
21-1022	Healthcare Social Workers	1.0%	2	\$35.38	MA
31-1131	Nursing Assistants	1.0%	2	\$16.23	CERT
21-1013	Marriage and Family Therapists	0.9%	2	\$21.49	MA
29-1051	Pharmacists	0.9%	2	\$71.59	DOCT
29-2018	Clinical Laboratory Technologists and Technicians	0.9%	2	\$25.60	BA

Source: Emsi Employees & Self-Employed 2020.3

DRAFT



# Program Demand Gap Analysis

With the region's top industry subsectors and workforce in mind, the program demand gap analysis can now be conducted, answering the following question:

*Where are there misalignments between the workforce demand and the supply of college completions?*

This chapter outlines the deficit of SBCCD's program completers to the workforce (gap), as well as the oversupply of completions to the workforce (surplus). The occupations directly related or mapped to the significant gaps are also displayed. Figure 3.1, below, provides a high level overview of SBCCD's programs and their alignment with the SBCCD Service Region workforce.

**High demand, low supply** programs are those that have a high number of annual job openings but lack of adequate regional completers. These programs have large gaps and should be considered for expansion since there is a demand for people with these skill sets. Consideration should be given to the median hourly wage of the program.

**High demand, high supply** programs are those that have a high number of annual job openings as well as a high number of regional completers. These programs are satisfying the region's labor market demands and are worth continuing to offer.

**Low demand, low supply** programs are those that lack both annual job openings and completers in the SBCCD Service Region. Since there is not an apparent need for these skill sets in the regional workforce, it is worth reevaluating the need for offering these programs.

**Low demand, high supply** programs are those that produce far more regional completers than there are annual job openings. Large surpluses could suggest that completers are finding employment outside of the region. It may be beneficial to track where completers are finding work to evaluate the skills being sought by employers to better prepare completers for in-region employment.

Figure 3.1: Key Findings on SBCCD's Program Alignment with the SBCCD Service Region Workforce

<p><b>HIGH DEMAND, LOW SUPPLY</b></p> <p><i>How can we expand these program opportunities?</i></p> <p>Cooking &amp; Related Culinary Arts, General (CERT &amp; ASSOC)</p> <p>Machine Tool Technology/Machinist (CERT &amp; ASSOC)</p> <p>Real Estate (ASSOC)</p> <p>Electrical/Electronics Equipment Installation &amp; Repair, General (ASSOC &amp; T-T)</p>	<p><b>HIGH DEMAND, HIGH SUPPLY</b></p> <p><i>Can we maintain focus on program quality &amp; student success?</i></p> <p>Welding Technology/Welder (CERT)</p> <p>Emergency Medical Technology/Technician (EMT Paramedic) (CERT)</p> <p>Automobile/Automotive Mechanics Technology/Technician (ASSOC)</p> <p>Information Technology (ASSOC &amp; T-T)</p>
<p><b>LOW DEMAND, LOW SUPPLY</b></p> <p><i>Should we discontinue these programs?</i></p> <p>Philosophy (ASSOC)</p> <p>Astronomy (T-T)</p>	<p><b>LOW DEMAND, HIGH SUPPLY</b></p> <p><i>Are we connecting these programs to opportunities outside the region?</i></p> <p>Criminal Justice/Police Science (CERT)</p> <p>Social Sciences, General (ASSOC)</p> <p>Anthropology (T-T)</p>

Source: Emsi program demand gap model.

## INTERPRETATION

The terms used in the analysis are as follows:

**Gap** Represents a deficit, or when there are more job openings in an occupation than there are completions. If left unaddressed, a gap may lead to missed opportunities for economic growth and put stress on local businesses to find the necessary talent elsewhere. Significant gaps translate into higher human resources costs and decreased efficiencies in the economic system. They also provide an opportunity for postsecondary educational institutions to develop new programs and/or strengthen their current programs.

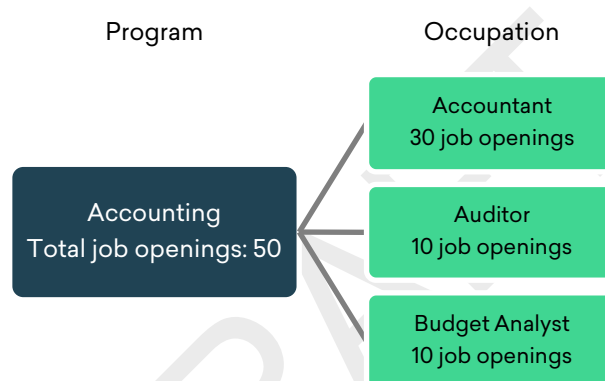
**Surplus** Represents an oversupply, or when there are more completions than there are job openings in an occupation. If left unaddressed, significant surpluses may lead to higher unemployment rates or higher attrition rates—the district could be educating a workforce that is leaving the region after program completion because of a lack of job opportunities.

When reviewing the results of the analysis, consider that not all gaps or surpluses indicate necessary program adjustments. Due to labor market inefficiencies, it is common for most programs to face a certain level of gap or surplus. This means only significant gaps or

surpluses should be reviewed or further developed. Given the size and characteristics of the SBCCD Service Region, any gap or surplus within 500 jobs either above or below zero should be considered within the normal range of labor market fluctuations. In the following sections, the program gaps and surpluses are discussed by award level and presented as figures and tables.

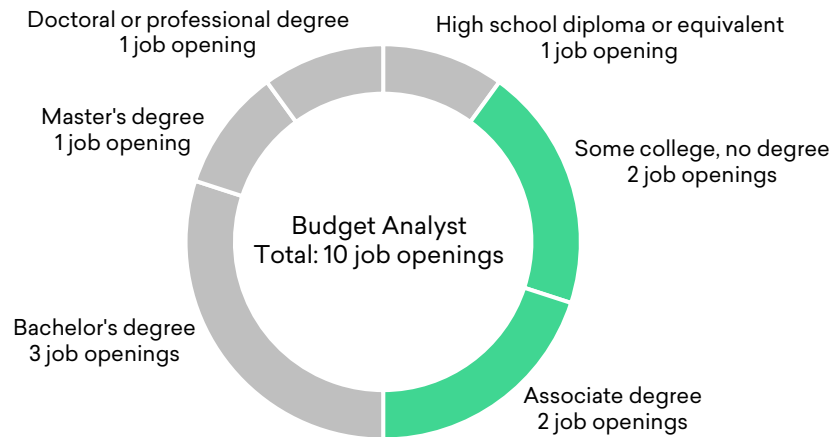
The figures show the gap between job demand and the supply of program completions. An explanation of job demand is warranted here, and a more detailed description can be found in Appendix 5. A program's job demand is measured as its total number of annual job openings, on average, from 2020 to 2030. The total is calculated as the sum of the regional job openings for each occupation mapped to the program, as illustrated in Figure 3.2.

Figure 3.2: Example of One Program Mapped to Three Occupations



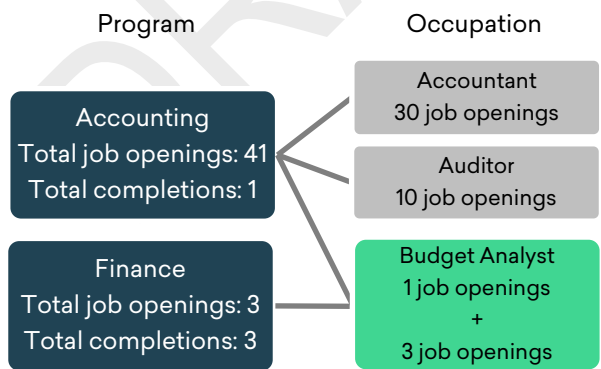
Furthermore, an occupation's job openings are not a gross measure of job openings available in the region. For every occupation, job openings have been weighted by the program's award level and one level below and account for the highest educational attainments of those employed in the position. The educational attainments in this chapter (and the following) are for adults less than 34 years, which differ from the previous chapter but better reflect the district's student population. Figure 3.3 illustrates how this methodology applies to an occupation's total job openings. For example, four job openings or 40% of total job openings are available to budget analysts at the associate degree level, seeing that there are a total of 10 job openings, 20% of those working in the occupation have an associate degree level of education, and another 20% have some college education and no degree.

Figure 3.3: Example of an Occupation’s Weighted Job Openings by Award Level



Finally, job openings are de-duplicated and scaled across programs, when an occupation is mapped to more than one program. As illustrated in Figure 3.4, budget analysts, which have four total job openings, are mapped to two programs. However, the Finance program is three-times the size of the Accounting program, measured in terms of completions. Thus, one job opening is portioned to the Accounting program and three job openings to the Finance program.

Figure 3.4: Example of Two Programs with One Shared Occupation



Supply is shown as the average number of program completions in the region, by award level, between 2017 and 2019.<sup>9</sup> SBCCD is not the only postsecondary educational institution in the SBCCD Service Region reporting to IPEDS,<sup>10</sup> the source of the completions data. The gap, then, is the difference between job openings and program completions. Appendix 4 has SBCCD's program to occupation map with adjusted employment, and Appendix 5 identifies all the certificate and degree-granting institutions in the SBCCD Service Region.

A great amount of data is presented in the tables. The first set shows the gaps and surpluses across all the programs offered at SBCCD by award level. The tables include the Classification of Instructional Program (CIP) code and title, the average annual number of job openings associated with the program (which have been de-duplicated using the process outlined in Appendix 5), the average annual program completions from the region and from SBCCD, and the gap or surplus for the SBCCD Service Region. The programs' median hourly wage rates are specific to the SBCCD Service Region.

The second set of tables identify the occupations mapped to the programs with a significant gap or surplus, by award level, and show detailed occupational data. The tables include the CIP code, CIP title, and occupations mapped to the program, by their Standard Occupational Classification (SOC) codes and titles. The regional job counts, by occupation, are shown for 2020 and 2030 with the change in jobs and average annual job openings for those years. The occupations' median hourly wage rates are specific to the SBCCD Service Region. See Appendix 6 for a complete list of job projections by industry and occupation.

## CERTIFICATE LEVEL ANALYSIS

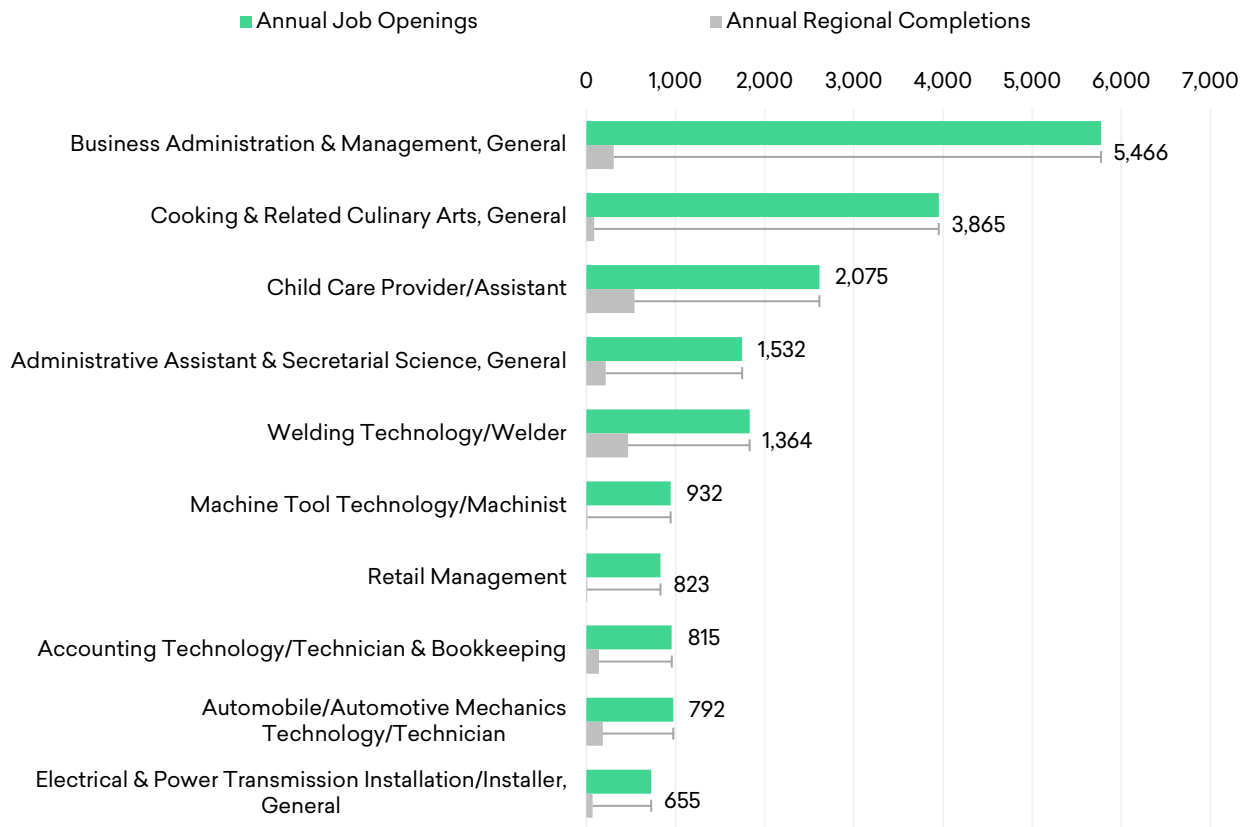
Certificates are reported to IPEDS as awards of less than one academic year and awards of at least one but less than two academic years. In this section, SBCCD's unique certificate level programs aggregate into 46 programs, when they are classified by their six-digit CIP codes. Average projected annual job openings consider someone with a high school diploma level of education and some college education but no degree. Furthermore, an occupation's job openings are weighted by the number of other programs mapped to an occupation and scaled according to a program's completions.

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9 The average annual completions data for SBCCD were updated to the years 2018 to 2020 and reviewed for accuracy by SBCCD.

10 IPEDS refers to the Integrated Postsecondary Education Data System, which gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid program.

Figure 3.5: SBCCD's Top 10 Certificate Level Programs with a Gap



Source: Emsi program demand gap model.

The largest certificate level gap, at 5,466 job openings, is in the Business Administration & Management, General program (Figure 3.5). Within the program, SBCCD has one average annual completion and is not the only institution with completers in this program. Table 3.1 shows all the award level's program gaps and surpluses. Results have been split out to show the programs relevant for the two colleges that comprise SBCCD – Crafton Hills College and San Bernardino Valley College. In other words, the gap or surplus reflects SBCCD as a whole but each of the colleges can see district-wide results specific to the programs they offer. There are no programs with a significant surplus of program completions above the 500-openings level of significance. Programs with a significant gap have been highlighted in Table 3.1.

Table 3.1: Gaps and Surpluses for SBCCD's Certificate Level Programs

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
Crafton Hills College						
52.0201	Business Administration & Management, General	5,773	307	1	5,466	\$26.58
19.0709	Child Care Provider/Assistant	2,614	540	21		\$15.42
52.0212	Retail Management	832	9	3		\$16.27
50.0901	Music, General	211	12	<1	198	\$33.94
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	497	418	230	79	\$19.85
16.1601	American Sign Language (ASL)	52	14	6	38	\$25.14
11.0803	Computer Graphics	10	10	2	0	\$24.03
11.9999	Computer & Information Sciences & Support Services, Other	1	1	1	0	\$34.20
11.0103	Information Technology	59	64	1	(5)	\$36.33
43.0203	Fire Science/Fire-fighting	47	139	51	(92)	\$33.43
San Bernardino Valley College						
52.0201	Business Administration & Management, General	5,773	307	1	5,466	\$26.58
12.0500	Cooking & Related Culinary Arts, General	3,953	88	8		\$15.72
19.0709	Child Care Provider/Assistant	2,614	540	21		\$15.42
52.0401	Administrative Assistant & Secretarial Science, General	1,748	216	7		\$18.22
48.0508	Welding Technology/Welder	1,831	468	3		\$23.96
48.0501	Machine Tool Technology/Machinist	946	14	7		\$20.10
52.0212	Retail Management	832	9	3		\$16.27
52.0302	Accounting Technology/Technician & Bookkeeping	958	144	21		\$20.68
47.0604	Automobile/Automotive Mechanics Technology/Technician	975	183	7		\$20.24
46.0301	Electrical & Power Transmission Installation/Installer, General	727	72	8		\$27.54
15.0613	Manufacturing Engineering Technology/Technician	597	25	1		\$32.22
47.0605	Diesel Mechanics Technology/Technician	607	91	14		\$21.37
12.0504	Restaurant, Culinary, & Catering Management/Manager	503	33	3		\$18.22
44.0000	Human Services, General	514	49	12		\$22.32
47.0101	Electrical/Electronics Equipment Installation & Repair, General	348	24	19		\$19.45
52.1501	Real Estate	378	73	4	\$29.63	



CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
43.0102	Corrections	329	55	<1	275	\$40.39
47.0603	Autobody/Collision & Repair Technology/Technician	259	23	15	236	\$17.90
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	304	99	17	205	\$24.55
25.0301	Library & Archives Assisting	127	6	6	122	\$21.47
15.0506	Water Quality & Wastewater Treatment Management & Recycling Technology/Technician	93	28	9	65	\$33.87
19.0505	Foodservice Systems Administration/Management	68	3	<1	64	\$19.98
09.0701	Radio & Television	88	36	2	52	\$27.39
51.0805	Pharmacy Technician/Assistant	250	222	5	28	\$17.01
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	36	14	2	22	\$21.71
51.1502	Psychiatric/Mental Health Services Technician	49	28	28	21	\$32.94
50.0409	Graphic Design	53	43	8	10	\$22.27
11.0101	Computer & Information Sciences, General	23	21	<1	2	\$34.20
19.0707	Family & Community Services	0	<1	<1	(0)	\$23.82
14.1004	Telecommunications Engineering	1	2	2	(0)	\$57.75
45.0799	Geography, Other	1	2	2	(1)	\$34.82
51.1501	Substance Abuse/Addiction Counseling	167	176	25	(9)	\$22.15
46.0403	Building/Home/Construction Inspection/Inspector	4	16	1	(11)	\$40.22
47.0104	Computer Installation & Repair Technology/Technician	32	51	2	(18)	\$23.39
47.0608	Aircraft Powerplant Technology/Technician	42	70	17	(27)	\$34.66
11.0201	Computer Programming/Programmer, General	50	80	<1	(30)	\$36.14
50.0602	Cinematography & Film/Video Production	15	54	<1	(40)	\$28.72
47.0607	Airframe Mechanics & Aircraft Maintenance Technology/Technician	84	125	19	(41)	\$34.18
43.0107	Criminal Justice/Police Science	255	345	171	(91)	\$48.83

Numbers may not sum due to rounding.  
Source: Emsi program demand gap model.

Several occupations mapped to Water Quality & Wastewater Treatment Management & Recycling Technology/Technician, such as water and wastewater treatment plant and system operators. The median hourly wage for the Water Quality & Wastewater Treatment

Management & Recycling Technology/Technician program is \$33.87, when weighted by the openings and median hourly wages for each occupation mapped to the program. For context, the California state minimum wage is \$12.00<sup>11</sup> per hour, and the state's living wage is \$14.61 per hour for a household with one working adult and no children.<sup>12</sup> Although the program does not have a significant gap there appears to be demand for additional completers in the program and thus a modest expansion of the program may be warranted.<sup>13</sup>

This step-by-step analysis of evaluating a program by its occupational job openings, job counts, and wage rates can be applied to the other programs in Table 3.2 and by using the supporting online visualization and appendices. In general, occupations with high wages are more noteworthy than those with low wages. Also, if occupational forecasts are not positive, program development may not be a priority at this time. Keep in mind that there could be other sources of skilled workers filling the gaps, such as unemployed workers or workers from outside the SBCCD Service Region.

Table 3.2: Occupations Mapped to SBCCD's Certificate Level Programs with a Significant Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Business Administration & Management, General (CIP Code 52.0201)						
43-4051	Customer Service Representatives	18,953	19,942	989	1,481	\$17.70
41-1011	First-Line Supervisors of Retail Sales Workers	16,924	17,653	729	1,090	\$19.84
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	22,682	22,356	(326)	679	\$19.55
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	14,553	15,064	511	586	\$27.86
11-1021	General & Operations Managers	19,793	22,307	2,514	568	\$48.16
43-1011	First-Line Supervisors of Office & Administrative Support Workers	15,506	16,291	785	404	\$27.19
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	10,279	11,544	1,265	140	\$33.80
13-1071	Human Resources Specialists	5,602	6,111	509	135	\$29.88
11-3031	Financial Managers	5,092	5,753	661	130	\$53.10

11 The California minimum wage as of January 1, 2020 is \$12.00 per hour. Source: Emsi Complete Employment Data.

12 Living wage calculations provided by Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology. See Appendix 8.

13 Further research must be conducted before making a final determination, such as top employer identification within the region; business surveys to verify the data; resume and job postings analysis to determine trending skills for individuals with similar educations; industry recommendations on curriculum development; and analysis of the strengths, weaknesses, and capacities of similar programs at other regional higher education institutions. Emsi is available to conduct this research; see your Emsi contact for details.

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
13-1198	Project Management Specialists and Business Operations Specialists, All Other	12,895	14,075	1,180	100	\$31.07
11-2022	Sales Managers	6,061	6,307	245	81	\$43.09
13-1161	Market Research Analysts & Marketing Specialists	4,457	5,262	806	80	\$24.51
13-1111	Management Analysts	6,372	6,984	612	74	\$37.09
15-1232	Computer User Support Specialists	3,670	4,135	465	63	\$27.81
13-2011	Accountants & Auditors	8,481	9,325	843	50	\$34.14
11-1011	Chief Executives	3,477	3,479	2	45	\$79.78
11-3121	Human Resources Managers	1,586	1,738	153	35	\$53.07
11-2021	Marketing Managers	1,265	1,425	160	19	\$50.09
11-3021	Computer & Information Systems Managers	1,892	2,125	233	12	\$63.17
Cooking & Related Culinary Arts, General (CIP Code 12.0500)						
35-2014	Cooks, Restaurant	15,656	19,306	3,650	1,816	\$14.05
35-1012	First-Line Supervisors of Food Preparation & Serving Workers	10,673	12,964	2,291	969	\$16.25
35-2012	Cooks, Institution & Cafeteria	2,893	3,262	369	286	\$16.44
11-9051	Food Service Managers	5,402	6,006	605	272	\$22.97
35-2015	Cooks, Short Order	2,463	2,601	139	239	\$13.16
51-3011	Bakers	1,478	1,724	246	144	\$14.30
51-3021	Butchers & Meat Cutters	1,782	1,883	101	141	\$18.05
35-1011	Chefs & Head Cooks	1,390	1,605	215	86	\$25.35
35-2013	Cooks, Private Household	12	13	1	1	\$19.25
Child Care Provider/Assistant (CIP Code 19.0709)						
39-9011	Childcare Workers	13,548	12,426	(1,122)	1,282	\$13.01
25-9045	Teaching Assistants, Except Postsecondary	18,542	20,244	1,702	1,111	\$17.36
21-1093	Social & Human Service Assistants	5,073	6,213	1,141	193	\$18.67
21-1021	Child, Family, & School Social Workers	1,936	2,319	383	28	\$26.13
Administrative Assistant & Secretarial Science, General (CIP Code 52.0401)						
43-9061	Office Clerks, General	30,905	31,938	1,033	699	\$17.36
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	22,682	22,356	(326)	477	\$19.55
43-4171	Receptionists & Information Clerks	9,107	10,156	1,050	380	\$14.77
43-6011	Executive Secretaries & Executive Administrative Assistants	3,959	3,521	(437)	121	\$28.92
43-4071	File Clerks	1,217	1,167	(50)	28	\$17.53
43-9021	Data Entry Keyers	1,499	1,327	(172)	22	\$15.95
43-9022	Word Processors & Typists	794	650	(144)	20	\$20.46

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Welding Technology/Welder (CIP Code 48.0508)						
49-9071	Maintenance & Repair Workers, General	14,663	16,363	1,700	466	\$19.68
47-2152	Plumbers, Pipefitters, & Steamfitters	5,994	7,389	1,396	370	\$25.71
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	8,760	9,700	940	354	\$29.59
51-4121	Welders, Cutters, Solderers, & Brazers	4,080	4,289	210	337	\$18.64
47-2221	Structural Iron & Steel Workers	1,614	1,947	333	169	\$32.00
47-2211	Sheet Metal Workers	1,554	1,853	299	76	\$27.57
47-2171	Reinforcing Iron & Rebar Workers	527	623	97	42	\$15.78
51-4122	Welding, Soldering, & Brazing Machine Setters, Operators, & Tenders	221	209	(12)	17	\$16.12
Machine Tool Technology/Machinist (CIP Code 48.0501)						
51-4041	Machinists	3,518	3,690	172	202	\$18.33
51-4031	Cutting, Punching, & Press Machine Setters, Operators, & Tenders, Metal & Plastic	1,995	1,823	(172)	157	\$17.38
49-9041	Industrial Machinery Mechanics	3,105	3,286	181	153	\$29.93
51-4021	Extruding & Drawing Machine Setters, Operators, & Tenders, Metal & Plastic	919	815	(103)	88	\$14.68
49-9043	Maintenance Workers, Machinery	1,097	1,158	61	73	\$24.16
51-4033	Grinding, Lapping, Polishing, & Buffing Machine Tool Setters, Operators, & Tenders, Metal & Plastic	920	828	(92)	52	\$14.57
51-9161	Computer Numerically Controlled Tool Operators	949	923	(27)	51	\$18.40
51-4081	Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic	749	766	17	43	\$15.56
51-4034	Lathe & Turning Machine Tool Setters, Operators, & Tenders, Metal & Plastic	320	303	(17)	25	\$18.66
51-4022	Forging Machine Setters, Operators, & Tenders, Metal & Plastic	360	296	(64)	23	\$19.11
51-4023	Rolling Machine Setters, Operators, & Tenders, Metal & Plastic	268	236	(31)	20	\$20.92
51-4035	Milling & Planing Machine Setters, Operators, & Tenders, Metal & Plastic	270	222	(48)	18	\$18.07
49-9044	Millwrights	139	177	37	13	\$35.76
51-4199	Metal Workers & Plastic Workers, All Other	220	197	(22)	12	\$15.57
51-4032	Drilling & Boring Machine Tool Setters, Operators, & Tenders, Metal & Plastic	123	106	(17)	9	\$17.07
51-4191	Heat Treating Equipment Setters, Operators, & Tenders, Metal & Plastic	100	94	(6)	5	\$17.44
51-4192	Layout Workers, Metal & Plastic	45	47	2	2	\$20.37
Retail Management (CIP Code 52.0212)						
53-7065	Stockers and Order Fillers	50,901	54,738	3,837	641	\$14.84
33-9098	School Bus Monitors and Protective Service Workers, All Other	3,106	3,366	259	103	\$14.65
13-1028	Buyers & Purchasing Agents	3,684	3,706	23	36	\$27.28
41-1011	First-Line Supervisors of Retail Sales Workers	16,924	17,653	729	32	\$19.84

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
11-1021	General & Operations Managers	19,793	22,307	2,514	17	\$48.16
13-1198	Project Management Specialists and Business Operations Specialists, All Other	12,895	14,075	1,180	3	\$31.07
Accounting Technology/Technician & Bookkeeping (CIP Code 52.0302)						
43-3031	Bookkeeping, Accounting, & Auditing Clerks	15,836	16,171	335	793	\$20.31
43-3051	Payroll & Timekeeping Clerks	1,977	1,992	15	80	\$22.65
13-2082	Tax Preparers	1,141	1,179	38	44	\$15.50
13-2011	Accountants & Auditors	8,481	9,325	843	24	\$34.14
43-4011	Brokerage Clerks	191	199	8	10	\$25.54
43-9111	Statistical Assistants	97	107	10	7	\$20.06
Automobile/Automotive Mechanics Technology/Technician (CIP Code 47.0604)						
49-3023	Automotive Service Technicians & Mechanics	12,898	13,420	522	543	\$19.32
49-9071	Maintenance & Repair Workers, General	14,663	16,363	1,700	183	\$19.68
49-3021	Automotive Body & Related Repairers	1,753	1,903	149	108	\$18.24
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	4,639	5,087	448	60	\$35.62
49-3022	Automotive Glass Installers & Repairers	667	718	51	50	\$14.37
49-2093	Electrical & Electronics Installers & Repairers, Transportation Equipment	159	166	7	10	\$28.63
53-6051	Transportation Inspectors	248	269	21	10	\$29.15
17-3027	Mechanical Engineering Technologists and Technicians	127	141	14	8	\$21.19
49-2096	Electronic Equipment Installers & Repairers, Motor Vehicles	52	48	(4)	4	\$21.76
Electrical & Power Transmission Installation/Installer, General (CIP Code 46.0301)						
49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	3,024	3,132	109	208	\$26.61
47-2111	Electricians	9,234	11,254	2,020	181	\$23.17
49-9052	Telecommunications Line Installers & Repairers	1,273	1,409	136	121	\$25.58
49-9051	Electrical Power-Line Installers & Repairers	1,096	1,246	150	72	\$42.60
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	8,760	9,700	940	55	\$29.59
47-3013	Helpers--Electricians	1,349	1,598	248	28	\$17.08
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	4,639	5,087	448	24	\$35.62
49-2098	Security & Fire Alarm Systems Installers	918	1,068	150	19	\$21.35
49-2095	Electrical & Electronics Repairers, Powerhouse, Substation, & Relay	193	205	12	10	\$47.55
49-2094	Electrical & Electronics Repairers, Commercial & Industrial Equipment	651	665	14	7	\$31.85
49-9097	Signal & Track Switch Repairers	117	117	0	2	\$38.57
Manufacturing Engineering Technology/Technician (CIP Code 15.0613)						

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
51-1011	First-Line Supervisors of Production & Operating Workers	4,923	5,067	144	233	\$29.45
47-2111	Electricians	9,234	11,254	2,020	64	\$23.17
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	14,553	15,064	511	48	\$27.86
11-1021	General & Operations Managers	19,793	22,307	2,514	47	\$48.16
17-3023	Electrical and Electronic Engineering Technologists and Technicians	1,101	1,112	11	45	\$29.63
11-9021	Construction Managers	5,581	6,149	569	35	\$31.60
49-9071	Maintenance & Repair Workers, General	14,663	16,363	1,700	25	\$19.68
17-2112	Industrial Engineers	1,330	1,461	131	13	\$39.75
11-3051	Industrial Production Managers	1,692	1,726	34	13	\$46.61
17-2141	Mechanical Engineers	1,364	1,485	121	12	\$41.87
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	10,279	11,544	1,265	12	\$33.80
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	4,639	5,087	448	8	\$35.62
17-2199	Engineers, All Other	898	956	58	7	\$45.54
11-2022	Sales Managers	6,061	6,307	245	7	\$43.09
11-9041	Architectural & Engineering Managers	1,223	1,307	84	6	\$73.53
13-1111	Management Analysts	6,372	6,984	612	6	\$37.09
15-1232	Computer User Support Specialists	3,670	4,135	465	5	\$27.81
11-1011	Chief Executives	3,477	3,479	2	4	\$79.78
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	4,315	5,218	903	3	\$46.27
15-1244	Network and Computer Systems Administrators	1,779	1,923	144	3	\$41.02
Diesel Mechanics Technology/Technician (CIP Code 47.0605)						
49-3031	Bus & Truck Mechanics & Diesel Engine Specialists	4,129	4,535	406	308	\$23.55
49-3023	Automotive Service Technicians & Mechanics	12,898	13,420	522	271	\$19.32
49-9098	Helpers--Installation, Maintenance, & Repair Workers	1,110	1,279	169	23	\$14.67
53-6051	Transportation Inspectors	248	269	21	5	\$29.15

Numbers may not sum due to rounding.  
Source: Emsi program demand gap model.

Table 3.3 shows the gaps and surpluses for the Extended SBCCD Service Region. The Extended SBCCD Service Region includes Riverside County, San Bernardino County, Orange County, Los Angeles County, and San Diego County. For the Extended SBCCD Service Region has a significant gap threshold of 2,000 as opposed to the threshold of 500 for the SBCCD Service Region. Median hourly earnings and openings are both calculated using the Extended Service Region and annual completions now include completions at the colleges within the Extended SBCCD Service Region. While the gaps have generally increased for most programs, due to the use of our program based weighting and the inclusion of the additional completions from colleges in the Extended SBCCD Service Region some gaps may have decreased and surpluses widened.

Table 3.3: Gaps and Surpluses for SBCCD's Certificate Level Programs in the Extended SBCCD Service Region

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
Crafton Hills College						
52.0201	Business Administration & Management, General	34,218	1,481	1	32,737	\$29.93
19.0709	Child Care Provider/Assistant	14,056	3,632	21	10,424	\$15.37
52.0212	Retail Management	4,585	85	3	4,500	\$17.65
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	3,009	1,405	230	1,604	\$18.69
11.0103	Information Technology	497	171	1	326	\$43.16
16.1601	American Sign Language (ASL)	233	93	6	140	\$23.82
50.0901	Music, General	131	21	<1	110	\$28.83
11.0803	Computer Graphics	171	76	2	95	\$34.25
11.9999	Computer & Information Sciences & Support Services, Other	36	11	1	25	\$42.07
43.0203	Fire Science/Fire-fighting	45	215	51	(170)	\$41.15
San Bernardino Valley College						
52.0201	Business Administration & Management, General	34,218	1,481	1	32,737	\$29.93
12.0500	Cooking & Related Culinary Arts, General	21,162	717	8	20,445	\$16.04
52.0401	Administrative Assistant & Secretarial Science, General	11,698	833	7	10,866	\$18.92
19.0709	Child Care Provider/Assistant	14,056	3,632	21	10,424	\$15.37
52.0302	Accounting Technology/Technician & Bookkeeping	8,062	1,691	21	6,372	\$23.28
48.0508	Welding Technology/Welder	6,539	859	3	5,680	\$24.86
48.0501	Machine Tool Technology/Machinist	5,633	549	7	5,085	\$20.64



CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
47.0604	Automobile/Automotive Mechanics Technology/Technician	6,768	1,921	7	4,846	\$22.39
52.0212	Retail Management	4,585	85	3	4,500	\$17.65
15.0613	Manufacturing Engineering Technology/Technician	3,688	119	1	3,569	\$35.17
52.1501	Real Estate	2,811	509	4	2,302	\$29.94
44.0000	Human Services, General	2,410	115	12	2,295	\$23.27
46.0301	Electrical & Power Transmission Installation/Installer, General	2,315	160	8	2,155	\$31.74
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	2,282	599	17	1,683	\$24.89
47.0101	Electrical/Electronics Equipment Installation & Repair, General	1,622	188	19	1,434	\$21.71
12.0504	Restaurant, Culinary, & Catering Management/Manager	1,408	146	3	1,262	\$19.03
47.0605	Diesel Mechanics Technology/Technician	1,523	339	14	1,184	\$23.91
47.0603	Autobody/Collision & Repair Technology/Technician	1,088	118	15	969	\$19.65
09.0701	Radio & Television	1,095	324	2	772	\$31.82
43.0102	Corrections	728	123	<1	605	\$38.96
47.0607	Airframe Mechanics & Aircraft Maintenance Technology/Technician	746	271	19	476	\$31.46
19.0505	Foodservice Systems Administration/Management	495	46	<1	449	\$18.83
25.0301	Library & Archives Assisting	461	56	6	405	\$21.85
11.0101	Computer & Information Sciences, General	517	162	<1	355	\$42.07
11.0201	Computer Programming/Programmer, General	675	348	<1	327	\$47.36
51.1501	Substance Abuse/Addiction Counseling	860	561	25	299	\$22.85
51.0805	Pharmacy Technician/Assistant	1,296	1,014	5	282	\$19.07
47.0608	Aircraft Powerplant Technology/Technician	473	193	17	280	\$31.25
50.0409	Graphic Design	414	182	8	232	\$31.30
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	258	161	2	97	\$19.41
50.0602	Cinematography & Film/Video Production	357	283	<1	74	\$38.87
47.0104	Computer Installation & Repair Technology/Technician	398	324	2	74	\$23.78
43.0107	Criminal Justice/Police Science	1,873	1,807	171	66	\$51.79
51.1502	Psychiatric/Mental Health Services Technician	185	134	28	51	\$29.38



CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
14.1004	Telecommunications Engineering	37	29	2	8	\$62.01
19.0707	Family & Community Services	11	12	<1	(1)	\$27.51
45.0799	Geography, Other	41	67	2	(26)	\$43.58
46.0403	Building/Home/Construction Inspection/Inspector	28	66	1	(38)	\$41.53
15.0506	Water Quality & Wastewater Treatment Management & Recycling Technology/Technician	319	455	9	(136)	\$37.16

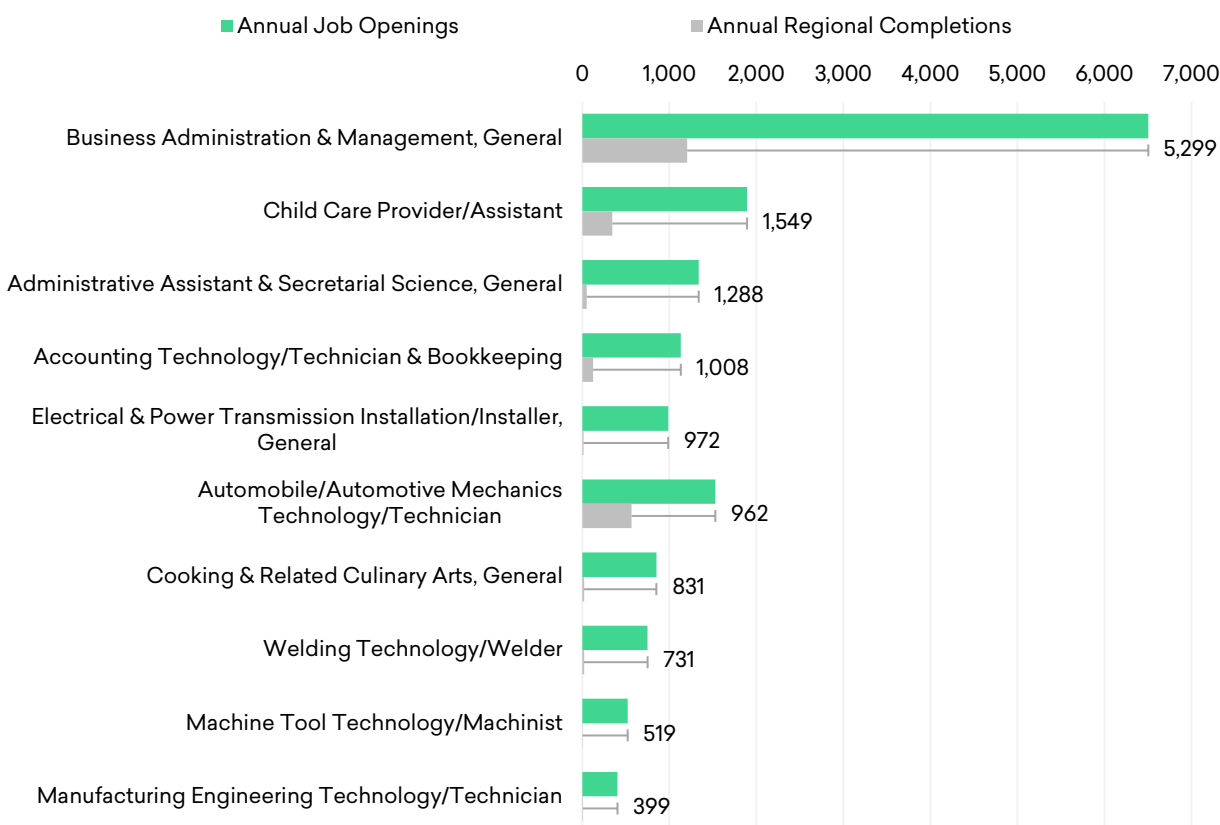
Numbers may not sum due to rounding.  
Source: Emsi program demand gap model.

DRAFT

## ASSOCIATE DEGREE LEVEL ANALYSIS

SBCCCD offers 69 programs in which students receive an Associate in Applied Science (AAS), Art (AA), Fine Arts (AFA), or Science (AS) degrees in one of many subject areas, when the programs are classified by their six-digit CIP codes. Like the previous section, job openings consider this award level and one below – an associate degree and some college education in this section. An occupation's job openings are weighted by the number of other programs mapped to the occupation and scaled according to a program's completions.

Figure 3.6: SBCCCD's Top 10 Associate Degree Level Programs with a Gap



Source: Emsi program demand gap model.

As shown in Figure 3.6, nine programs have a significant gap above the 500-openings level of significance. The Business Administration & Management, General program has the largest, followed by the Child Care Provider/Assistant and Administrative Assistant & Secretarial Science, General programs. As shown in Table 3.3, the Business Administration & Management, General program has 6,504 average annual job openings, considering the region's labor market. On average, the district has 185 annual completions, and combined with the other postsecondary educational institutions in the region, there are a total of 1,205

annual completions. There is one program with a significant surplus of program completions above the 500-openings level of significance. Programs with a significant gap or surplus have been highlighted in Table 3.4. Similar to Table 3.1, results have been split out to show the programs relevant for the two colleges that comprise SBCCD.

Table 3.4: Gaps and Surpluses for SBCCD's Associate Degree Level Programs

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
Crafton Hills College						
52.0201	Business Administration & Management, General	6,504	1,205	185	5,299	\$27.49
19.0709	Child Care Provider/Assistant	1,893	344	67	1,549	\$15.52
50.0701	Art/Art Studies, General	295	112	18	183	\$20.82
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	167	18	5	149	\$20.04
11.0103	Information Technology	220	107	11	113	\$35.46
50.0101	Visual & Performing Arts, General	157	95	4	62	\$24.44
40.0601	Geology/Earth Science, General	62	7	2	54	\$22.05
16.1601	American Sign Language (ASL)	72	19	11	52	\$24.75
43.0201	Fire Prevention & Safety Technology/Technician	133	81	12	52	\$33.16
11.0701	Computer Science	104	52	7	52	\$37.76
45.0701	Geography	56	10	3	45	\$28.94
16.0905	Spanish Language & Literature	90	52	9	38	\$29.30
50.0501	Drama & Dramatics/Theatre Arts, General	68	38	6	30	\$24.97
50.0901	Music, General	74	51	4	23	\$30.06
31.0505	Kinesiology & Exercise Science	105	84	15	22	\$22.05
03.0104	Environmental Science	18	4	4	14	\$32.58
51.0908	Respiratory Care Therapy/Therapist	166	155	29	11	\$29.20
51.0911	Radiologic Technology/Science - Radiographer	103	94	15	9	\$31.65
23.0101	English Language & Literature, General	186	180	36	5	\$31.41
16.0302	Japanese Language & Literature	6	5	5	1	\$20.62
26.0901	Physiology, General	0	<1	<1	(0)	\$51.36
38.0201	Religion/Religious Studies	1	2	1	(1)	\$27.11
40.0501	Chemistry, General	18	27	17	(9)	\$33.33
38.0101	Philosophy	3	24	5	(21)	\$46.39

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
26.0101	Biology/Biological Sciences, General	18	54	15	(36)	\$26.80
45.0601	Economics, General	7	49	7	(41)	\$29.13
45.1001	Political Science & Government, General	31	100	16	(69)	\$32.89
45.0201	Anthropology	7	76	17	(70)	\$32.84
40.0801	Physics, General	3	89	33	(86)	\$49.97
54.0101	History, General	24	171	25	(146)	\$35.24
09.0101	Speech Communication & Rhetoric	68	254	31	(186)	\$27.76
42.0101	Psychology, General	434	643	126	(209)	\$27.57
27.0101	Mathematics, General	20	247	70	(227)	\$36.87
45.1101	Sociology	84	345	86	(261)	\$34.21
45.0101	Social Sciences, General	62	498	121	(436)	\$34.68
30.0101	Biological & Physical Sciences	1,144	2,598	310	(1,454)	\$22.50
<b>San Bernardino Valley College</b>						
52.0201	Business Administration & Management, General	6,504	1,205	185	5,299	\$27.49
19.0709	Child Care Provider/Assistant	1,893	344	67	1,549	\$15.52
52.0401	Administrative Assistant & Secretarial Science, General	1,337	49	6	1,288	\$18.15
52.0302	Accounting Technology/Technician & Bookkeeping	1,131	124	39	1,008	\$20.51
46.0301	Electrical & Power Transmission Installation/Installer, General	986	14	3	972	\$25.54
47.0604	Automobile/Automotive Mechanics Technology/Technician	1,528	566	6	962	\$21.84
12.0500	Cooking & Related Culinary Arts, General	850	20	1	831	\$16.08
48.0508	Welding Technology/Welder	750	19	2	731	\$25.02
48.0501	Machine Tool Technology/Machinist	521	2	<1	519	\$19.39
15.0613	Manufacturing Engineering Technology/Technician	404	5	<1	399	\$27.49
44.0000	Human Services, General	410	39	31	371	\$19.26
52.1501	Real Estate	341	20	2	321	\$29.59
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	328	10	2	317	\$22.97
47.0605	Diesel Mechanics Technology/Technician	306	65	2	241	\$21.54
12.0504	Restaurant, Culinary, & Catering Management/Manager	250	15	1	235	\$18.19
19.0708	Child Care & Support Services Management	232	4	1	228	\$15.36

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
51.0805	Pharmacy Technician/Assistant	228	24	12	204	\$17.14
47.0101	Electrical/Electronics Equipment Installation & Repair, General	216	13	7	203	\$21.04
51.3801	Registered Nursing/Registered Nurse	720	520	82	200	\$50.01
50.0701	Art/Art Studies, General	295	112	18	183	\$20.82
04.0901	Architectural Technology/Technician	131	9	1	122	\$33.20
11.0103	Information Technology	220	107	11	113	\$35.46
47.0603	Autobody/Collision & Repair Technology/Technician	77	4	3	73	\$17.29
45.0701	Geography	56	10	3	45	\$28.94
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	69	25	4	44	\$21.02
51.1502	Psychiatric/Mental Health Services Technician	63	22	22	41	\$33.44
15.0506	Water Quality & Wastewater Treatment Management & Recycling Technology/Technician	62	25	10	37	\$33.59
50.0501	Drama & Dramatics/Theatre Arts, General	68	38	6	30	\$24.97
47.0104	Computer Installation & Repair Technology/Technician	36	12	3	23	\$22.02
50.0901	Music, General	74	51	4	23	\$30.06
31.0505	Kinesiology & Exercise Science	105	84	15	22	\$22.05
46.0403	Building/Home/Construction Inspection/Inspector	22	5	<1	17	\$40.60
03.0104	Environmental Science	18	4	4	14	\$32.58
11.0201	Computer Programming/Programmer, General	43	33	9	10	\$35.37
23.0101	English Language & Literature, General	186	180	36	5	\$31.41
14.1004	Telecommunications Engineering	1	1	1	(0)	\$62.92
40.0201	Astronomy	0	<1	<1	(1)	\$58.41
50.0602	Cinematography & Film/Video Production	2	4	3	(2)	\$23.22
25.0301	Library & Archives Assisting	2	5	5	(3)	\$21.47
40.0501	Chemistry, General	18	27	17	(9)	\$33.33
50.0409	Graphic Design	22	32	11	(10)	\$22.77
09.0701	Radio & Television	27	39	8	(12)	\$28.71
38.0101	Philosophy	3	24	5	(21)	\$46.39
26.0101	Biology/Biological Sciences, General	18	54	15	(36)	\$26.80
47.0607	Airframe Mechanics & Aircraft Maintenance Technology/Technician	90	127	4	(37)	\$34.57

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
45.1001	Political Science & Government, General	31	100	16	(69)	\$32.89
45.0201	Anthropology	7	76	17	(70)	\$32.84
40.0801	Physics, General	3	89	33	(86)	\$49.97
09.0101	Speech Communication & Rhetoric	68	254	31	(186)	\$27.76
43.0107	Criminal Justice/Police Science	294	488	37	(193)	\$49.33
42.0101	Psychology, General	434	643	126	(209)	\$27.57
27.0101	Mathematics, General	20	247	70	(227)	\$36.87
45.1101	Sociology	84	345	86	(261)	\$34.21
30.0101	Biological & Physical Sciences	1,144	2,598	310	(1,454)	\$22.50

Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

Several occupations mapped to Child Care Provider/Assistant, such as childcare workers, social & human service assistants, and teaching assistants, except postsecondary (Table 3.5). The median hourly wage for the Child Care Provider/Assistant program is \$15.52, when weighted by the openings and median hourly wages for each occupation mapped to the program. For context, the California state minimum wage is \$12.00<sup>14</sup> per hour, and the state's living wage is \$14.61 per hour for a household with one working adult and no children.<sup>15</sup> Program expansion is not currently recommended given the low median hourly wage of the program compared to other programs with significant gaps.<sup>16</sup>

While the gaps are important to keep in mind for building or expanding programs, the surpluses are equally important to ensure the district is training students with skills the regional workforce requires. There is one associate degree program at SBCCD with a significant surplus – Biological & Physical Sciences, with a surplus of 1,454. Completers of the program are likely transferring to a four-year institution or are finding employment outside of the region.

14 The California minimum wage as of January 1, 2020 is \$12.00 per hour. Source: Emsi Complete Employment Data.

15 Living wage calculations provided by Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology. See Appendix 8.

16 Further research must be conducted before making a final determination, such as top employer identification within the region; business surveys to verify the data; resume and job postings analysis to determine trending skills for individuals with similar educations; industry recommendations on curriculum development; and analysis of the strengths, weaknesses, and capacities of similar programs at other regional higher education institutions. Emsi is available to conduct this research; see your Emsi contact for details.

Using Table 3.5, this step-by-step process of evaluating occupational gaps by their job openings, job counts, and median hourly wage rates can be applied to the other SBCCD associate degree level programs with a significant gap. In general, occupations with high wages should be considered more noteworthy than those with low wages. If an occupation's job projections are not positive, then it may not be worth further consideration, in terms of its mapped programs. Also, there could be other sources of skilled workers filling the gaps, such as unemployed workers or workers from outside the region.

Table 3.5: Occupations Mapped to SBCCD's Associate Degree Level Programs with a Significant Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Business Administration & Management, General (CIP Code 52.0201)						
43-4051	Customer Service Representatives	18,953	19,942	989	1,258	\$17.70
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	22,682	22,356	(326)	1,133	\$19.55
41-1011	First-Line Supervisors of Retail Sales Workers	16,924	17,653	729	877	\$19.84
43-1011	First-Line Supervisors of Office & Administrative Support Workers	15,506	16,291	785	690	\$27.19
11-1021	General & Operations Managers	19,793	22,307	2,514	671	\$48.16
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	14,553	15,064	511	508	\$27.86
13-1198	Project Management Specialists and Business Operations Specialists, All Other	12,895	14,075	1,180	300	\$31.07
13-1071	Human Resources Specialists	5,602	6,111	509	155	\$29.88
15-1232	Computer User Support Specialists	3,670	4,135	465	149	\$27.81
11-3031	Financial Managers	5,092	5,753	661	146	\$53.10
11-2022	Sales Managers	6,061	6,307	245	106	\$43.09
13-2011	Accountants & Auditors	8,481	9,325	843	100	\$34.14
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	10,279	11,544	1,265	90	\$33.80
13-1111	Management Analysts	6,372	6,984	612	87	\$37.09
13-1161	Market Research Analysts & Marketing Specialists	4,457	5,262	806	82	\$24.51
11-1011	Chief Executives	3,477	3,479	2	50	\$79.78
11-3121	Human Resources Managers	1,586	1,738	153	45	\$53.07
11-3021	Computer & Information Systems Managers	1,892	2,125	233	33	\$63.17
11-2021	Marketing Managers	1,265	1,425	160	24	\$50.09
Child Care Provider/Assistant (CIP Code 19.0709)						
39-9011	Childcare Workers	13,548	12,426	(1,122)	886	\$13.01
25-9045	Teaching Assistants, Except Postsecondary	18,542	20,244	1,702	783	\$17.36

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
21-1093	Social & Human Service Assistants	5,073	6,213	1,141	213	\$18.67
21-1021	Child, Family, & School Social Workers	1,936	2,319	383	10	\$26.13
Administrative Assistant & Secretarial Science, General (CIP Code 52.0401)						
43-9061	Office Clerks, General	30,905	31,938	1,033	822	\$17.36
43-4171	Receptionists & Information Clerks	9,107	10,156	1,050	247	\$14.77
43-6011	Executive Secretaries & Executive Administrative Assistants	3,959	3,521	(437)	129	\$28.92
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	22,682	22,356	(326)	46	\$19.55
43-9022	Word Processors & Typists	794	650	(144)	37	\$20.46
43-4071	File Clerks	1,217	1,167	(50)	37	\$17.53
43-9021	Data Entry Keyers	1,499	1,327	(172)	19	\$15.95
Accounting Technology/Technician & Bookkeeping (CIP Code 52.0302)						
43-3031	Bookkeeping, Accounting, & Auditing Clerks	15,836	16,171	335	960	\$20.31
43-3051	Payroll & Timekeeping Clerks	1,977	1,992	15	106	\$22.65
13-2082	Tax Preparers	1,141	1,179	38	43	\$15.50
13-2011	Accountants & Auditors	8,481	9,325	843	10	\$34.14
43-4011	Brokerage Clerks	191	199	8	10	\$25.54
43-9111	Statistical Assistants	97	107	10	2	\$20.06
Electrical & Power Transmission Installation/Installer, General (CIP Code 46.0301)						
47-2111	Electricians	9,234	11,254	2,020	454	\$23.17
49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	3,024	3,132	109	178	\$26.61
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	8,760	9,700	940	98	\$29.59
49-9052	Telecommunications Line Installers & Repairers	1,273	1,409	136	78	\$25.58
49-2098	Security & Fire Alarm Systems Installers	918	1,068	150	53	\$21.35
49-9051	Electrical Power-Line Installers & Repairers	1,096	1,246	150	52	\$42.60
47-3013	Helpers--Electricians	1,349	1,598	248	51	\$17.08
49-2094	Electrical & Electronics Repairers, Commercial & Industrial Equipment	651	665	14	10	\$31.85
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	4,639	5,087	448	6	\$35.62
49-2095	Electrical & Electronics Repairers, Powerhouse, Substation, & Relay	193	205	12	4	\$47.55
49-9097	Signal & Track Switch Repairers	117	117	0	3	\$38.57
Automobile/Automotive Mechanics Technology/Technician (CIP Code 47.0604)						
49-9071	Maintenance & Repair Workers, General	14,663	16,363	1,700	691	\$19.68
49-3023	Automotive Service Technicians & Mechanics	12,898	13,420	522	500	\$19.32



SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	4,639	5,087	448	220	\$35.62
49-3021	Automotive Body & Related Repairers	1,753	1,903	149	64	\$18.24
49-3022	Automotive Glass Installers & Repairers	667	718	51	24	\$14.37
53-6051	Transportation Inspectors	248	269	21	11	\$29.15
17-3027	Mechanical Engineering Technologists and Technicians	127	141	14	7	\$21.19
49-2093	Electrical & Electronics Installers & Repairers, Transportation Equipment	159	166	7	7	\$28.63
49-2096	Electronic Equipment Installers & Repairers, Motor Vehicles	52	48	(4)	3	\$21.76
Cooking & Related Culinary Arts, General (CIP Code 12.0500)						
35-2014	Cooks, Restaurant	15,656	19,306	3,650	318	\$14.05
35-1012	First-Line Supervisors of Food Preparation & Serving Workers	10,673	12,964	2,291	240	\$16.25
51-3021	Butchers & Meat Cutters	1,782	1,883	101	68	\$18.05
11-9051	Food Service Managers	5,402	6,006	605	67	\$22.97
35-2012	Cooks, Institution & Cafeteria	2,893	3,262	369	52	\$16.44
51-3011	Bakers	1,478	1,724	246	43	\$14.30
35-2015	Cooks, Short Order	2,463	2,601	139	42	\$13.16
35-1011	Chefs & Head Cooks	1,390	1,605	215	21	\$25.35
35-2013	Cooks, Private Household	12	13	1	0	\$19.25
Welding Technology/Welder (CIP Code 48.0508)						
47-2152	Plumbers, Pipefitters, & Steamfitters	5,994	7,389	1,396	271	\$25.71
51-4121	Welders, Cutters, Solderers, & Brazers	4,080	4,289	210	179	\$18.64
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	8,760	9,700	940	130	\$29.59
47-2221	Structural Iron & Steel Workers	1,614	1,947	333	85	\$32.00
47-2211	Sheet Metal Workers	1,554	1,853	299	39	\$27.57
49-9071	Maintenance & Repair Workers, General	14,663	16,363	1,700	23	\$19.68
47-2171	Reinforcing Iron & Rebar Workers	527	623	97	14	\$15.78
51-4122	Welding, Soldering, & Brazing Machine Setters, Operators, & Tenders	221	209	(12)	9	\$16.12
Machine Tool Technology/Machinist (CIP Code 48.0501)						
51-4041	Machinists	3,518	3,690	172	168	\$18.33
51-4031	Cutting, Punching, & Press Machine Setters, Operators, & Tenders, Metal & Plastic	1,995	1,823	(172)	65	\$17.38
49-9043	Maintenance Workers, Machinery	1,097	1,158	61	49	\$24.16
51-9161	Computer Numerically Controlled Tool Operators	949	923	(27)	46	\$18.40
49-9041	Industrial Machinery Mechanics	3,105	3,286	181	43	\$29.93

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
51-4021	Extruding & Drawing Machine Setters, Operators, & Tenders, Metal & Plastic	919	815	(103)	36	\$14.68
51-4033	Grinding, Lapping, Polishing, & Buffing Machine Tool Setters, Operators, & Tenders, Metal & Plastic	920	828	(92)	29	\$14.57
51-4081	Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic	749	766	17	28	\$15.56
51-4022	Forging Machine Setters, Operators, & Tenders, Metal & Plastic	360	296	(64)	10	\$19.11
51-4034	Lathe & Turning Machine Tool Setters, Operators, & Tenders, Metal & Plastic	320	303	(17)	9	\$18.66
51-4023	Rolling Machine Setters, Operators, & Tenders, Metal & Plastic	268	236	(31)	8	\$20.92
51-4199	Metal Workers & Plastic Workers, All Other	220	197	(22)	8	\$15.57
49-9044	Millwrights	139	177	37	8	\$35.76
51-4035	Milling & Planing Machine Setters, Operators, & Tenders, Metal & Plastic	270	222	(48)	7	\$18.07
51-4191	Heat Treating Equipment Setters, Operators, & Tenders, Metal & Plastic	100	94	(6)	3	\$17.44
51-4032	Drilling & Boring Machine Tool Setters, Operators, & Tenders, Metal & Plastic	123	106	(17)	3	\$17.07
51-4192	Layout Workers, Metal & Plastic	45	47	2	2	\$20.37

Numbers may not sum due to rounding.  
Source: Emsi program demand gap model.

Table 3.6: Gaps and Surpluses for SBCCD's Associate Degree Level Programs in the Extended SBCCD Service Region

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
Crafton Hills College						
52.0201	Business Administration & Management, General	42,481	9,373	185	33,108	\$31.26
19.0709	Child Care Provider/Assistant	8,755	1,858	67		\$15.29
50.0701	Art/Art Studies, General	3,039	927	18		\$23.38
50.0501	Drama & Dramatics/Theatre Arts, General	1,519	404	6	1,115	\$26.95
11.0701	Computer Science	1,190	300	7	890	\$45.94
50.0101	Visual & Performing Arts, General	1,149	357	4	792	\$27.66
11.0103	Information Technology	985	230	11	754	\$41.75
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	649	54	5	595	\$19.23
31.0505	Kinesiology & Exercise Science	1,042	743	15	299	\$22.78
43.0201	Fire Prevention & Safety Technology/Technician	789	530	12	259	\$40.73
51.0908	Respiratory Care Therapy/Therapist	770	545	29	224	\$32.25

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
45.0701	Geography	341	128	3	213	\$33.31
50.0901	Music, General	437	247	4	190	\$27.27
16.0905	Spanish Language & Literature	461	329	9	132	\$27.30
40.0601	Geology/Earth Science, General	153	38	2	115	\$27.53
16.1601	American Sign Language (ASL)	154	58	11	97	\$23.59
23.0101	English Language & Literature, General	1,080	1,036	36	45	\$29.66
03.0104	Environmental Science	31	6	4	25	\$37.09
26.0901	Physiology, General	0	<1	<1	(0)	\$49.07
51.0911	Radiologic Technology/Science - Radiographer	425	426	15	(0)	\$31.93
16.0302	Japanese Language & Literature	46	47	5	(2)	\$20.38
38.0201	Religion/Religious Studies	1	4	1	(3)	\$27.38
38.0101	Philosophy	31	163	5	(132)	\$57.48
40.0501	Chemistry, General	209	428	17	(219)	\$35.56
45.0201	Anthropology	32	348	17	(316)	\$39.44
40.0801	Physics, General	30	644	33	(614)	\$52.45
45.1001	Political Science & Government, General	279	930	16	(651)	\$37.07
45.0601	Economics, General	143	836	7	(692)	\$35.24
54.0101	History, General	124	906	25	(781)	\$39.30
26.0101	Biology/Biological Sciences, General	185	1,034	15	(849)	\$28.69
09.0101	Speech Communication & Rhetoric	834	2,163	31	(1,329)	\$29.22
27.0101	Mathematics, General	158	1,705	70	(1,547)	\$41.88
42.0101	Psychology, General	2,665	4,414	126	(1,749)	\$28.53
45.1101	Sociology	596	2,537	86	(1,940)	\$39.08
45.0101	Social Sciences, General	450	3,604	121	(3,155)	\$40.13
30.0101	Biological & Physical Sciences	6,089	9,402	310	(3,313)	\$23.70
<b>San Bernardino Valley College</b>						
52.0201	Business Administration & Management, General	42,481	9,373	185	33,108	\$31.26
12.0500	Cooking & Related Culinary Arts, General	7,871	208	1	7,664	\$16.29
19.0709	Child Care Provider/Assistant	8,755	1,858	67	6,897	\$15.29
52.0401	Administrative Assistant & Secretarial Science, General	6,921	228	6	6,693	\$18.41
52.0302	Accounting Technology/Technician & Bookkeeping	7,243	813	39	6,430	\$22.82

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
47.0604	Automobile/Automotive Mechanics Technology/Technician	5,682	1,066	6	4,616	\$23.02
48.0501	Machine Tool Technology/Machinist	3,204	57	<1	3,147	\$21.19
48.0508	Welding Technology/Welder	3,145	94	2	3,052	\$24.88
44.0000	Human Services, General	2,818	247	31	2,571	\$18.91
52.1501	Real Estate	2,286	108	2	2,178	\$30.19
50.0701	Art/Art Studies, General	3,039	927	18	2,111	\$23.38
15.0613	Manufacturing Engineering Technology/Technician	1,981	30	<1	1,952	\$30.46
46.0301	Electrical & Power Transmission Installation/Installer, General	1,687	23	3	1,665	\$30.85
47.0101	Electrical/Electronics Equipment Installation & Repair, General	1,789	195	7	1,594	\$22.89
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	1,528	64	2	1,464	\$25.84
50.0501	Drama & Dramatics/Theatre Arts, General	1,519	404	6	1,115	\$26.95
04.0901	Architectural Technology/Technician	1,244	153	1	1,091	\$35.32
47.0605	Diesel Mechanics Technology/Technician	946	81	2	865	\$23.76
47.0603	Autobody/Collision & Repair Technology/Technician	920	114	3	806	\$21.45
11.0103	Information Technology	985	230	11	754	\$41.75
12.0504	Restaurant, Culinary, & Catering Management/Manager	728	51	1	677	\$19.10
47.0607	Airframe Mechanics & Aircraft Maintenance Technology/Technician	872	442	4	430	\$32.01
51.0805	Pharmacy Technician/Assistant	475	85	12	390	\$17.24
19.0708	Child Care & Support Services Management	425	60	1	365	\$15.32
11.0201	Computer Programming/Programmer, General	504	188	9	316	\$46.15
31.0505	Kinesiology & Exercise Science	1,042	743	15	299	\$22.78
09.0701	Radio & Television	468	253	8	215	\$32.71
45.0701	Geography	341	128	3	213	\$33.31
51.3801	Registered Nursing/Registered Nurse	3,431	3,236	82	195	\$50.96
50.0901	Music, General	437	247	4	190	\$27.27
51.1502	Psychiatric/Mental Health Services Technician	185	52	22	132	\$30.44
15.0506	Water Quality & Wastewater Treatment Management & Recycling Technology/Technician	206	108	10	98	\$35.54
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	103	54	4	49	\$18.98

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
23.0101	English Language & Literature, General	1,080	1,036	36	45	\$29.66
47.0104	Computer Installation & Repair Technology/Technician	65	34	3	31	\$22.78
03.0104	Environmental Science	31	6	4	25	\$37.09
46.0403	Building/Home/Construction Inspection/Inspector	49	27	<1	23	\$41.40
50.0602	Cinematography & Film/Video Production	235	213	3	22	\$37.14
14.1004	Telecommunications Engineering	9	12	1	(3)	\$67.84
40.0201	Astronomy	0	7	<1	(7)	\$64.79
25.0301	Library & Archives Assisting	9	23	5	(14)	\$21.85
50.0409	Graphic Design	271	288	11	(17)	\$30.64
38.0101	Philosophy	31	163	5	(132)	\$57.48
40.0501	Chemistry, General	209	428	17	(219)	\$35.56
45.0201	Anthropology	32	348	17	(316)	\$39.44
40.0801	Physics, General	30	644	33	(614)	\$52.45
45.1001	Political Science & Government, General	279	930	16	(651)	\$37.07
43.0107	Criminal Justice/Police Science	2,055	2,877	37	(822)	\$52.11
26.0101	Biology/Biological Sciences, General	185	1,034	15	(849)	\$28.69
09.0101	Speech Communication & Rhetoric	834	2,163	31	(1,329)	\$29.22
27.0101	Mathematics, General	158	1,705	70	(1,547)	\$41.88
42.0101	Psychology, General	2,665	4,414	126	(1,749)	\$28.53
45.1101	Sociology	596	2,537	86	(1,940)	\$39.08
30.0101	Biological & Physical Sciences	6,089	9,402	310	(3,313)	\$23.70

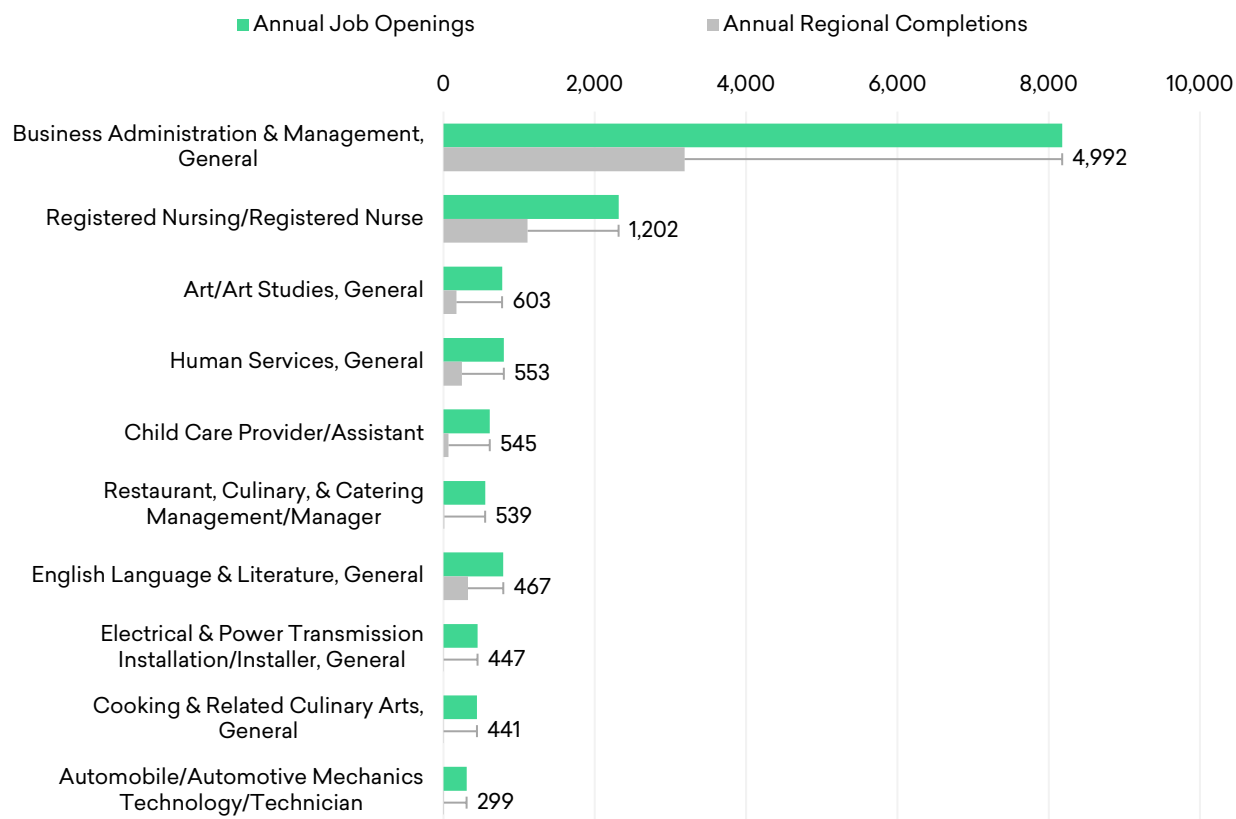
Numbers may not sum due to rounding.  
Source: Emsi program demand gap model.

## TRANSFER-TRACK DEGREE LEVEL ANALYSIS

The analysis in this section again evaluates SBCCD's associate degree level programs but at the bachelor's degree level. SBCCD is one of many postsecondary educational institutions in the region, and several other institutions offer bachelor's degree level programs. Job openings at this award level consider someone with a bachelor's degree or associate degree level of education. An occupation's job openings are weighted by the

number of other programs mapped to the occupation and scaled according to a program's completions.

Figure 3.7: SBCCD's Top Transfer-Track Degree Level Programs with a Gap



SBCCD programs award completers with an associate degree, but the demand for jobs considers a bachelor's degree level of education.

Source: Emsi program demand gap model.

Figure 3.7 shows the top 10 programs with a gap, including the six programs with a significant gap. The Business Administration & Management, General program again has the largest gap, followed by the Registered Nursing/Registered Nurse and Art/Art Studies, General programs. As shown in Table 3.7, there are 2,315 average annual job openings in the region for occupations related to the Registered Nursing/Registered Nurse program. On average, the district graduates 82 annual completers, and combined with the other postsecondary educational institutions in the region, there are a total of 1,202 annual completers. Programs with a significant gap or surplus have been highlighted in Table 3.7. Similar to the previous two sections, results have been split out to show the programs relevant for the two colleges that comprise SBCCD.

Table 3.7: Gaps and Surpluses for SBCCD's Transfer-Track Degree Level Programs

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
Crafton Hills College						
52.0201	Business Administration & Management, General	8,178	3,186	185	4,992	\$31.57
50.0701	Art/Art Studies, General	774	171	18		603
19.0709	Child Care Provider/Assistant	612	67	67		545
23.0101	English Language & Literature, General	790	323	36	467	\$39.74
11.0701	Computer Science	383	195	7	187	\$40.23
16.0905	Spanish Language & Literature	297	127	9	170	\$40.81
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	172	9	5	163	\$21.73
30.0101	Biological & Physical Sciences	464	310	310	154	\$27.29
16.1601	American Sign Language (ASL)	153	11	11	142	\$31.88
03.0104	Environmental Science	230	95	4	135	\$34.56
11.0103	Information Technology	239	118	11	120	\$37.89
51.0908	Respiratory Care Therapy/Therapist	154	39	29	115	\$33.22
50.0901	Music, General	154	44	4	110	\$35.48
51.0911	Radiologic Technology/Science - Radiographer	123	30	15	93	\$37.03
40.0601	Geology/Earth Science, General	107	32	2	74	\$31.13
50.0501	Drama & Dramatics/Theatre Arts, General	118	49	6	69	\$26.70
43.0201	Fire Prevention & Safety Technology/Technician	67	12	12	55	\$33.27
45.0701	Geography	44	14	3	30	\$30.27
50.0101	Visual & Performing Arts, General	32	10	4	23	\$24.36
26.0901	Physiology, General	0	<1	<1	(0)	\$51.36
16.0302	Japanese Language & Literature	7	10	5	(4)	\$32.69
38.0201	Religion/Religious Studies	4	22	1	(18)	\$27.35
40.0501	Chemistry, General	124	155	17	(31)	\$37.24
38.0101	Philosophy	11	53	5	(42)	\$54.42
31.0505	Kinesiology & Exercise Science	105	152	15	(47)	\$28.28
40.0801	Physics, General	24	80	33	(56)	\$46.89
45.0101	Social Sciences, General	74	143	121	(70)	\$40.85
45.0601	Economics, General	32	145	7	(113)	\$30.46
09.0101	Speech Communication & Rhetoric	146	264	31	(119)	\$30.44

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
54.0101	History, General	100	221	25	(121)	\$39.68
45.0201	Anthropology	13	177	17	(164)	\$32.71
27.0101	Mathematics, General	138	303	70	(165)	\$41.07
45.1001	Political Science & Government, General	119	285	16	(166)	\$32.22
26.0101	Biology/Biological Sciences, General	224	626	15	(402)	\$40.20
42.0101	Psychology, General	748	1,155	126	(407)	\$29.09
45.1101	Sociology	157	689	86	(533)	\$35.52
<b>San Bernardino Valley College</b>						
52.0201	Business Administration & Management, General	8,178	3,186	185	4,992	\$31.57
51.3801	Registered Nursing/Registered Nurse	2,315	1,112	82	1,202	\$50.39
50.0701	Art/Art Studies, General	774	171	18	603	\$28.88
44.0000	Human Services, General	798	244	31	553	\$19.97
19.0709	Child Care Provider/Assistant	612	67	67	545	\$15.86
12.0504	Restaurant, Culinary, & Catering Management/Manager	551	12	1	539	\$19.14
23.0101	English Language & Literature, General	790	323	36	467	\$39.74
46.0301	Electrical & Power Transmission Installation/Installer, General	450	3	3	447	\$26.02
12.0500	Cooking & Related Culinary Arts, General	442	1	1	441	\$15.13
47.0604	Automobile/Automotive Mechanics Technology/Technician	305	6	6	299	\$22.02
52.1501	Real Estate	267	2	2	265	\$30.97
52.0401	Administrative Assistant & Secretarial Science, General	259	6	6	253	\$18.77
15.0613	Manufacturing Engineering Technology/Technician	252	<1	<1	252	\$28.47
48.0508	Welding Technology/Welder	246	2	2	245	\$24.31
48.0501	Machine Tool Technology/Machinist	222	<1	<1	222	\$22.05
47.0101	Electrical/Electronics Equipment Installation & Repair, General	219	7	7	212	\$24.11
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	198	2	2	196	\$24.29
51.0805	Pharmacy Technician/Assistant	201	12	12	189	\$17.75
30.0101	Biological & Physical Sciences	464	310	310	154	\$27.29
47.0605	Diesel Mechanics Technology/Technician	145	2	2	143	\$21.43
47.0603	Autobody/Collision & Repair Technology/Technician	145	3	3	142	\$21.24



CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
52.0302	Accounting Technology/Technician & Bookkeeping	180	39	39	141	\$20.83
03.0104	Environmental Science	230	95	4	135	\$34.56
11.0103	Information Technology	239	118	11	120	\$37.89
50.0901	Music, General	154	44	4	110	\$35.48
50.0501	Drama & Dramatics/Theatre Arts, General	118	49	6	69	\$26.70
51.1502	Psychiatric/Mental Health Services Technician	67	22	22	45	\$33.57
04.0901	Architectural Technology/Technician	43	1	1	42	\$33.49
45.0701	Geography	44	14	3	30	\$30.27
47.0607	Airframe Mechanics & Aircraft Maintenance Technology/Technician	34	4	4	30	\$34.45
15.0506	Water Quality & Wastewater Treatment Management & Recycling Technology/Technician	38	10	10	29	\$33.79
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	30	4	4	26	\$22.54
11.0201	Computer Programming/Programmer, General	44	30	9	15	\$39.13
47.0104	Computer Installation & Repair Technology/Technician	13	3	3	10	\$21.33
19.0708	Child Care & Support Services Management	8	1	1	7	\$15.06
50.0409	Graphic Design	33	27	11	7	\$22.25
46.0403	Building/Home/Construction Inspection/Inspector	4	<1	<1	4	\$40.62
09.0701	Radio & Television	10	9	8	1	\$28.62
14.1004	Telecommunications Engineering	1	1	1	(0)	\$56.63
40.0201	Astronomy	0	<1	<1	(1)	\$58.54
25.0301	Library & Archives Assisting	1	5	5	(5)	\$21.47
43.0107	Criminal Justice/Police Science	20	37	37	(17)	\$47.39
40.0501	Chemistry, General	124	155	17	(31)	\$37.24
50.0602	Cinematography & Film/Video Production	14	52	3	(37)	\$30.33
38.0101	Philosophy	11	53	5	(42)	\$54.42
31.0505	Kinesiology & Exercise Science	105	152	15	(47)	\$28.28
40.0801	Physics, General	24	80	33	(56)	\$46.89
09.0101	Speech Communication & Rhetoric	146	264	31	(119)	\$30.44
45.0201	Anthropology	13	177	17	(164)	\$32.71

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
27.0101	Mathematics, General	138	303	70	(165)	\$41.07
45.1001	Political Science & Government, General	119	285	16	(166)	\$32.22
26.0101	Biology/Biological Sciences, General	224	626	15	(402)	\$40.20
42.0101	Psychology, General	748	1,155	126	(407)	\$29.09
45.1101	Sociology	157	689	86	(533)	\$35.52

SBCCD programs award completers with an associate degree, but the demand for jobs considers a bachelor's degree level of education. Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

Several occupations are mapped to Registered Nursing/Registered Nurse, such as registered nurses, medical & health services managers, and nurse practitioners (Table 3.8). The median hourly wage of registered nurses is \$49.75. For context, the California state minimum wage is \$12.00<sup>17</sup> per hour, and the state's living wage is \$14.61 per hour for a household with one working adult and no children.<sup>18</sup> Program expansion is recommended due to both the significant gap and high median hourly wages for occupations mapped to the program.<sup>19</sup>

While the gaps are important to keep in mind for building or expanding programs, the surpluses are equally important to ensure the district is training students with skills the regional workforce requires. There is one transfer-track degree programs at SBCCD with a significant surplus. Sociology has the largest, with a surplus of 533. Psychology, General also has a surplus, with a surplus of 407, followed by Biology/Biological Sciences, General, with a surplus of 402.

Using Table 3.8, this step-by-step process of evaluating occupational gaps by their median hourly wage rates can be applied to the other SBCCD transfer-track degree programs with a significant gap. In general, gaps around occupations with high wages should be considered more noteworthy than gaps around occupations with low wages. Also, if the occupational forecasts around a certain gap are not positive, the gap may not be worth

17 The California minimum wage as of January 1, 2020 is \$12.00 per hour. Source: Emsi Complete Employment Data.

18 Living wage calculations provided by Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology. See Appendix 8.

19 As stated previously, further research must be conducted before making a final determination. Emsi is available to conduct this research; see your Emsi contact for details. Further research must be conducted before making a final determination, such as top employer identification within the region; business surveys to verify the data; resume and job postings analysis to determine trending skills for individuals with similar educations; industry recommendations on curriculum development; and analysis of the strengths, weaknesses, and capacities of similar programs at other regional higher education institutions. Emsi is available to conduct this research; see your Emsi contact for details.

further consideration. Keep in mind that there could be other sources of skilled workers filling the gaps, such as unemployed workers or workers from outside the region.

Table 3.8: Occupations Mapped to SBCCD's Transfer-Track Degree Level Programs with a Significant Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Business Administration & Management, General (CIP Code 52.0201)						
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	22,682	22,356	(326)	974	\$19.55
11-1021	General & Operations Managers	19,793	22,307	2,514	845	\$48.16
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	14,553	15,064	511	833	\$27.86
43-1011	First-Line Supervisors of Office & Administrative Support Workers	15,506	16,291	785	730	\$27.19
43-4051	Customer Service Representatives	18,953	19,942	989	715	\$17.70
41-1011	First-Line Supervisors of Retail Sales Workers	16,924	17,653	729	608	\$19.84
13-2011	Accountants & Auditors	8,481	9,325	843	570	\$34.14
13-1198	Project Management Specialists and Business Operations Specialists, All Other	12,895	14,075	1,180	546	\$31.07
13-1071	Human Resources Specialists	5,602	6,111	509	370	\$29.88
13-1111	Management Analysts	6,372	6,984	612	351	\$37.09
13-1161	Market Research Analysts & Marketing Specialists	4,457	5,262	806	343	\$24.51
11-2022	Sales Managers	6,061	6,307	245	331	\$43.09
11-3031	Financial Managers	5,092	5,753	661	238	\$53.10
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	10,279	11,544	1,265	182	\$33.80
15-1232	Computer User Support Specialists	3,670	4,135	465	162	\$27.81
11-1011	Chief Executives	3,477	3,479	2	125	\$79.78
11-3021	Computer & Information Systems Managers	1,892	2,125	233	95	\$63.17
11-2021	Marketing Managers	1,265	1,425	160	84	\$50.09
11-3121	Human Resources Managers	1,586	1,738	153	78	\$53.07
Registered Nursing/Registered Nurse (CIP Code 51.3801)						
29-1141	Registered Nurses	31,755	37,949	6,193	2,148	\$49.75
11-9111	Medical & Health Services Managers	3,876	4,904	1,029	152	\$57.63
29-1171	Nurse Practitioners	1,705	2,290	585	11	\$62.63
29-1151	Nurse Anesthetists	224	274	50	2	\$105.89

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
29-1161	Nurse Midwives	133	159	26	1	\$75.96
Art/Art Studies, General (CIP Code 50.0701)						
25-2021	Elementary School Teachers, Except Special Education	22,876	25,011	2,135	265	\$43.73
25-3021	Self-Enrichment Teachers	3,745	4,263	517	160	\$15.00
27-1024	Graphic Designers	2,335	2,532	197	92	\$21.07
27-4021	Photographers	1,472	1,449	(23)	53	\$21.26
25-2031	Secondary School Teachers, Except Special & Career/Technical Education	12,064	13,365	1,301	36	\$41.95
27-1011	Art Directors	859	978	119	32	\$25.09
25-2022	Middle School Teachers, Except Special & Career/Technical Education	3,854	4,487	633	26	\$40.90
27-1013	Fine Artists, Including Painters, Sculptors, & Illustrators	493	545	52	25	\$11.87
27-1012	Craft Artists	273	300	27	17	\$8.61
27-1027	Set & Exhibit Designers	356	404	48	17	\$19.81
51-9071	Jewelers & Precious Stone & Metal Workers	406	381	(25)	16	\$17.16
27-1014	Special Effects Artists and Animators	403	436	33	15	\$17.43
27-1021	Commercial & Industrial Designers	197	210	13	11	\$28.50
29-1125	Recreational Therapists	184	214	31	4	\$41.30
25-4011	Archivists	141	148	7	2	\$33.22
51-9194	Etchers & Engravers	42	51	8	1	\$15.31
25-4013	Museum Technicians & Conservators	87	95	8	1	\$22.14
25-4012	Curators	61	67	6	1	\$29.21
Human Services, General (CIP Code 44.0000)						
43-4171	Receptionists & Information Clerks	9,107	10,156	1,050	330	\$14.77
21-1093	Social & Human Service Assistants	5,073	6,213	1,141	116	\$18.67
43-4061	Eligibility Interviewers, Government Programs	2,746	2,997	251	111	\$23.62
21-1099	Community & Social Service Specialists, All Other	1,726	1,956	231	61	\$23.39
11-9151	Social & Community Service Managers	1,874	2,460	586	38	\$33.45
21-1018	Substance Abuse, Behavioral Disorder, & Mental Health Counselors	4,429	5,352	923	33	\$23.32
21-1013	Marriage & Family Therapists	3,784	4,318	533	23	\$21.49
21-1022	Healthcare Social Workers	1,761	2,355	594	19	\$35.38
21-1091	Health Education Specialists	547	656	109	17	\$29.49
21-1021	Child, Family, & School Social Workers	1,936	2,319	383	15	\$26.13

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
21-1015	Rehabilitation Counselors	1,740	1,966	226	13	\$14.35
21-1094	Community Health Workers	472	592	120	13	\$23.09
21-1023	Mental Health & Substance Abuse Social Workers	1,024	1,303	278	9	\$29.66
Child Care Provider/Assistant (CIP Code 19.0709)						
25-9045	Teaching Assistants, Except Postsecondary	18,542	20,244	1,702	346	\$17.36
39-9011	Childcare Workers	13,548	12,426	(1,122)	229	\$13.01
21-1093	Social & Human Service Assistants	5,073	6,213	1,141	32	\$18.67
21-1021	Child, Family, & School Social Workers	1,936	2,319	383	4	\$26.13
Restaurant, Culinary, & Catering Management/Manager (CIP Code 12.0504)						
35-1012	First-Line Supervisors of Food Preparation & Serving Workers	10,673	12,964	2,291	333	\$16.25
11-9051	Food Service Managers	5,402	6,006	605	161	\$22.97
35-1011	Chefs & Head Cooks	1,390	1,605	215	56	\$25.35
35-2013	Cooks, Private Household	12	13	1	0	\$19.25

SBCCD programs award completers with an associate degree, but the demand for jobs considers a bachelor's degree level of education. Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

Table 3.9: Gaps and Surpluses for SBCCD's Transfer-Track Degree Level Programs in the Extended SBCCD Service Region

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
Crafton Hills College						
52.0201	Business Administration & Management, General	53,299	17,151	185	36,148	\$35.94
11.0701	Computer Science	7,686	3,097	7		\$48.84
50.0701	Art/Art Studies, General	3,962	1,369	18		\$28.55
50.0501	Drama & Dramatics/Theatre Arts, General	2,266	729	6	1,537	\$29.63
23.0101	English Language & Literature, General	2,976	2,227	36	749	\$35.93
03.0104	Environmental Science	1,088	390	4	698	\$38.89
11.0103	Information Technology	1,086	396	11	689	\$43.80
50.0901	Music, General	1,028	431	4	596	\$30.26
50.0101	Visual & Performing Arts, General	825	251	4	574	\$28.39
51.0911	Radiologic Technology/Science - Radiographer	489	54	15	435	\$40.13
40.0601	Geology/Earth Science, General	667	247	2	419	\$37.26

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
30.0101	Biological & Physical Sciences	691	312	310	379	\$27.98
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	297	9	5	287	\$32.83
51.0908	Respiratory Care Therapy/Therapist	330	50	29	280	\$36.46
43.0201	Fire Prevention & Safety Technology/Technician	291	12	12	279	\$38.63
16.1601	American Sign Language (ASL)	237	11	11	226	\$38.66
19.0709	Child Care Provider/Assistant	158	67	67	91	\$16.31
16.0905	Spanish Language & Literature	701	628	9	73	\$37.51
45.0701	Geography	320	294	3	26	\$35.15
40.0501	Chemistry, General	773	760	17	13	\$37.06
16.0302	Japanese Language & Literature	46	91	5	(45)	\$31.39
38.0201	Religion/Religious Studies	23	144	1	(121)	\$27.81
26.0901	Physiology, General	6	143	<1	(137)	\$49.07
31.0505	Kinesiology & Exercise Science	259	439	15	(180)	\$26.31
45.0101	Social Sciences, General	222	488	121	(266)	\$41.12
40.0801	Physics, General	167	501	33	(334)	\$49.95
38.0101	Philosophy	146	512	5	(366)	\$61.11
27.0101	Mathematics, General	544	1,219	70	(675)	\$43.83
45.0201	Anthropology	82	962	17	(880)	\$38.84
54.0101	History, General	556	1,636	25	(1,081)	\$40.41
45.0601	Economics, General	703	2,513	7	(1,811)	\$34.51
45.1001	Political Science & Government, General	888	2,831	16	(1,943)	\$36.40
09.0101	Speech Communication & Rhetoric	1,559	3,677	31	(2,118)	\$31.10
26.0101	Biology/Biological Sciences, General	1,748	4,204	15	(2,457)	\$39.69
42.0101	Psychology, General	5,095	8,154	126	(3,058)	\$29.59
45.1101	Sociology	1,029	4,690	86	(3,661)	\$39.52
<b>San Bernardino Valley College</b>						
52.0201	Business Administration & Management, General	53,299	17,151	185	36,148	\$35.94
51.3801	Registered Nursing/Registered Nurse	11,482	5,314	82	6,168	\$51.16
50.0701	Art/Art Studies, General	3,962	1,369	18	2,593	\$28.55
12.0500	Cooking & Related Culinary Arts, General	2,401	1	1	2,400	\$14.58
12.0504	Restaurant, Culinary, & Catering Management/Manager	2,329	48	1	2,281	\$18.86

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
44.0000	Human Services, General	2,493	669	31	1,824	\$20.25
50.0501	Drama & Dramatics/Theatre Arts, General	2,266	729	6	1,537	\$29.63
52.1501	Real Estate	1,643	127	2	1,516	\$30.52
46.0301	Electrical & Power Transmission Installation/Installer, General	1,247	3	3	1,244	\$29.46
47.0604	Automobile/Automotive Mechanics Technology/Technician	962	10	6	952	\$22.27
48.0508	Welding Technology/Welder	951	2	2	949	\$23.47
51.0805	Pharmacy Technician/Assistant	935	12	12	923	\$19.63
48.0501	Machine Tool Technology/Machinist	921	<1	<1	921	\$20.50
23.0101	English Language & Literature, General	2,976	2,227	36	749	\$35.93
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	733	2	2	731	\$25.23
03.0104	Environmental Science	1,088	390	4	698	\$38.89
11.0103	Information Technology	1,086	396	11	689	\$43.80
47.0101	Electrical/Electronics Equipment Installation & Repair, General	695	7	7	688	\$22.71
50.0901	Music, General	1,028	431	4	596	\$30.26
15.0613	Manufacturing Engineering Technology/Technician	521	1	<1	520	\$27.57
52.0401	Administrative Assistant & Secretarial Science, General	469	6	6	463	\$20.20
30.0101	Biological & Physical Sciences	691	312	310	379	\$27.98
47.0605	Diesel Mechanics Technology/Technician	370	2	2	368	\$24.70
47.0603	Autobody/Collision & Repair Technology/Technician	349	3	3	346	\$21.03
09.0701	Radio & Television	1,240	903	8	337	\$35.73
47.0607	Airframe Mechanics & Aircraft Maintenance Technology/Technician	294	7	4	287	\$32.13
15.0506	Water Quality & Wastewater Treatment Management & Recycling Technology/Technician	125	10	10	116	\$35.59
52.0302	Accounting Technology/Technician & Bookkeeping	155	39	39	115	\$23.78
19.0709	Child Care Provider/Assistant	158	67	67	91	\$16.31
11.0201	Computer Programming/Programmer, General	67	34	9	33	\$49.83
51.1502	Psychiatric/Mental Health Services Technician	52	22	22	30	\$30.50
45.0701	Geography	320	294	3	26	\$35.15

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	SBCCD		
47.0104	Computer Installation & Repair Technology/Technician	26	3	3	23	\$19.86
40.0501	Chemistry, General	773	760	17	13	\$37.06
50.0409	Graphic Design	311	303	11	7	\$30.45
04.0901	Architectural Technology/Technician	6	1	1	5	\$35.71
19.0708	Child Care & Support Services Management	2	1	1	1	\$17.36
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	5	4	4	1	\$19.74
46.0403	Building/Home/Construction Inspection/Inspector	0	<1	<1	0	\$41.27
14.1004	Telecommunications Engineering	0	1	1	(1)	\$61.59
25.0301	Library & Archives Assisting	0	5	5	(5)	\$21.85
40.0201	Astronomy	1	6	<1	(6)	\$62.95
43.0107	Criminal Justice/Police Science	30	37	37	(7)	\$50.88
50.0602	Cinematography & Film/Video Production	610	714	3	(104)	\$41.10
31.0505	Kinesiology & Exercise Science	259	439	15	(180)	\$26.31
40.0801	Physics, General	167	501	33	(334)	\$49.95
38.0101	Philosophy	146	512	5	(366)	\$61.11
27.0101	Mathematics, General	544	1,219	70	(675)	\$43.83
45.0201	Anthropology	82	962	17	(880)	\$38.84
45.1001	Political Science & Government, General	888	2,831	16	(1,943)	\$36.40
09.0101	Speech Communication & Rhetoric	1,559	3,677	31	(2,118)	\$31.10
26.0101	Biology/Biological Sciences, General	1,748	4,204	15	(2,457)	\$39.69
42.0101	Psychology, General	5,095	8,154	126	(3,058)	\$29.59
45.1101	Sociology	1,029	4,690	86	(3,661)	\$39.52

SBCCD programs award completers with an associate degree, but the demand for jobs considers a bachelor's degree level of education. Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

## LIBERAL ARTS TRANSFER STUDENTS

A number of students attend SBCCD with the intention of transferring to a four-year institution to receive a bachelor's degree. Although these students study any number of topics at the district, a large portion of them receive an Associate of Arts in Liberal Arts. In fact, over the past three years, 628 students, on average, have completed such a program.



Once liberal arts students leave SBCCD, their educational and career track is difficult to predict. They could attend a nearby four-year institution, and they could study any number of different programs that will ultimately determine their future careers. What can be shown is that over the next 10 years, jobs that require a bachelor's degree are projected to be in high demand. In any given year between 2020 and 2030, 52,660 job openings will require a bachelor's degree level of education.

This section shows the top occupations mapped to liberal arts programs, using Emsi's Profile Analytics database, which contains more than 125 million profiles of people in the U.S. from all the major professional social media websites. To identify the top occupations, the Profile Analytics database is filtered in several ways. First, profiles include people who have an associate degree or a bachelor's degree level of education. Second, the profiles list liberal arts as the person's program of study. Liberal arts programs are classified as CIP codes 24.01, 30.00, and 30.99 at the four-digit level. Finally, the database includes profiles most recently updated, from as early as 2010. Using these search parameters, 263,200 profiles are found in the database, and the occupations in Table 3.10 represent the most common jobs of the liberal arts alumni.

As shown in the table, a considerable number of job openings are for retail salespersons, secretaries & administrative assistants, and customer service representatives. Together, the three occupations account for 48.7% of all the liberal arts program's job openings. The profiles data also include various kinds of managers and supervisors, which are occupations with relatively higher wage rates. A liberal arts program expansion is not warranted at this time, but SBCCD administrators should be aware that liberal arts graduates can find success in a variety of business-related occupations beyond retail sales and customer service.

Table 3.10: Occupations Related to Liberal Arts Programs

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
41-2031	Retail Salespersons	48,393	51,130	2,737	7,564	\$14.10
43-4051	Customer Service Representatives	18,953	19,942	989	2,710	\$17.70
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	22,682	22,356	(326)	2,565	\$19.55
11-1021	General & Operations Managers	19,793	22,307	2,514	2,097	\$48.16
43-1011	First-Line Supervisors of Office & Administrative Support Workers	15,506	16,291	785	1,760	\$27.19
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	14,553	15,064	511	1,633	\$27.86
13-1198	Project Management Specialists and Business Operations Specialists, All Other	12,895	14,075	1,180	1,419	\$31.07
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	10,279	11,544	1,265	956	\$33.80
21-1093	Social & Human Service Assistants	5,073	6,213	1,141	790	\$18.67

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
13-1111	Management Analysts	6,372	6,984	612	691	\$37.09
13-1071	Human Resources Specialists	5,602	6,111	509	641	\$29.88
25-3097	Teachers & Instructors, All Other	4,510	5,013	502	596	\$23.38
11-2022	Sales Managers	6,061	6,307	245	578	\$43.09
11-3031	Financial Managers	5,092	5,753	661	488	\$53.10
41-9022	Real Estate Sales Agents	4,765	4,967	202	483	\$27.28
43-6011	Executive Secretaries & Executive Administrative Assistants	3,959	3,521	(437)	423	\$28.92
15-1232	Computer User Support Specialists	3,670	4,135	465	368	\$27.81
11-1011	Chief Executives	3,477	3,479	2	259	\$79.78
27-3031	Public Relations Specialists	1,649	1,860	211	205	\$29.04
11-2021	Marketing Managers	1,265	1,425	160	136	\$50.09

Source: Emsi gap model.

## SUMMARY

Across all award levels, there are a total of 27 programs associated with significant workforce gaps. Only two programs face a significant surplus.

At the certificate level, twelve programs have a gap above the 500-job level of significance, and none have a significant surplus. Program expansions are recommended at this award level if the program awards completers with an SBCCD certificate and a certification, license, or industry-specific credential required for employment in an occupation. The certificate level programs with the top three largest gaps are:

- Business Administration & Management, General (gap of 5,466; median hourly wage \$26.58)
- Cooking & Related Culinary Arts, General (gap of 3,865; median hourly wage \$15.72)
- Child Care Provider/Assistant (gap of 2,075; median hourly wage \$15.42)

At the associate degree level, nine programs have a significant gap above the 500-job level of significance. Many should be considered for expansion, with more priority given to the programs with a significant gap and high median hourly wage. One program has a significant surplus at this award level – Biological & Physical Sciences, with a surplus of 1,454. The associate degree programs with the top three largest gaps are:

- Business Administration & Management, General (gap of 5,299; median hourly wage \$27.49)
- Child Care Provider/Assistant (gap of 1,549; median hourly wage \$15.52)

- Administrative Assistant & Secretarial Science, General (gap of 1,288; median hourly wage \$18.15)

The transfer-track degree level program analysis identifies job opportunities within SBCCD's associate degree level programs but with job openings at the bachelor's degree level. Six programs have a significant gap above the 500-job level of significance, and one program has a significant surplus of program completions (Sociology, with a surplus of 533). The transfer-track degree level programs with the three largest gaps are:

- Business Administration & Management, General (gap of 4,992; median hourly wage \$31.57)
- Registered Nursing/Registered Nurse (gap of 1,202; median hourly wage \$50.39)
- Art/Art Studies, General (gap of 603; median hourly wage \$28.88)

A liberal arts program expansion is not recommended at this time, but SBCCD administrators should be aware that students can find success in a variety of business-related occupations. Using the Profile Analytics database, many liberal arts program completers are currently employed as administrative assistants and customer service representatives, as well as a variety of managers and supervisors. These occupations have a considerable number of job openings in the SBCCD Service Region, and the district's liberal arts program serves as a starting point to students' future career goals.



# New Program Additions

Thus far, the analysis has centered around programs offered by SBCCD. This chapter looks at workforce gaps that exist within occupations that the district does not currently train for and provides new program recommendations. For each award level, a table shows the occupations' current employment, projected percentage growth over the next decade, average annual projected job openings, average annual completers, gap, and median hourly wage rates. The table is arranged by college with the recommendations being specific to the occupations that each college is not currently training for.

Recommendations are based solely on the gap and whether or not the occupation looks promising (job growth, wages, etc.). These are initial findings and should serve as a starting point for further research. SBCCD's administration will still need to undergo steps before deciding whether these programs would be a good fit for the district and the region. This future work could include surveying local employers, analyzing skills and similar programs offered elsewhere, calculating program specific economic impacts, and looking at capacity and capital requirements for building these programs.

## ADDITIONS AT THE CERTIFICATE LEVEL

Seventy unique occupations have been identified as certificate level programmatic areas of opportunity, as shown in Table 4.1. The select occupations present unmet annual job openings within the SBCCD Service Region (i.e. they have a gap), their median hourly wage rates are greater than \$15.00, and the occupations typically require some college education but no degree for entry-level positions.

As shown, there is diversity in the types of occupations in the table, with a limited number of job openings in the region for some. The most represented occupational group in the table is Installation, Maintenance, & Repair Occupations. That group is followed by Office & Administrative Support Occupations; Construction & Extraction Occupations; Healthcare Practitioners & Technical Occupations; and Healthcare Support Occupations. These opportunities are unique to each college. Some of the occupations are being trained for by the other college, however, there is sufficient demand to potentially offer a program at both colleges or expand the program at the offering college.

Table 4.1: SBCCD's Programmatic Areas of Opportunity at the Certificate Level

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
<b>Crafton Hills College</b>						
Heavy and Tractor-Trailer Truck Drivers	31,981	11.7%	3,160	4	3,156	\$22.56
Office Clerks, General	30,905	3.3%	2,563	377	2,186	\$17.36
Carpenters	22,088	7.8%	1,648	8	1,641	\$22.54
Construction Laborers	19,914	14.3%	1,582	8	1,574	\$18.73
Bookkeeping, Accounting, and Auditing Clerks	15,836	2.1%	1,198	75	1,123	\$20.31
Electricians	9,234	21.9%	1,011	158	853	\$23.17
Automotive Service Technicians and Mechanics	12,898	4.0%	900	110	790	\$19.32
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	8,838	15.8%	760	0	760	\$27.06
Maintenance and Repair Workers, General	14,663	11.6%	1,185	485	700	\$19.68
Medical Secretaries and Administrative Assistants	8,571	17.6%	655	106	549	\$17.76
Plumbers, Pipefitters, and Steamfitters	5,994	23.3%	649	115	534	\$25.71
First-Line Supervisors of Construction Trades and Extraction Workers	8,760	10.7%	709	208	501	\$29.59
Food Service Managers	5,402	11.2%	462	24	438	\$22.97
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	4,697	23.4%	459	36	423	\$20.30
Operating Engineers and Other Construction Equipment Operators	4,445	9.5%	416	2	414	\$39.51
Licensed Practical and Licensed Vocational Nurses	8,215	18.0%	645	267	378	\$26.94
Nursing Assistants	8,438	23.7%	912	542	369	\$16.23
First-Line Supervisors of Production and Operating Workers	4,923	2.9%	337	1	336	\$29.45
Welders, Cutters, Solderers, and Brazers	4,080	5.1%	345	40	305	\$18.64
Correctional Officers and Jailers	5,525	1.2%	335	32	303	\$39.35
Bus and Truck Mechanics and Diesel Engine Specialists	4,129	9.8%	307	19	289	\$23.55
Machinists	3,518	4.9%	283	7	276	\$18.33
Telecommunications Equipment Installers and Repairers, Except Line Installers	3,024	3.6%	245	8	237	\$26.61
Industrial Machinery Mechanics	3,105	5.8%	222	4	217	\$29.93
Preschool Teachers, Except Special Education	4,105	6.4%	215	0	215	\$15.20
Executive Secretaries and Executive Administrative Assistants	3,959	(11.0%)	214	23	191	\$28.92

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
First-Line Supervisors of Mechanics, Installers, and Repairers	4,639	9.6%	313	123	190	\$35.62
Dental Assistants	6,316	17.4%	604	436	168	\$17.46
Structural Iron and Steel Workers	1,614	20.7%	182	16	166	\$32.00
Mobile Heavy Equipment Mechanics, Except Engines	1,996	7.9%	153	0	153	\$30.16
Massage Therapists	2,861	19.1%	253	103	150	\$18.15
Transportation, Storage, and Distribution Managers	2,445	16.9%	146	2	144	\$40.99
Information and Record Clerks, All Other	2,142	8.3%	141	0	141	\$21.78
Butchers and Meat Cutters	1,782	5.7%	143	3	140	\$18.05
First-Line Supervisors of Gambling Service Workers	1,268	6.4%	139	0	139	\$29.16
Veterinary Assistants and Laboratory Animal Caretakers	1,168	19.4%	134	0	134	\$15.54
Sheet Metal Workers	1,554	19.3%	161	34	128	\$27.57
Healthcare Support Workers, All Other	1,366	13.1%	127	2	125	\$22.40
Phlebotomists	1,497	17.8%	141	20	121	\$20.97
Automotive Body and Related Repairers	1,753	8.5%	128	9	119	\$18.24
Chefs and Head Cooks	1,390	15.5%	123	11	112	\$25.35
Payroll and Timekeeping Clerks	1,977	0.8%	120	8	112	\$22.65
Solar Photovoltaic Installers	640	42.9%	85	0	85	\$19.03
Human Resources Assistants, Except Payroll and Timekeeping	1,376	1.3%	84	2	82	\$21.33
Construction and Building Inspectors	1,435	11.1%	105	27	78	\$40.62
Pharmacy Technicians	4,068	17.2%	244	180	64	\$18.71
Electrical and Electronic Engineering Technologists and Technicians	1,101	1.0%	65	2	63	\$29.63
Psychiatric Technicians	1,713	6.4%	81	20	61	\$33.60
Medical Equipment Preparers	645	16.6%	63	3	59	\$22.74
Surgical Technologists	979	25.0%	61	4	57	\$27.38
<b>San Bernardino Valley College</b>						
Heavy and Tractor-Trailer Truck Drivers	31,981	11.7%	3,160	4	3,156	\$22.56
Carpenters	22,088	7.8%	1,648	8	1,641	\$22.54
Construction Laborers	19,914	14.3%	1,582	8	1,574	\$18.73
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	8,838	15.8%	760	0	760	\$27.06
Medical Secretaries and Administrative Assistants	8,571	17.6%	655	106	549	\$17.76

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
Operating Engineers and Other Construction Equipment Operators	4,445	9.5%	416	2	414	\$39.51
Nursing Assistants	8,438	23.7%	912	542	369	\$16.23
Order Clerks	3,045	6.5%	252	1	251	\$17.39
Dental Assistants	6,316	17.4%	604	436	168	\$17.46
Mobile Heavy Equipment Mechanics, Except Engines	1,996	7.9%	153	0	153	\$30.16
Massage Therapists	2,861	19.1%	253	103	150	\$18.15
Transportation, Storage, and Distribution Managers	2,445	16.9%	146	2	144	\$40.99
Information and Record Clerks, All Other	2,142	8.3%	141	0	141	\$21.78
First-Line Supervisors of Gambling Service Workers	1,268	6.4%	139	0	139	\$29.16
Veterinary Assistants and Laboratory Animal Caretakers	1,168	19.4%	134	0	134	\$15.54
Healthcare Support Workers, All Other	1,366	13.1%	127	2	125	\$22.40
Phlebotomists	1,497	17.8%	141	20	121	\$20.97
Cargo and Freight Agents	1,094	30.8%	103	1	101	\$20.23
Insurance Claims and Policy Processing Clerks	2,287	1.9%	127	27	100	\$20.06
Solar Photovoltaic Installers	640	42.9%	85	0	85	\$19.03
Human Resources Assistants, Except Payroll and Timekeeping	1,376	1.3%	84	2	82	\$21.33
Library Assistants, Clerical	846	2.8%	82	0	82	\$17.01
Emergency Medical Technicians and Paramedics	3,394	12.8%	169	89	81	\$18.35
Court, Municipal, and License Clerks	1,476	12.5%	80	0	80	\$23.56
Legal Secretaries and Administrative Assistants	1,423	(8.2%)	83	9	74	\$21.98
Public Safety Telecommunicators	914	12.2%	65	1	64	\$29.97
Medical Equipment Preparers	645	16.6%	63	3	59	\$22.74
Surgical Technologists	979	25.0%	61	4	57	\$27.38
Veterinary Technologists and Technicians	674	27.6%	43	2	41	\$15.44
First-Line Supervisors of Farming, Fishing, and Forestry Workers	542	5.4%	42	2	40	\$25.47
Excavating and Loading Machine and Dragline Operators, Surface Mining	395	7.5%	39	0	39	\$25.11
Recreational Vehicle Service Technicians	448	7.9%	37	0	37	\$17.45
Medical Equipment Repairers	548	7.5%	35	0	35	\$23.16
Tool and Die Makers	436	(3.2%)	35	0	35	\$23.91

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
Cooling and Freezing Equipment Operators and Tenders	355	8.7%	33	0	33	\$19.21
Control and Valve Installers and Repairers, Except Mechanical Door	482	2.8%	33	0	33	\$32.91
Outdoor Power Equipment and Other Small Engine Mechanics	412	3.2%	30	0	30	\$18.56
Elevator and Escalator Installers and Repairers	260	22.6%	29	0	29	\$16.25
Motorboat Mechanics and Service Technicians	363	5.0%	27	0	27	\$19.55
Dietetic Technicians	450	11.3%	26	0	26	\$16.14

Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

## ADDITIONS AT THE ASSOCIATE DEGREE LEVEL

Fewer occupations, compared to the previous section, have been identified as associate degree level programmatic areas of opportunity (Table 4.2). There are not as many occupations that specifically require such an education, and most have been considered in the previous chapter's analysis. The most represented occupation group is Healthcare Practitioners & Technical Occupations followed by Healthcare Support Occupations. While the gaps for many of these occupations are smaller in size, these occupations provide critical healthcare services to residents in the SBCCD Service Region and completers could likely find employment in other areas of the state.

Table 4.2: SBCCD's Programmatic Areas of Opportunity at the Associate Degree Level

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
<b>Crafton Hills College</b>						
Dental Hygienists	1,988	25.0%	117	50	67	\$45.73
Occupational Therapy Assistants	367	44.6%	44	0	44	\$35.16
Cardiovascular Technologists and Technicians	545	13.3%	22	0	22	\$30.92
Diagnostic Medical Sonographers	672	22.1%	31	19	12	\$41.38
Magnetic Resonance Imaging Technologists	262	17.7%	11	0	11	\$44.18
Morticians, Undertakers, and Funeral Arrangers	94	20.4%	9	0	9	\$29.50
Occupational Therapy Aides	54	34.9%	6	0	6	\$17.00
<b>San Bernardino Valley College</b>						



SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
Dental Hygienists	1,988	25.0%	117	50	67	\$45.73
Respiratory Therapists	1,885	20.6%	99	38	61	\$35.33
Occupational Therapy Assistants	367	44.6%	44	0	44	\$35.16
Radiologic Technologists and Technicians	1,745	18.9%	83	52	31	\$38.16
Diagnostic Medical Sonographers	672	22.1%	31	19	12	\$41.38
Magnetic Resonance Imaging Technologists	262	17.7%	11	0	11	\$44.18
Morticians, Undertakers, and Funeral Arrangers	94	20.4%	9	0	9	\$29.50
Occupational Therapy Aides	54	34.9%	6	0	6	\$17.00
Nuclear Medicine Technologists	142	14.7%	5	4	2	\$48.14

Numbers may not sum due to rounding.  
Source: Emsi program demand gap model.

## ADDITIONS AT THE TRANSER-TRACK DEGREE LEVEL

As shown in Table 4.3, 66 unique occupations have been identified as transfer-track degree level programmatic areas of opportunity. The select occupations present unmet annual job openings within the SBCCD Service Region (i.e. they have a gap), their median hourly wage rates are greater than \$15.00, and the occupations typically require a bachelor's degree level of education for entry-level positions.

The table shows a diverse set of occupations, with a limited number of job openings in the region for some. The most represented occupational group in the table is Business & Financial Operations Occupations, followed by Sales & Related Occupations; Architecture & Engineering Occupations; and Management Occupations. Some of SBCCD's current offerings, such as its bachelor's degree level Business Administration, General program, may already be teaching the skills needed for employment as one of the various finance or sales occupations in the table. Although, there may be opportunities to tailor the curriculum for the occupations identified.

Table 4.3: SBCCD's Programmatic Areas of Opportunity at the Transfer-Track Degree Level

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
<b>Crafton Hills College</b>						
Registered Nurses	31,755	19.5%	2,148	816	1,332	\$49.75

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	9,919	10.3%	706	8	697	\$21.90
Insurance Sales Agents	5,693	6.6%	311	0	311	\$21.14
Production, Planning, and Expediting Clerks	5,112	10.1%	287	0	287	\$22.31
Real Estate Sales Agents	4,765	4.2%	251	2	249	\$27.28
Construction Managers	5,581	10.2%	231	8	223	\$31.60
Securities, Commodities, and Financial Services Sales Agents	3,375	1.8%	210	2	208	\$23.81
Police and Sheriff's Patrol Officers	6,579	11.5%	288	86	203	\$48.99
Civil Engineers	3,068	12.7%	195	9	187	\$51.31
Paralegals and Legal Assistants	2,005	19.3%	175	2	173	\$27.39
First-Line Supervisors of Non-Retail Sales Workers	3,907	3.8%	173	0	173	\$24.40
Property, Real Estate, and Community Association Managers	3,826	8.3%	158	0	158	\$31.90
Training and Development Specialists	2,483	14.6%	157	6	151	\$30.34
Logisticians	2,413	10.3%	145	0	145	\$37.24
Cost Estimators	3,105	12.5%	181	55	127	\$31.15
Advertising Sales Agents	1,185	4.5%	113	1	112	\$25.58
Administrative Services Managers	2,757	11.4%	132	21	110	\$47.03
Loan Officers	2,358	(2.0%)	108	1	107	\$32.25
Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other	2,272	6.4%	140	46	93	\$32.67
Community and Social Service Specialists, All Other	1,726	13.4%	113	20	93	\$23.39
Real Estate Brokers	1,739	4.7%	92	0	92	\$30.04
Instructional Coordinators	1,990	10.8%	93	2	91	\$53.40
Education Administrators, Kindergarten through Secondary	2,428	12.6%	96	14	82	\$63.23
Personal Financial Advisors	1,447	1.8%	80	1	79	\$34.03
Physical Therapist Assistants	578	44.1%	77	0	77	\$35.05
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	1,358	1.8%	78	2	76	\$37.49
Industrial Engineers	1,330	9.9%	76	1	75	\$39.75
Claims Adjusters, Examiners, and Investigators	1,484	(6.1%)	71	1	71	\$37.49
Architectural and Civil Drafters	1,063	10.9%	73	2	71	\$27.05
Meeting, Convention, and Event Planners	923	15.4%	77	8	69	\$22.04

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
Probation Officers and Correctional Treatment Specialists	1,168	10.7%	76	9	67	\$39.89
Social and Community Service Managers	1,874	31.3%	136	69	67	\$33.45
Tax Preparers	1,141	3.3%	57	3	54	\$15.50
Designers, All Other	732	8.9%	54	1	53	\$25.02
Mechanical Engineers	1,364	8.9%	76	29	47	\$41.87
Airline Pilots, Copilots, and Flight Engineers	669	(1.7%)	48	3	45	\$81.83
Interior Designers	570	17.9%	49	4	45	\$25.33
Architects, Except Landscape and Naval	868	18.6%	47	2	45	\$35.20
Medical Transcriptionists	466	3.0%	44	0	44	\$16.46
Fundraisers	654	15.6%	47	5	42	\$26.15
Procurement Clerks	586	2.8%	40	0	40	\$22.52
Travel Agents	478	4.3%	37	0	37	\$21.50
Commercial Pilots	453	10.9%	38	1	37	\$36.21
Property Appraisers and Assessors	721	0.6%	37	0	36	\$27.26
Life, Physical, and Social Science Technicians, All Other	676	1.3%	38	2	36	\$27.52
Legal Support Workers, All Other	634	4.8%	34	0	34	\$25.70
Electrical Engineers	1,006	9.8%	48	16	32	\$44.24
Compensation, Benefits, and Job Analysis Specialists	438	11.3%	30	2	28	\$32.82
Mechanical Drafters	469	(0.6%)	28	0	28	\$26.23
Health Information Technologists, Medical Registrars, Surgical Assistants, and Healthcare Practitioners and Technical Workers, All Other	658	18.0%	26	0	26	\$23.70
Legal Support Workers, All Other	634	4.8%	34	0	34	\$25.70
<b>San Bernardino Valley College</b>						
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	9,919	10.3%	706	8	697	\$21.90
Insurance Sales Agents	5,693	6.6%	311	0	311	\$21.14
Office and Administrative Support Workers, All Other	5,089	5.5%	295	0	295	\$15.99
Production, Planning, and Expediting Clerks	5,112	10.1%	287	0	287	\$22.31
Securities, Commodities, and Financial Services Sales Agents	3,375	1.8%	210	2	208	\$23.81
Civil Engineers	3,068	12.7%	195	9	187	\$51.31

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
Paralegals and Legal Assistants	2,005	19.3%	175	2	173	\$27.39
First-Line Supervisors of Non-Retail Sales Workers	3,907	3.8%	173	0	173	\$24.40
Sales and Related Workers, All Other	2,635	3.1%	150	0	150	\$16.97
Logisticians	2,413	10.3%	145	0	145	\$37.24
Social Workers, All Other	2,241	13.8%	145	4	141	\$35.00
Advertising Sales Agents	1,185	4.5%	113	1	112	\$25.58
Loan Officers	2,358	(2.0%)	108	1	107	\$32.25
Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other	2,272	6.4%	140	46	93	\$32.67
Instructional Coordinators	1,990	10.8%	93	2	91	\$53.40
Education Administrators, Kindergarten through Secondary	2,428	12.6%	96	14	82	\$63.23
Personal Financial Advisors	1,447	1.8%	80	1	79	\$34.03
Physical Therapist Assistants	578	44.1%	77	0	77	\$35.05
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	1,358	1.8%	78	2	76	\$37.49
Claims Adjusters, Examiners, and Investigators	1,484	(6.1%)	71	1	71	\$37.49
Meeting, Convention, and Event Planners	923	15.4%	77	8	69	\$22.04
Designers, All Other	732	8.9%	54	1	53	\$25.02
Special Education Teachers, Secondary School	1,141	13.4%	53	0	53	\$42.94
Airline Pilots, Copilots, and Flight Engineers	669	(1.7%)	48	3	45	\$81.83
Interior Designers	570	17.9%	49	4	45	\$25.33
Medical Transcriptionists	466	3.0%	44	0	44	\$16.46
Fundraisers	654	15.6%	47	5	42	\$26.15
Procurement Clerks	586	2.8%	40	0	40	\$22.52
Life, Physical, and Social Science Technicians, All Other	676	1.3%	38	2	36	\$27.52
Electrical Engineers	1,006	9.8%	48	16	32	\$44.24
Surveyors	400	14.2%	26	1	25	\$43.47
Lodging Managers	457	(1.1%)	24	0	24	\$36.99
Purchasing Managers	443	10.7%	24	0	24	\$47.91
Forest and Conservation Technicians	383	5.4%	22	1	21	\$24.62
Budget Analysts	383	7.7%	19	1	18	\$33.83
Training and Development Managers	450	6.3%	19	1	18	\$57.13

SOC TITLE	2020 JOBS	% JOB CHANGE	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE
Court Reporters and Simultaneous Captioners	289	16.9%	18	0	18	\$53.11
Credit Counselors	341	4.4%	17	0	17	\$22.40
Electrical and Electronics Drafters	228	9.8%	15	0	15	\$29.97
Drafters, All Other	206	5.0%	13	0	13	\$20.63
Credit Analysts	200	5.5%	14	2	12	\$35.04
Insurance Underwriters	190	2.2%	12	0	11	\$32.04

Numbers may not sum due to rounding.  
Source: Emsi program demand gap model.

## SUMMARY

A variety of certificate level programmatic areas of opportunity have been identified in the program demand gap analysis, many of which are related to Installation, Maintenance, & Repair Occupations; Office & Administrative Support Occupations; and Construction & Extraction Occupations. At the associate degree level, there are fewer opportunities for new programs, considering the district's current offerings. Nonetheless, SBCCD should consider new programs related to Healthcare Practitioners & Technical Occupations, whether its focus is on job openings in the SBCCD Service Region or California. A variety of transfer-track degree level programmatic areas of opportunity were identified in the program demand gap analysis, many of which are related to Business & Financial Operations Occupations; Sales & Related Occupations; and Architecture & Engineering Occupations. For all award levels, many program additions are related to the district's current program offerings, which indicates an opportunity for a curriculum adjustment to better align with the region's current and projected labor market demand.



## APPENDIX 1: Glossary of Terms

**Associate Degree** A degree granted for the successful completion of a sub-baccalaureate program of study, usually requiring at least two years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work-study program. For the program demand gap analysis, degrees of greater than two years but less than four, as defined by IPEDS, are included in the associate degree category.

**Certificate** A formal award certifying the satisfactory completion of a postsecondary education program. Certificates can be awarded at any level of postsecondary education and include awards below the associate degree level. For the program demand gap analysis, this includes awards of less than one year and greater than one year but less than two, as defined by IPEDS.

**Gap** represents a deficit, or when there are more job openings in a particular occupation than there are completions from higher education institutions in the county, region, state, etc. If left unaddressed, a gap may lead to missed opportunities for economic growth and put stress on local businesses to find the necessary talent elsewhere. Significant gaps translate into higher human resources costs and decreased efficiencies in the economic system. They also provide an opportunity for educational institutions to develop new programs and/or strengthen their current programs.

**Industry Jobs** Emsi industry data have various sources depending on the class of worker. Emsi primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns. Non-QCEW employees data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, Bureau of Economic Analysis (BEA) State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics. Self-Employed class of worker data are primarily based on the American Community Survey, Nonemployer Statistics, and BEA State and Local Personal Income Reports. The Extended Proprietor class of worker is not included in the analysis. Projections for QCEW and non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.

**IPEDS** The Integrated Postsecondary Education Data System (IPEDS) aggregates interrelated surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES). IPEDS gathers information from every educational institution in the U.S. that participates in the federal student financial aid programs authorized by Title IV of the Higher Education Act of 1965. These educational institutions include research universities, state colleges and universities, private religious and liberal arts colleges, for-profit institutions, community and technical colleges, non-degree-granting institutions such as beauty colleges, and others.

**Job Openings** Job openings are a combination of job growth, which occurs when an employer experiences greater demand for its products and hires new employees to increase production, and replacement needs, which occurs when employees leave the workforce or change occupations. Throughout the program demand gap analysis, they represent the average number of projected openings between 2020 and 2030. Job openings are calculated for each occupation mapped to a program and are de-duplicated across programs mapped to the same occupation using Emsi's weighting methodology. For each award level, the number of openings is reported for that educational level and one education level below it.

**Location Quotient (LQ)** A comparative statistic used to calculate the relative employment concentration of an industry or occupation against the employment of the industry in a larger geographic region (i.e. a region's LQ relative to the U.S.). Industries with a higher location quotient (usually greater than 1.2) indicate that the smaller geographic region has a comparative advantage or specialization in the production of that good or service or has a high degree of specialization within its workforce.

**NAICS** The North American Industry Classification System (NAICS) organizes North American business establishments to better collect, analyze, and publish statistical data related to the business economy. NAICS is intended to classify an establishment's activity regardless of its ownership (public or private sector) or legal form of organization (proprietorship, partnership, corporation, for-profit, nonprofit, etc.). However, due to the realities of available data, Emsi treats establishments with public and private sector ownership differently. In Emsi data, all establishments in the main NAICS hierarchy are private sector only. Jobs in Educational Services and Ambulatory Health Care Service, for example, are not associated with local, state, or federal government jobs. Jobs for public school teachers and city firefighters are in Local Government, whereas college professors and forest firefighters are commonly employed by State Government. Mail carriers and transportation security screeners are examples of jobs in Federal Government. Thus, Emsi does not use the standard NAICS classification, which is similar to Current Employment Statistics (CES), Occupational Employment Statistics (OES), and BEA data sources.

**New Program Additions** New program additions are workforce gaps that exist for occupations the institution does not currently train for, based on the mapping of the institution's current programs. The award level recommended for the occupations is determined based by the level of education of workers currently employed in the occupation.

**Program Completions** For the program demand gap analysis, program completions are the average number of students, over a three-year period, who receive an award or degree for a program of study, as reported to IPEDS. An average over three years is used to control for upward or downward spikes in completions in any one year.

**SOC** The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of about 775 detailed occupations according to their occupational definition. To facilitate classification, detailed occupations are combined to form about 450 broad occupations, about 95 minor groups, and 23 major groups. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training, are grouped together. There are a few minor differences between Emsi and standard SOC codes. Primarily, Emsi does not use detailed SOC codes for military occupations due to lack of good data and aggregates the occupations into one code, 55-9999. And, Emsi uses a single aggregate code (25-1099) for all postsecondary teachers due to lack of solid data and to remain consistent with the NIOEM, which uses a similar code. Emsi currently uses the OES's SOC 2017.

**Staffing Patterns** show the occupational makeup of an industry in percentages. For example, a simplified staffing pattern of the Hospitals industry subsector might show that 20% of its jobs are occupied by nurses, 15% by nursing assistants, 10% by general practitioners, 10% by surgeons, five percent by information technology support staff, five percent by janitors, one percent by chief executives, etc. Data are compiled from several sources, including Occupational Employment Statistics, NIOEM, and the American Community Survey. For the Self-Employed class of worker, the primary source is the American Community Survey with a small amount of information from Occupational Employment Statistics.

**Surplus** Represents an oversupply, or when there are more completers from regional educational institutions than there are job openings in a particular occupation. If left unaddressed, significant surpluses may lead to higher unemployment rates or higher attrition rates—the institution could be educating a workforce that is leaving the region after program completion because of a lack of job opportunities. In the tables, values in parentheses represent a surplus.

**Transfer-Track** degrees are not a formal award level according to IPEDS. They are associate degrees, as defined by IPEDS, that prepare students to pursue a baccalaureate degree, as opposed to a two-year terminal degree. Transfer-track degrees are usually awarded as Associate of Arts (AA) or Associate of Science (AS) degrees, compared to terminal associate degrees, usually awarded as Associate of Applied Science (AAS) or Associate of Applied Arts (AAA) degrees.



## APPENDIX 2: About Emsi Data

### LABOR MARKET INFORMATION

Traditional labor market information (LMI) helps us to identify those occupations with good jobs and projected growth in the coming decade. This provides a robust, market-driven foundation upon which to build out programmatic recommendations. Emsi's data then allows us to map these occupations back to programs that train for them, and to extrapolate other occupational outcomes for potential graduates. Emsi data are used to calculate the projected number of annual job openings from 2020 to 2030. These projections account for openings due to job growth and openings due to replacement needs, such as when an employee retires or leaves the position. To capture a complete picture of industry employment, Emsi gathers and integrates economic, labor market, demographic, and educational data from over 40 government and private-sector sources. In doing so, Emsi creates a comprehensive and current database that includes both published data and detailed estimates, with full coverage of the U.S.

More specifically, Emsi combines covered employment data from the Quarterly Census of Employment and Wages (QCEW-produced by the Department of Labor) with total employment data in Regional Economic Information System (REIS-published by the BEA). The data are augmented with County Business Patterns (CBP) and Non-Employer Statistics (NES) published by the Census Bureau. Job projections are based on the latest-available Emsi industry data, 15-year past local trends in each industry, growth rates in statewide and, where available, sub-state area industry projections published by individual state agencies and, in part, growth rates in national projections from the Bureau of Labor Statistics (BLS).

Through this combination of data sources, Emsi is able to fill gaps in individual sources (such as suppressions), yielding a composite database that leverages the strengths of all its sources. Finally, Emsi's database is updated quarterly, providing the most up-to-date integrated information possible.

## APPENDIX 3: Additional Jobs Data

### INDUSTRY COMPOSITION

Table A3.1: Current and Projected Jobs by Industry Subsector in the SBCCD Service Region, 2020 and 2030

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE
903	Local Government	216,801	232,063	15,262	7.0%
722	Food Services & Drinking Places	146,461	174,169	27,708	18.9%
561	Administrative & Support Services	124,077	133,657	9,580	7.7%
238	Specialty Trade Contractors	103,469	118,675	15,206	14.7%
621	Ambulatory Health Care Services	89,603	115,596	25,993	29.0%
624	Social Assistance	87,101	116,102	29,001	33.3%
493	Warehousing & Storage	84,701	106,706	22,006	26.0%
541	Professional, Scientific, & Technical Services	61,502	68,035	6,532	10.6%
901	Federal Government	45,262	45,614	352	0.8%
622	Hospitals	42,989	48,740	5,751	13.4%
423	Merchant Wholesalers, Durable Goods	40,767	41,945	1,178	2.9%
452	General Merchandise Stores	36,206	35,493	(713)	(2.0%)
445	Food & Beverage Stores	35,564	36,454	890	2.5%
484	Truck Transportation	34,014	36,829	2,814	8.3%
902	State Government	29,435	31,872	2,437	8.3%
611	Educational Services	29,142	33,359	4,217	14.5%
623	Nursing & Residential Care Facilities	28,684	34,142	5,458	19.0%
812	Personal & Laundry Services	28,009	32,039	4,030	14.4%
236	Construction of Buildings	27,578	31,371	3,793	13.8%
441	Motor Vehicle & Parts Dealers	27,162	28,363	1,201	4.4%
424	Merchant Wholesalers, Nondurable Goods	26,361	28,222	1,861	7.1%
811	Repair & Maintenance	26,186	27,130	944	3.6%
448	Clothing & Clothing Accessories Stores	22,475	22,893	418	1.9%
531	Real Estate	22,322	24,203	1,882	8.4%
813	Religious, Grantmaking, Civic, Professional, & Similar Organizations	20,133	20,495	362	1.8%
713	Amusement, Gambling, & Recreation Industries	20,023	21,734	1,711	8.5%

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE
721	Accommodation	18,456	18,163	(293)	(1.6%)
492	Couriers & Messengers	17,623	20,415	2,792	15.8%
332	Fabricated Metal Product Manufacturing	15,985	15,796	(188)	(1.2%)
444	Building Material & Garden Equipment & Supplies Dealers	15,019	15,381	363	2.4%
237	Heavy & Civil Engineering Construction	13,829	15,020	1,191	8.6%
522	Credit Intermediation & Related Activities	13,350	13,320	(30)	(0.2%)
524	Insurance Carriers & Related Activities	13,243	13,466	223	1.7%
446	Health & Personal Care Stores	13,079	15,327	2,248	17.2%
488	Support Activities for Transportation	12,003	13,936	1,933	16.1%
311	Food Manufacturing	11,706	13,259	1,553	13.3%
453	Miscellaneous Store Retailers	11,096	11,438	342	3.1%
447	Gasoline Stations	10,198	12,070	1,873	18.4%
326	Plastics & Rubber Products Manufacturing	9,937	9,052	(886)	(8.9%)
551	Management of Companies & Enterprises	8,657	7,713	(943)	(10.9%)
336	Transportation Equipment Manufacturing	8,596	8,374	(223)	(2.6%)
115	Support Activities for Agriculture & Forestry	8,052	8,870	819	10.2%
333	Machinery Manufacturing	7,603	7,752	149	2.0%
454	Nonstore Retailers	7,495	9,557	2,061	27.5%
111	Crop Production	7,483	7,879	396	5.3%
442	Furniture & Home Furnishings Stores	7,264	8,568	1,304	18.0%
339	Miscellaneous Manufacturing	7,154	5,805	(1,348)	(18.8%)
711	Performing Arts, Spectator Sports, & Related Industries	7,141	7,797	656	9.2%
327	Nonmetallic Mineral Product Manufacturing	6,746	6,260	(486)	(7.2%)
485	Transit & Ground Passenger Transportation	6,614	8,365	1,751	26.5%
532	Rental & Leasing Services	6,241	6,651	410	6.6%
451	Sporting Goods, Hobby, Musical Instrument, & Book Stores	5,847	5,168	(680)	(11.6%)
517	Telecommunications	5,461	5,264	(197)	(3.6%)
443	Electronics & Appliance Stores	5,436	5,490	54	1.0%
321	Wood Product Manufacturing	5,430	5,290	(140)	(2.6%)
325	Chemical Manufacturing	5,224	5,175	(49)	(0.9%)
337	Furniture & Related Product Manufacturing	5,133	4,515	(618)	(12.0%)
221	Utilities	4,882	4,472	(410)	(8.4%)
331	Primary Metal Manufacturing	4,565	3,994	(570)	(12.5%)

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE
562	Waste Management & Remediation Services	4,558	4,793	235	5.2%
482	Rail Transportation	3,951	3,862	(88)	(2.2%)
334	Computer & Electronic Product Manufacturing	3,888	3,302	(586)	(15.1%)
312	Beverage & Tobacco Product Manufacturing	3,870	3,823	(47)	(1.2%)
512	Motion Picture & Sound Recording Industries	3,771	4,392	621	16.5%
814	Private Households	3,206	1,729	(1,477)	(46.1%)
425	Wholesale Electronic Markets & Agents & Brokers	3,125	1,876	(1,249)	(40.0%)
335	Electrical Equipment, Appliance, & Component Manufacturing	3,061	2,718	(343)	(11.2%)
323	Printing & Related Support Activities	2,971	2,827	(144)	(4.9%)
322	Paper Manufacturing	2,770	2,844	75	2.7%
523	Securities, Commodity Contracts, & Other Financial Investments & Related Activities	2,449	2,371	(79)	(3.2%)
511	Publishing Industries (except Internet)	1,881	1,865	(15)	(0.8%)
112	Animal Production & Aquaculture	1,582	815	(767)	(48.5%)
212	Mining (except Oil & Gas)	1,147	1,334	187	16.3%
519	Other Information Services	925	1,091	166	18.0%
515	Broadcasting (except Internet)	913	598	(316)	(34.6%)
314	Textile Product Mills	866	740	(126)	(14.6%)
315	Apparel Manufacturing	708	677	(31)	(4.4%)
518	Data Processing, Hosting, & Related Services	675	923	249	36.9%
712	Museums, Historical Sites, & Similar Institutions	616	641	25	4.0%
481	Air Transportation	581	244	(337)	(58.0%)
324	Petroleum & Coal Products Manufacturing	311	326	16	5.0%
486	Pipeline Transportation	266	282	16	6.0%
213	Support Activities for Mining	159	211	51	32.3%
316	Leather & Allied Product Manufacturing	147	143	(4)	(2.7%)
113	Forestry & Logging	100	87	(12)	(12.5%)
487	Scenic & Sightseeing Transportation	98	109	11	10.8%
313	Textile Mills	75	63	(12)	(16.0%)
525	Funds, Trusts, & Other Financial Vehicles	72	85	13	17.4%
491	Postal Service	63	72	9	14.8%
114	Fishing, Hunting & Trapping	44	45	2	4.0%
483	Water Transportation	43	35	(8)	0
533	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	26	22	(4)	(14.8%)

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE
211	Oil & Gas Extraction	11	16	4	0
521	Monetary Authorities-Central Bank	6	11	4	1
<b>Total</b>		<b>1,811,510</b>	<b>2,010,475</b>	<b>198,967</b>	<b>11.0%</b>

Source: Employees & Self-Employed 2020.3.

Table A3.2: Employment Concentration (LQ) by Industry Subsector in the SBCCD Service Region, 2020 and 2030

NAICS CODE	NAICS TITLE	2020 LQ	2030 LQ
493	Warehousing & Storage	5.94	6.25
492	Couriers & Messengers	1.83	1.92
484	Truck Transportation	1.78	1.77
624	Social Assistance	1.71	1.86
482	Rail Transportation	1.64	1.49
448	Clothing & Clothing Accessories Stores	1.55	1.72
238	Specialty Trade Contractors	1.55	1.57
327	Nonmetallic Mineral Product Manufacturing	1.45	1.33
811	Repair & Maintenance	1.41	1.36
903	Local Government	1.39	1.39
488	Support Activities for Transportation	1.35	1.40
442	Furniture & Home Furnishings Stores	1.33	1.44
115	Support Activities for Agriculture & Forestry	1.27	1.20
326	Plastics & Rubber Products Manufacturing	1.25	1.12
441	Motor Vehicle & Parts Dealers	1.20	1.16
312	Beverage & Tobacco Product Manufacturing	1.19	1.06
561	Administrative & Support Services	1.16	1.13
321	Wood Product Manufacturing	1.16	1.10
337	Furniture & Related Product Manufacturing	1.16	1.00
423	Merchant Wholesalers, Durable Goods	1.15	1.14
812	Personal & Laundry Services	1.14	1.16
446	Health & Personal Care Stores	1.12	1.21
236	Construction of Buildings	1.11	1.10
452	General Merchandise Stores	1.11	1.05
237	Heavy & Civil Engineering Construction	1.10	1.01

NAICS CODE	NAICS TITLE	2020 LQ	2030 LQ
424	Merchant Wholesalers, Nondurable Goods	1.09	1.12
722	Food Services & Drinking Places	1.09	1.12
331	Primary Metal Manufacturing	1.08	0.99
445	Food & Beverage Stores	1.06	1.03
453	Miscellaneous Store Retailers	1.05	1.05
443	Electronics & Appliance Stores	1.04	1.10
444	Building Material & Garden Equipment & Supplies Dealers	1.04	0.97
339	Miscellaneous Manufacturing	1.00	0.77
447	Gasoline Stations	0.99	1.07
621	Ambulatory Health Care Services	0.99	1.00
713	Amusement, Gambling, & Recreation Industries	0.98	0.94
332	Fabricated Metal Product Manufacturing	0.98	0.93
532	Rental & Leasing Services	0.96	0.95
451	Sporting Goods, Hobby, Musical Instrument, & Book Stores	0.93	0.83
454	Nonstore Retailers	0.92	0.91
531	Real Estate	0.92	0.90
562	Waste Management & Remediation Services	0.88	0.82
111	Crop Production	0.87	0.86
901	Federal Government	0.87	0.85
721	Accommodation	0.82	0.75
485	Transit & Ground Passenger Transportation	0.81	0.84
221	Utilities	0.81	0.71
623	Nursing & Residential Care Facilities	0.77	0.80
622	Hospitals	0.77	0.78
711	Performing Arts, Spectator Sports, & Related Industries	0.74	0.73
517	Telecommunications	0.71	0.77
322	Paper Manufacturing	0.70	0.75
335	Electrical Equipment, Appliance, & Component Manufacturing	0.69	0.60
512	Motion Picture & Sound Recording Industries	0.67	0.71
314	Textile Product Mills	0.66	0.58
323	Printing & Related Support Activities	0.64	0.69
311	Food Manufacturing	0.64	0.68
333	Machinery Manufacturing	0.62	0.62

NAICS CODE	NAICS TITLE	2020 LQ	2030 LQ
611	Educational Services	0.62	0.61
813	Religious, Grantmaking, Civic, Professional, & Similar Organizations	0.62	0.58
315	Apparel Manufacturing	0.57	0.69
325	Chemical Manufacturing	0.56	0.53
425	Wholesale Electronic Markets & Agents & Brokers	0.56	0.30
212	Mining (except Oil & Gas)	0.55	0.59
541	Professional, Scientific, & Technical Services	0.51	0.48
902	State Government	0.50	0.50
486	Pipeline Transportation	0.47	0.46
522	Credit Intermediation & Related Activities	0.46	0.43
316	Leather & Allied Product Manufacturing	0.45	0.45
336	Transportation Equipment Manufacturing	0.45	0.41
524	Insurance Carriers & Related Activities	0.42	0.38
525	Funds, Trusts, & Other Financial Vehicles	0.38	0.35
491	Postal Service	0.37	0.32
814	Private Households	0.34	0.18
112	Animal Production & Aquaculture	0.34	0.17
334	Computer & Electronic Product Manufacturing	0.33	0.30
551	Management of Companies & Enterprises	0.33	0.26
712	Museums, Historical Sites, & Similar Institutions	0.31	0.28
515	Broadcasting (except Internet)	0.31	0.20
324	Petroleum & Coal Products Manufacturing	0.25	0.27
487	Scenic & Sightseeing Transportation	0.23	0.21
519	Other Information Services	0.23	0.21
511	Publishing Industries (except Internet)	0.22	0.20
523	Securities, Commodity Contracts, & Other Financial Investments & Related Activities	0.22	0.19
518	Data Processing, Hosting, & Related Services	0.17	0.19
114	Fishing, Hunting & Trapping	0.12	0.13
113	Forestry & Logging	0.12	0.11
533	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	0.10	0.09
481	Air Transportation	0.10	0.04
313	Textile Mills	0.06	0.06
483	Water Transportation	0.06	0.05

NAICS CODE	NAICS TITLE	2020 LQ	2030 LQ
213	Support Activities for Mining	0.04	0.04
521	Monetary Authorities-Central Bank	0.03	0.05
211	Oil & Gas Extraction	0.01	0.01

Source: Employees & Self-Employed 2020.3.

## INDUSTRY STAFFING PATTERNS

The following tables show the staffing patterns of the industry subsectors discussed in Chapter 2. The Entry Ed Level Column describes the typical award level required for an entry level position in the occupation. “None” or “<HS/GED” indicates that the occupation typically requires no formal educational credential; “HS/GED” refers to a high school diploma or its equivalent, a General Equivalency Development or General Equivalency Diploma test; “Cert” refers to a postsecondary nondegree award or some college education with no degree; and “Doctoral” refers to a doctoral or professional degree level of education. The other education classifications are straightforward.

Table A3.3: Employment Projections in the SBCCD Service Region for the Top 25 Occupations Related to the Local Government Industry Subsector

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Elementary School Teachers, Except Special Education	21,165	23,067	1,990	9.8%	\$43.73	BACH
Teaching Assistants, Except Postsecondary	16,101	17,490	2,212	7.4%	\$17.36	CERT
Substitute Teachers, Short-Term	13,306	14,295	1,875	6.1%	\$18.01	CERT
Secondary School Teachers, Except Special and Career/Technical Education	11,057	12,209	1,023	5.1%	\$41.95	BACH
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	6,486	6,947	3,767	3.0%	\$15.54	HS/GED
Police and Sheriffs Patrol Officers	5,511	6,165	563	2.5%	\$48.99	BACH
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	5,457	5,109	2,565	2.5%	\$19.55	CERT
Office Clerks, General	4,925	4,714	3,918	2.3%	\$17.36	CERT
Postsecondary Teachers	4,917	4,973	1,041	2.3%	\$47.80	BACH
Registered Nurses	3,954	4,132	2,475	1.8%	\$49.75	BACH
Correctional Officers and Jailers	3,402	3,413	498	1.6%	\$39.35	CERT



SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Middle School Teachers, Except Special and Career/Technical Education	3,395	3,935	373	1.6%	\$40.90	BACH
Fast Food and Counter Workers	2,890	3,109	12,989	1.3%	\$12.93	HS/GED
Firefighters	2,840	3,188	269	1.3%	\$31.12	CERT
Maintenance and Repair Workers, General	2,800	3,024	1,686	1.3%	\$19.68	HS/GED
Educational Instruction and Library Workers, All Other	2,656	2,804	377	1.2%	\$19.48	BACH
Childcare Workers	2,507	2,683	1,947	1.2%	\$13.01	CERT
Special Education Teachers, Kindergarten and Elementary School	2,474	2,713	231	1.1%	\$38.35	BACH
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	2,390	2,623	1,477	1.1%	\$17.16	CERT
Gambling Dealers	2,334	2,492	453	1.1%	\$12.80	CERT
Education Administrators, Kindergarten through Secondary	2,109	2,365	233	1.0%	\$63.23	BACH
Office and Administrative Support Workers, All Other	1,937	1,989	636	0.9%	\$15.99	BACH
Educational, Guidance, and Career Counselors and Advisors	1,914	2,084	363	0.9%	\$41.57	MAST
Recreation Workers	1,891	2,078	834	0.9%	\$13.69	CERT
Landscaping and Groundskeeping Workers	1,816	1,951	3,294	0.8%	\$14.38	HS/GED

Source: Employees & Self-Employed 2020.3.

Table A3.4: Employment Projections in the SBCCD Service Region for the Top 25 Occupations Related to the Specialty Trade Contractors Industry Subsector

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Carpenters	12,473	13,555	2,558	12.1%	\$22.54	HS/GED
Construction Laborers	10,762	12,188	2,658	10.4%	\$18.73	HS/GED
Electricians	7,226	9,078	1,400	7.0%	\$23.17	HS/GED
Plumbers, Pipefitters, and Steamfitters	4,799	6,066	888	4.6%	\$25.71	HS/GED
First-Line Supervisors of Construction Trades and Extraction Workers	4,652	5,180	1,078	4.5%	\$29.59	HS/GED
Drywall and Ceiling Tile Installers	4,375	4,755	559	4.2%	\$23.06	NONE
Cement Masons and Concrete Finishers	3,800	4,295	600	3.7%	\$27.96	HS/GED
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	3,717	4,720	628	3.6%	\$20.30	HS/GED
Construction Managers	2,816	3,036	482	2.7%	\$31.60	BACH

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Office Clerks, General	2,789	3,071	3,918	2.7%	\$17.36	CERT
Roofers	2,128	2,376	296	2.1%	\$24.51	NONE
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	1,691	2,027	956	1.6%	\$33.80	BACH
General and Operations Managers	1,577	1,895	2,097	1.5%	\$48.16	BACH
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1,540	1,619	2,565	1.5%	\$19.55	CERT
Operating Engineers and Other Construction Equipment Operators	1,501	1,624	583	1.5%	\$39.51	HS/GED
Cost Estimators	1,483	1,732	368	1.4%	\$31.15	BACH
Structural Iron and Steel Workers	1,342	1,643	246	1.3%	\$32.00	HS/GED
Helpers--Electricians	1,248	1,488	226	1.2%	\$17.08	HS/GED
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	1,242	1,460	1,436	1.2%	\$21.90	BACH
Bookkeeping, Accounting, and Auditing Clerks	1,238	1,345	1,929	1.2%	\$20.31	CERT
Tapers	1,120	1,194	135	1.1%	\$29.74	NONE
Sheet Metal Workers	1,091	1,353	215	1.1%	\$27.57	HS/GED
Plasterers and Stucco Masons	1,076	1,147	124	1.0%	\$23.31	NONE
Heavy and Tractor-Trailer Truck Drivers	842	934	4,271	0.8%	\$22.56	HS/GED
Home Health and Personal Care Aides	49,600	72,222	15,228	56.9%	\$12.85	CERT

Source: Employees & Self-Employed 2020.3.

Table A3.5: Employment Projections in the SBCCD Service Region for the Occupations Related to the Social Assistance Industry Subsector

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Childcare Workers	7,742	6,781	1,947	8.9%	\$13.01	CERT
Preschool Teachers, Except Special Education	1,915	2,013	453	2.2%	\$15.20	CERT
Marriage and Family Therapists	1,406	1,590	469	1.6%	\$21.49	MAST
Social and Community Service Managers	1,140	1,587	248	1.3%	\$33.45	BACH
Rehabilitation Counselors	1,051	1,180	213	1.2%	\$14.35	MAST
Office Clerks, General	1,026	1,270	3,918	1.2%	\$17.36	CERT
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	949	1,113	593	1.1%	\$23.32	MAST

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Nursing Assistants	874	1,342	1,268	1.0%	\$16.23	CERT
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	859	1,019	2,565	1.0%	\$19.55	CERT
Registered Nurses	809	1,095	2,475	0.9%	\$49.75	BACH
Teaching Assistants, Except Postsecondary	757	864	2,212	0.9%	\$17.36	CERT
Social Workers, All Other	708	910	266	0.8%	\$35.00	BACH
Healthcare Social Workers	610	870	262	0.7%	\$35.38	BACH
General and Operations Managers	574	776	2,097	0.7%	\$48.16	BACH
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	503	581	3,767	0.6%	\$15.54	HS/GED
Recreation Workers	497	666	834	0.6%	\$13.69	CERT
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	466	679	1,477	0.5%	\$17.16	CERT
Community and Social Service Specialists, All Other	455	562	232	0.5%	\$23.39	BACH
Project Management Specialists and Business Operations Specialists, All Other	453	587	1,419	0.5%	\$31.07	BACH
Child, Family, and School Social Workers	413	547	248	0.5%	\$26.13	BACH
Licensed Practical and Licensed Vocational Nurses	409	547	830	0.5%	\$26.94	CERT
Educational, Guidance, and Career Counselors and Advisors	385	434	363	0.4%	\$41.57	MAST

Source: Employees & Self-Employed 2020.3.

Table A3.6: Employment Projections in the SBCCD Service Region for the Top 25 Occupations Related to the Warehousing & Storage Industry Subsector

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Laborers and Freight, Stock, and Material Movers, Hand	21,366	28,194	9,837	25.2%	\$15.16	HS/GED
Stockers and Order Fillers	15,202	18,109	7,480	17.9%	\$14.84	HS/GED
Industrial Truck and Tractor Operators	12,062	14,921	2,500	14.2%	\$17.40	HS/GED
Packers and Packagers, Hand	5,302	5,484	2,097	6.3%	\$12.79	HS/GED
Shipping, Receiving, and Inventory Clerks	3,977	5,054	1,320	4.7%	\$16.53	HS/GED
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	2,949	3,859	1,177	3.5%	\$27.06	CERT
Heavy and Tractor-Trailer Truck Drivers	2,647	3,727	4,271	3.1%	\$22.56	HS/GED

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Maintenance and Repair Workers, General	1,137	1,566	1,686	1.3%	\$19.68	HS/GED
First-Line Supervisors of Office and Administrative Support Workers	1,132	1,442	1,760	1.3%	\$27.19	BACH
Light Truck Drivers	1,080	1,443	2,038	1.3%	\$18.90	HS/GED
Machine Feeders and Offbearers	1,070	1,352	317	1.3%	\$15.72	HS/GED
Customer Service Representatives	946	1,214	2,710	1.1%	\$17.70	CERT
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	915	1,183	242	1.1%	\$15.79	CERT
Production, Planning, and Expediting Clerks	888	1,161	615	1.0%	\$22.31	BACH
Transportation, Storage, and Distribution Managers	887	1,175	254	1.0%	\$40.99	CERT
Office Clerks, General	756	951	3,918	0.9%	\$17.36	CERT
General and Operations Managers	672	909	2,097	0.8%	\$48.16	BACH
Order Clerks	651	764	385	0.8%	\$17.39	CERT
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	565	745	3,767	0.7%	\$15.54	HS/GED
Project Management Specialists and Business Operations Specialists, All Other	457	592	1,419	0.5%	\$31.07	BACH
Inspectors, Testers, Sorters, Samplers, and Weighers	434	502	599	0.5%	\$17.94	HS/GED
Security Guards	389	489	3,066	0.5%	\$14.62	CERT
Driver/Sales Workers	378	508	781	0.4%	\$16.34	HS/GED
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	372	438	2,565	0.4%	\$19.55	CERT
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	342	457	1,633	0.4%	\$27.86	BACH

Source: Employees & Self-Employed 2020.3.

Table A3.7: Employment Projections in the SBCCD Service Region for the Top 25 Occupations Related to the Truck Transportation Industry Subsector

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Heavy and Tractor-Trailer Truck Drivers	19,335	21,155	4,271	56.8%	\$22.56	HS/GED
Laborers and Freight, Stock, and Material Movers, Hand	3,334	3,626	9,837	9.8%	\$15.16	HS/GED
Light Truck Drivers	1,354	1,420	2,038	4.0%	\$18.90	HS/GED
Bus and Truck Mechanics and Diesel Engine Specialists	1,069	1,168	447	3.1%	\$23.55	HS/GED

SOC TITLE	2020 JOBS	2030 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	1,000	1,083	1,177	2.9%	\$27.06	CERT
Office Clerks, General	875	884	3,918	2.6%	\$17.36	CERT
Dispatchers, Except Police, Fire, and Ambulance	680	721	252	2.0%	\$17.95	CERT
Industrial Truck and Tractor Operators	567	617	2,500	1.7%	\$17.40	HS/GED
General and Operations Managers	459	503	2,097	1.3%	\$48.16	BACH
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	421	405	2,565	1.2%	\$19.55	CERT
Bookkeeping, Accounting, and Auditing Clerks	369	370	1,929	1.1%	\$20.31	CERT
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	351	378	1,436	1.0%	\$21.90	BACH
Customer Service Representatives	284	286	2,710	0.8%	\$17.70	CERT
Transportation, Storage, and Distribution Managers	282	308	254	0.8%	\$40.99	CERT
First-Line Supervisors of Office and Administrative Support Workers	250	251	1,760	0.7%	\$27.19	BACH
Driver/Sales Workers	153	158	781	0.4%	\$16.34	HS/GED
Stockers and Order Fillers	145	154	7,480	0.4%	\$14.84	HS/GED
Packers and Packagers, Hand	134	143	2,097	0.4%	\$12.79	HS/GED
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	122	141	956	0.4%	\$33.80	BACH
Billing and Posting Clerks	122	134	563	0.4%	\$17.78	CERT
Shipping, Receiving, and Inventory Clerks	100	106	1,320	0.3%	\$16.53	HS/GED
Production, Planning, and Expediting Clerks	99	105	615	0.3%	\$22.31	BACH
Cargo and Freight Agents	98	108	156	0.3%	\$20.23	CERT
Human Resources Specialists	97	102	641	0.3%	\$29.88	BACH
Maintenance and Repair Workers, General	88	97	1,686	0.3%	\$19.68	HS/GED

Source: Employees & Self-Employed 2020.3.

## WORKFORCE COMMUTING PATTERNS

Table A3.8: SBCCD Service Region Job Inflow and Outflow

COMMUTING PATTERN	JOBS	COMMUTE SHARE
EMPLOYMENT PATTERNS		
Employed in the SBCCD Service Region	1,313,860	100%
Employed in the SBCCD Service Region but living outside	359,280	27%
Employed and living in the SBCCD Service Region	954,570	73%
RESIDENTIAL PATTERNS		
Living in the SBCCD Service Region	1,594,910	100%
Living in the SBCCD Service Region but employed outside	640,330	40%
Living and employed in the SBCCD Service Region	954,570	60%

Source: Census Bureau, Center for Economic Studies.

## EDUCATIONAL ATTAINMENT

Table A3.9: Highest Educational Attainments of Adults in the SBCCD Service Region

EDUCATION LEVEL	2015 ADULTS	2015 % ADULTS	2020 ADULTS	2020 % ADULTS	CHANGE
Less than high school diploma or equivalent	576,435	21%	642,705	21%	66,270
High school diploma or equivalent	726,653	26%	813,089	27%	86,436
Some college	712,139	25%	751,473	25%	39,333
Associate degree	223,157	8%	239,506	8%	16,349
Bachelor's degree	366,504	13%	399,167	13%	32,664
Graduate degree or higher	200,483	7%	214,358	7%	13,875
<b>Total</b>	<b>2,805,372</b>	<b>100%</b>	<b>3,060,298</b>	<b>100%</b>	<b>254,926</b>

Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Table A3.10: Highest Educational Attainments of Adults in the SBCCD Service Region by Gender

EDUCATION LEVEL	ADULT MALES	% ADULT MALES	ADULT FEMALES	% ADULT FEMALES
Less than high school diploma or equivalent	325,390	22%	317,315	20%
High school diploma or equivalent	407,916	27%	405,173	26%
Some college	360,465	24%	391,007	25%
Associate degree	108,805	7%	130,701	8%
Bachelor's degree	194,073	13%	205,095	13%

Graduate degree and higher	104,460	7%	109,898	7%
<b>Total</b>	<b>1,501,110</b>	<b>100%</b>	<b>1,559,189</b>	<b>100%</b>

Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Table A3.11: Highest Educational Attainments of Adults in the SBCCD Service Region by Major Race and Ethnic Groups

GROUP		<HS	HS	SOME COLLEGE	ASSOC	BACH	>BACH
White, non-Hispanic	Adults	82,448	287,234	330,711	101,466	185,770	113,454
	% Adults	7%	26%	30%	9%	17%	10%
Black, non-Hispanic	Adults	21,619	56,808	70,895	24,383	32,983	17,307
	% Adults	10%	25%	32%	11%	15%	8%
American Indian or Alaskan native, non-Hispanic	Adults	2,973	4,670	3,512	1,187	996	736
	% Adults	21%	33%	25%	8%	7%	5%
Asian, non-Hispanic	Adults	24,095	39,078	39,476	24,348	80,501	32,200
	% Adults	10%	16%	16%	10%	34%	13%
Native Hawaiian or Pacific Islander, non-Hispanic	Adults	1,019	3,174	2,094	1,070	1,388	655
	% Adults	11%	34%	22%	11%	15%	7%
Two or more races, non-Hispanic	Adults	6,525	11,406	14,738	4,678	6,788	3,962
	% Adults	14%	24%	31%	10%	14%	8%
Hispanic, all types	Adults	504,025	410,719	290,046	82,375	90,742	46,044
	% Adults	35%	29%	20%	6%	6%	3%

Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

## APPENDIX 4: Program to Occupation Map

Table A4.1 displays the crosswalk between educational programs (CIP codes) and occupations (SOC codes) that Emsi uses to complete the program demand gap analysis. Also listed are the adjustment factors which are applied to the annual job openings for each occupation in each program, described in Appendix 5.

Table A4.1: Program to Occupation Map with Employment Adjustment Factors

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
03.0104	Environmental Science	11-2021	Marketing Managers	18	18	66
		11-2022	Sales Managers	21	21	64
		11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		11-1011	Chief Executives	23	22	55
		11-1021	General & Operations Managers	43	37	46
		13-1041	Compliance Officers	22	23	53
		13-1111	Management Analysts	15	14	56
		13-1161	Market Research Analysts & Marketing Specialists	16	15	67
		13-1198	Project Management Specialists and Business Operations Specialists, All Other	28	25	52
		15-1299	Computer Occupations, All Other	39	41	50
		17-2081	Environmental Engineers	10	7	59
		19-1042	Medical Scientists, Except Epidemiologists	1	1	28
		19-2041	Environmental Scientists & Specialists, Including Health	0	0	70
		19-4042	Environmental Science and Protection Technicians, Including Health	44	40	45
		21-1093	Social & Human Service Assistants	37	34	49
		23-1011	Lawyers	1	1	7



CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
04.0901	Architectural Technology/Technician	19-5011	Occupational Health and Safety Specialists	29	23	49
		43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	55	47	39
		13-1051	Cost Estimators	42	38	49
		13-1198	Project Management Specialists and Business Operations Specialists, All Other	28	25	52
		17-1011	Architects, Except Landscape & Naval	6	6	52
		17-1012	Landscape Architects	7	6	56
		17-3011	Architectural & Civil Drafters	37	55	57
		47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	66	33	18
		47-4011	Construction & Building Inspectors	51	44	42
		11-2031	Public Relations & Fundraising Managers	9	10	70
09.0101	Speech Communication & Rhetoric	11-1031	Legislators	23	22	55
		27-3011	Broadcast Announcers and Radio Disc Jockeys	49	38	42
		27-3099	Media and Communication Workers, All Other	42	40	47
		27-3023	News Analysts, Reporters, and Journalists	15	14	69
		27-3031	Public Relations Specialists	15	15	67
		27-3043	Writers & Authors	19	18	59
		25-4022	Librarians and Media Collections Specialists	21	24	36
09.0701	Radio & Television	27-2012	Producers & Directors	19	18	69
		27-3011	Broadcast Announcers and Radio Disc Jockeys	49	38	42
		27-3099	Media and Communication Workers, All Other	42	40	47
		27-3023	News Analysts, Reporters, and Journalists	15	14	69

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		27-3031	Public Relations Specialists	15	15	67
		27-4012	Broadcast Technicians	52	43	42
		43-2099	Communications Equipment Operators, All Other	59	39	33
		27-4014	Sound Engineering Technicians	52	43	42
		27-4031	Camera Operators, Television, Video, and Film	32	30	60
		27-4032	Film & Video Editors	32	30	60
11.0101	Computer & Information Sciences, General	11-3021	Computer & Information Systems Managers	19	21	60
		15-1221	Computer and Information Research Scientists	11	8	40
		15-1211	Computer Systems Analysts	13	14	63
		15-1212	Information Security Analysts	22	26	60
		15-1251	Computer Programmers	21	21	60
		15-1256	Software Developers and Software Quality Assurance Analysts and Testers	10	11	60
		15-1257	Web Developers and Digital Interface Designers	25	27	64
		15-1245	Database Administrators and Architects	15	17	59
		15-1244	Network and Computer Systems Administrators	30	36	58
		15-1241	Computer Network Architects	23	32	60
		15-1232	Computer User Support Specialists	43	45	49
		15-1231	Computer Network Support Specialists	43	45	49
		15-1299	Computer Occupations, All Other	39	41	50
		43-9021	Data Entry Keyers	60	48	34
11.0103	Information Technology	11-3021	Computer & Information Systems Managers	19	21	60
		15-1221	Computer and Information Research Scientists	11	8	40

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		15-1211	Computer Systems Analysts	13	14	63
		15-1212	Information Security Analysts	22	26	60
		15-1251	Computer Programmers	21	21	60
		15-1256	Software Developers and Software Quality Assurance Analysts and Testers	10	11	60
		15-1245	Database Administrators and Architects	15	17	59
		15-1244	Network and Computer Systems Administrators	30	36	58
		15-1241	Computer Network Architects	23	32	60
		15-1232	Computer User Support Specialists	43	45	49
		15-1231	Computer Network Support Specialists	43	45	49
		15-1299	Computer Occupations, All Other	39	41	50
		43-9021	Data Entry Keyers	60	48	34
11.0201	Computer Programming/Programmer, General	11-3021	Computer & Information Systems Managers	19	21	60
		15-1221	Computer and Information Research Scientists	11	8	40
		15-1211	Computer Systems Analysts	13	14	63
		15-1251	Computer Programmers	21	21	60
		15-1256	Software Developers and Software Quality Assurance Analysts and Testers	10	11	60
		15-1257	Web Developers and Digital Interface Designers	25	27	64
		15-1231	Computer Network Support Specialists	43	45	49
		15-1299	Computer Occupations, All Other	39	41	50
11.0701	Computer Science	11-3021	Computer & Information Systems Managers	19	21	60
		15-1221	Computer and Information Research Scientists	11	8	40
		15-1211	Computer Systems	13	14	63

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Analysts			
		15-1212	Information Security Analysts	22	26	60
		15-1251	Computer Programmers	21	21	60
		15-1256	Software Developers and Software Quality Assurance Analysts and Testers	10	11	60
		15-1257	Web Developers and Digital Interface Designers	25	27	64
		15-1245	Database Administrators and Architects	15	17	59
		15-1244	Network and Computer Systems Administrators	30	36	58
		15-1241	Computer Network Architects	23	32	60
		15-1232	Computer User Support Specialists	43	45	49
		15-1231	Computer Network Support Specialists	43	45	49
		15-1299	Computer Occupations, All Other	39	41	50
		15-2041	Statisticians	6	8	50
		17-2061	Computer Hardware Engineers	12	14	57
11.0803	Computer Graphics	15-1251	Computer Programmers	21	21	60
		15-1299	Computer Occupations, All Other	39	41	50
		27-1011	Art Directors	33	27	57
		27-1014	Special Effects Artists and Animators	33	27	57
		27-1024	Graphic Designers	22	25	67
11.9999	Computer & Information Sciences & Support Services, Other	11-3021	Computer & Information Systems Managers	19	21	60
		15-1221	Computer and Information Research Scientists	11	8	40
		15-1211	Computer Systems Analysts	13	14	63
		15-1212	Information Security Analysts	22	26	60
		15-1251	Computer Programmers	21	21	60
		15-1256	Software Developers and Software Quality	10	11	60

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Assurance Analysts and Testers			
		15-1257	Web Developers and Digital Interface Designers	25	27	64
		15-1245	Database Administrators and Architects	15	17	59
		15-1244	Network and Computer Systems Administrators	30	36	58
		15-1241	Computer Network Architects	23	32	60
		15-1232	Computer User Support Specialists	43	45	49
		15-1231	Computer Network Support Specialists	43	45	49
		15-1299	Computer Occupations, All Other	39	41	50
		43-9021	Data Entry Keyers	60	48	34
12.0500	Cooking & Related Culinary Arts, General	11-9051	Food Service Managers	64	44	25
		35-1011	Chefs & Head Cooks	56	46	29
		35-1012	First-Line Supervisors of Food Preparation & Serving Workers	70	47	18
		35-2012	Cooks, Institution & Cafeteria	65	31	8
		35-2013	Cooks, Private Household	65	31	8
		35-2014	Cooks, Restaurant	65	31	8
		35-2015	Cooks, Short Order	65	31	8
		51-3011	Bakers	62	42	20
		51-3021	Butchers & Meat Cutters	60	29	8
12.0504	Restaurant, Culinary, & Catering Management/Manager	11-9051	Food Service Managers	64	44	25
		35-1011	Chefs & Head Cooks	56	46	29
		35-1012	First-Line Supervisors of Food Preparation & Serving Workers	70	47	18
		35-2013	Cooks, Private Household	65	31	8
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	25-2051	Special Education Teachers, Preschool	13	12	49
		25-2052	Special Education Teachers, Kindergarten & Elementary School	13	12	49

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		25-9045	Teaching Assistants, Except Postsecondary	59	42	33
14.1004	Telecommunications Engineering	11-9041	Architectural & Engineering Managers	7	9	59
		17-2072	Electronics Engineers, Except Computer	11	12	60
		17-2199	Engineers, All Other	11	12	62
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	17-3025	Environmental Engineering Technologists and Technicians	59	53	35
		17-3098	Calibration Technologists and Technicians and Engineering Technicians, Except Drafters, All Other	59	53	35
		47-2211	Sheet Metal Workers	75	35	12
		49-9021	Heating, Air Conditioning, & Refrigeration Mechanics & Installers	73	43	16
		49-9071	Maintenance & Repair Workers, General	70	45	19
		51-8021	Stationary Engineers & Boiler Operators	65	38	25
15.0506	Water Quality & Wastewater Treatment Management & Recycling Technology/Technician	11-9121	Natural Sciences Managers	4	4	52
		19-1031	Conservation Scientists	0	0	83
		51-8031	Water & Wastewater Treatment Plant & System Operators	68	45	27
15.0613	Manufacturing Engineering Technology/Technician	11-2022	Sales Managers	21	21	64
		11-3051	Industrial Production Managers	38	28	48
		11-9021	Construction Managers	41	28	48
		11-9041	Architectural & Engineering Managers	7	9	59
		11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		11-1011	Chief Executives	23	22	55
		11-1021	General & Operations Managers	43	37	46
		13-1111	Management Analysts	15	14	56

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		15-1256	Software Developers and Software Quality Assurance Analysts and Testers	10	11	60
		15-1244	Network and Computer Systems Administrators	30	36	58
		15-1232	Computer User Support Specialists	43	45	49
		17-2112	Industrial Engineers	13	12	70
		17-2141	Mechanical Engineers	11	12	69
		17-2199	Engineers, All Other	11	12	62
		17-3023	Electrical and Electronic Engineering Technologists and Technicians	59	56	36
		41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	40	31	51
		47-2111	Electricians	72	47	19
		49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	63	48	29
		49-9071	Maintenance & Repair Workers, General	70	45	19
		51-1011	First-Line Supervisors of Production & Operating Workers	63	37	25
16.0302	Japanese Language & Literature	25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	7	60
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		27-3091	Interpreters & Translators	41	38	46
		39-7018	Tour & Travel Guides	68	52	26
16.0905	Spanish Language & Literature	25-2021	Elementary School Teachers, Except Special Education	4	7	60
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	7	60

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		25-3011	Adult Basic Education, Adult Secondary Education, and English as a Second Language Instructors	51	42	37
		27-3091	Interpreters & Translators	41	38	46
		33-3021	Detectives & Criminal Investigators	26	30	55
		39-7018	Tour & Travel Guides	68	52	26
16.1601	American Sign Language (ASL)	25-2051	Special Education Teachers, Preschool	13	12	49
		25-2052	Special Education Teachers, Kindergarten & Elementary School	13	12	49
		25-2057	Special Education Teachers, Middle School	13	12	49
		25-2058	Special Education Teachers, Secondary School	13	12	49
		25-9045	Teaching Assistants, Except Postsecondary	59	42	33
		27-3091	Interpreters & Translators	41	38	46
19.0505	Foodservice Systems Administration/Management	11-9051	Food Service Managers	64	44	25
		29-1031	Dietitians & Nutritionists	20	12	45
		35-1012	First-Line Supervisors of Food Preparation & Serving Workers	70	47	18
		35-2012	Cooks, Institution & Cafeteria	65	31	8
19.0707	Family & Community Services	11-9151	Social & Community Service Managers	19	17	55
		21-1021	Child, Family, & School Social Workers	14	13	56
		21-1093	Social & Human Service Assistants	37	34	49
		25-9021	Farm and Home Management Educators	31	28	43
19.0708	Child Care & Support Services Management	11-9031	Education and Childcare Administrators, Preschool and Daycare	23	23	41



CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		11-9151	Social & Community Service Managers	19	17	55
		21-1021	Child, Family, & School Social Workers	14	13	56
		21-1093	Social & Human Service Assistants	37	34	49
		25-2011	Preschool Teachers, Except Special Education	48	46	44
		39-9011	Childcare Workers	66	46	21
19.0709	Child Care Provider/Assistant	21-1021	Child, Family, & School Social Workers	14	13	56
		21-1093	Social & Human Service Assistants	37	34	49
		25-9045	Teaching Assistants, Except Postsecondary	59	42	33
		39-9011	Childcare Workers	66	46	21
23.0101	English Language & Literature, General	25-2021	Elementary School Teachers, Except Special Education	4	7	60
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	7	60
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		25-4022	Librarians and Media Collections Specialists	21	24	36
		25-4031	Library Technicians	73	41	20
		27-3023	News Analysts, Reporters, and Journalists	15	14	69
		27-3041	Editors	19	18	65
		27-3042	Technical Writers	18	18	61
		27-3043	Writers & Authors	19	18	59
		43-9031	Desktop Publishers	44	38	46
		43-9081	Proofreaders & Copy Markers	32	29	59
25.0301	Library & Archives Assisting	25-4031	Library Technicians	73	41	20
26.0101	Biology/Biological Sciences, General	11-9121	Natural Sciences Managers	4	4	52
		15-2041	Statisticians	6	8	50
		19-1011	Animal Scientists	0	0	68

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		19-1013	Soil & Plant Scientists	0	0	68
		19-1021	Biochemists & Biophysicists	0	0	62
		19-1022	Microbiologists	0	0	62
		19-1023	Zoologists & Wildlife Biologists	0	0	62
		19-1029	Biological Scientists, All Other	0	0	62
		19-1041	Epidemiologists	1	1	28
		19-1042	Medical Scientists, Except Epidemiologists	1	1	28
		19-1099	Life Scientists, All Other	1	1	28
		19-4021	Biological Technicians	35	36	52
		19-4042	Environmental Science and Protection Technicians, Including Health	44	40	45
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
26.0901	Physiology, General	19-1042	Medical Scientists, Except Epidemiologists	1	1	28
27.0101	Mathematics, General	11-9121	Natural Sciences Managers	4	4	52
		15-2021	Mathematicians	6	8	50
		15-2031	Operations Research Analysts	14	14	54
		15-2041	Statisticians	6	8	50
		15-2098	Data Scientists and Mathematical Science Occupations, All Other	6	8	50
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	7	60
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		43-9111	Statistical Assistants	50	40	36
30.0101	Biological & Physical Sciences	11-3051	Industrial Production Managers	38	28	48

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		11-9111	Medical & Health Services Managers	26	30	50
		11-9121	Natural Sciences Managers	4	4	52
		19-4021	Biological Technicians	35	36	52
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		29-2018	Clinical Laboratory Technologists & Technicians	37	43	56
		31-9092	Medical Assistants	65	67	32
31.0505	Kinesiology & Exercise Science	11-9039	Education Administrators, All Other	23	23	41
		15-2041	Statisticians	6	8	50
		19-1021	Biochemists & Biophysicists	0	0	62
		29-1128	Exercise Physiologists	9	13	41
		29-9091	Athletic Trainers	22	21	50
		39-9031	Exercise Trainers and Group Fitness Instructors	53	42	39
38.0101	Philosophy	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		11-1031	Legislators	23	22	55
		23-1011	Lawyers	1	1	7
38.0201	Religion/Religious Studies	19-3091	Anthropologists & Archeologists	16	16	47
		19-3092	Geographers	16	16	47
		19-3093	Historians	16	16	47
		19-4061	Social Science Research Assistants	44	40	45
		25-4013	Museum Technicians & Conservators	23	20	40
		27-3091	Interpreters & Translators	41	38	46
40.0201	Astronomy	11-9121	Natural Sciences Managers	4	4	52
		19-2011	Astronomers	0	0	28
		19-2012	Physicists	0	0	28

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
40.0501	Chemistry, General	19-2021	Atmospheric & Space Scientists	27	21	49
		11-9121	Natural Sciences Managers	4	4	52
		17-2041	Chemical Engineers	10	9	69
		17-2199	Engineers, All Other	11	12	62
		19-1012	Food Scientists & Technologists	0	0	68
		19-1013	Soil & Plant Scientists	0	0	68
		19-1021	Biochemists & Biophysicists	0	0	62
		19-2031	Chemists	3	2	69
		19-2032	Materials Scientists	3	2	69
		19-2041	Environmental Scientists & Specialists, Including Health	0	0	70
		19-4031	Chemical Technicians	43	36	47
		19-4045	Geological and Hydrologic Technicians	47	37	41
		19-4092	Forensic Science Technicians	44	40	45
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		25-4013	Museum Technicians & Conservators	23	20	40
40.0601	Geology/Earth Science, General	11-3051	Industrial Production Managers	38	28	48
		11-9121	Natural Sciences Managers	4	4	52
		15-1299	Computer Occupations, All Other	39	41	50
		17-1022	Surveyors	19	21	70
		17-2081	Environmental Engineers	10	7	59
		17-2151	Mining & Geological Engineers, Including Mining Safety Engineers	8	7	70
		17-2171	Petroleum Engineers	8	7	70
		19-1013	Soil & Plant Scientists	0	0	68
		19-1031	Conservation Scientists	0	0	83

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		19-2021	Atmospheric & Space Scientists	27	21	49
		19-2042	Geoscientists, Except Hydrologists & Geographers	0	0	67
		19-2043	Hydrologists	0	0	67
		19-4045	Geological and Hydrologic Technicians	47	37	41
		49-9099	Installation, Maintenance, and Repair Workers, All Other	71	40	16
40.0801	Physics, General	11-9121	Natural Sciences Managers	4	4	52
		17-2161	Nuclear Engineers	11	12	62
		19-1021	Biochemists & Biophysicists	0	0	62
		19-2011	Astronomers	0	0	28
		19-2012	Physicists	0	0	28
		19-2021	Atmospheric & Space Scientists	27	21	49
		19-2032	Materials Scientists	3	2	69
		19-4051	Nuclear Technicians	47	37	41
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
42.0101	Psychology, General	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		19-3031	Clinical, Counseling, & School Psychologists	0	0	15
		19-3032	Industrial-Organizational Psychologists	0	0	16
		19-3039	Psychologists, All Other	0	0	16
		21-1012	Educational, Guidance, and Career Counselors and Advisors	23	20	37
		21-1013	Marriage & Family Therapists	20	18	37
		21-1015	Rehabilitation Counselors	21	21	39
		21-1018	Substance Abuse,	20	18	39

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Behavioral Disorder, & Mental Health Counselors			
		21-1021	Child, Family, & School Social Workers	14	13	56
		21-1022	Healthcare Social Workers	19	15	50
		21-1023	Mental Health & Substance Abuse Social Workers	16	14	47
		29-1223	Psychiatrists	0	0	0
		31-1133	Psychiatric Aides	69	55	20
43.0102	Corrections	21-1092	Probation Officers & Correctional Treatment Specialists	18	19	66
		33-1011	First-Line Supervisors of Correctional Officers	60	53	34
		33-1012	First-Line Supervisors of Police & Detectives	47	50	45
		33-3012	Correctional Officers & Jailers	67	51	30
43.0107	Criminal Justice/Police Science	11-9161	Emergency Management Directors	27	36	59
		33-1012	First-Line Supervisors of Police & Detectives	47	50	45
		33-3011	Bailiffs	65	51	32
		33-3021	Detectives & Criminal Investigators	26	30	55
		33-3051	Police & Sheriff's Patrol Officers	44	47	51
		33-3052	Transit & Railroad Police	44	47	51
		33-9021	Private Detectives & Investigators	32	29	54
43.0201	Fire Prevention & Safety Technology/Technician	17-2111	Health & Safety Engineers, Except Mining Safety Engineers & Inspectors	13	12	70
		33-1021	First-Line Supervisors of Fire Fighting & Prevention Workers	64	61	31
		33-2011	Firefighters	58	63	39
		33-2021	Fire Inspectors & Investigators	66	42	29
		33-2022	Forest Fire Inspectors & Prevention Specialists	66	42	29
43.0203	Fire Science/Fire-fighting	33-1021	First-Line Supervisors of Fire Fighting &	64	61	31

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Prevention Workers			
		33-2011	Firefighters	58	63	39
		33-2021	Fire Inspectors & Investigators	66	42	29
		33-2022	Forest Fire Inspectors & Prevention Specialists	66	42	29
44.0000	Human Services, General	11-9151	Social & Community Service Managers	19	17	55
		21-1013	Marriage & Family Therapists	20	18	37
		21-1015	Rehabilitation Counselors	21	21	39
		21-1018	Substance Abuse, Behavioral Disorder, & Mental Health Counselors	20	18	39
		21-1021	Child, Family, & School Social Workers	14	13	56
		21-1022	Healthcare Social Workers	19	15	50
		21-1023	Mental Health & Substance Abuse Social Workers	16	14	47
		21-1091	Health Education Specialists	34	32	49
		21-1093	Social & Human Service Assistants	37	34	49
		21-1094	Community Health Workers	34	32	49
		21-1099	Community & Social Service Specialists, All Other	34	32	49
		43-4061	Eligibility Interviewers, Government Programs	34	37	56
		43-4171	Receptionists & Information Clerks	71	53	24
45.0101	Social Sciences, General	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		11-1031	Legislators	23	22	55
		19-2041	Environmental Scientists & Specialists, Including Health	0	0	70
		19-3011	Economists	0	0	43
		19-3022	Survey Researchers	16	16	47

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		19-3041	Sociologists	16	16	47
		19-3051	Urban & Regional Planners	2	2	41
		19-3091	Anthropologists & Archeologists	16	16	47
		19-3092	Geographers	16	16	47
		19-3094	Political Scientists	16	16	47
		19-3099	Social Scientists & Related Workers, All Other	16	16	47
		19-4061	Social Science Research Assistants	44	40	45
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
45.0201	Anthropology	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		19-3091	Anthropologists & Archeologists	16	16	47
		19-3092	Geographers	16	16	47
		25-4012	Curators	23	20	40
		25-4013	Museum Technicians & Conservators	23	20	40
45.0601	Economics, General	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		13-1161	Market Research Analysts & Marketing Specialists	16	15	67
		19-2041	Environmental Scientists & Specialists, Including Health	0	0	70
		19-3011	Economists	0	0	43
		19-3022	Survey Researchers	16	16	47
		19-4061	Social Science Research Assistants	44	40	45
45.0701	Geography	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and	32	26	49



CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Managers, All Other			
		15-1299	Computer Occupations, All Other	39	41	50
		17-1021	Cartographers & Photogrammetrists	19	21	70
		17-3022	Civil Engineering Technologists and Technicians	59	53	35
		17-3031	Surveying & Mapping Technicians	69	52	25
		19-2021	Atmospheric & Space Scientists	27	21	49
		19-2041	Environmental Scientists & Specialists, Including Health	0	0	70
		19-3051	Urban & Regional Planners	2	2	41
		19-3092	Geographers	16	16	47
		19-4045	Geological and Hydrologic Technicians	47	37	41
		19-4061	Social Science Research Assistants	44	40	45
		25-4011	Archivists	23	20	40
		25-4012	Curators	23	20	40
45.0799	Geography, Other	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		19-3092	Geographers	16	16	47
45.1001	Political Science & Government, General	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		11-1031	Legislators	23	22	55
		13-1041	Compliance Officers	22	23	53
		13-1075	Labor Relations Specialists	25	24	60
		19-2041	Environmental Scientists & Specialists, Including Health	0	0	70
		19-3094	Political Scientists	16	16	47
		27-3031	Public Relations	15	15	67

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Specialists			
45.1101	Sociology	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		13-1041	Compliance Officers	22	23	53
		13-1075	Labor Relations Specialists	25	24	60
		19-2041	Environmental Scientists & Specialists, Including Health	0	0	70
		19-3041	Sociologists	16	16	47
		19-3093	Historians	16	16	47
		19-4061	Social Science Research Assistants	44	40	45
46.0301	Electrical & Power Transmission Installation/Installer, General	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	66	33	18
		47-2111	Electricians	72	47	19
		47-3013	Helpers--Electricians	66	25	6
		49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	63	48	29
		49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	70	50	24
		49-2094	Electrical & Electronics Repairers, Commercial & Industrial Equipment	74	48	19
		49-2095	Electrical & Electronics Repairers, Powerhouse, Substation, & Relay	74	48	19
		49-2098	Security & Fire Alarm Systems Installers	71	42	19
		49-9051	Electrical Power-Line Installers & Repairers	73	52	22
		49-9052	Telecommunications Line Installers & Repairers	76	48	17
		49-9097	Signal & Track Switch Repairers	71	40	16
46.0403	Building/Home/Construction Inspection/Inspector	33-2021	Fire Inspectors & Investigators	66	42	29
		47-4011	Construction & Building Inspectors	51	44	42

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
47.0101	Electrical/Electronics Equipment Installation & Repair, General	49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	63	48	29
		49-2011	Computer, Automated Teller, & Office Machine Repairers	59	55	36
		49-2021	Radio, Cellular, & Tower Equipment Installers & Repairs	70	50	24
		49-2092	Electric Motor, Power Tool, & Related Repairers	73	50	19
		49-2094	Electrical & Electronics Repairers, Commercial & Industrial Equipment	74	48	19
		49-2095	Electrical & Electronics Repairers, Powerhouse, Substation, & Relay	74	48	19
		49-2097	Audiovisual Equipment Installers and Repairers	72	49	18
		49-9031	Home Appliance Repairers	72	45	14
		49-9061	Camera & Photographic Equipment Repairers	55	49	37
		49-9071	Maintenance & Repair Workers, General	70	45	19
		49-9097	Signal & Track Switch Repairers	71	40	16
		49-9099	Installation, Maintenance, and Repair Workers, All Other	71	40	16
		51-2021	Coil Winders, Tapers, & Finishers	69	39	15
47.0104	Computer Installation & Repair Technology/Technician	15-1232	Computer User Support Specialists	43	45	49
		49-2011	Computer, Automated Teller, & Office Machine Repairers	59	55	36
		49-2094	Electrical & Electronics Repairers, Commercial & Industrial Equipment	74	48	19
47.0603	Autobody/Collision & Repair Technology/Technician	13-1032	Insurance Appraisers, Auto Damage	33	32	58
		49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	63	48	29
		49-2093	Electrical & Electronics Installers & Repairers, Transportation Equipment	74	48	19
		49-2096	Electronic Equipment Installers & Repairers,	71	48	19

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Motor Vehicles			
		49-3021	Automotive Body & Related Repairers	67	36	14
		49-3022	Automotive Glass Installers & Repairers	81	35	4
		49-3023	Automotive Service Technicians & Mechanics	67	43	17
		49-9071	Maintenance & Repair Workers, General	70	45	19
		51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	69	31	9
		53-6051	Transportation Inspectors	75	52	21
47.0604	Automobile/Automotive Mechanics Technology/Technician	17-3027	Mechanical Engineering Technologists and Technicians	59	53	35
		49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	63	48	29
		49-2093	Electrical & Electronics Installers & Repairers, Transportation Equipment	74	48	19
		49-2096	Electronic Equipment Installers & Repairers, Motor Vehicles	71	48	19
		49-3021	Automotive Body & Related Repairers	67	36	14
		49-3022	Automotive Glass Installers & Repairers	81	35	4
		49-3023	Automotive Service Technicians & Mechanics	67	43	17
		49-9071	Maintenance & Repair Workers, General	70	45	19
		53-6051	Transportation Inspectors	75	52	21
47.0605	Diesel Mechanics Technology/Technician	49-3023	Automotive Service Technicians & Mechanics	67	43	17
		49-3031	Bus & Truck Mechanics & Diesel Engine Specialists	69	46	19
		49-9098	Helpers--Installation, Maintenance, & Repair Workers	61	26	7
		53-6051	Transportation Inspectors	75	52	21
47.0607	Airframe Mechanics & Aircraft Maintenance	17-3021	Aerospace Engineering and	59	53	35

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
	Technology/Technician		Operations Technologists and Technicians			
		49-3011	Aircraft Mechanics & Service Technicians	76	58	21
		51-2011	Aircraft Structure, Surfaces, Rigging, & Systems Assemblers	74	34	10
		53-6051	Transportation Inspectors	75	52	21
47.0608	Aircraft Powerplant Technology/Technician	49-3011	Aircraft Mechanics & Service Technicians	76	58	21
		51-2011	Aircraft Structure, Surfaces, Rigging, & Systems Assemblers	74	34	10
48.0501	Machine Tool Technology/Machinist	49-9041	Industrial Machinery Mechanics	70	47	20
		49-9043	Maintenance Workers, Machinery	67	45	22
		49-9044	Millwrights	75	43	17
		51-9161	Computer Numerically Controlled Tool Operators	73	48	18
		51-4021	Extruding & Drawing Machine Setters, Operators, & Tenders, Metal & Plastic	82	33	6
		51-4022	Forging Machine Setters, Operators, & Tenders, Metal & Plastic	72	33	6
		51-4023	Rolling Machine Setters, Operators, & Tenders, Metal & Plastic	82	33	6
		51-4031	Cutting, Punching, & Press Machine Setters, Operators, & Tenders, Metal & Plastic	74	30	7
		51-4032	Drilling & Boring Machine Tool Setters, Operators, & Tenders, Metal & Plastic	72	26	7
		51-4033	Grinding, Lapping, Polishing, & Buffing Machine Tool Setters, Operators, & Tenders, Metal & Plastic	72	29	7
		51-4034	Lathe & Turning Machine Tool Setters, Operators, & Tenders, Metal & Plastic	72	26	7
		51-4035	Milling & Planing Machine Setters, Operators, & Tenders,	72	26	7

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Metal & Plastic			
		51-4041	Machinists	73	43	17
		51-4081	Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic	73	34	9
		51-4191	Heat Treating Equipment Setters, Operators, & Tenders, Metal & Plastic	73	34	9
		51-4192	Layout Workers, Metal & Plastic	73	34	9
		51-4199	Metal Workers & Plastic Workers, All Other	73	34	9
48.0508	Welding Technology/Welder	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	66	33	18
		47-2152	Plumbers, Pipefitters, & Steamfitters	73	33	10
		47-2171	Reinforcing Iron & Rebar Workers	59	19	6
		47-2211	Sheet Metal Workers	75	35	12
		47-2221	Structural Iron & Steel Workers	74	37	11
		49-9071	Maintenance & Repair Workers, General	70	45	19
		51-4121	Welders, Cutters, Solderers, & Brazers	71	38	12
		51-4122	Welding, Soldering, & Brazing Machine Setters, Operators, & Tenders	71	38	12
50.0101	Visual & Performing Arts, General	27-1011	Art Directors	33	27	57
		27-1012	Craft Artists	33	27	57
		27-1013	Fine Artists, Including Painters, Sculptors, & Illustrators	33	27	57
		27-1014	Special Effects Artists and Animators	33	27	57
		27-1019	Artists & Related Workers, All Other	33	27	57
		27-1021	Commercial & Industrial Designers	25	26	65
		27-1024	Graphic Designers	22	25	67
		27-2011	Actors	41	30	47
		27-2012	Producers & Directors	19	18	69

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		27-2031	Dancers	63	38	25
		27-2032	Choreographers	63	38	25
		27-2041	Music Directors & Composers	42	33	39
		27-2042	Musicians & Singers	46	36	36
		27-4021	Photographers	46	40	48
50.0409	Graphic Design	15-1257	Web Developers and Digital Interface Designers	25	27	64
		27-1011	Art Directors	33	27	57
		27-1014	Special Effects Artists and Animators	33	27	57
		27-1019	Artists & Related Workers, All Other	33	27	57
		27-1024	Graphic Designers	22	25	67
		43-9031	Desktop Publishers	44	38	46
50.0501	Drama & Dramatics/Theatre Arts, General	27-1022	Fashion Designers	25	25	64
		27-1027	Set & Exhibit Designers	23	25	65
		27-2011	Actors	41	30	47
		27-2012	Producers & Directors	19	18	69
		27-2031	Dancers	63	38	25
		27-2032	Choreographers	63	38	25
		27-2042	Musicians & Singers	46	36	36
		27-2099	Miscellaneous Entertainers and Performers, Sports and Related Workers	49	37	36
		27-3043	Writers & Authors	19	18	59
		27-4014	Sound Engineering Technicians	52	43	42
		39-3092	Costume Attendants	75	46	16
		39-5091	Makeup Artists, Theatrical & Performance	61	40	19
50.0602	Cinematography & Film/Video Production	27-2012	Producers & Directors	19	18	69
		27-4031	Camera Operators, Television, Video, and Film	32	30	60
		27-4032	Film & Video Editors	32	30	60
		39-3021	Motion Picture	76	46	16

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Projectionists			
50.0701	Art/Art Studies, General	25-2021	Elementary School Teachers, Except Special Education	4	7	60
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	7	60
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		25-3021	Self-Enrichment Teachers	51	42	37
		25-4011	Archivists	23	20	40
		25-4012	Curators	23	20	40
		25-4013	Museum Technicians & Conservators	23	20	40
		27-1011	Art Directors	33	27	57
		27-1012	Craft Artists	33	27	57
		27-1013	Fine Artists, Including Painters, Sculptors, & Illustrators	33	27	57
		27-1014	Special Effects Artists and Animators	33	27	57
		27-1021	Commercial & Industrial Designers	25	26	65
		27-1024	Graphic Designers	22	25	67
		27-1027	Set & Exhibit Designers	23	25	65
		27-4021	Photographers	46	40	48
		29-1125	Recreational Therapists	14	13	77
		51-9071	Jewelers & Precious Stone & Metal Workers	50	34	35
		51-9194	Etchers & Engravers	67	36	21
50.0901	Music, General	25-2021	Elementary School Teachers, Except Special Education	4	7	60
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	7	60
		25-2031	Secondary School Teachers, Except	6	7	58



CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Special & Career/Technical Education			
		27-2041	Music Directors & Composers	42	33	39
		27-2042	Musicians & Singers	46	36	36
		27-4011	Audio and Video Technicians	52	43	42
		27-4014	Sound Engineering Technicians	52	43	42
		29-1125	Recreational Therapists	14	13	77
		49-9063	Musical Instrument Repairers & Tuners	55	49	37
51.0805	Pharmacy Technician/Assistant	29-2052	Pharmacy Technicians	57	58	39
		31-9095	Pharmacy Aides	63	53	28
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	29-2041	Emergency Medical Technicians & Paramedics	60	67	37
		33-1021	First-Line Supervisors of Fire Fighting & Prevention Workers	64	61	31
		33-2011	Firefighters	58	63	39
		33-9092	Lifeguards, Ski Patrol, & Other Recreational Protective Service Workers	80	38	10
		53-3011	Ambulance Drivers & Attendants, Except Emergency Medical Technicians	78	49	14
51.0908	Respiratory Care Therapy/Therapist	29-1126	Respiratory Therapists	9	66	88
		29-2098	Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	52	54	42
51.0911	Radiologic Technology/Science - Radiographer	29-1124	Radiation Therapists	7	28	84
		29-2033	Nuclear Medicine Technologists	20	51	72
		29-2034	Radiologic Technologists and Technicians	23	60	73
		29-2098	Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	52	54	42
51.1501	Substance Abuse/Addiction Counseling	21-1018	Substance Abuse, Behavioral Disorder, & Mental Health	20	18	39

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Counselors			
		21-1023	Mental Health & Substance Abuse Social Workers	16	14	47
		21-1093	Social & Human Service Assistants	37	34	49
51.1502	Psychiatric/Mental Health Services Technician	29-2053	Psychiatric Technicians	52	55	43
		31-1133	Psychiatric Aides	69	55	20
51.3801	Registered Nursing/Registered Nurse	11-9111	Medical & Health Services Managers	26	30	50
		29-1141	Registered Nurses	5	30	87
		29-1151	Nurse Anesthetists	1	1	13
		29-1161	Nurse Midwives	1	0	7
		29-1171	Nurse Practitioners	1	0	7
52.0201	Business Administration & Management, General	11-2021	Marketing Managers	18	18	66
		11-2022	Sales Managers	21	21	64
		11-3021	Computer & Information Systems Managers	19	21	60
		11-3031	Financial Managers	32	29	52
		11-3121	Human Resources Managers	31	28	51
		11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		11-1011	Chief Executives	23	22	55
		11-1021	General & Operations Managers	43	37	46
		13-1071	Human Resources Specialists	25	24	60
		13-1111	Management Analysts	15	14	56
		13-1161	Market Research Analysts & Marketing Specialists	16	15	67
		13-1198	Project Management Specialists and Business Operations Specialists, All Other	28	25	52
		13-2011	Accountants & Auditors	9	12	66
		15-1232	Computer User Support Specialists	43	45	49

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		41-1011	First-Line Supervisors of Retail Sales Workers	61	45	31
		41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	40	31	51
		43-1011	First-Line Supervisors of Office & Administrative Support Workers	49	41	43
		43-4051	Customer Service Representatives	67	46	26
		43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	55	47	39
52.0212	Retail Management	11-1021	General & Operations Managers	43	37	46
		13-1028	Buyers & Purchasing Agents	39	31	52
		13-1198	Project Management Specialists and Business Operations Specialists, All Other	28	25	52
		33-9098	School Bus Monitors and Protective Service Workers, All Other	80	38	10
		41-1011	First-Line Supervisors of Retail Sales Workers	61	45	31
		53-7065	Stockers and Order Fillers	75	40	12
52.0302	Accounting Technology/Technician & Bookkeeping	13-2011	Accountants & Auditors	9	12	66
		13-2082	Tax Preparers	38	32	42
		43-3031	Bookkeeping, Accounting, & Auditing Clerks	62	50	32
		43-3051	Payroll & Timekeeping Clerks	54	48	42
		43-4011	Brokerage Clerks	49	44	41
		43-9111	Statistical Assistants	50	40	36
52.0401	Administrative Assistant & Secretarial Science, General	43-4071	File Clerks	67	50	27
		43-4171	Receptionists & Information Clerks	71	53	24
		43-6011	Executive Secretaries & Executive Administrative Assistants	51	44	43

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	55	47	39
		43-9021	Data Entry Keyers	60	48	34
		43-9022	Word Processors & Typists	57	48	37
		43-9061	Office Clerks, General	65	51	29
52.1501	Real Estate	11-9141	Property, Real Estate, & Community Association Managers	43	38	47
		13-2021	Property Appraisers and Assessors	27	27	62
		41-9021	Real Estate Brokers	40	38	52
		41-9022	Real Estate Sales Agents	40	38	52
54.0101	History, General	11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	32	26	49
		19-3091	Anthropologists & Archeologists	16	16	47
		19-3093	Historians	16	16	47
		19-3094	Political Scientists	16	16	47
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	7	60
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	58
		25-4011	Archivists	23	20	40
		25-4012	Curators	23	20	40
		25-4013	Museum Technicians & Conservators	23	20	40

Source: Emsi program demand gap model.

## APPENDIX 5: Methodology

This appendix focuses on describing and understanding the methodology used in the program demand gap analysis. This requires data on both occupation demand (e.g., annual job openings) and education supply (e.g., number of postsecondary degree completions). These are then compared through an education “gap” analysis to determine whether an education program is potentially producing a surplus or shortage of workforce talent relative to the number of job openings. In this way, it is possible to see how the institution’s current programs are satisfying the region’s workforce needs.

### SUPPLY AND DEMAND MODEL

Emsi builds a model using demand-side data (average annual projected job openings) and supply-side data (postsecondary education output) to compare workforce demand with education supply. The purpose of this analysis is to find the difference or “gap” between the annual job openings for an occupation and the number of people completing postsecondary degrees for that occupation, whether at SBCCD or at another postsecondary institution in the region, making it possible to identify talent shortages or surpluses.

The first step involves the link between annual job openings for a SOC code and the number of completions for an education program, defined by its CIP code. The BLS provides information on the occupations that completers of specific CIP codes are more likely to enter. Specific connections have been refined through previous engagements with postsecondary institutions and state departments of labor. Some programs have direct occupational ties. For example, a physical therapist assistant is a specific occupation that requires specialized postsecondary training. In this case, one CIP code (Physical Therapy Technician/Assistant) maps to only one SOC code (physical therapist assistants). This provides an easy comparison of annual job openings for physical therapist assistants to the number of people completing the relevant program to see whether a talent shortage or surplus exists.

Unfortunately, this one-to-one mapping of a CIP code to a SOC code is not always the case. More often than not, an educational program maps to multiple occupations and an occupation maps to multiple educational programs at multiple award levels. For this reason, Emsi has pioneered a method of de-duplicating job openings, such that the potential sources of demand are not double-represented for any occupation. The details of this process are outlined in this chapter, under “De-duplication of Annual Openings.”

## OCCUPATION DEMAND

### *Educational Level Adjustments*

To capture occupation demand, Emsi uses a proprietary employment dataset that reflects total employment. Emsi uses the QCEW data source, which measures employment covered by unemployment insurance (UI). According to the BLS, “employment covered by these UI programs represents about 97% of all wage and salary civilian employment in the country.” Through a proprietary process, Emsi removes BLS local area employment suppressions to yield the best employment data available at local levels, using Emsi’s Employees & Self-Employed 2020.3 datarun.

In the datarun, Emsi calculates the number of regional job openings for the occupations that require different levels of education for entry-level positions.<sup>20</sup> The BLS also provides educational attainment data of current workers, ages 16 years to 34 years, for each SOC code, broken out by their highest level of education attained. The data are presented as the percentage of workers in the SOC code with educational attainment ranging from less than a high school diploma to a doctoral degree level of education. Using these data, Emsi adjusts the annual job opening estimates for each SOC code to only incorporate the percentage of workers that correspond with SBCCD’s program offerings.

For example, as shown in Table A5.1, three occupations are mapped to Accounting: accountants, auditors, and budget analysts. Among accountants, the majority of job openings (80%) are available to program completers with a master’s degree or bachelor’s degree level of education, less so for auditors. The weighted average of job openings, in the last row of the table, is calculated for each program and at each award level where SBCCD has produced completions over the past three years. Not accounting for these dynamics in educational attainments would bias the programs’ demands by over-counting potential job opportunities for the completers.<sup>21</sup>

Table A5.1: Example of Educational Level Adjustments for a Program

PROGRAM	OCCUPATION	ASSOC AND ONE LEVEL BELOW	BACH AND ONE LEVEL BELOW	MAST AND ONE LEVEL BELOW	PHD AND ONE LEVEL BELOW
Accounting	Accountant	10%	65%	80%	25%
	Auditor	5%	70%	75%	20%
	Budget analyst	15%	70%	80%	30%

<sup>20</sup> See Appendix 1 for a description of the sources and processes of Emsi data.

<sup>21</sup> Given the changing dynamics and need for more education in the existing workforce (i.e., skills-biased technology change in many occupations and industry sectors), this assumption is considered conservative.

Weighted average	10%	68%	78%	25%
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### ***De-Duplication of Annual Openings***

Most programs are designed to train people for multiple occupational types, many of which are simultaneously linked with other educational programs. This presents a complexity when comparing supply and demand for any one program. For instance, the Accounting program is mapped to three different occupations: accountants, auditors, and budget analysts. If we focus on one of the occupations for this list—accountants—it is also mapped to three different educational programs, for example, Business, Medical Office Administration, and Commerce.

To ensure that double-counting does not occur, it is necessary to either realign the program groupings to eliminate the mapping of occupations to multiple programs or to determine what proportion of job openings should be compared with program completions. Emsi takes the second approach in this analysis, which has the advantage of maintaining program titles and descriptions in roughly the same format of the completion data originally delivered to Emsi. Emsi also uses a formula that favors programs with the largest completions, attributing a greater proportion of job openings to programs with a large number of completions by award level. This method utilizes the assumption that the higher output programs are likely feeding a higher degree of demand in the SBCCD Service Region.<sup>22</sup> Appendix 4 contains the detailed mapping of each CIP code to all relevant occupations, by their six-digit SOC codes. A result of de-duplication is that in a region where a unique program, Commercial & Advertising Art for example, is larger than Graphic Design, it is assumed that completers of the Commercial & Advertising Art program will be offered a proportional, therefore larger number of job openings than students from the Graphic Design program.

Emsi also provides an alternative program demand gap analysis, which does not de-duplicate the average number of projected annual job openings based on the size of each program. Rather, the total number of job openings available for completers at each award level for each program is provided without further modification. Due to this modification, these numbers have not been de-duplicated, unlike the job openings shown in Chapter 3. As a result, job openings overstate the occupational demand for all postsecondary program completers. While these figures have not been provided in this analysis, they are available upon request.

<sup>22</sup> Note this adjustment is performed on a program-by-program basis without consideration of individual colleges or training providers. Therefore, a single program offered at one large institution has no advantage over a group of similar programs offered at several smaller educational providers given that the aggregate output of the smaller schools is near the output of the single larger school.

## EDUCATION OUTPUT

There are several educational institutions in the SBCCD Service Region, some of which have programs similar to those offered at SBCCD. Hence, completers at SBCCD will be competing for some jobs with completers from other regional institutions. Emsi determined education output by CIP codes and identified the number of completers for every award level within those CIP codes. To find the output for all public and private educational institutions in the SBCCD Service Region, Emsi uses data from the Integrated Postsecondary Educational System (IPEDS).<sup>23</sup> These data are publicly available through the National Center for Educational Statistics. Completions data are averaged for a three-year period, 2017 through 2019, to smooth out any bumps in enrollment that may be unique to a particular academic year. Data gathered for SBCCD from IPEDS were reviewed for accuracy by SBCCD and updated with 2020 completions data.

The following tables display the completion breakdown by institution in the SBCCD Service Region at the award levels offered by SBCCD. SBCCD is one of several institutions in the region. Using a three-year average, SBCCD grants 763 certificates and 1,649 associate degrees every year, which is 5.8% and 9.0% of the totals, respectively.

Table A5.2: Certificate Level Completions in the SBCCD Service Region by Postsecondary Institution

INSTITUTION	3-YEAR AVERAGE	% TOTAL
Chaffey College	2,092	15.8%
Riverside City College	975	7.4%
Summit College	826	6.2%
<b>San Bernardino Community College District</b>	<b>763</b>	<b>5.8%</b>
Moreno Valley College	706	5.3%
American Career College-Ontario	668	5.1%
Norco College	468	3.5%
UEI College-Riverside	433	3.3%
California Technical Academy	403	3.1%
University of Phoenix-California	395	3.0%
Concorde Career College-San Bernardino	372	2.8%

<sup>23</sup> These data come with inherent weaknesses. Primarily, numbers are only available for institutions that participate in or are applicants for any federal financial assistance program authorized by the Higher Education Act (HEA). Also, IPEDS does not collect data on non-credit courses and programs. Nevertheless, this system is the best source for collecting information on a broad range of educational institutions.



INSTITUTION	3-YEAR AVERAGE	% TOTAL
Palo Verde College	368	2.8%
North-West College-Riverside	337	2.6%
Mayfield College	335	2.5%
Victor Valley College	296	2.2%
Riverside County Office of Education-School of Career Education	273	2.1%
College of the Desert	271	2.1%
United Education Institute-Ontario	258	1.9%
Mt San Jacinto Community College District	222	1.7%
California Nurses Educational Institute	200	1.5%
Paul Mitchell the School-Temecula	197	1.5%
The Fab School	161	1.2%
Salon Success Academy-Upland	144	1.1%
American College of Healthcare and Technology	139	1.1%
Brightwood College-Riverside	129	1.0%
Universal Technical Institute of California Inc	127	1.0%
International School of Beauty Inc	122	0.9%
CET-Colton	119	0.9%
Brightwood College-Palm Springs	115	0.9%
Milan Institute-Palm Desert	109	0.8%
InterCoast Colleges-Riverside	97	0.7%
CET-Coachella	92	0.7%
Salon Success Academy-Corona	88	0.7%
Salon Success Academy-Redlands	83	0.6%
University of Redlands	81	0.6%
Copper Mountain Community College	69	0.5%
La Sierra University	67	0.5%
Barstow Community College	66	0.5%
Royale College of Beauty and Barbering	65	0.5%
Elite Cosmetology School	53	0.4%
Milan Institute of Cosmetology-La Quinta	53	0.4%
Salon Success Academy-Riverside	49	0.4%
Advance Beauty Techs Academy	46	0.4%
San Bernardino Beauty College	44	0.3%

INSTITUTION	3-YEAR AVERAGE	% TOTAL
Loma Linda University	39	0.3%
Baldy View Regional Occupational Program	38	0.3%
Coachella Valley Beauty College-Hemet	36	0.3%
Beaumont Adult School	33	0.3%
Champion Institute of Cosmetology	26	0.2%
Salon Success Academy-Fontana	25	0.2%
Platt College-Ontario	6	<0.1%
Platt College-Riverside	5	<0.1%
Argosy University-The Art Institute of California-Inland Empire	4	<0.1%
<b>Total</b>	<b>13,222</b>	<b>100%</b>

Source: IPEDS.

Table A5.3: Associate Degree Level Completions in the SBCCD Service Region by Postsecondary Institution

INSTITUTION	3-YEAR AVERAGE	% TOTAL
Chaffey College	3,610	19.8%
Riverside City College	3,029	16.6%
Mt San Jacinto Community College District	2,439	13.4%
<b>San Bernardino Community College District</b>	<b>1,649</b>	<b>9.0%</b>
Norco College	1,442	7.9%
Moreno Valley College	1,370	7.5%
Victor Valley College	1,259	6.9%
College of the Desert	1,039	5.7%
Universal Technical Institute of California Inc	567	3.1%
Barstow Community College	381	2.1%
Copper Mountain Community College	221	1.2%
Platt College-Riverside	203	1.1%
Platt College-Ontario	202	1.1%
Palo Verde College	179	1.0%
American Career College-Ontario	126	0.7%
Spartan College of Aeronautics and Technology	102	0.6%
Loma Linda University	97	0.5%
Argosy University-The Art Institute of California-Inland Empire	90	0.5%
Concorde Career College-San Bernardino	72	0.4%

INSTITUTION	3-YEAR AVERAGE	% TOTAL
Professional Golfers Career College	55	0.3%
American College of Healthcare and Technology	32	0.2%
North-West College-Riverside	18	0.1%
Brightwood College-Palm Springs	12	<0.1%
Brightwood College-Riverside	11	<0.1%
La Sierra University	11	<0.1%
Community Christian College	9	<0.1%
Argosy University-Inland Empire	5	<0.1%
Mayfield College	1	<0.1%
InterCoast Colleges-Riverside	0	<0.1%
<b>Total</b>	<b>18,233</b>	<b>100%</b>

Source: IPEDS.

Table A5.4: Bachelor's Degree Level Completions in the SBCCD Service Region by Postsecondary Institution

INSTITUTION	3-YEAR AVERAGE	% TOTAL
University of California-Riverside	4,688	30.9%
California State University-San Bernardino	4,296	28.4%
University of Phoenix-California	2,388	15.8%
California Baptist University	1,626	10.7%
University of Redlands	848	5.6%
West Coast University-Ontario	360	2.4%
La Sierra University	347	2.3%
Loma Linda University	342	2.3%
Argosy University-The Art Institute of California-Inland Empire	103	0.7%
Platt College-Ontario	58	0.4%
Platt College-Riverside	40	0.3%
Argosy University-Inland Empire	31	0.2%
The University of America	24	0.2%
<b>Total</b>	<b>15,152</b>	<b>100%</b>

Source: IPEDS.

## APPENDIX 6: Employment Projections

Table A6.1: Employment Projections in the SBCCD Service Region by Occupation, 2020 and 2030

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Home Health & Personal Care Aides	64,611	92,800	28,188	43.6%	15,228	\$12.85
Fast Food & Counter Workers	51,873	65,621	13,747	26.5%	12,989	\$12.93
Laborers & Freight, Stock, & Material Movers, Hand	58,826	67,800	8,974	15.3%	9,837	\$15.16
Cashiers	49,357	50,668	1,311	2.7%	9,629	\$13.01
Retail Salespersons	48,393	51,130	2,737	5.7%	7,564	\$14.10
Stockers & Order Fillers	50,901	54,738	3,837	7.5%	7,480	\$14.84
Waiters & Waitresses	24,334	27,210	2,876	11.8%	5,259	\$12.93
Heavy & Tractor-Trailer Truck Drivers	31,981	35,723	3,742	11.7%	4,271	\$22.56
Office Clerks, General	30,905	31,938	1,033	3.3%	3,918	\$17.36
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	24,843	27,696	2,853	11.5%	3,767	\$15.54
Landscaping & Groundskeeping Workers	22,905	24,813	1,908	8.3%	3,294	\$14.38
Security Guards	19,452	22,670	3,219	16.5%	3,066	\$14.62
Cooks, Restaurant	15,656	19,306	3,650	23.3%	2,836	\$14.05
Customer Service Representatives	18,953	19,942	989	5.2%	2,710	\$17.70
Construction Laborers	19,914	22,756	2,842	14.3%	2,658	\$18.73
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	22,682	22,356	(326)	(1.4%)	2,565	\$19.55
Carpenters	22,088	23,809	1,721	7.8%	2,558	\$22.54
Industrial Truck & Tractor Operators	17,604	20,676	3,072	17.5%	2,500	\$17.40
Registered Nurses	31,755	37,949	6,193	19.5%	2,475	\$49.75
Cooks, Fast Food	15,657	15,662	5	0.0%	2,252	\$12.96
Teaching Assistants, Except Postsecondary	18,542	20,244	1,702	9.2%	2,212	\$17.36
General & Operations Managers	19,793	22,307	2,514	12.7%	2,097	\$48.16
Packers & Packagers, Hand	13,937	14,088	151	1.1%	2,097	\$12.79
First-Line Supervisors of Food Preparation & Serving Workers	10,673	12,964	2,291	21.5%	2,048	\$16.25
Light Truck Drivers	14,660	16,826	2,166	14.8%	2,038	\$18.90
Food Preparation Workers	10,133	11,591	1,458	14.4%	2,034	\$13.80
First-Line Supervisors of Retail Sales Workers	16,924	17,653	729	4.3%	1,991	\$19.84

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Elementary School Teachers, Except Special Education	22,876	25,011	2,135	9.3%	1,990	\$43.73
Childcare Workers	13,548	12,426	(1,122)	(8.3%)	1,947	\$13.01
Bookkeeping, Accounting, & Auditing Clerks	15,836	16,171	335	2.1%	1,929	\$20.31
Substitute Teachers, Short-Term	15,048	16,039	991	6.6%	1,875	\$18.01
Maids & Housekeeping Cleaners	13,254	13,262	8	0.1%	1,818	\$13.63
First-Line Supervisors of Office & Administrative Support Workers	15,506	16,291	785	5.1%	1,760	\$27.19
Maintenance & Repair Workers, General	14,663	16,363	1,700	11.6%	1,686	\$19.68
Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	14,553	15,064	511	3.5%	1,633	\$27.86
Dining Room & Cafeteria Attendants & Bartender Helpers	8,526	9,399	873	10.2%	1,626	\$12.64
Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	8,669	11,059	2,390	27.6%	1,477	\$17.16
Farmworkers & Laborers, Crop, Nursery, & Greenhouse	8,710	8,987	277	3.2%	1,474	\$12.66
Hairdressers, Hairstylists, & Cosmetologists	10,014	11,229	1,216	12.1%	1,453	\$14.53
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, & Travel	9,919	10,945	1,026	10.3%	1,436	\$21.90
Project Management Specialists & Business Operations Specialists, All Other	12,895	14,075	1,180	9.2%	1,419	\$31.07
Medical Assistants	10,157	12,082	1,925	19.0%	1,418	\$16.00
Receptionists & Information Clerks	9,107	10,156	1,050	11.5%	1,403	\$14.77
Electricians	9,234	11,254	2,020	21.9%	1,400	\$23.17
Military occupations	11,761	11,926	165	1.4%	1,366	\$20.92
Automotive Service Technicians & Mechanics	12,898	13,420	522	4.0%	1,335	\$19.32
Shipping, Receiving, & Inventory Clerks	11,335	12,538	1,203	10.6%	1,320	\$16.53
Dishwashers	7,440	7,990	550	7.4%	1,288	\$12.82
Miscellaneous Assemblers & Fabricators	11,591	10,088	(1,504)	(13.0%)	1,269	\$14.34
Nursing Assistants	8,438	10,434	1,996	23.7%	1,268	\$16.23
Medical Secretaries & Administrative Assistants	8,571	10,078	1,507	17.6%	1,199	\$17.76
Hosts & Hostesses, Restaurant, Lounge, & Coffee Shop	4,528	5,176	649	14.3%	1,180	\$12.96
First-Line Supervisors of Transportation & Material Moving Workers, Except Aircraft Cargo Handling Supervisors	8,838	10,235	1,397	15.8%	1,177	\$27.06
Bartenders	5,692	6,358	666	11.7%	1,132	\$12.99

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Cleaners of Vehicles & Equipment	6,856	7,391	534	7.8%	1,099	\$12.98
First-Line Supervisors of Construction Trades & Extraction Workers	8,760	9,700	940	10.7%	1,078	\$29.59
Postsecondary Teachers, General	10,890	11,554	665	6.1%	1,041	\$47.80
Counter & Rental Clerks	7,389	7,912	522	7.1%	1,038	\$15.42
Secondary School Teachers, Except Special & Career/Technical Education	12,064	13,365	1,301	10.8%	1,023	\$41.95
Personal Service Managers, All Other; Entertainment & Recreation Managers, Except Gambling; & Managers, All Other	10,279	11,544	1,265	12.3%	956	\$33.80
Amusement & Recreation Attendants	3,699	3,994	295	8.0%	920	\$12.95
Accountants & Auditors	8,481	9,325	843	9.9%	917	\$34.14
Plumbers, Pipefitters, & Steamfitters	5,994	7,389	1,396	23.3%	888	\$25.71
Dental Assistants	6,316	7,417	1,101	17.4%	883	\$17.46
Recreation Workers	4,386	4,948	562	12.8%	834	\$13.69
Licensed Practical & Licensed Vocational Nurses	8,215	9,691	1,476	18.0%	830	\$26.94
Painters, Construction & Maintenance	7,190	7,757	567	7.9%	816	\$17.77
Exercise Trainers & Group Fitness Instructors	4,145	4,812	666	16.1%	814	\$18.13
School Bus Monitors & Protective Service Workers, All Other	3,106	3,366	259	8.4%	810	\$14.65
Social & Human Service Assistants	5,073	6,213	1,141	22.5%	790	\$18.67
Driver/Sales Workers	5,996	6,567	571	9.5%	781	\$16.34
Food Service Managers	5,402	6,006	605	11.2%	721	\$22.97
Management Analysts	6,372	6,984	612	9.6%	691	\$37.09
Animal Caretakers	3,362	4,089	727	21.6%	680	\$13.81
Human Resources Specialists	5,602	6,111	509	9.1%	641	\$29.88
Office & Administrative Support Workers, All Other	5,089	5,368	279	5.5%	636	\$15.99
Insurance Sales Agents	5,693	6,066	373	6.6%	630	\$21.14
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	4,697	5,796	1,099	23.4%	628	\$20.30
Packaging & Filling Machine Operators & Tenders	4,968	5,222	254	5.1%	626	\$14.52
Production, Planning, & Expediting Clerks	5,112	5,627	514	10.1%	615	\$22.31
Cement Masons & Concrete Finishers	4,821	5,409	588	12.2%	600	\$27.96
Inspectors, Testers, Sorters, Samplers, & Weighers	5,022	4,547	(475)	(9.5%)	599	\$17.94
Tutors & Teachers & Instructors, All Other	4,510	5,013	502	11.1%	596	\$23.38

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Substance Abuse, Behavioral Disorder, & Mental Health Counselors	4,429	5,352	923	20.8%	593	\$23.32
Operating Engineers & Other Construction Equipment Operators	4,445	4,870	424	9.5%	583	\$39.51
Market Research Analysts & Marketing Specialists	4,457	5,262	806	18.1%	579	\$24.51
Sales Managers	6,061	6,307	245	4.0%	578	\$43.09
Police & Sheriff's Patrol Officers	6,579	7,335	755	11.5%	563	\$48.99
Billing & Posting Clerks	4,291	4,892	601	14.0%	563	\$17.78
Drywall & Ceiling Tile Installers	4,955	5,383	428	8.6%	559	\$23.06
First-Line Supervisors of Production & Operating Workers	4,923	5,067	144	2.9%	531	\$29.45
Self-Enrichment Teachers	3,745	4,263	517	13.8%	511	\$15.00
Correctional Officers & Jailers	5,525	5,589	64	1.2%	498	\$39.35
First-Line Supervisors of Mechanics, Installers, & Repairers	4,639	5,087	448	9.6%	496	\$35.62
Financial Managers	5,092	5,753	661	13.0%	488	\$53.10
Welders, Cutters, Solderers, & Brazers	4,080	4,289	210	5.1%	488	\$18.64
Real Estate Sales Agents	4,765	4,967	202	4.2%	483	\$27.28
Construction Managers	5,581	6,149	569	10.2%	482	\$31.60
Medical Dosimetrists, Medical Records Specialists, & Health Technologists & Technicians, All Other	4,913	5,952	1,038	21.1%	481	\$20.95
Cooks, Institution & Cafeteria	2,893	3,262	369	12.8%	473	\$16.44
Marriage & Family Therapists	3,784	4,318	533	14.1%	469	\$21.49
Production Workers, All Other	3,883	3,844	(39)	(1.0%)	468	\$14.64
Software Developers & Software Quality Assurance Analysts & Testers	4,315	5,218	903	20.9%	463	\$46.27
Preschool Teachers, Except Special Education	4,105	4,368	263	6.4%	453	\$15.20
Gambling Dealers	2,704	2,888	184	6.8%	453	\$12.80
Medical & Health Services Managers	3,876	4,904	1,029	26.5%	451	\$57.63
Bus & Truck Mechanics & Diesel Engine Specialists	4,129	4,535	406	9.8%	447	\$23.55
Pharmacy Technicians	4,068	4,766	698	17.2%	428	\$18.71
Executive Secretaries & Executive Administrative Assistants	3,959	3,521	(437)	(11.0%)	423	\$28.92
Manicurists & Pedicurists	3,031	3,511	479	15.8%	423	\$13.45
Massage Therapists	2,861	3,408	547	19.1%	420	\$18.15
Helpers--Production Workers	2,557	2,746	190	7.4%	414	\$14.08

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
First-Line Supervisors of Personal Service & Entertainment Workers, Except Gambling Services	3,325	3,843	518	15.6%	405	\$18.58
First-Line Supervisors of Non-Retail Sales Workers	3,907	4,057	150	3.8%	399	\$24.40
Buyers & Purchasing Agents	3,684	3,706	23	0.6%	396	\$27.28
Parts Salespersons	3,109	3,196	87	2.8%	392	\$17.98
Machinists	3,518	3,690	172	4.9%	389	\$18.33
Order Clerks	3,045	3,242	197	6.5%	385	\$17.39
Educational Instruction & Library Workers, All Other	3,686	3,910	225	6.1%	377	\$19.48
Hotel, Motel, & Resort Desk Clerks	2,263	2,147	(116)	(5.1%)	376	\$13.76
Middle School Teachers, Except Special & Career/Technical Education	3,854	4,487	633	16.4%	373	\$40.90
Cooks, Short Order	2,463	2,601	139	5.6%	373	\$13.16
Tellers	3,123	2,992	(131)	(4.2%)	372	\$16.13
Computer User Support Specialists	3,670	4,135	465	12.7%	368	\$27.81
Cost Estimators	3,105	3,495	390	12.5%	368	\$31.15
Coaches & Scouts	2,173	2,448	275	12.7%	367	\$16.38
Educational, Guidance, & Career Counselors & Advisors	3,029	3,378	348	11.5%	363	\$41.57
Installation, Maintenance, & Repair Workers, All Other	2,941	3,164	223	7.6%	361	\$17.98
Sales & Related Workers, All Other	2,635	2,717	82	3.1%	357	\$16.97
Food Servers, Nonrestaurant	1,887	2,224	337	17.8%	356	\$14.12
Telecommunications Equipment Installers & Repairers, Except Line Installers	3,024	3,132	109	3.6%	351	\$26.61
Property, Real Estate, & Community Association Managers	3,826	4,142	316	8.3%	339	\$31.90
Interviewers, Except Eligibility & Loan	2,543	2,691	148	5.8%	339	\$18.40
Securities, Commodities, & Financial Services Sales Agents	3,375	3,436	60	1.8%	337	\$23.81
Food Preparation & Serving Related Workers, All Other	1,741	1,919	178	10.2%	332	\$13.43
Training & Development Specialists	2,483	2,844	362	14.6%	323	\$30.34
Helpers--Production Workers	5,029	2,746	602	7.4%	317	\$14.08
Machine Feeders & Offbearers	2,557	2,302	264	12.9%	317	\$15.72
Industrial Machinery Mechanics	3,105	3,286	181	5.8%	316	\$29.93
Ushers, Lobby Attendants, & Ticket Takers	1,047	1,242	195	18.7%	302	\$12.76
Eligibility Interviewers, Government Programs	2,746	2,997	251	9.1%	299	\$23.62



SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Roofers	2,439	2,720	281	11.5%	296	\$24.51
Civil Engineers	3,068	3,457	389	12.7%	295	\$51.31
Computer Occupations, All Other	3,300	3,498	197	6.0%	289	\$36.48
Compliance Officers	2,833	3,098	265	9.4%	289	\$34.54
Emergency Medical Technicians & Paramedics	3,394	3,830	436	12.8%	283	\$18.35
Demonstrators & Product Promoters	1,531	1,601	69	4.5%	282	\$19.51
Information & Record Clerks, All Other	2,142	2,321	179	8.3%	278	\$21.78
Electrical, Electronic, & Electromechanical Assemblers, Except Coil Winders, Tapers, & Finishers	2,496	2,307	(189)	(7.6%)	277	\$15.91
First-Line Supervisors of Housekeeping & Janitorial Workers	2,070	2,337	267	12.9%	277	\$21.00
First-Line Supervisors of Landscaping, Lawn Service, & Groundskeeping Workers	2,258	2,427	169	7.5%	276	\$22.17
Clergy	2,192	2,447	254	11.6%	276	\$26.89
Administrative Services Managers	2,757	3,070	313	11.4%	274	\$47.03
Paralegals & Legal Assistants	2,005	2,392	387	19.3%	272	\$27.39
Firefighters	3,131	3,544	413	13.2%	269	\$31.12
Logisticians	2,413	2,661	248	10.3%	267	\$37.24
Social Workers, All Other	2,241	2,550	310	13.8%	266	\$35.00
Graphic Designers	2,335	2,532	197	8.4%	264	\$21.07
Healthcare Social Workers	1,761	2,355	594	33.7%	262	\$35.38
Lifeguards, Ski Patrol, & Other Recreational Protective Service Workers	975	1,093	119	12.2%	262	\$13.70
Chief Executives	3,477	3,479	2	0.1%	259	\$79.78
Transportation, Storage, & Distribution Managers	2,445	2,858	413	16.9%	254	\$40.99
Dispatchers, Except Police, Fire, & Ambulance	2,326	2,518	191	8.2%	252	\$17.95
Molding, Coremaking, & Casting Machine Setters, Operators, & Tenders, Metal & Plastic	2,442	2,111	(331)	(13.5%)	250	\$15.46
Child, Family, & School Social Workers	1,936	2,319	383	19.8%	248	\$26.13
Social & Community Service Managers	1,874	2,460	586	31.3%	248	\$33.45
Crematory Operators & Personal Care & Service Workers, All Other	1,194	1,614	420	35.2%	247	\$14.90
Structural Iron & Steel Workers	1,614	1,947	333	20.7%	246	\$32.00
Bakers	1,478	1,724	246	16.6%	246	\$14.30

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Weighers, Measurers, Checkers, & Samplers, Recordkeeping	1,637	1,966	329	20.1%	242	\$15.79
Butchers & Meat Cutters	1,782	1,883	101	5.7%	238	\$18.05
Insurance Claims & Policy Processing Clerks	2,287	2,329	42	1.9%	236	\$20.06
Education Administrators, Kindergarten through Secondary	2,428	2,735	307	12.6%	233	\$63.23
Community & Social Service Specialists, All Other	1,726	1,956	231	13.4%	232	\$23.39
Special Education Teachers, Kindergarten & Elementary School	2,596	2,856	260	10.0%	231	\$38.35
Veterinary Assistants & Laboratory Animal Caretakers	1,168	1,395	227	19.4%	230	\$15.54
Bill & Account Collectors	1,915	1,868	(47)	(2.5%)	227	\$18.77
Helpers--Electricians	1,349	1,598	248	18.4%	226	\$17.08
Mobile Heavy Equipment Mechanics, Except Engines	1,996	2,153	157	7.9%	225	\$30.16
Financial & Investment Analysts, Financial Risk Specialists, & Financial Specialists, All Other	2,272	2,418	146	6.4%	223	\$32.67
Payroll & Timekeeping Clerks	1,977	1,992	15	0.8%	223	\$22.65
Farmers, Ranchers, & Other Agricultural Managers	2,319	2,123	(197)	(8.5%)	222	\$37.45
Musicians & Singers	1,694	1,808	114	6.7%	221	\$30.03
Farmworkers, Farm, Ranch, & Aquacultural Animals	1,338	1,323	(15)	(1.1%)	219	\$19.72
First-Line Supervisors of Gambling Service Workers	1,268	1,349	82	6.4%	219	\$29.16
Chefs & Head Cooks	1,390	1,605	215	15.5%	218	\$25.35
Instructional Coordinators	1,990	2,204	215	10.8%	217	\$53.40
Cutting, Punching, & Press Machine Setters, Operators, & Tenders, Metal & Plastic	1,995	1,823	(172)	(8.6%)	216	\$17.38
Sheet Metal Workers	1,554	1,853	299	19.3%	215	\$27.57
Postal Service Mail Carriers	3,061	2,617	(445)	(14.5%)	213	\$30.32
Rehabilitation Counselors	1,740	1,966	226	13.0%	213	\$14.35
Laundry & Dry-Cleaning Workers	1,456	1,512	56	3.9%	208	\$13.72
Public Relations Specialists	1,649	1,860	211	12.8%	205	\$29.04
Food Batchmakers	1,191	1,345	154	13.0%	205	\$14.27
Construction & Building Inspectors	1,435	1,593	159	11.1%	204	\$40.62
Bus Drivers, Transit & Intercity	1,466	1,572	106	7.2%	202	\$20.21
Dental Hygienists	1,988	2,485	497	25.0%	200	\$45.73
Phlebotomists	1,497	1,763	266	17.8%	200	\$20.97

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Loan Officers	2,358	2,311	(47)	(2.0%)	197	\$32.25
Tire Repairers & Changers	1,774	1,701	(73)	(4.1%)	194	\$14.43
Coating, Painting, & Spraying Machine Setters, Operators, & Tenders	1,635	1,706	70	4.3%	193	\$15.32
Writers & Authors	1,569	1,760	192	12.2%	193	\$25.98
Clinical, Counseling, & School Psychologists	2,079	2,413	334	16.0%	192	\$48.58
Automotive Body & Related Repairers	1,753	1,903	149	8.5%	192	\$18.24
Barbers	1,309	1,604	295	22.5%	192	\$12.45
Computer Systems Analysts	2,186	2,406	220	10.1%	189	\$41.22
Parking Attendants	1,101	1,190	89	8.1%	186	\$13.32
Healthcare Support Workers, All Other	1,366	1,544	178	13.1%	184	\$22.40
Merchandise Displayers & Window Trimmers	1,529	1,711	182	11.9%	182	\$15.23
Pest Control Workers	1,202	1,286	84	7.0%	182	\$22.24
Computer & Information Systems Managers	1,892	2,125	233	12.3%	181	\$63.17
Pharmacists	3,079	3,388	309	10.0%	178	\$71.59
Advertising Sales Agents	1,185	1,239	53	4.5%	178	\$25.58
Real Estate Brokers	1,739	1,821	82	4.7%	177	\$30.04
Directors, Religious Activities & Education	1,321	1,373	52	3.9%	174	\$20.36
Library Technicians	1,115	1,123	8	0.7%	173	\$21.47
Gambling Change Persons & Booth Cashiers	856	914	58	6.8%	173	\$12.95
Helpers--Installation, Maintenance, & Repair Workers	1,110	1,279	169	15.2%	171	\$14.67
Data Entry Keyers	1,499	1,327	(172)	(11.5%)	166	\$15.95
Physicians, All Other; & Ophthalmologists, Except Pediatric	4,448	4,757	309	7.0%	165	\$91.83
Court, Municipal, & License Clerks	1,476	1,660	185	12.5%	165	\$23.56
Nurse Practitioners	1,705	2,290	585	34.3%	164	\$62.63
Telecommunications Line Installers & Repairers	1,273	1,409	136	10.6%	163	\$25.58
Clinical Laboratory Technologists & Technicians	1,785	2,159	374	21.0%	162	\$25.60
Human Resources Assistants, Except Payroll & Timekeeping	1,376	1,394	18	1.3%	161	\$21.33
Tree Trimmers & Pruners	1,116	1,200	84	7.5%	160	\$13.89
Residential Advisors	865	1,023	157	18.2%	160	\$14.38
Material Moving Workers, All Other	1,179	1,232	54	4.6%	159	\$14.80

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Human Resources Managers	1,586	1,738	153	9.6%	157	\$53.07
Photographers	1,472	1,449	(23)	(1.6%)	157	\$21.26
Skincare Specialists	1,116	1,303	187	16.7%	157	\$15.36
Cargo & Freight Agents	1,094	1,431	337	30.8%	156	\$20.23
Motor Vehicle Operators, All Other	818	915	97	11.9%	156	\$23.86
Psychiatric Technicians	1,713	1,823	110	6.4%	155	\$33.60
Couriers & Messengers	1,386	1,517	131	9.5%	155	\$14.48
Legal Secretaries & Administrative Assistants	1,423	1,305	(117)	(8.2%)	154	\$21.98
Aircraft Mechanics & Service Technicians	1,656	1,768	112	6.8%	153	\$34.93
Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	1,358	1,382	25	1.8%	151	\$37.49
Mixing & Blending Machine Setters, Operators, & Tenders	1,272	1,261	(10)	(0.8%)	151	\$16.92
Kindergarten Teachers, Except Special Education	1,276	1,420	145	11.3%	150	\$35.33
Respiratory Therapists	1,885	2,274	389	20.6%	149	\$35.33
File Clerks	1,217	1,167	(50)	(4.1%)	148	\$17.53
Network & Computer Systems Administrators	1,779	1,923	144	8.1%	145	\$41.02
Miscellaneous First-Line Supervisors, Protective Service Workers	1,231	1,413	182	14.8%	145	\$23.27
Agricultural Equipment Operators	808	880	72	9.0%	145	\$13.52
Mental Health & Substance Abuse Social Workers	1,024	1,303	278	27.2%	143	\$29.66
Radiologic Technologists & Technicians	1,745	2,076	331	18.9%	139	\$38.16
Web Developers & Digital Interface Designers	1,429	1,645	217	15.2%	139	\$24.08
Automotive & Watercraft Service Attendants	840	921	81	9.7%	139	\$14.80
Cabinetmakers & Bench Carpenters	1,312	1,262	(50)	(3.8%)	138	\$14.21
Printing Press Operators	1,263	1,251	(12)	(1.0%)	138	\$17.78
Sewing Machine Operators	1,213	1,203	(11)	(0.9%)	138	\$14.09
Tax Preparers	1,141	1,179	38	3.3%	137	\$15.50
Water & Wastewater Treatment Plant & System Operators	1,470	1,477	7	0.5%	136	\$33.59
Marketing Managers	1,265	1,425	160	12.6%	136	\$50.09
Tapers	1,226	1,302	76	6.2%	135	\$29.74
Security & Fire Alarm Systems Installers	918	1,068	150	16.3%	135	\$21.35
Physical Therapists	1,570	2,130	560	35.7%	134	\$48.44

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Library Assistants, Clerical	846	870	24	2.8%	133	\$17.01
Industrial Production Managers	1,692	1,726	34	2.0%	131	\$46.61
Refuse & Recyclable Material Collectors	874	922	48	5.4%	131	\$23.46
Reservation & Transportation Ticket Agents & Travel Clerks	1,161	1,081	(80)	(6.9%)	129	\$15.58
Architectural & Civil Drafters	1,063	1,178	115	10.9%	128	\$27.05
Meeting, Convention, & Event Planners	923	1,066	142	15.4%	128	\$22.04
Plasterers & Stucco Masons	1,223	1,301	78	6.4%	124	\$23.31
Pharmacy Aides	965	961	(4)	(0.4%)	124	\$13.11
Solar Photovoltaic Installers	640	914	274	42.9%	124	\$19.03
Education Administrators, All Other	1,353	1,477	124	9.2%	123	\$58.57
Claims Adjusters, Examiners, & Investigators	1,484	1,394	(90)	(6.1%)	122	\$37.49
Physician Assistants	1,285	1,660	375	29.2%	122	\$62.42
Woodworking Machine Setters, Operators, & Tenders, Except Sawing	852	854	2	0.2%	122	\$14.44
Speech-Language Pathologists	1,230	1,671	441	35.8%	121	\$43.28
Personal Financial Advisors	1,447	1,474	27	1.8%	118	\$34.03
Probation Officers & Correctional Treatment Specialists	1,168	1,293	125	10.7%	116	\$39.89
Telemarketers	772	693	(79)	(10.2%)	116	\$13.33
Electrical Power-Line Installers & Repairers	1,096	1,246	150	13.7%	114	\$42.60
Surgical Technologists	979	1,225	245	25.0%	114	\$27.38
Physical Therapist Assistants	578	833	255	44.1%	113	\$35.05
Art Directors	859	978	119	13.8%	112	\$25.09
Mechanical Engineers	1,364	1,485	121	8.9%	110	\$41.87
Electrical & Electronic Engineering Technologists & Technicians	1,101	1,112	11	1.0%	110	\$29.63
Maintenance Workers, Machinery	1,097	1,158	61	5.5%	110	\$24.16
Industrial Engineers	1,330	1,461	131	9.9%	109	\$39.75
Extruding & Drawing Machine Setters, Operators, & Tenders, Metal & Plastic	919	815	(103)	(11.3%)	109	\$14.68
Special Education Teachers, Secondary School	1,141	1,293	153	13.4%	107	\$42.94
Glaziers	613	841	227	37.1%	107	\$26.95
Computer Network Support Specialists	1,086	1,204	117	10.8%	106	\$28.68
Agricultural Workers, All Other	641	644	3	0.4%	106	\$21.11
Brickmasons & Blockmasons	981	1,005	24	2.5%	105	\$23.98

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Interpreters & Translators	825	971	146	17.7%	105	\$27.12
Public Safety Telecommunicators	914	1,026	111	12.2%	104	\$29.97
Graders & Sorters, Agricultural Products	661	693	32	4.8%	103	\$12.77
Door-To-Door Sales Workers, News & Street Vendors, & Related Workers	934	717	(217)	(23.2%)	102	\$12.21
Grinding, Lapping, Polishing, & Buffing Machine Tool Setters, Operators, & Tenders, Metal & Plastic	920	828	(92)	(10.0%)	101	\$14.57
Architectural & Engineering Managers	1,223	1,307	84	6.9%	100	\$73.53
Crossing Guards & Flaggers	454	588	134	29.5%	100	\$17.11
Computer Numerically Controlled Tool Operators	949	923	(27)	(2.8%)	98	\$18.40
Tour & Travel Guides	527	554	27	5.1%	98	\$15.95
Editors	760	843	83	10.9%	96	\$26.09
Dentists, General	1,983	2,247	264	13.3%	95	\$59.72
Loan Interviewers & Clerks	950	926	(24)	(2.6%)	95	\$19.97
Molders, Shapers, & Casters, Except Metal & Plastic	844	826	(18)	(2.1%)	95	\$16.91
Gambling Cage Workers	656	696	40	6.1%	95	\$14.74
Computer, Automated Teller, & Office Machine Repairers	907	838	(69)	(7.6%)	94	\$18.32
Paper Goods Machine Setters, Operators, & Tenders	821	847	26	3.1%	94	\$15.33
Audio & Video Technicians	759	839	80	10.5%	94	\$23.00
Medical Equipment Preparers	645	753	107	16.6%	91	\$22.74
Physical Therapist Aides	546	688	142	26.1%	91	\$14.33
Architects, Except Landscape & Naval	868	1,029	161	18.6%	90	\$35.20
Word Processors & Typists	794	650	(144)	(18.1%)	89	\$20.46
Environmental Scientists & Specialists, Including Health	781	811	29	3.8%	89	\$40.95
Dietitians & Nutritionists	961	1,163	202	21.0%	87	\$34.83
Opticians, Dispensing	832	982	151	18.1%	87	\$18.04
Switchboard Operators, Including Answering Service	741	651	(90)	(12.1%)	87	\$14.78
Tile & Stone Setters	751	784	33	4.4%	85	\$24.84
First-Line Supervisors of Farming, Fishing, & Forestry Workers	542	572	29	5.4%	85	\$25.47
Floor Layers, Except Carpet, Wood, & Hard Tiles	703	805	101	14.4%	84	\$24.40
Life, Physical, & Social Science Technicians, All Other	676	684	9	1.3%	84	\$27.52
Fundraisers	654	756	102	15.6%	84	\$26.15

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic	749	766	17	2.2%	83	\$15.56
Designers, All Other	732	798	65	8.9%	83	\$25.02
Detectives & Criminal Investigators	1,075	1,177	102	9.5%	82	\$49.06
Veterinary Technologists & Technicians	674	860	186	27.6%	81	\$15.44
Hazardous Materials Removal Workers	555	617	62	11.1%	81	\$19.61
Electrical Engineers	1,006	1,104	98	9.8%	80	\$44.24
Occupational Therapists	806	1,076	270	33.5%	80	\$50.37
Medical Scientists, Except Epidemiologists	753	831	78	10.4%	79	\$51.36
Civil Engineering Technologists & Technicians	685	766	81	11.8%	79	\$29.03
Tailors, Dressmakers, & Custom Sewers	605	575	(29)	(4.9%)	79	\$13.86
Health Education Specialists	547	656	109	19.8%	79	\$29.49
Counselors, All Other	560	698	138	24.7%	78	\$26.79
Paving, Surfacing, & Tamping Equipment Operators	553	605	52	9.3%	78	\$23.78
Religious Workers, All Other	542	587	45	8.3%	78	\$14.71
Reinforcing Iron & Rebar Workers	527	623	97	18.4%	78	\$15.78
Urban & Regional Planners	686	776	90	13.1%	77	\$45.77
Office Machine Operators, Except Computer	594	557	(37)	(6.3%)	74	\$18.83
Psychologists, All Other	784	918	134	17.1%	73	\$46.36
Structural Metal Fabricators & Fitters	721	666	(55)	(7.6%)	73	\$17.72
Fence Erectors	580	611	31	5.4%	73	\$19.20
Interior Designers	570	672	102	17.9%	73	\$25.33
Librarians & Media Collections Specialists	566	663	97	17.0%	73	\$36.29
Miscellaneous Construction & Related Workers	496	566	70	14.1%	73	\$15.68
Earth Drillers, Except Oil & Gas; & Explosives Workers, Ordnance Handling Experts, & Blasters	485	509	24	4.9%	73	\$23.73
Automotive Glass Installers & Repairers	667	718	51	7.6%	72	\$14.37
Community Health Workers	472	592	120	25.5%	72	\$23.09
Pipelayers	560	609	48	8.6%	71	\$27.98
Helpers, Construction Trades, All Other	433	503	70	16.1%	71	\$18.89
Engineers, All Other	898	956	58	6.5%	70	\$45.54
Highway Maintenance Workers	467	582	115	24.5%	70	\$21.97

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Calibration Technologists & Technicians & Engineering Technicians, Except Drafters, All Other	692	694	2	0.3%	69	\$36.71
Airline Pilots, Copilots, & Flight Engineers	669	658	(11)	(1.7%)	69	\$81.83
Orderlies	519	584	64	12.4%	69	\$22.79
Computer Programmers	942	935	(7)	(0.7%)	68	\$41.42
Railroad Conductors & Yardmasters	710	703	(7)	(1.0%)	68	\$37.65
Travel Agents	478	499	20	4.3%	68	\$21.50
Meat, Poultry, & Fish Cutters & Trimmers	475	527	52	11.0%	68	\$14.15
Medical Transcriptionists	466	480	14	3.0%	68	\$16.46
Baggage Porters & Bellhops	438	469	30	7.0%	68	\$15.70
Helpers--Carpenters	417	481	64	15.4%	68	\$17.66
Special Education Teachers, All Other	739	820	81	11.0%	67	\$39.75
Extruding, Forming, Pressing, & Compacting Machine Setters, Operators, & Tenders	613	596	(17)	(2.7%)	67	\$16.06
Animal Trainers	408	451	43	10.5%	67	\$14.36
Miscellaneous Entertainers & Performers, Sports & Related Workers	472	549	76	16.2%	66	\$21.42
Locker Room, Coatroom, & Dressing Room Attendants	268	287	19	7.0%	66	\$16.07
Procurement Clerks	586	602	16	2.8%	65	\$22.52
Home Appliance Repairers	575	587	12	2.1%	65	\$21.93
Cutting & Slicing Machine Setters, Operators, & Tenders	496	516	19	3.9%	65	\$14.01
Occupational Therapy Assistants	367	531	164	44.6%	65	\$35.16
Medical Equipment Repairers	548	589	41	7.5%	64	\$23.16
Music Directors & Composers	510	525	14	2.8%	64	\$23.02
Actors	496	516	21	4.1%	64	\$27.98
Helpers--Brickmasons, Blockmasons, Stonemasons, & Tile & Marble Setters	440	456	16	3.7%	63	\$22.38
Education Administrators, Postsecondary	700	752	52	7.4%	62	\$50.55
Legal Support Workers, All Other	634	665	31	4.8%	62	\$25.70
Producers & Directors	537	593	57	10.6%	62	\$31.61
Fine Artists, Including Painters, Sculptors, & Illustrators	493	545	52	10.6%	62	\$11.87
Insulation Workers, Floor, Ceiling, & Wall	417	498	81	19.3%	62	\$21.60
Postal Service Mail Sorters, Processors, & Processing Machine Operators	806	664	(142)	(17.6%)	61	\$28.09



SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Locksmiths & Safe Repairers	539	540	1	0.1%	61	\$21.31
Surveying & Mapping Technicians	427	488	61	14.4%	61	\$27.89
Property Appraisers & Assessors	721	725	4	0.6%	59	\$27.26
Electrical & Electronics Repairers, Commercial & Industrial Equipment	651	665	14	2.1%	59	\$31.85
Helpers--Pipelayers, Plumbers, Pipefitters, & Steamfitters	261	400	139	53.1%	59	\$16.20
Coin, Vending, & Amusement Machine Servicers & Repairers	455	464	8	1.8%	57	\$15.68
Diagnostic Medical Sonographers	672	821	148	22.1%	56	\$41.38
Food Processing Workers, All Other	492	512	20	4.2%	56	\$13.48
Labor Relations Specialists	505	532	27	5.4%	55	\$35.22
Recreational Vehicle Service Technicians	448	484	36	7.9%	55	\$17.45
Electronics Engineers, Except Computer	776	793	17	2.2%	54	\$55.38
Locomotive Engineers	578	569	(9)	(1.5%)	54	\$40.04
Commercial Pilots	453	502	49	10.9%	54	\$36.21
Computer Network Architects	688	716	29	4.2%	53	\$52.82
Carpet Installers	553	514	(39)	(7.0%)	53	\$15.94
Sawing Machine Setters, Operators, & Tenders, Wood	442	441	(1)	(0.1%)	53	\$14.21
Excavating & Loading Machine & Dragline Operators, Surface Mining	395	424	30	7.5%	53	\$25.11
Food Cooking Machine Operators & Tenders	293	329	37	12.5%	53	\$14.47
Health Information Technologists, Medical Registrars, Surgical Assistants, & Healthcare Practitioners & Technical Workers, All Other	658	777	118	18.0%	52	\$23.70
Database Administrators & Architects	573	647	73	12.8%	51	\$46.69
Mechanical Drafters	469	466	(3)	(0.6%)	50	\$26.23
Media & Communication Workers, All Other	439	454	15	3.4%	50	\$25.57
Jewelers & Precious Stone & Metal Workers	406	381	(25)	(6.2%)	50	\$17.16
Compensation, Benefits, & Job Analysis Specialists	438	487	50	11.3%	49	\$32.82
Special Effects Artists & Animators	403	436	33	8.3%	49	\$17.43
Forest & Conservation Technicians	383	404	21	5.4%	49	\$24.62
Education & Childcare Administrators, Preschool & Daycare	568	585	18	3.1%	48	\$18.90
Lodging Managers	457	451	(5)	(1.1%)	48	\$36.99
Upholsterers	456	448	(7)	(1.6%)	48	\$15.53

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Slaughterers & Meat Packers	327	369	43	13.0%	48	\$14.38
Occupational Health & Safety Specialists	663	742	78	11.8%	47	\$38.54
First-Line Supervisors of Correctional Officers	650	661	11	1.6%	47	\$50.04
Pressers, Textile, Garment, & Related Materials	420	386	(34)	(8.1%)	47	\$13.06
Cooling & Freezing Equipment Operators & Tenders	355	387	31	8.7%	47	\$19.21
Floral Designers	434	431	(4)	(0.8%)	45	\$16.28
Agricultural Inspectors	287	306	19	6.5%	45	\$15.47
Control & Valve Installers & Repairers, Except Mechanical Door	482	496	14	2.8%	44	\$32.91
Dietetic Technicians	450	501	51	11.3%	44	\$16.14
Training & Development Managers	450	478	28	6.3%	44	\$57.13
Purchasing Managers	443	490	48	10.7%	44	\$47.91
Outdoor Power Equipment & Other Small Engine Mechanics	412	425	13	3.2%	44	\$18.56
Environmental Science & Protection Technicians, Including Health	361	368	7	1.8%	44	\$24.90
Tool & Die Makers	436	422	(14)	(3.2%)	43	\$23.91
Biological Scientists, All Other	434	453	19	4.3%	43	\$37.70
Set & Exhibit Designers	356	404	48	13.5%	43	\$19.81
Septic Tank Servicers & Sewer Pipe Cleaners	309	356	47	15.2%	43	\$19.11
Cooks, All Other	285	303	17	6.1%	43	\$17.66
Special Education Teachers, Middle School	420	498	79	18.7%	42	\$38.91
Separating, Filtering, Clarifying, Precipitating, & Still Machine Setters, Operators, & Tenders	343	353	10	3.0%	42	\$20.08
Postal Service Clerks	575	497	(78)	(13.6%)	41	\$28.94
Crushing, Grinding, & Polishing Machine Setters, Operators, & Tenders	339	340	1	0.4%	41	\$14.67
Mail Clerks & Mail Machine Operators, Except Postal Service	338	359	21	6.2%	41	\$16.63
Ophthalmic Laboratory Technicians	309	327	17	5.6%	41	\$19.62
Psychiatric Aides	295	346	51	17.3%	41	\$19.44
Forensic Science Technicians	281	330	49	17.4%	41	\$36.13
Family Medicine Physicians	916	1,020	104	11.4%	40	\$122.87
Chemists	425	432	7	1.7%	40	\$38.58
Mechanical Door Repairers	397	439	42	10.7%	40	\$23.70

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Environmental Engineering Technologists & Technicians	395	403	8	2.1%	40	\$32.56
Motorboat Mechanics & Service Technicians	363	381	18	5.0%	40	\$19.55
Private Detectives & Investigators	357	412	55	15.3%	40	\$28.22
Veterinarians	597	725	128	21.4%	39	\$60.67
Cardiovascular Technologists & Technicians	545	617	72	13.3%	39	\$30.92
Transportation Security Screeners	376	401	26	6.8%	39	\$23.38
Rail Car Repairers	355	372	17	4.8%	39	\$21.12
Elevator & Escalator Installers & Repairers	260	319	59	22.6%	39	\$16.25
Food & Tobacco Roasting, Baking, & Drying Machine Operators & Tenders	254	276	22	8.6%	39	\$16.29
Therapists, All Other	427	544	117	27.3%	38	\$33.22
Stonemasons	354	365	12	3.3%	38	\$23.93
Extruding & Forming Machine Setters, Operators, & Tenders, Synthetic & Glass Fibers	291	265	(26)	(9.0%)	38	\$14.47
Grounds Maintenance Workers, All Other	275	286	11	4.1%	38	\$18.11
Title Examiners, Abstractors, & Searchers	407	405	(1)	(0.3%)	37	\$27.64
Surveyors	400	457	57	14.2%	37	\$43.47
Gambling Service Workers, All Other	227	238	11	4.7%	37	\$13.92
Funeral Attendants	191	228	37	19.3%	37	\$14.80
Teaching Assistants, Postsecondary	401	417	16	3.9%	36	\$14.65
First-Line Supervisors of Police & Detectives	398	487	89	22.4%	36	\$75.90
Public Relations & Fundraising Managers	332	385	53	16.0%	36	\$58.36
Lathe & Turning Machine Tool Setters, Operators, & Tenders, Metal & Plastic	320	303	(17)	(5.2%)	36	\$18.66
Information Security Analysts	316	412	96	30.3%	36	\$55.75
Woodworkers, All Other	260	279	19	7.4%	36	\$16.98
Crane & Tower Operators	257	290	33	12.8%	36	\$15.54
Dancers	209	200	(8)	(4.0%)	36	\$27.38
Umpires, Referees, & Other Sports Officials	202	238	36	18.1%	36	\$17.23
Landscape Architects	375	421	47	12.5%	35	\$36.83
Tax Examiners & Collectors, & Revenue Agents	372	399	26	7.1%	35	\$38.76
Stationary Engineers & Boiler Operators	304	322	18	5.9%	35	\$35.83

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Budget Analysts	383	412	29	7.7%	34	\$33.83
Meter Readers, Utilities	338	333	(5)	(1.4%)	34	\$27.19
Industrial Engineering Technologists & Technicians	328	335	6	2.0%	34	\$30.14
Plant & System Operators, All Other	307	301	(6)	(1.9%)	34	\$30.91
Financial Clerks, All Other	273	301	27	10.0%	34	\$22.07
Craft Artists	273	300	27	10.1%	34	\$8.61
Court Reporters & Simultaneous Captioners	289	338	49	16.9%	33	\$53.11
Agricultural & Food Science Technicians	262	265	3	1.1%	33	\$21.78
Insulation Workers, Mechanical	208	262	54	25.9%	33	\$22.98
Concierges	193	224	31	15.8%	33	\$15.70
Forging Machine Setters, Operators, & Tenders, Metal & Plastic	360	296	(64)	(17.8%)	32	\$19.11
Operations Research Analysts	315	398	83	26.3%	32	\$38.68
Fiberglass Laminators & Fabricators	291	264	(26)	(9.0%)	32	\$17.43
Painting, Coating, & Decorating Workers	290	284	(6)	(2.0%)	32	\$14.24
Motorcycle Mechanics	278	302	24	8.8%	32	\$23.23
Biological Technicians	270	292	21	7.9%	32	\$23.03
Computer Numerically Controlled Tool Programmers	251	288	37	14.7%	32	\$32.19
Credit Counselors	341	356	15	4.4%	31	\$22.40
Chemical Technicians	308	298	(10)	(3.3%)	31	\$23.18
Plating Machine Setters, Operators, & Tenders, Metal & Plastic	301	278	(23)	(7.7%)	31	\$15.39
Aircraft Service Attendants & Transportation Workers, All Other	237	273	36	15.1%	31	\$17.83
Print Binding & Finishing Workers	221	220	(1)	(0.3%)	31	\$14.50
Building Cleaning Workers, All Other	194	222	28	14.6%	31	\$15.07
Forest & Conservation Workers	172	173	2	1.0%	31	\$12.02
Legislators	310	356	46	14.8%	30	\$27.08
Technical Writers	276	299	22	8.1%	30	\$36.20
Adult Basic Education, Adult Secondary Education, & English as a Second Language Instructors	248	251	3	1.1%	30	\$45.39
Exercise Physiologists	435	473	39	8.9%	29	\$90.95
Grinding & Polishing Workers, Hand	272	225	(46)	(17.0%)	29	\$16.19
Sales Engineers	236	251	14	6.1%	29	\$44.43

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Dental Laboratory Technicians	235	204	(32)	(13.5%)	29	\$19.44
Film & Video Editors	228	272	44	19.2%	29	\$32.36
Transportation Inspectors	248	269	21	8.3%	28	\$29.15
Shoe & Leather Workers & Repairers	227	229	2	0.7%	28	\$15.09
Sewers, Hand	207	201	(6)	(3.0%)	28	\$16.33
Power Plant Operators	296	221	(75)	(25.3%)	27	\$43.08
Chemical Equipment Operators & Tenders	230	231	1	0.6%	27	\$17.86
Electrical & Electronics Drafters	228	251	22	9.8%	27	\$29.97
Social Scientists & Related Workers, All Other	209	227	18	8.8%	27	\$40.18
Athletes & Sports Competitors	157	180	23	14.7%	27	\$27.94
Acupuncturists & Healthcare Diagnosing or Treating Practitioners, All Other	372	446	74	19.8%	26	\$31.12
Avionics Technicians	319	340	22	6.8%	26	\$33.99
First-Line Supervisors of Fire Fighting & Prevention Workers	290	351	62	21.3%	26	\$51.73
Milling & Planing Machine Setters, Operators, & Tenders, Metal & Plastic	270	222	(48)	(17.9%)	26	\$18.07
Insurance Appraisers, Auto Damage	333	259	(73)	(22.0%)	25	\$25.34
Environmental Engineers	289	308	20	6.8%	25	\$47.47
Broadcast Announcers & Radio Disc Jockeys	239	188	(52)	(21.6%)	25	\$20.02
Optometrists	537	606	70	12.9%	24	\$60.09
Rolling Machine Setters, Operators, & Tenders, Metal & Plastic	268	236	(31)	(11.6%)	24	\$20.92
Captains, Mates, & Pilots of Water Vessels	241	249	8	3.3%	24	\$30.21
Welding, Soldering, & Brazing Machine Setters, Operators, & Tenders	221	209	(12)	(5.3%)	24	\$16.12
Rail-Track Laying & Maintenance Equipment Operators	218	223	5	2.1%	24	\$25.55
Continuous Mining Machine Operators	172	184	12	7.2%	24	\$27.58
Drafters, All Other	206	217	10	5.0%	23	\$20.63
Lighting Technicians & Media & Communication Equipment Workers, All Other	201	212	11	5.5%	23	\$35.40
Gambling Managers	185	201	16	8.6%	23	\$33.65
Sailors & Marine Oilers	171	182	11	6.5%	23	\$25.38
Metal Workers & Plastic Workers, All Other	220	197	(22)	(10.2%)	22	\$15.57
Commercial & Industrial Designers	197	210	13	6.8%	22	\$28.50

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Textile, Apparel, & Furnishings Workers, All Other	158	157	(1)	(0.6%)	22	\$16.52
Pesticide Handlers, Sprayers, & Applicators, Vegetation	144	161	17	12.0%	22	\$15.79
Aerospace Engineers	266	295	29	11.0%	21	\$51.09
Natural Sciences Managers	219	229	10	4.4%	21	\$71.31
Coil Winders, Tapers, & Finishers	200	163	(37)	(18.5%)	21	\$17.74
Brokerage Clerks	191	199	8	4.0%	21	\$25.54
Riggers	187	204	17	8.9%	21	\$26.31
Furniture Finishers	169	176	7	3.9%	21	\$14.14
Shampooers	136	169	33	24.3%	21	\$9.22
Magnetic Resonance Imaging Technologists	262	308	46	17.7%	20	\$44.18
Credit Analysts	200	211	11	5.5%	20	\$35.04
Subway & Streetcar Operators	176	188	12	6.9%	20	\$34.59
New Accounts Clerks	173	173	0	0.0%	20	\$18.64
Helpers--Painters, Paperhangers, Plasterers, & Stucco Masons	126	143	16	13.1%	20	\$17.52
Wind Turbine Service Technicians	121	165	44	36.3%	20	\$30.71
Conveyor Operators & Tenders	120	154	34	28.1%	20	\$17.89
Gambling & Sports Book Writers & Runners	115	125	10	8.6%	20	\$15.30
Electrical & Electronics Repairers, Powerhouse, Substation, & Relay	193	205	12	6.2%	19	\$47.55
Animal Control Workers	177	194	17	9.6%	19	\$25.06
Special Education Teachers, Preschool	172	216	44	25.4%	19	\$20.05
Metal-Refining Furnace Operators & Tenders	163	158	(5)	(3.3%)	19	\$17.23
Photographic Process Workers & Processing Machine Operators	130	111	(19)	(14.5%)	19	\$17.88
Roustabouts, Oil & Gas	127	137	11	8.6%	19	\$12.92
Passenger Attendants	112	134	22	20.0%	19	\$15.40
Cleaning, Washing, & Metal Pickling Equipment Operators & Tenders	107	117	9	8.8%	19	\$14.50
Air Traffic Controllers	175	186	11	6.3%	18	\$49.30
Precision Instrument & Equipment Repairers, All Other	162	164	2	1.1%	18	\$33.38
Soil & Plant Scientists	160	158	(2)	(1.2%)	18	\$34.10
Camera Operators, Television, Video, & Film	157	169	12	7.6%	18	\$24.64
Nurse Anesthetists	224	274	50	22.3%	17	\$105.89

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Insurance Underwriters	190	194	4	2.2%	17	\$32.04
Electric Motor, Power Tool, & Related Repairers	147	158	11	7.8%	17	\$24.33
Audiovisual Equipment Installers & Repairers	145	141	(4)	(2.6%)	17	\$20.68
Prepress Technicians & Workers	143	135	(8)	(5.7%)	17	\$18.09
Archivists	141	148	7	5.1%	17	\$33.22
Millwrights	139	177	37	26.6%	17	\$35.76
Social Science Research Assistants	129	141	11	8.9%	17	\$25.79
Physical Scientists, All Other	162	177	15	9.4%	16	\$45.75
Statisticians	135	177	42	30.9%	16	\$40.93
Food Scientists & Technologists	128	142	14	10.8%	16	\$31.44
Agents & Business Managers of Artists, Performers, & Athletes	124	134	10	8.1%	16	\$25.70
Advertising & Promotions Managers	117	149	32	27.7%	16	\$39.35
Career/Technical Education Teachers, Secondary School	115	170	56	48.8%	16	\$33.76
Pump Operators, Except Wellhead Pumpers	102	122	20	20.0%	16	\$23.26
Psychiatrists	358	403	44	12.3%	15	\$140.39
Career/Technical Education Teachers, Middle School	167	183	16	9.5%	15	\$23.16
Electrical & Electronics Installers & Repairers, Transportation Equipment	159	166	7	4.4%	15	\$28.63
Mechanical Engineering Technologists & Technicians	127	141	14	11.0%	15	\$21.19
Geoscientists, Except Hydrologists & Geographers	126	137	11	8.6%	15	\$31.74
Artists & Related Workers, All Other	126	132	7	5.3%	15	\$22.52
Boilermakers	122	137	15	12.3%	15	\$31.90
Communications Equipment Operators, All Other	113	116	3	2.4%	15	\$26.00
Morticians, Undertakers, & Funeral Arrangers	94	113	19	20.4%	15	\$29.50
Logging Equipment Operators	84	92	9	10.2%	15	\$35.77
Models	75	85	11	14.5%	15	\$20.32
Power Distributors & Dispatchers	165	138	(27)	(16.1%)	14	\$46.12
Railroad Brake, Signal, & Switch Operators & Locomotive Firers	152	148	(4)	(2.6%)	14	\$23.46
Semiconductor Processing Technicians	115	106	(10)	(8.3%)	14	\$19.36
Fabric & Apparel Patternmakers	109	101	(8)	(7.4%)	14	\$18.91
Statistical Assistants	97	107	10	9.9%	14	\$20.06

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Gambling Surveillance Officers & Gambling Investigators	97	107	10	10.4%	14	\$17.50
Helpers--Extraction Workers	95	102	7	6.9%	14	\$16.60
Ophthalmic Medical Technicians	89	138	49	54.6%	14	\$17.23
Costume Attendants	62	59	(3)	(4.6%)	14	\$18.45
Chiropractors	409	405	(3)	(0.8%)	13	\$41.26
Recreational Therapists	184	214	31	16.6%	13	\$41.30
Computer Hardware Engineers	154	166	12	7.7%	13	\$54.02
Microbiologists	137	134	(3)	(2.3%)	13	\$47.57
Athletic Trainers	134	178	44	33.1%	13	\$27.71
Credit Authorizers, Checkers, & Clerks	117	120	3	2.2%	13	\$18.82
Signal & Track Switch Repairers	117	117	0	0.0%	13	\$38.57
Sound Engineering Technicians	106	112	5	4.9%	13	\$30.50
News Analysts, Reporters, & Journalists	94	102	8	8.2%	13	\$21.54
Adhesive Bonding Machine Operators & Tenders	93	92	(1)	(0.7%)	13	\$16.08
Tool Grinders, Filers, & Sharpeners	89	90	1	1.2%	13	\$16.67
Surgeons, Except Ophthalmologists	409	403	(6)	(1.4%)	12	\$107.96
Chemical Engineers	183	184	1	0.6%	12	\$31.31
Drilling & Boring Machine Tool Setters, Operators, & Tenders, Metal & Plastic	123	106	(17)	(13.5%)	12	\$17.07
Airfield Operations Specialists	116	126	11	9.2%	12	\$24.60
Furnace, Kiln, Oven, Drier, & Kettle Operators & Tenders	109	108	(2)	(1.5%)	12	\$21.03
Paperhangers	107	111	4	3.3%	12	\$35.65
Radio, Cellular, & Tower Equipment Installers & Repairs	93	105	12	12.5%	12	\$26.11
Fashion Designers	91	107	16	17.8%	12	\$25.74
Fishing & Hunting Workers	68	72	3	4.7%	12	\$19.13
Entertainment Attendants & Related Workers, All Other	47	50	3	6.2%	12	\$12.73
Nuclear Medicine Technologists	142	163	21	14.7%	11	\$48.14
Occupational Health & Safety Technicians	137	164	28	20.2%	11	\$28.13
Orthotists & Prosthetists	123	145	21	17.3%	11	\$39.08
Health & Safety Engineers, Except Mining Safety Engineers & Inspectors	123	140	18	14.4%	11	\$55.98
Financial Examiners	118	134	16	13.6%	11	\$37.01
Cartographers & Photogrammetrists	113	133	20	18.0%	11	\$29.81



SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Broadcast Technicians	105	101	(4)	(4.0%)	11	\$29.29
Foresters	96	102	6	6.7%	11	\$32.79
Farm Equipment Mechanics & Service Technicians	90	104	15	16.4%	11	\$22.04
Museum Technicians & Conservators	87	95	8	9.7%	11	\$22.14
Petroleum Pump System Operators, Refinery Operators, & Gaugers	84	91	8	9.1%	11	\$29.41
Medical Appliance Technicians	78	83	5	6.9%	11	\$21.13
Tank Car, Truck, & Ship Loaders	66	82	17	25.4%	11	\$18.24
Judicial Law Clerks	174	194	21	12.0%	10	\$34.02
Nurse Midwives	133	159	26	19.9%	10	\$75.96
Economists	125	127	2	1.3%	10	\$47.56
Computer & Information Research Scientists	103	117	14	13.9%	10	\$53.70
Heat Treating Equipment Setters, Operators, & Tenders, Metal & Plastic	100	94	(6)	(6.0%)	10	\$17.44
Musical Instrument Repairers & Tuners	92	97	5	5.8%	10	\$16.32
Zoologists & Wildlife Biologists	88	98	10	11.2%	10	\$35.64
Conservation Scientists	84	95	11	13.5%	10	\$39.38
Textile Bleaching & Dyeing Machine Operators & Tenders	82	62	(20)	(24.2%)	10	\$16.79
Ship Engineers	81	82	1	0.9%	10	\$37.50
Historians	75	80	6	7.5%	10	\$35.47
Forest Fire Inspectors & Prevention Specialists	74	93	18	24.7%	10	\$34.77
Service Unit Operators, Oil & Gas	69	71	3	3.7%	10	\$43.79
Ambulance Drivers & Attendants, Except Emergency Medical Technicians	49	65	16	33.5%	10	\$14.27
General Internal Medicine Physicians	234	250	15	6.5%	9	\$117.44
Podiatrists	130	140	10	7.4%	9	\$53.21
Emergency Management Directors	97	106	9	9.0%	9	\$46.09
Textile Cutting Machine Setters, Operators, & Tenders	96	87	(8)	(8.5%)	9	\$14.39
Watch & Clock Repairers	88	76	(12)	(13.3%)	9	\$16.81
Data Scientists & Mathematical Science Occupations, All Other	82	98	16	19.6%	9	\$42.36
Gas Plant Operators	72	71	(1)	(1.3%)	9	\$49.49
Proofreaders & Copy Markers	65	68	3	5.0%	9	\$19.25
Occupational Therapy Aides	54	73	19	34.9%	9	\$17.00

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Choreographers	45	49	4	8.4%	9	\$24.98
Parking Enforcement Workers	125	92	(33)	(26.1%)	8	\$26.14
Judges, Magistrate Judges, & Magistrates	116	139	23	19.7%	8	\$95.77
Sociologists	72	71	(0)	0.0%	8	\$48.02
Pourers & Casters, Metal	70	57	(13)	(18.0%)	8	\$21.54
Chemical Plant & System Operators	69	66	(3)	(4.0%)	8	\$21.58
Fire Inspectors & Investigators	66	80	13	20.0%	8	\$35.69
Curators	61	67	6	10.4%	8	\$29.21
Underground Mining Machine Operators & Extraction Workers, All Other	54	60	6	11.1%	8	\$26.56
Rotary Drill Operators, Oil & Gas	49	52	4	7.5%	8	\$24.75
Embalmers	43	47	4	9.7%	8	\$26.18
Administrative Law Judges, Adjudicators, & Hearing Officers	104	116	12	11.7%	7	\$69.27
Radiation Therapists	90	113	23	26.0%	7	\$55.37
Textile Knitting & Weaving Machine Setters, Operators, & Tenders	70	62	(8)	(11.1%)	7	\$12.22
Terrazzo Workers & Finishers	61	66	5	8.0%	7	\$26.24
Engine & Other Machine Assemblers	58	55	(3)	(5.9%)	7	\$16.65
Telephone Operators	57	51	(6)	(11.4%)	7	\$19.51
Political Scientists	54	57	3	4.7%	7	\$20.99
Rock Splitters, Quarry	40	48	8	19.2%	7	\$21.18
Flight Attendants	34	44	11	31.8%	7	\$24.85
Obstetricians & Gynecologists	173	180	7	4.2%	6	\$251.97
Pediatricians, General	138	151	13	9.3%	6	\$117.92
Postmasters & Mail Superintendents	90	72	(18)	(19.7%)	6	\$40.91
Audiologists	73	98	24	33.1%	6	\$45.07
Materials Engineers	72	79	7	9.7%	6	\$41.22
Transit & Railroad Police	67	74	6	9.5%	6	\$28.16
Rail Yard Engineers, Dinkey Operators, & Hostlers	56	57	1	2.0%	6	\$20.78
Traffic Technicians	52	59	7	12.7%	6	\$41.23
Anthropologists & Archeologists	52	52	0	0.0%	6	\$32.54
Electronic Equipment Installers & Repairers, Motor Vehicles	52	48	(4)	(7.8%)	6	\$21.76

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Textile Winding, Twisting, & Drawing Out Machine Setters, Operators, & Tenders	52	47	(6)	(10.6%)	6	\$14.17
Hearing Aid Specialists	50	68	18	35.7%	6	\$24.78
Electro-Mechanical & Mechatronics Technologists & Technicians	48	54	6	12.2%	6	\$32.75
Cutters & Trimmers, Hand	48	45	(3)	(5.7%)	6	\$17.04
Epidemiologists	47	56	9	18.6%	6	\$29.47
Etchers & Engravers	42	51	8	19.6%	6	\$15.31
Helpers--Roofers	32	42	10	31.6%	6	\$18.18
Orthodontists	95	104	9	9.9%	5	\$97.48
Marine Engineers & Naval Architects	64	71	7	11.1%	5	\$48.45
Life Scientists, All Other	61	59	(1)	(2.5%)	5	\$35.12
Floor Sanders & Finishers	50	42	(7)	(14.4%)	5	\$17.51
Compensation & Benefits Managers	48	52	4	8.7%	5	\$58.34
Biochemists & Biophysicists	48	48	0	0.0%	5	\$67.62
Bicycle Repairers	46	47	1	1.7%	5	\$14.91
Layout Workers, Metal & Plastic	45	47	2	4.4%	5	\$20.37
Bailiffs	39	52	13	32.2%	5	\$28.86
Hoist & Winch Operators	35	42	6	18.4%	5	\$55.91
Fallers	30	31	1	4.7%	5	\$24.66
Anesthesiologists	103	107	4	4.0%	4	\$261.31
Nuclear Engineers	64	65	0	0.0%	4	\$64.29
Arbitrators, Mediators, & Conciliators	49	59	10	20.4%	4	\$37.89
Bioengineers & Biomedical Engineers	48	49	2	3.6%	4	\$34.65
Atmospheric & Space Scientists	43	44	1	2.4%	4	\$58.07
Physicists	37	42	5	13.2%	4	\$52.16
Desktop Publishers	37	35	(3)	(7.2%)	4	\$20.79
Hydrologists	36	39	2	6.8%	4	\$53.06
Bridge & Lock Tenders	36	38	2	5.5%	4	\$21.80
Rail Transportation Workers, All Other	36	35	(1)	(1.8%)	4	\$37.16
Farm & Home Management Educators	35	40	6	16.5%	4	\$24.06
Mining & Geological Engineers, Including Mining Safety Engineers	33	38	5	15.4%	4	\$48.62
Survey Researchers	33	33	0	0.0%	4	\$25.01
Pile Driver Operators	32	35	4	12.4%	4	\$39.60

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Aircraft Cargo Handling Supervisors	25	33	8	33.8%	4	\$20.17
Log Graders & Scalers	21	23	2	8.2%	4	\$12.67
Dentists, All Other Specialists	71	78	7	9.3%	3	\$68.28
Oral & Maxillofacial Surgeons	71	77	6	8.7%	3	\$96.80
Petroleum Engineers	37	39	2	6.0%	3	\$70.55
Manufactured Building & Mobile Home Installers	35	32	(3)	(8.8%)	3	\$20.04
Motorboat Operators	31	31	0	0.0%	3	\$23.26
Camera & Photographic Equipment Repairers	26	27	1	3.2%	3	\$18.84
Foundry Mold & Coremakers	19	24	6	30.4%	3	\$15.16
Aerospace Engineering & Operations Technologists & Technicians	16	22	6	39.8%	3	\$30.77
Commercial Divers	15	22	7	45.3%	3	\$23.12
Aircraft Structure, Surfaces, Rigging, & Systems Assemblers	14	25	10	71.7%	3	\$16.72
Motion Picture Projectionists	9	16	7	82.5%	3	\$18.43
Model Makers, Metal & Plastic	22	18	(4)	(19.1%)	2	\$23.92
Genetic Counselors	21	28	7	32.6%	2	\$45.26
Actuaries	21	27	6	27.1%	2	\$48.55
Tire Builders	18	20	2	12.8%	2	\$14.59
Patternmakers, Metal & Plastic	18	15	(4)	(19.3%)	2	\$22.71
Makeup Artists, Theatrical & Performance	17	20	3	15.3%	2	\$36.21
Model Makers, Wood	17	17	0	0.0%	2	\$25.62
Mathematicians	16	18	3	17.4%	2	\$33.46
Geological & Hydrologic Technicians	15	20	5	33.5%	2	\$24.41
Correspondence Clerks	15	17	2	12.6%	2	\$19.62
Animal Breeders	15	15	0	0.0%	2	\$19.67
Fish & Game Wardens	14	19	5	35.9%	2	\$32.30
Shoe Machine Operators & Tenders	14	13	(1)	(5.7%)	2	\$13.78
Nuclear Technicians	14	12	(1)	(9.6%)	2	\$47.94
Gas Compressor & Gas Pumping Station Operators	13	14	1	5.9%	2	\$24.78
Funeral Home Managers	12	20	8	63.0%	2	\$20.89
Cooks, Private Household	12	13	1	9.6%	2	\$19.25
Materials Scientists	14	15	0	0.0%	1	\$48.16

SOC TITLE	2020 JOBS	2030 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Patternmakers, Wood	10	10	0	0.0%	1	\$26.44
Industrial-Organizational Psychologists	10	9	(1)	(14.5%)	1	\$51.74
Wellhead Pumpers	9	9	0	0.0%	1	\$23.95
Nuclear Power Reactor Operators	9	8	(0)	0.0%	1	\$44.54
Logging Workers, All Other	9	8	(1)	(15.1%)	1	\$22.85
Dredge Operators	9	7	(3)	(28.0%)	1	\$26.58
Geographers	8	9	1	10.6%	1	\$41.19
Animal Scientists	4	5	0	0.0%	1	\$25.80
Prosthodontists	7	7	0	0.0%	0	\$89.80
Astronomers	4	4	0	0.0%	0	\$72.09
Agricultural Engineers	4	4	0	0.0%	0	\$35.69
Timing Device Assemblers & Adjusters	3	4	0	0.0%	0	\$12.45
Refractory Materials Repairers, Except Brickmasons	3	3	0	0.0%	0	\$24.29
Roof Bolters, Mining	2	2	0	0.0%	0	\$48.68
Loading & Moving Machine Operators, Underground Mining	1	2	1	38.7%	0	\$29.24
Derrick Operators, Oil & Gas	1	1	0	0.0%	0	\$22.60
Farm Labor Contractors	0	0	0	0.0%	0	\$26.80

Source: Employees & Self-Employed 2020.3.

## APPENDIX 7: Living Wage

As shown in the following tables, the living wage is the hourly rate that an individual must earn to support his or her family as a sole income provider working full-time or 2,080 hours annually. Part-time is defined as less than 35 hours per week of work. State minimum wage rates are the same for all individuals, regardless of the number of dependents in the household. Values are reported per adult in the household. The poverty rate is typically reported as gross annual income and has been adjusted to an hourly wage rate.

Table A8.1: Living Wage Calculations for the SBCCD Service Region

ADULTS IN HOUSEHOLD	CHILDREN IN HOUSEHOLD	LIVING WAGE	POVERTY WAGE	MINIMUM WAGE
One adult	No children	\$12.39	\$5.84	\$12.00
	One child	\$26.94	\$7.91	\$12.00
	Two children	\$32.73	\$9.99	\$12.00
	Three children	\$42.42	\$12.07	\$12.00
Two adults, one working	No children	\$20.14	\$7.91	\$12.00
	One child	\$24.58	\$9.99	\$12.00
	Two children	\$27.39	\$12.07	\$12.00
	Three children	\$31.80	\$14.14	\$12.00
Two adults	No children	\$10.07	\$3.96	\$12.00
	One child	\$14.75	\$5.00	\$12.00
	Two children	\$17.84	\$6.03	\$12.00
	Three children	\$21.73	\$7.07	\$12.00

Source: Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology, <http://livingwage.mit.edu>. Minimum wage provided by the U.S. Department of Labor.

Table A8.2: Living Wage Calculations for the State

ADULTS IN HOUSEHOLD	CHILDREN IN HOUSEHOLD	LIVING WAGE	POVERTY WAGE	MINIMUM WAGE
One adult	No children	\$14.61	\$5.84	\$12.00
	One child	\$30.23	\$7.91	\$12.00
	Two children	\$36.02	\$9.99	\$12.00
	Three children	\$46.83	\$12.07	\$12.00
Two adults, one working	No children	\$22.61	\$7.91	\$12.00
	One child	\$27.87	\$9.99	\$12.00
	Two children	\$30.68	\$12.07	\$12.00
	Three children	\$36.22	\$14.14	\$12.00
Two adults	No children	\$11.30	\$3.96	\$12.00
	One child	\$16.39	\$5.00	\$12.00
	Two children	\$19.48	\$6.03	\$12.00
	Three children	\$23.94	\$7.07	\$12.00

Source: Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology, <http://livingwage.mit.edu>. Minimum wage provided by the U.S. Department of Labor.