

*South Central Valley/  
Southern Mother Lode*

# Subregional Labor Market Overview

2023

Prepared by the Central Valley/Mother Lode Center of Excellence

POWERED BY



California  
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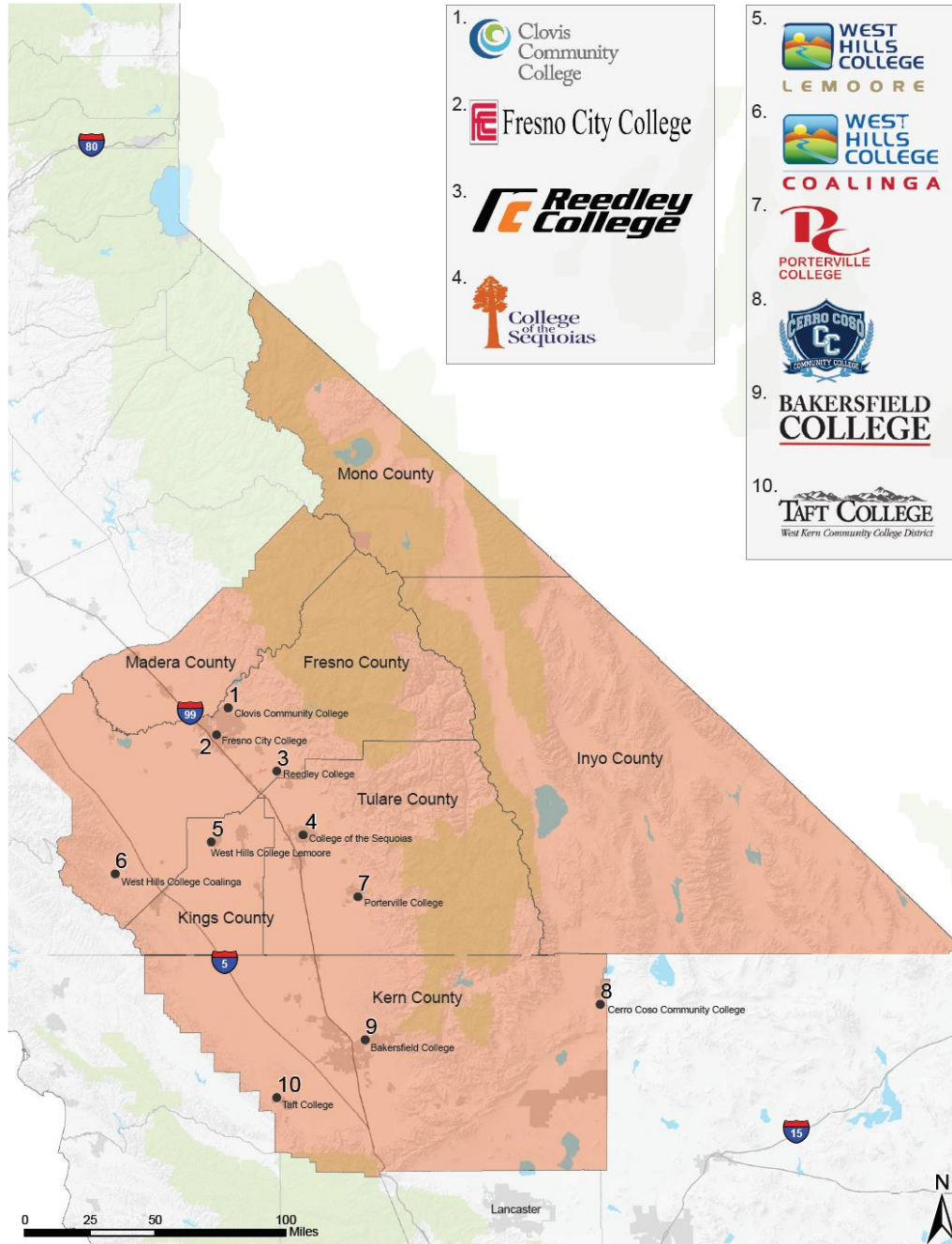


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LABOR MARKET OVERVIEW: SOUTH CENTRAL VALLEY/SOUTHERN MOTHER LODE SUBREGION



# EXECUTIVE SUMMARY

The Central Valley/Mother Lode Center of Excellence has updated its annual report on 10 sectors critical to the South Central Valley/Southern Mother Lode (SCV/SML) subregion's economic vitality. This report examines where future job growth is expected to occur and estimates workforce gaps, i.e., potential shortages of workers to fill middle-skill jobs (occupations requiring some education or training beyond a high school diploma, but less than a bachelor's degree) in each of the 10 sectors. The report examines subregional demographics and educational attainment, and for each sector identifies workforce demographic patterns and promising middle-skill occupations along with their projected demand and wages. For each sector, top job titles, certifications, and specialized skills are also highlighted.

In the subregion, the population is expected to add 69,286 new residents, totaling nearly 2.8 million by 2027.

Within the SCV/SML subregion, the 10 sectors are expected to offer nearly 80,327 job openings annually.

A large proportion of middle-skill job openings are expected in the health sector, which will have 20,580 annual openings, and business and entrepreneurship sector, which will have 13,709 annual openings in the subregion. The energy, construction, and utilities sector is expected to offer 7,970 annual openings.

Strategic planning is imperative for these sectors because they lead the subregion in terms of labor market demand. A comparison of community college supply and projected workforce demand shows that these sectors also have the largest supply gaps in the subregion, a collective shortage of 36,279 workers.

## **Additional key findings**

On average each year, community colleges in the region confer 12,407 awards in areas related to the 10 sectors. The greatest number of awards are in health care, 3,518, followed by education, 1,755, and business and entrepreneurship, 1,731.

In addition to sectors with the largest shortage of workers, future planning efforts by the community colleges may take into consideration occupations with the most annual openings in the SCV/SML subregion:

- Heavy and tractor-trailer truck drivers, 3,424 annual openings (advanced transportation and logistics)
- Office clerks, general, 3,282 annual openings (ICT/digital media)
- Teaching assistants, except postsecondary, 1,953 annual openings (education)
- First-line supervisors of food preparation and serving workers, 1,796 annual openings (retail, hospitality & tourism)

# INTRODUCTION

The Central Valley/Mother Lode Center of Excellence conducted a labor market analysis focusing on the two subregions comprising the larger Central Valley/Mother Lode region. This report focuses on the South Central Valley/Southern Mother Lode (SCV/SML) subregion. (A second report focuses on the North Central Valley/Northern Mother Lode subregion.) The community colleges in the SCV/SML subregion are shown at the beginning of this report.

The first half of the report addresses regional population characteristics and the labor force. Analysis of Strong Workforce Program metrics are provided for the subregion, region, and state in the Career Education Outcomes section.

A comparison of the number of postsecondary awards (degrees and certificates) with workforce demand (annual openings) by sector is presented in the Gap Analysis section. This section is intended to help community college leadership assess which workforce areas may be undersupplied in the subregion.

Last, a deep-dive analysis was conducted into the subregion's primary 10 sectors as defined by the California Community Colleges Chancellor's Office (CCCCO). For each sector, the CVML COE highlights:

- The top occupations, their current employment, projected demand, and median wages
- The composition of the sector's workforce in terms of gender and race/ethnicity
- Top job titles, specialized skills, and certifications in job postings

Please note, for the purpose of this report, a sector represents a cluster or grouping of occupations, comprising a segment of one or multiple industries.

For each individual sector analysis, the CVML COE identifies the top 15 or fewer occupations that are both in high demand and that pay a strong median wage. This approach was conducted because by offering training programs that are tailored to job opportunities in occupations that have a solid foundation in terms of employment outlook and earnings, community colleges can prepare students to access promising career pathways.

## CCCCO Sectors

- Advanced Manufacturing
- Advanced Transportation & Logistics
- Agriculture, Water & Environmental Technologies
- Business & Entrepreneurship
- Education
- Energy, Construction & Utilities
- Health
- ICT/Digital Media
- Public Safety
- Retail, Hospitality & Tourism

# METHODOLOGY

Quantitative data collection and analysis were conducted for this report. Labor market data, particularly secondary data related to workforce demand and occupational employment, informed the report's findings and is derived from the labor market analytics firm Lightcast.

The North American Industry Classification System (NAICS) and the Standard Occupational Classification (SOC) System were used to source data. Occupational projections include annual openings. Replacements can be determined by subtracting annual openings from overall job change. If the change is negative, then all the annual openings are replacements. Appendix A shows annual job openings and median hourly wages for below-middle-skill occupations.

Workforce demographics, such as gender and race/ethnicity composition by sector, are also sourced from Lightcast for each sector profile.<sup>1</sup> The data analysis of race/ethnicity demographics involved calculating percentages of the total for the top 15 occupations within a sector and comparing those percentages with the composition of workers across all sectors. For example, if 46% of workers are white in a sector, but across all sectors 30% of all workers are white, then there is overrepresentation of that demographic. Due to low percentages, the "All Other" category comprises Two or More Races, American Indian/Alaska Native, and Native Hawaiian/Other Pacific Islander.

The average living wage for a single adult in the South Central Valley/Southern Mother Lode (SCV/SML) subregion is \$11.91/hour.<sup>2</sup> Data on top job titles, specialized skills, and certifications is sourced from the job postings aggregator Lightcast for the most commonly occurring occupations among the 15 occupations selected for each sector.

The gap analysis section of this report relies on an evaluation of postsecondary educational supply which counts awards by TOP4 codes from the Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

For more information on data sources and the definition of terms used by this study, please refer to Appendix B.

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<sup>1</sup> Please note: This report uses race and ethnicity data from Lightcast collected by the U.S. Census Bureau through the American Community Survey. This report uses the term Asian American instead of Asian. The race/ethnicity terms in this document, including white, Hispanic, and Black, adhere to the terms and definitions the Census Bureau uses in collecting its data. For definitions, refer to: <https://www.census.gov/topics/population/race/about.html>. Please refer to Appendix B for additional information on definitions.

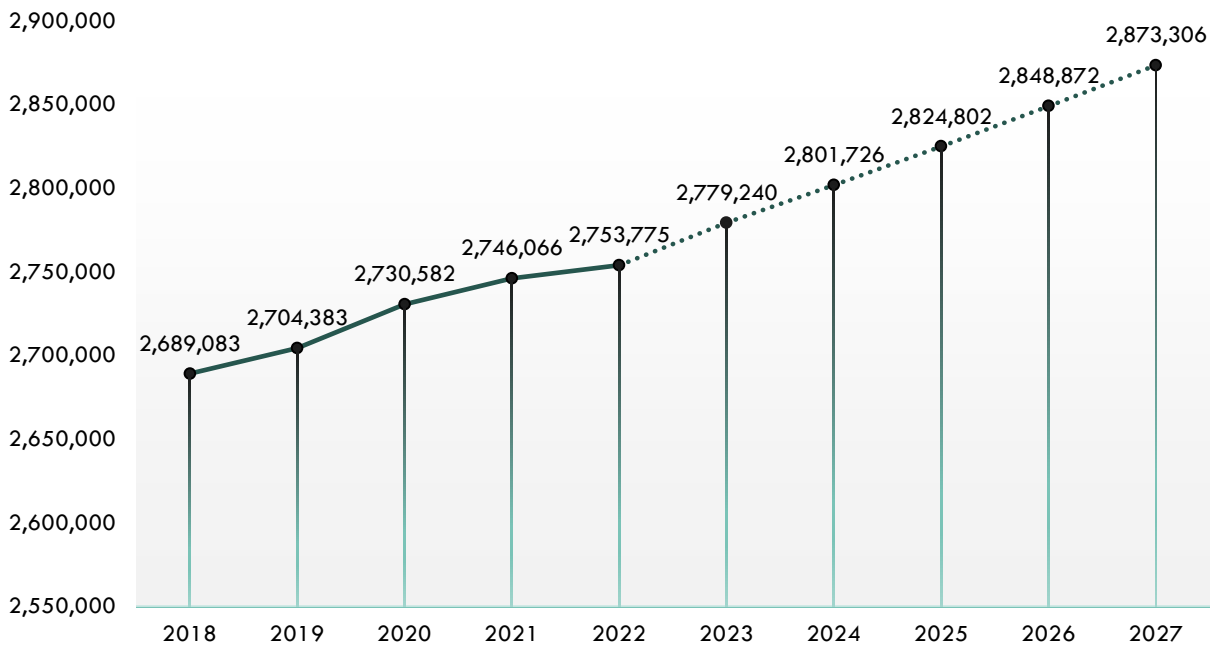
<sup>2</sup> The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: <https://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

# REGIONAL OVERVIEW

## Residential population

According to the latest U.S. Census data, the SCV/SML subregion is home to approximately 2.7 million residents (Exhibit 1). Between 2018 and 2022, the region added 64,692 residents. By 2027, the subregion is projected to add another 94,066 new residents, totaling 2.87 million residents.

**Exhibit 1. Population estimates and projections in the SCV/SML subregion, 2018-2027**



## Population demographics

The SCV/SML subregion’s gender composition is roughly equivalent to the state. The population is almost equally divided between men and women (Exhibit 2).

**Exhibit 2. Gender composition in the SCV/SML subregion**

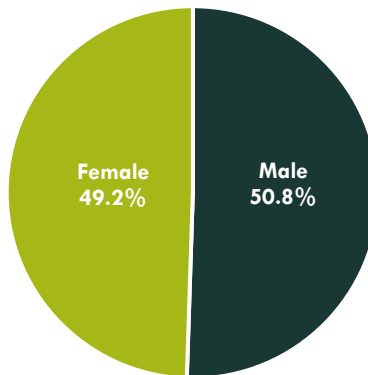


Exhibit 3 shows projected changes in the SCV/SML subregion’s race/ethnicity demographics by 2027. The number of individuals identifying as white, non-Hispanic is expected to decline by 99,803 in the subregion by 2027. The most rapid growth is projected to occur among individuals identifying as two or more races, Hispanic, 29%; Asian, Hispanic, 29%; Black, Hispanic, 24%, and two or more races, Non- Hispanic, 21%. The most substantial population growth by number of residents is projected for:

- White, Hispanic residents, an increase of 206,016 residents
- Asian, non-Hispanic residents, an increase of 31,296 residents
- American Indian or Alaskan Native, Hispanic, an increase of 10,727 residents

**Exhibit 3. Projected changes in race/ethnicity in the SCV/SML subregion**

RACE/ETHNICITY	2018	2027	CHANGE	% CHANGE
White, Hispanic	1,345,008	1,551,024	206,016	15%
White, Non-Hispanic	838,066	738,263	(99,803)	(12%)
Asian, Non-Hispanic	170,723	202,019	31,296	18%
Black, Non-Hispanic	113,756	116,441	2,685	2%
American Indian or Alaskan Native, Hispanic	62,261	72,988	10,727	17%
Two or More Races, Non-Hispanic	49,001	59,487	10,486	21%
Two or More Races, Hispanic	34,210	44,062	9,852	29%
Black, Hispanic	28,991	36,025	7,034	24%
American Indian or Alaskan Native, Non-Hispanic	19,942	19,396	(546)	(3%)
Asian, Hispanic	19,600	25,343	5,743	29%
Native Hawaiian or Pacific Islander, Hispanic	3,962	4,497	535	14%
Native Hawaiian or Pacific Islander, Non-Hispanic	3,563	3,762	199	6%
<b>TOTAL</b>	<b>2,689,083</b>	<b>2,873,306</b>	<b>184,224</b>	<b>7%</b>

For cohorts under age 20, the largest projected increase over the next five years will occur in the 15-19 age cohort, a 10% increase representing the addition of more than 21,900 young adults (Exhibit 4). There is a projected 6% decrease in the 5-9 age cohort, a decline of 13,768 children in the subregion. This decline combined with nearly 4,500 fewer children in the 10-14 age cohort may translate to lower community college enrollments in coming years.



**Exhibit 4. Projected change in age cohorts in the SCV/SML subregion, 2022-2027**

AGE COHORT	2022 POPULATION	2027 POPULATION	CHANGE	% CHANGE	2027 % OF COHORT
Under 5 years	191,756	197,361	5,605	3%	7%
5 to 9 years	214,751	200,983	(13,768)	(6%)	7%
10 to 14 years	229,033	224,550	(4,483)	(2%)	8%
15 to 19 years	214,437	236,359	21,922	10%	8%
20 to 24 years	202,026	222,270	20,244	10%	8%
25 to 29 years	199,808	205,076	5,268	3%	7%
30 to 34 years	208,402	196,940	(11,462)	(5%)	7%
35 to 39 years	192,307	215,647	23,340	12%	8%
40 to 44 years	177,948	195,130	17,182	10%	7%
45 to 49 years	154,325	176,396	22,071	14%	6%
50 to 54 years	147,555	151,370	3,815	3%	5%
55 to 59 years	141,844	143,404	1,560	1%	5%
60 to 64 years	137,303	133,932	(3,371)	(2%)	5%
65 to 69 years	115,280	123,143	7,863	7%	4%
70 to 74 years	90,185	98,723	8,538	9%	3%
75 to 79 years	62,970	71,886	8,916	14%	3%
80 to 84 years	38,647	45,118	6,471	17%	2%
85 years and over	35,198	35,017	(181)	(1%)	1%
<b>TOTAL</b>	<b>2,753,775</b>	<b>2,873,306</b>	<b>119,530</b>	<b>4%</b>	<b>100%</b>

### Educational attainment

Perhaps due to its overall population size, Fresno County leads other counties in a number of educational attainment measures. Fresno County has the largest number of cohort students, 15,853 in the SCV/SML subregion. Moreover, it has the largest number of graduates meeting UC or CSU requirements, 6,115. Fresno County also has the largest number of high school graduates, 13,358. However, Tulare County has a higher graduation rate, 88.4%. Kern County has the largest number of graduates who earned a seal of biliteracy, 1,407, and graduates who earned a golden state seal merit diploma, 4,570 (Exhibit 5).

**Exhibit 5. Cohort graduation rate in the SCV/SML subregion, academic year 2021-22**

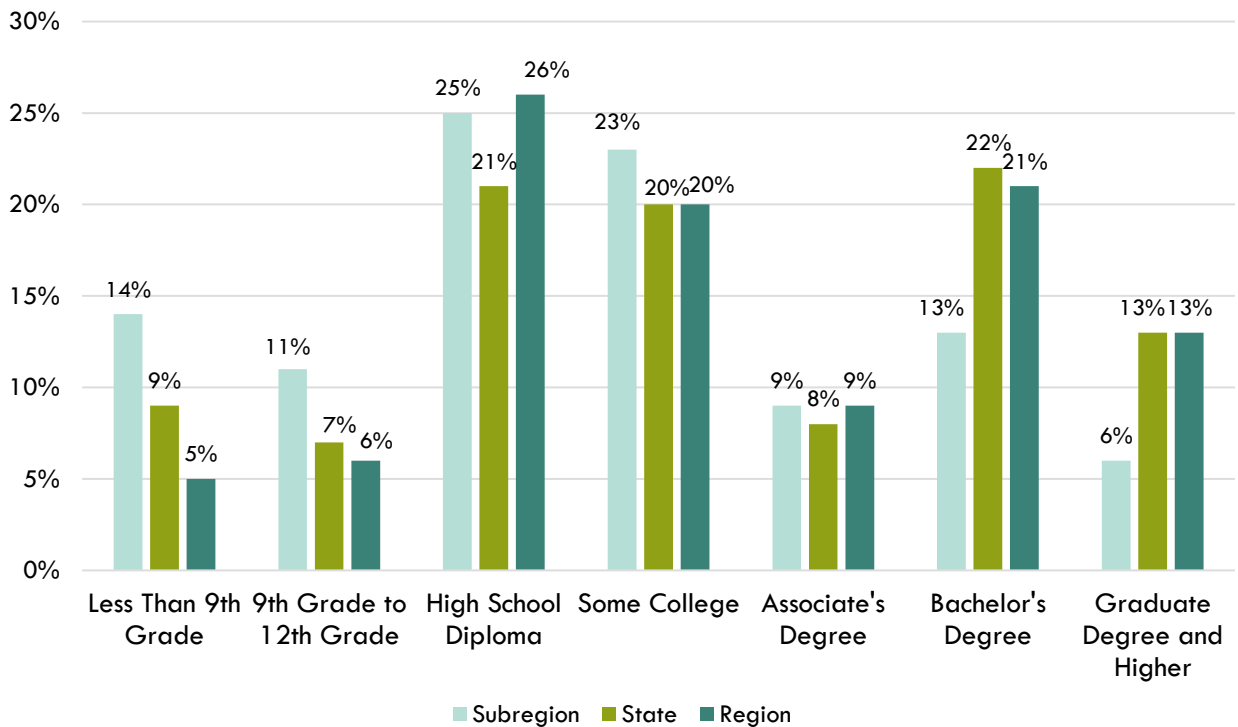
COUNTY	COHORT STUDENTS	REGULAR HIGH SCHOOL DIPLOMA GRADUATES	COHORT GRADUATION RATE	GRADUATES MEETING UC/CSU REQUIREMENTS	GRADUATES EARNING A SEAL OF BILITERACY	GRADUATES EARNING A GOLDEN STATE SEAL MERIT DIPLOMA
Fresno County	15,853	13,358	84.30%	6,115	682	2,320
Inyo County	712	372	52.20%	123	25	35
Kern County	14,573	12,752	87.50%	4,662	1,407	4,570
Kings County	2,314	1,874	81.00%	677	95	520
Madera County	2,182	1,884	86.30%	759	179	312
Mono County	201	114	56.70%	59	44	33
Tulare County	7,667	6,777	88.40%	2,273	678	1,078
<b>Subregional Total</b>	<b>43,502</b>	<b>37,131</b>	<b>85.40%</b>	<b>14,668</b>	<b>3,110</b>	<b>8,868</b>
<b>Statewide Total</b>	<b>500,404</b>	<b>433,028</b>	<b>86.50%</b>	<b>217,908</b>	<b>61,974</b>	<b>111,363</b>

The SCV/SML subregion trails the state in bachelor's degree attainment, with only 13% of the adult population holding a bachelor's degree, compared to 22% in the state (Exhibit 6). Regarding associate degree attainment, the subregion is one percentage point higher than the state, 9%.

A greater proportion of the subregion has completed some college compared to the state. In the subregion, 23% of the population has completed some college, which is greater than the state, 20%. Similarly, the subregion has a higher percentage of the population that has completed a high school diploma, 25%, compared to the state, 21%.

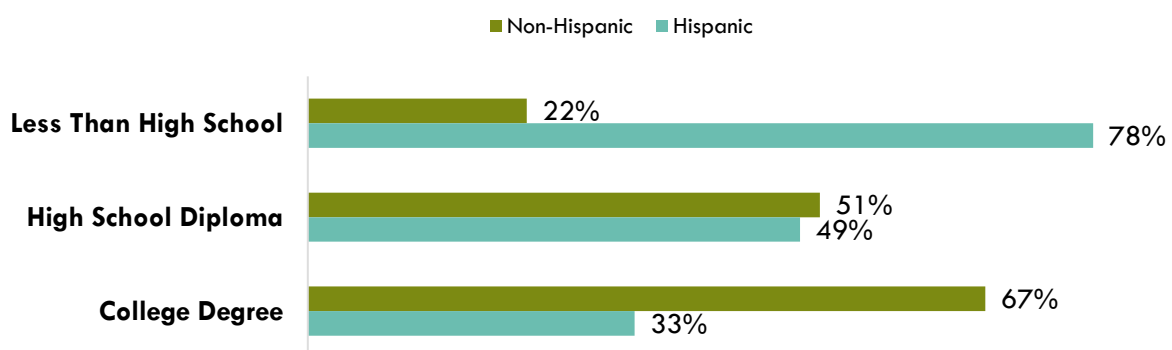
Compared to the state, a higher proportion of residents age 25 and older in the subregion have completed less than a 9<sup>th</sup> grade education and less than a 12<sup>th</sup> grade education, which indicates a greater need for adult education in the region. In the subregion, 14% of residents have less than a 9<sup>th</sup> grade education and 11% have less than a 12<sup>th</sup> grade education, compared to 9% and 7% in the state.

**Exhibit 6. Educational attainment comparison of the SCV/SML subregion, region, and state, 2022**



In the subregion, 67% of the non-Hispanic adult population has completed a college degree, compared to 33% of the Hispanic population (Exhibit 7). A greater proportion of the Hispanic population has less than a high school education. Nearly 80% of the Hispanic population has less than a high school diploma, compared to 22% of the non-Hispanic population.

**Exhibit 7. Hispanic/non-Hispanic educational attainment in the subregion, 2022**



## Labor force & employment

The size and characteristics of a region's labor force are important considerations in workforce planning. Labor force, employment, and unemployment data are based upon "place of residence" – where people live, regardless of where they work. Individuals who have more than one job are counted only once. These data elements differ from industry employment estimates that are "place-of-work" based – where the employer/workplace is located, regardless of where the employee resides. The labor force in the SCV/SML subregion has increased by 18,300 workers over the last five years (Exhibit 8). The unemployment rate has decreased from 8% to 7% during the same period. Employment has increased by nearly 31,400 workers, from 1,076,440 workers in 2018 to 1,107,800 workers in 2022.

### Exhibit 8. Labor force size, employment, and unemployment in the SCV/SML subregion, 2018-2022

METRIC	2018	2022	5-YEAR CHANGE	5-YEAR % CHANGE
Labor Force	1,170,830	1,189,130	18,300	2%
Employment	1,076,440	1,107,800	31,360	3%
Unemployment	94,480	81,430	(13,050)	(14%)
Unemployment Rate	8%	7%	(1%)	(15%)

Since 2018, the labor force in the Central Valley/Mother Lode region has grown by 37,260 workers. Total employment increased by 55,720 workers (Exhibit 9). In 2018, more than 140,000 individuals were unemployed. By 2022, this number had decreased by 18,350, to 124,220 individuals. Because total employment increased more than the labor force, the unemployment rate decreased from 7% in 2018 (compared to 4% statewide) to 6% in 2022 (compared to 4% statewide).

### Exhibit 9. Labor force size, employment, and unemployment in the CVML region, 2018-2022

METRIC	2018	2022	5-YEAR CHANGE	5-YEAR % CHANGE
Labor Force	1,918,460	1,955,720	37,260	1.9%
Employment	1,775,880	1,831,600	55,720	3.1%
Unemployment	142,570	124,220	(18,350)	(12.9%)
Unemployment Rate	7%	6%	(1%)	(14.5%)

At 4%, the state's unemployment rate is lower than the region's and subregion's unemployment rates (Exhibit 10). Over the last five years, the state's labor force has lost 37,500 workers, declining to approximately 19.3 million. The statewide number of unemployed individuals decreased from 819,600 in 2018 to 811,100 in 2022.

### Exhibit 10. Labor force size, employment, and unemployment in California, 2018-2022

METRIC	2018	2022	5-YEAR CHANGE	5-YEAR % CHANGE
Labor Force	19,289,500	19,252,000	(37,500)	(0.2%)
Employment	18,469,900	18,440,900	(29,000)	(0.2%)
Unemployment	819,600	811,100	(8,500)	(1.0%)
Unemployment Rate	4%	4%	0%	0%

# CAREER EDUCATION OUTCOMES

Exhibit 11 summarizes Strong Workforce Program (SWP) outcomes from the California Community Colleges Chancellor Office’s Cal-PASS Plus LaunchBoard for all career education (CE) programs in the subregion, region, and state. At 21%, the percentage of students who earned 9 or more CE units is similar to the region, 21%, and state, 20%. The subregion and state lead the region in the percentage of students who have completed a noncredit CE course or workforce preparation class—70% in the subregion and state compared to 60% in the region.

In the subregion, 5,799 of students received a degree or certificate or attained apprenticeship journey status. Median annual earnings total \$35,264 in the subregion which is slightly more than the region, \$34,822.

The subregion and region are nearly on par with the state in terms of the percentage of students obtaining a job closely related to their field of study. In the subregion, 71% of students attained a living wage, which is above the region, 68%, and the state, 57%.

**Exhibit 11. Comparison of SWP outcomes from LaunchBoard for the SCV/SML subregion, the Central Valley/Mother Lode region, and the state**

Metric	SCV/SML Subregion	CVML Region	State
Strong Workforce Program Students	59,086	91,769	838,713
Students Who Earned 9 or More Career Education Units in the District in a Single Year	21%	21%	20%
Students Who Completed a Noncredit CTE or Workforce Preparation Course	70%	60%	70%
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	5,799	8,794	80,082
Job Closely Related to Field of Study	65%	65%	69%
Median Annual Earnings	\$35,264	\$34,822	\$41,200
Median Change in Earnings	26%	30%	27%
Attained a Living Wage	71%	68%	57%

# GAP ANALYSIS

Annual openings for all middle-skill occupations in the 10 sectors total 80,327. With 12,407 awards (degrees and certificates) conferred on average each year, there is a potential supply gap of 67,920 workers in the SCV/SML subregion (Exhibit 12). The health sector has the most annual openings in the subregion, nearly 20,600, followed by business and entrepreneurship, more than 13,700. Sectors with the fewest annual openings include advanced manufacturing, approximately 3,700, and public safety, about 2,800. Postsecondary institutions in the subregion are conferring the most awards in health (3,518 awards); education (1,755 awards); and business and entrepreneurship (1,731 awards). The sectors with the largest supply gaps are:

- Health, an undersupply of 17,062 workers
- Business & Entrepreneurship, an undersupply of 11,978 workers
- Energy, construction, and utilities, an undersupply of 7,239 workers

While the gap analysis presented in this section reflects the greatest workforce demand by sector in the subregion, there may be localized differences in workforce demand. As a result, the colleges in the subregion are encouraged to evaluate demand by program to reveal local nuances in the labor market in terms of the demand for occupations that fall within career paths within a college's immediate vicinity.

Other localized trends and economic impacts may affect projected workforce demand. Reviewing program recommendation (PR) reports (also known as labor market assessments) prepared by the CVML COE can shed light on this, especially in terms of differences in student outcomes for the same programs that are offered by different colleges. Changes in labor market demand can be due to localized adoption of technological advancements that are changing the types of workers needed and the skill sets sought by employers. (For example, improved efficiencies are impacting the demand for farmers, ranchers and agricultural managers in the region.) However, even when an occupation is projected to shed jobs, there may still be a need for workers due to replacements and retirements. As a result, the colleges are encouraged to examine numbers at the program-level in addition to sector-level since there may be substantial variation among programs within a single sector.

**Exhibit 12. Comparison between workforce demand (annual job openings) and postsecondary supply (average annual awards) for each sector showing gaps in the number of workers to fill openings**

SECTOR	DEMAND (ANNUAL OPENINGS)	SUPPLY (AWARDS)	GAP
Health	20,580	3,518	17,062
Business & Entrepreneurship	13,709	1,731	11,978
Energy, Construction & Utilities	7,970	731	7,239
Retail, Hospitality & Tourism	7,678	937	6,741
Advanced Transportation & Logistics	7,025	1,227	5,798
Agriculture, Water & Environmental Technologies	5,994	821	5,173
Education	5,790	1,755	4,035
ICT/Digital Media	5,017	509	4,508
Advanced Manufacturing	3,728	735	2,993
Public Safety	2,836	443	2,393
<b>TOTAL</b>	<b>80,327</b>	<b>12,407</b>	<b>67,920</b>

# ADVANCED MANUFACTURING

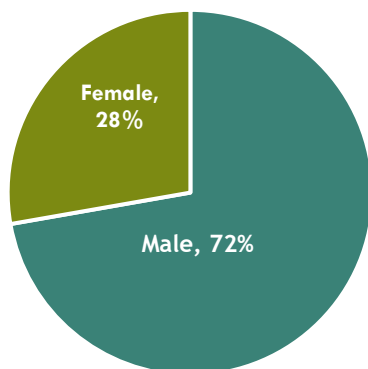
## Summary

- **Gender & race/ethnicity:** Comprising 28% of the workforce, women are underrepresented in this sector. Analysis shows overrepresentation of Hispanic or Latino workers (Exhibits 13 and 14).
- **Employment and projected demand:** The largest middle-skill occupation is packaging and filling machine operators and tenders, which will have 718 annual openings (Exhibit 15).
- **Wages:** The highest paid occupation is industrial production managers, \$49.69/hour median (Exhibit 15).
- **In-demand skills:** The top skill is food safety and sanitation, and the top certification is a Forklift Certification (Exhibits 16 and 17).

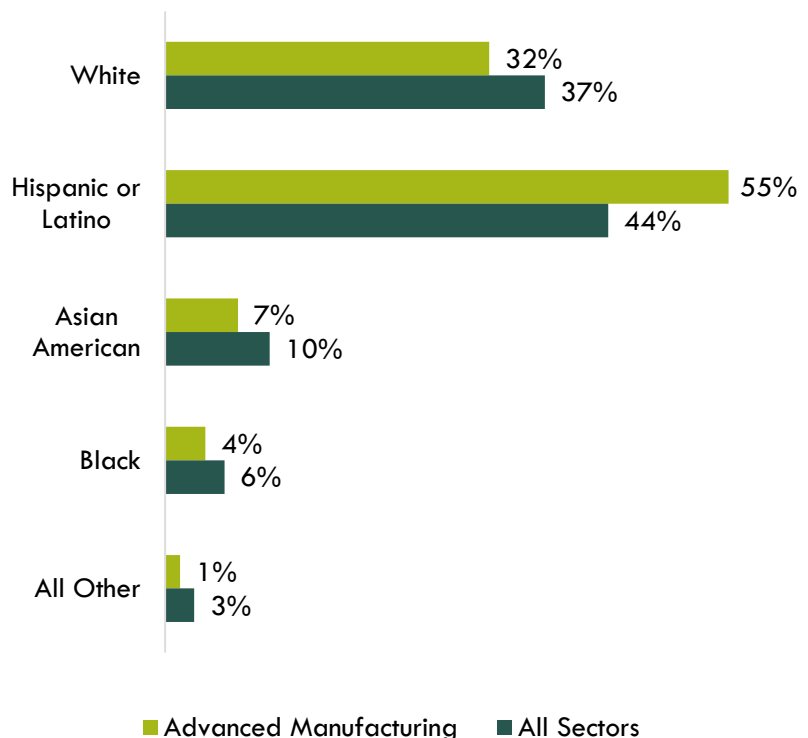
## Top Job Titles

- **Production Supervisors**
- **Maintenance Mechanics**
- **Welders**

**Exhibit 13. Gender composition of the top occupations in the advanced manufacturing workforce**



**Exhibit 14. Race/ethnicity composition of the top occupations in the advanced manufacturing workforce**

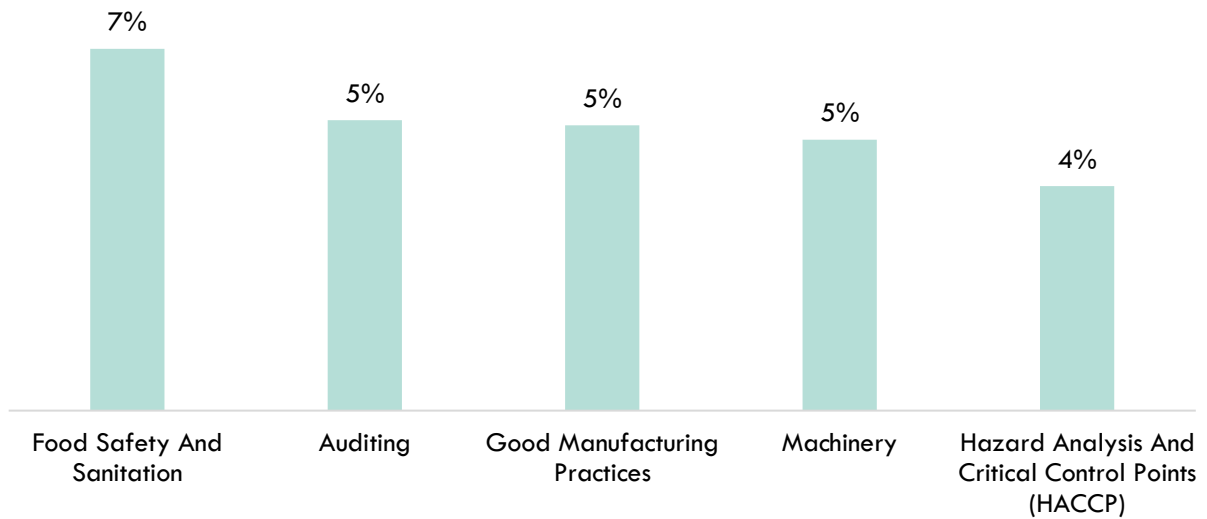


**Exhibit 15. Advanced manufacturing employment, occupational projections, and median wages**

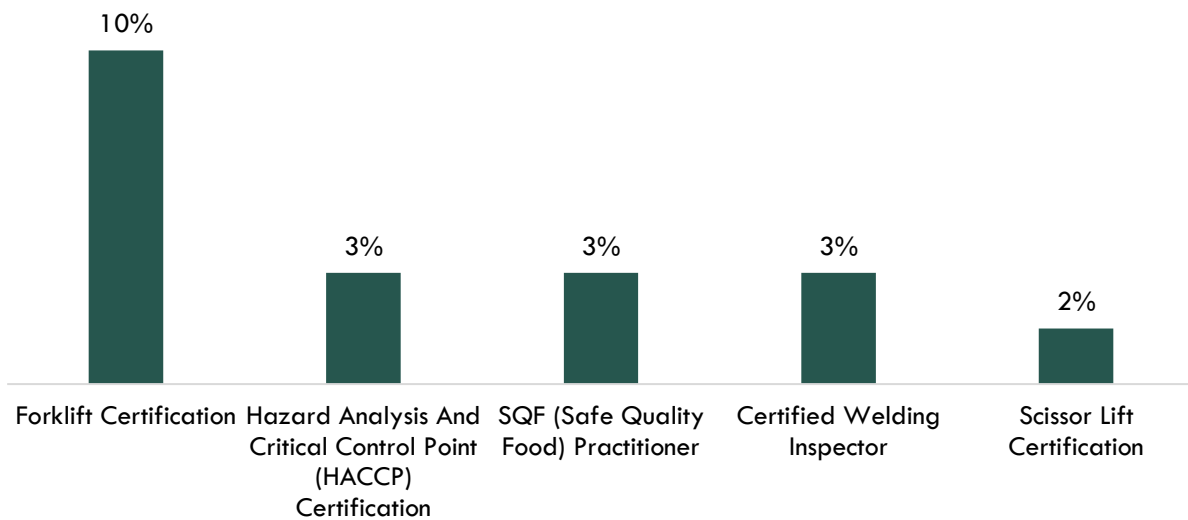
OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Packaging and Filling Machine Operators and Tenders	5,746	5,977	231	4%	718	\$16.71
Inspectors, Testers, Sorters, Samplers, and Weighers	3,443	3,660	218	6%	483	\$17.60
First-Line Supervisors of Production and Operating Workers	3,622	3,868	246	7%	437	\$30.73
Industrial Machinery Mechanics	3,157	3,542	385	12%	368	\$29.28
Welders, Cutters, Solderers, and Brazers	2,735	2,894	159	6%	341	\$23.04
Machinists	1,147	1,218	71	6%	140	\$21.91
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	1,018	1,069	50	5%	120	\$24.02
Mixing and Blending Machine Setters, Operators, and Tenders	849	897	48	6%	108	\$20.28
Industrial Production Managers	1,133	1,215	82	7%	100	\$49.69
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	786	863	77	10%	97	\$19.68
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	689	751	62	9%	95	\$17.48
Stationary Engineers and Boiler Operators	511	537	26	5%	70	\$34.04
Cutting and Slicing Machine Setters, Operators, and Tenders	416	440	24	6%	60	\$19.21
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	480	511	31	6%	57	\$18.56
Printing Press Operators	450	447	(3)	(1%)	51	\$21.15



**Exhibit 16. Top specialized skills in job postings for advanced manufacturing occupations, n=3,014**



**Exhibit 17. Top certifications in job postings for advanced manufacturing occupations, n=344**



# ADVANCED TRANSPORTATION & LOGISTICS

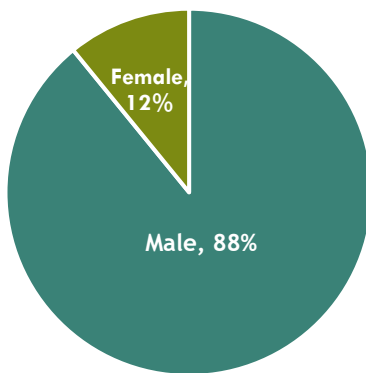
## Summary

- **Gender & race/ethnicity:** Comprising 12% of the workforce, women are underrepresented in this sector. Analysis shows underrepresentation of white workers and overrepresentation of Hispanic or Latino workers (Exhibits 18 and 19).
- **Employment and projected demand:** The largest middle-skill occupation is heavy and tractor-trailer truck drivers, which will have 3,424 annual openings (Exhibit 20).
- **Wages:** The highest paid occupation is airline pilots, copilots, and flight engineers, \$104.42/hour median (Exhibit 20).
- **In-demand skills:** The top skill is warehousing, and the top certification is CDL Class A License (Exhibits 21 and 22).

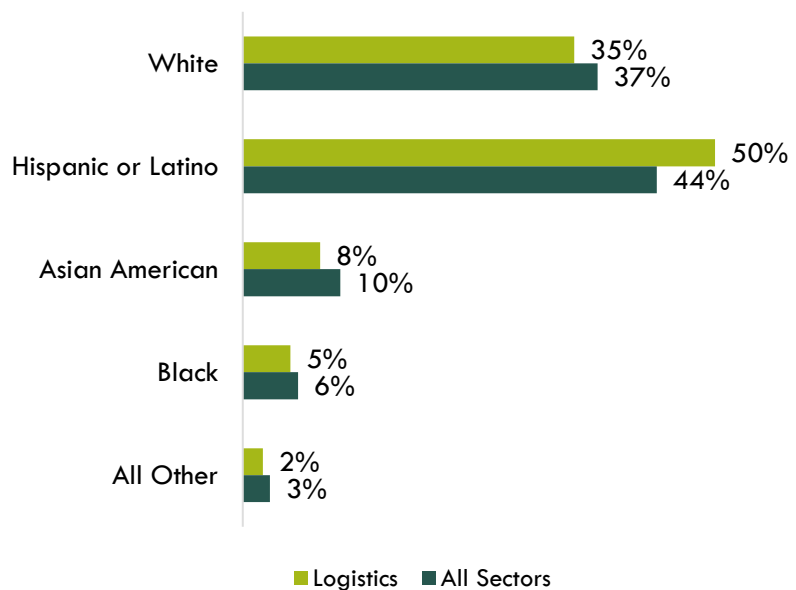
### Top Job Titles

- **CDL-A Truck Drivers**
- **Regional CDL-A Truck Drivers**
- **OTR CDL-A Truck Drivers**

**Exhibit 18. Gender composition of the top occupations in the advanced transportation and logistics workforce**



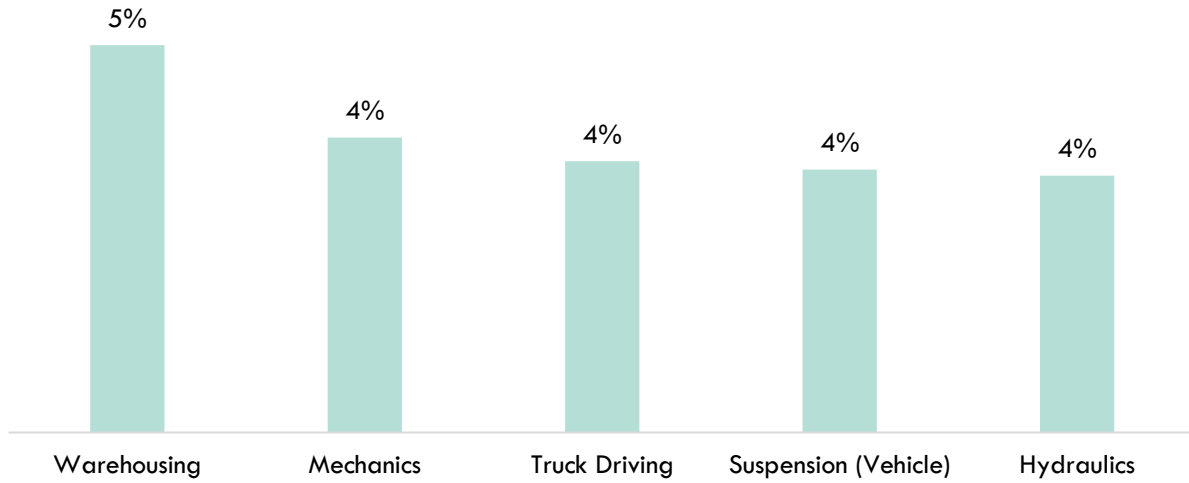
**Exhibit 19. Race/ethnicity composition of the top occupations in the advanced transportation and logistics workforce**



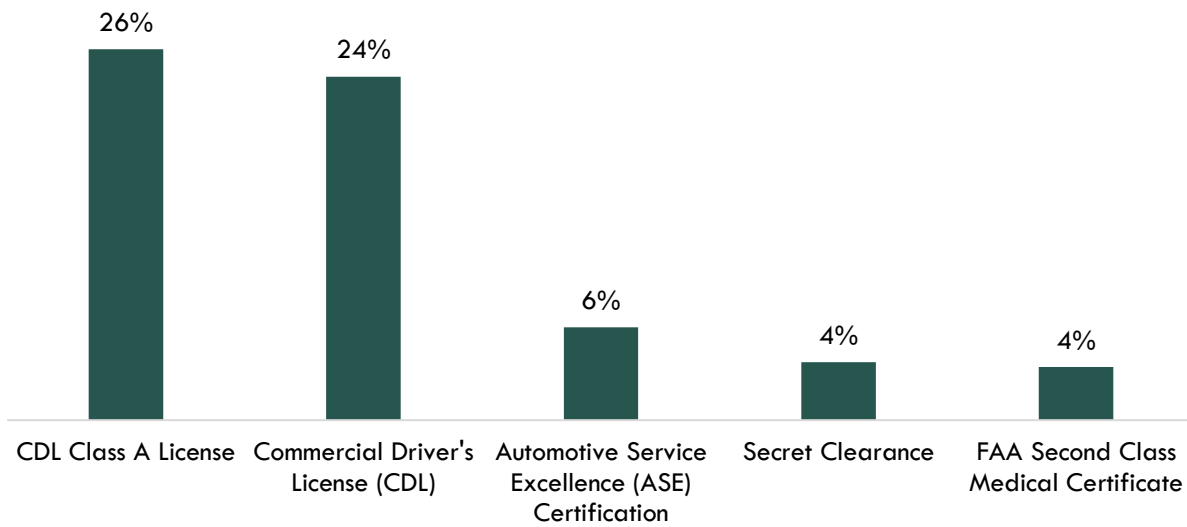
**Exhibit 20. Advanced transportation and logistics employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Heavy and Tractor-Trailer Truck Drivers	22,890	25,789	2,900	13%	3,424	\$23.07
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	4,014	4,625	611	15%	632	\$26.81
Automotive Service Technicians and Mechanics	5,273	5,655	382	7%	614	\$22.67
Shipping, Receiving, and Inventory Clerks	4,673	4,923	250	5%	583	\$18.13
First-Line Supervisors of Mechanics, Installers, and Repairers	3,373	3,714	341	10%	397	\$38.07
Bus and Truck Mechanics and Diesel Engine Specialists	1,867	2,068	201	11%	219	\$27.46
Transportation, Storage, and Distribution Managers	1,455	1,644	189	13%	165	\$41.93
Aircraft Mechanics and Service Technicians	1,637	1,733	96	6%	161	\$36.37
Logisticians	1,281	1,487	206	16%	161	\$40.00
Bus Drivers, Transit and Intercity	824	905	81	10%	130	\$24.69
Automotive Body and Related Repairers	835	949	115	14%	109	\$27.41
Airline Pilots, Copilots, and Flight Engineers	473	521	48	10%	72	\$104.42
Commercial Pilots	436	479	43	10%	66	\$43.92
Cargo and Freight Agents	248	273	25	10%	35	\$21.38
Avionics Technicians	267	289	22	8%	26	\$41.30

**Exhibit 21. Top specialized skills in job postings for advanced transportation and logistics occupations, n=6,049**



**Exhibit 22. Top certifications in job postings for advanced transportation and logistics occupations, n=1,560**



# AGRICULTURE, WATER & ENVIRONMENTAL TECHNOLOGIES

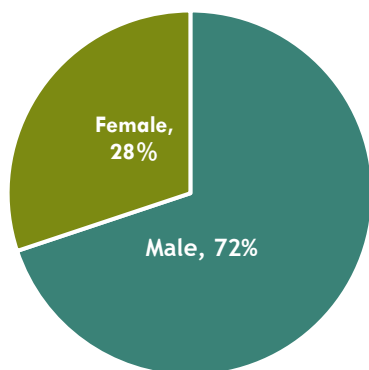
## Summary

- **Gender & race/ethnicity:** Comprising 28% of the workforce, women are underrepresented in this sector. Analysis shows underrepresentation of Hispanic or Latino workers and overrepresentation of white workers (Exhibits 23 and 24).
- **Employment and projected demand:** The largest middle-skill occupation is farmers, ranchers, and other agricultural managers, which will have 1,775 annual openings (Exhibit 25).
- **Wages:** The highest paid occupation is cost estimators, \$36.22/hour median (Exhibit 25).
- **In-demand skills:** The top skill is marketing, and the top certification is an Automotive Service Excellence (ASE) Certification (Exhibits 26 and 27).

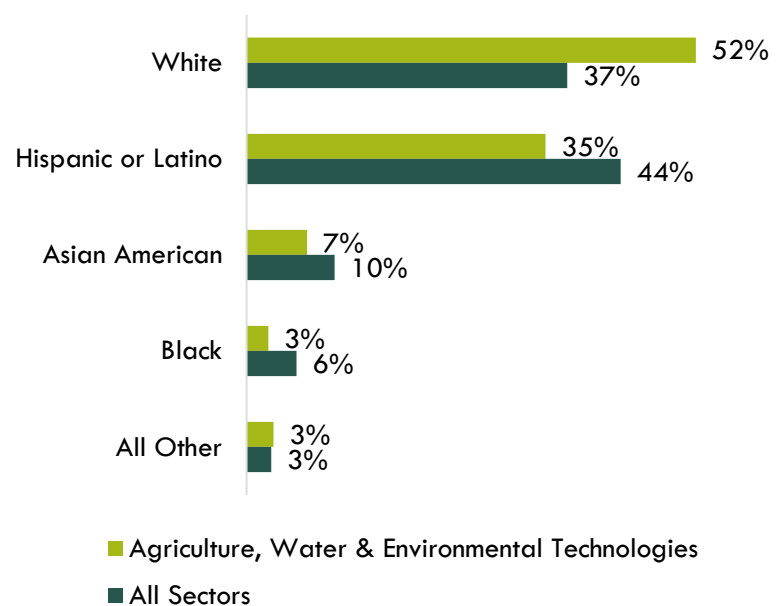
### Top Job Titles

- Sales Representatives
- Outside Sales Representatives
- Sales Consultants

**Exhibit 23. Gender composition of the top occupations in the agriculture, water, and environmental technologies workforce**



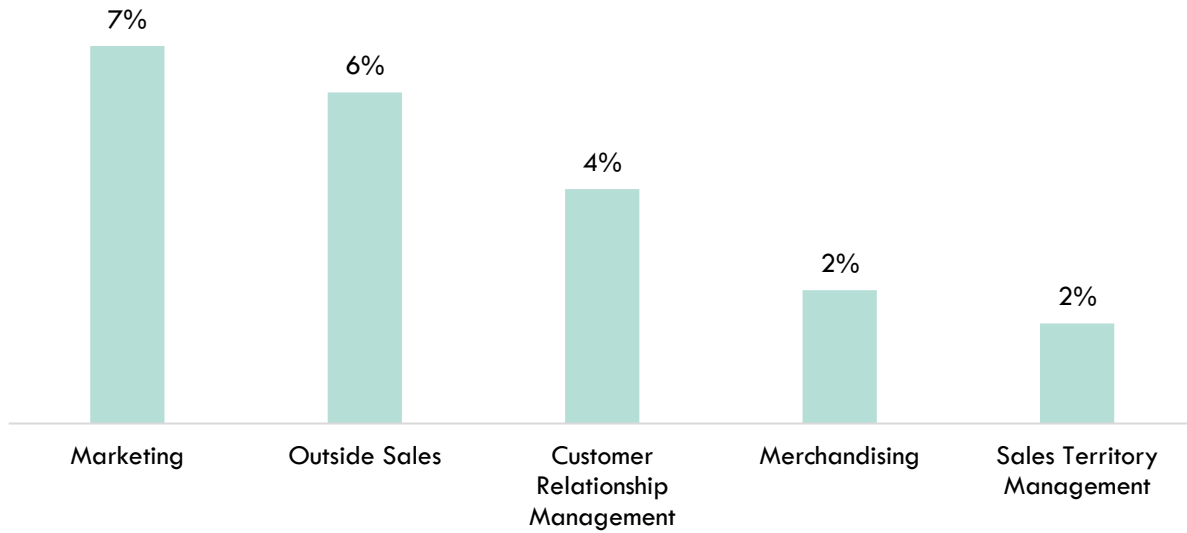
**Exhibit 24. Race/ethnicity composition of the top occupations in the agriculture, water, and environmental technologies workforce**



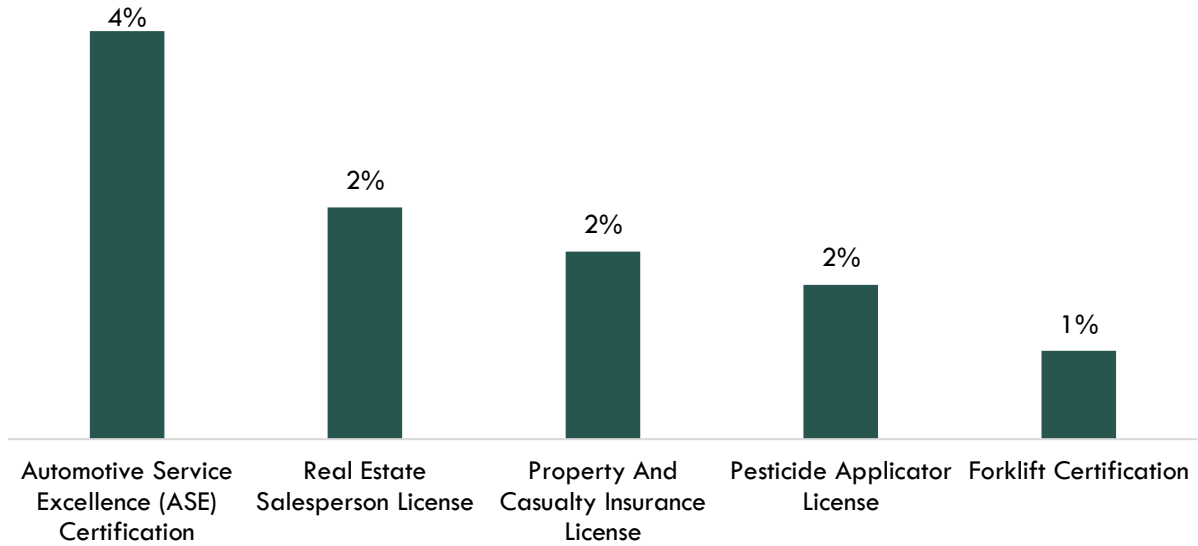
**Exhibit 25. Agriculture, water, and environmental technologies employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Farmers, Ranchers, and Other Agricultural Managers	16,819	16,605	(214)	(1%)	1,775	\$17.18
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	6,455	6,910	455	7%	764	\$30.57
Agricultural Equipment Operators	3,838	4,203	365	10%	713	\$16.00
First-Line Supervisors of Farming, Fishing, and Forestry Workers	4,425	4,724	300	7%	713	\$20.61
Buyers and Purchasing Agents	2,024	2,068	43	2%	216	\$30.77
Compliance Officers	1,811	1,937	126	7%	173	\$35.08
Cost Estimators	1,578	1,700	122	8%	172	\$36.22
Pest Control Workers	970	1,057	87	9%	156	\$19.37
Mobile Heavy Equipment Mechanics, Except Engines	1,391	1,483	92	7%	155	\$29.99
Veterinary Assistants and Laboratory Animal Caretakers	590	640	50	8%	128	\$16.74
Farm Equipment Mechanics and Service Technicians	980	1,091	111	11%	120	\$23.04
Animal Trainers	562	596	34	6%	95	\$15.63
Forest and Conservation Workers	501	515	14	3%	95	\$17.00
Forest and Conservation Technicians	767	746	(20)	(3%)	94	\$19.27
Agricultural Inspectors	439	459	20	5%	85	\$23.15

**Exhibit 26. Top specialized skills in job postings for agriculture, water, and environmental technologies occupations, n=4,997**



**Exhibit 27. Top certifications in job postings for agriculture, water, and environmental technologies occupations, n=866**



# BUSINESS & ENTREPRENEURSHIP

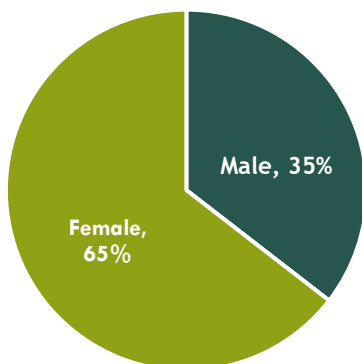
## Summary

- **Gender & race/ethnicity:** Comprising 35% of the workforce, men are underrepresented in this sector. Analysis shows underrepresentation of Hispanic or Latino workers and an overrepresentation of white workers (Exhibits 28 and 29).
- **Employment and projected demand:** The largest middle-skill occupation is general and operations managers which will have the most annual openings, 1,526 (Exhibit 30).
- **Wages:** The highest paid occupation is general and operations managers, \$46.26/hour median (Exhibit 30).
- **In-demand skills:** The top skill is accounting, and the top certification is a Real Estate Salesperson License (Exhibits 31 and 32).

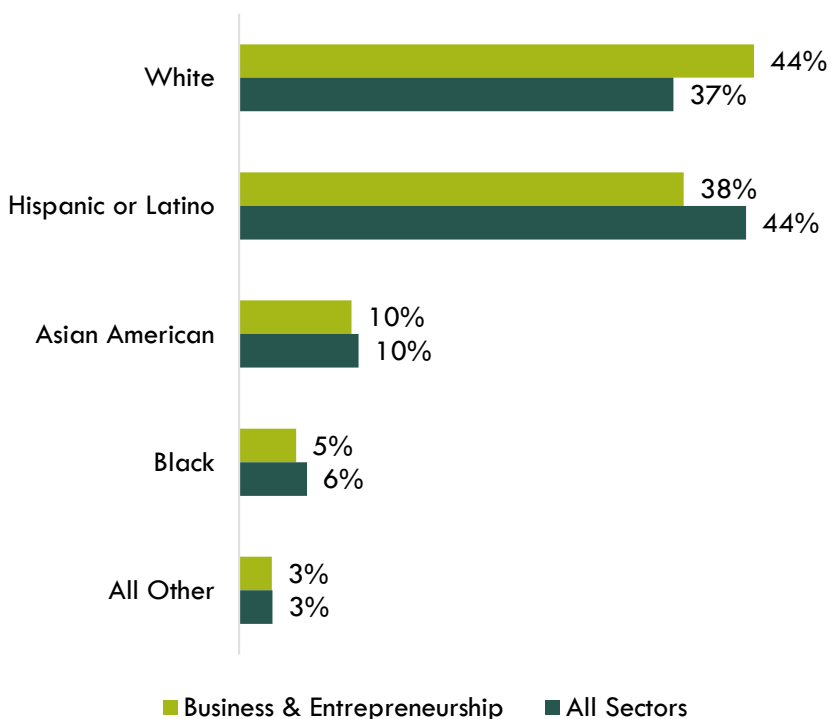
## Top Job Titles

- **Customer Service Representatives**
- **Receptionists**
- **Accounting Clerks**

**Exhibit 28. Gender composition of the top occupations in the business and entrepreneurship workforce**



**Exhibit 29. Race/ethnicity composition of the top occupations in the business and entrepreneurship workforce**

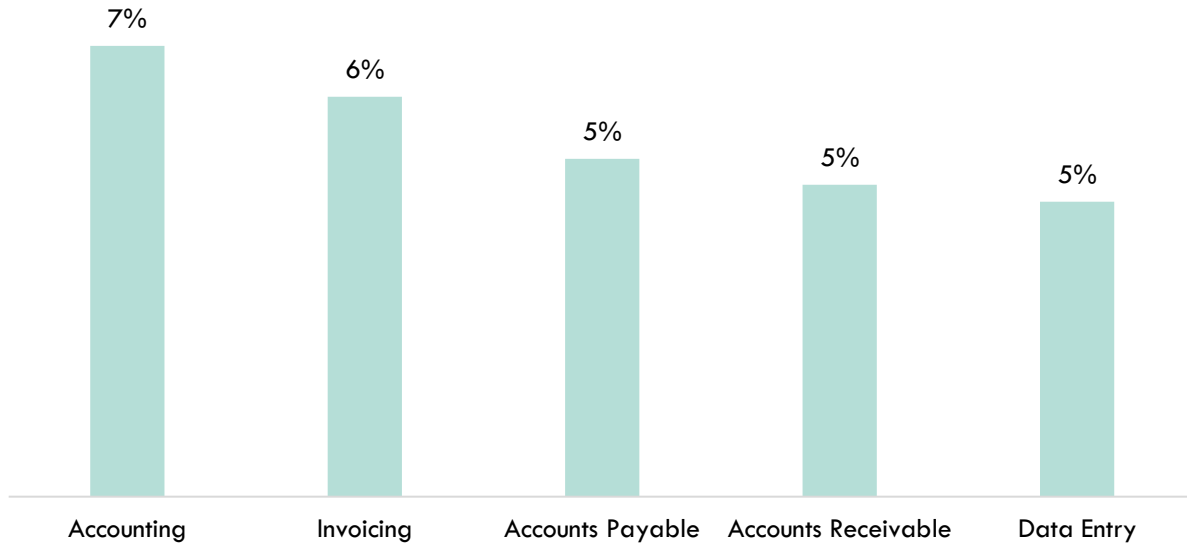




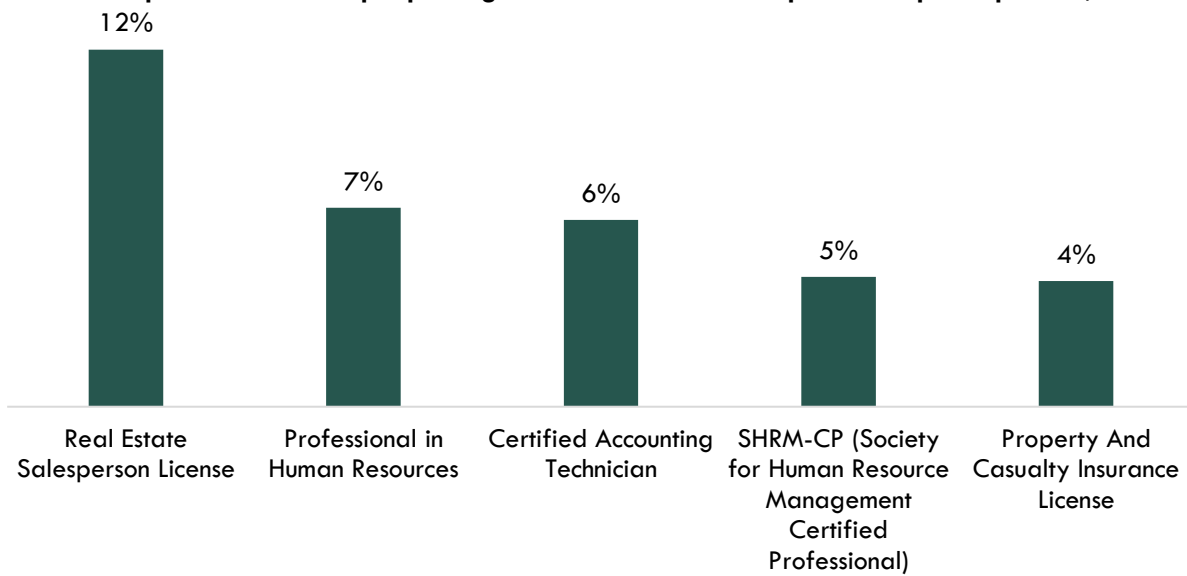
**Exhibit 30. Business and entrepreneurship employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
General and Operations Managers	12,824	14,516	1,692	13%	1,526	\$46.26
Customer Service Representatives	8,889	9,449	561	6%	1,407	\$18.32
Bookkeeping, Accounting, and Auditing Clerks	10,613	10,961	348	3%	1,402	\$22.54
First-Line Supervisors of Office and Administrative Support Workers	7,759	8,249	490	6%	963	\$29.30
Business Operations Specialists, All Other	7,361	7,827	466	6%	798	\$32.95
Receptionists and Information Clerks	4,246	4,723	476	11%	711	\$17.08
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	4,242	4,707	465	11%	571	\$28.15
Human Resources Specialists	3,655	4,042	387	11%	438	\$31.69
Billing and Posting Clerks	2,745	2,902	157	6%	354	\$20.69
Insurance Sales Agents	3,247	3,443	197	6%	352	\$25.80
Eligibility Interviewers, Government Programs	3,044	3,170	125	4%	329	\$23.65
Production, Planning, and Expediting Clerks	2,392	2,619	227	9%	323	\$23.76
Sales and Related Workers, All Other	1,735	1,854	118	7%	268	\$20.38
Real Estate Sales Agents	2,528	2,685	157	6%	265	\$29.00
Information and Record Clerks, All Other	1,998	2,070	72	4%	252	\$22.02

**Exhibit 31. Top specialized skills in job postings for business and entrepreneurship occupations, n=11,548**



**Exhibit 32. Top certifications in job postings for business and entrepreneurship occupations, n=709**



# EDUCATION

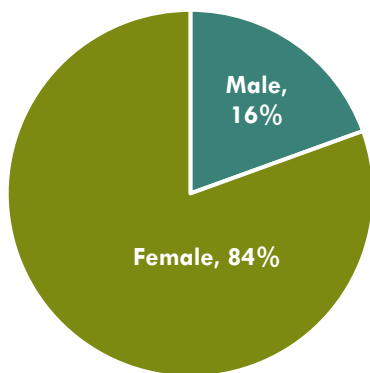
## Summary

- **Gender & race/ethnicity:** Comprising 16% of the workforce, men are underrepresented in this sector. Analysis shows underrepresentation of white workers and overrepresentation of Hispanic or Latino workers (Exhibits 33 and 34).
- **Employment and projected demand:** The largest middle-skill occupation is teaching assistants, except postsecondary, which will have 1,953 annual openings (Exhibit 35).
- **Wages:** The highest paid occupation is special education teachers, preschool, \$32.47/hour median (Exhibit 35).
- **In-demand skills:** The top skill is child development, and the top certification is Cardiopulmonary Resuscitation (CPR) Certification (Exhibits 36 and 37).

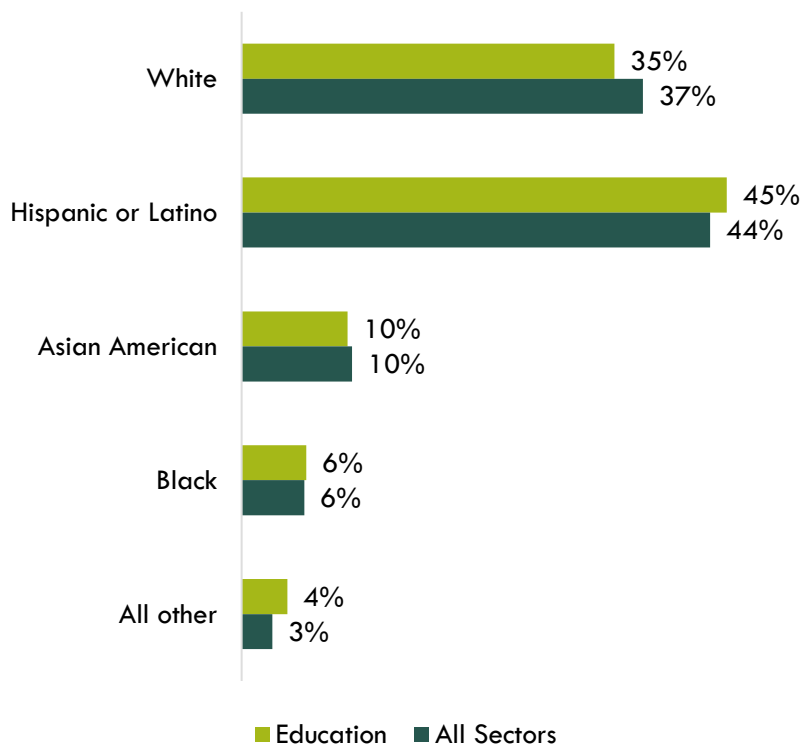
### Top Job Titles

- **Preschool Teachers**
- **Activities Assistants**
- **Instructional Paraprofessionals**

**Exhibit 33. Gender composition of the top occupations in the education workforce**



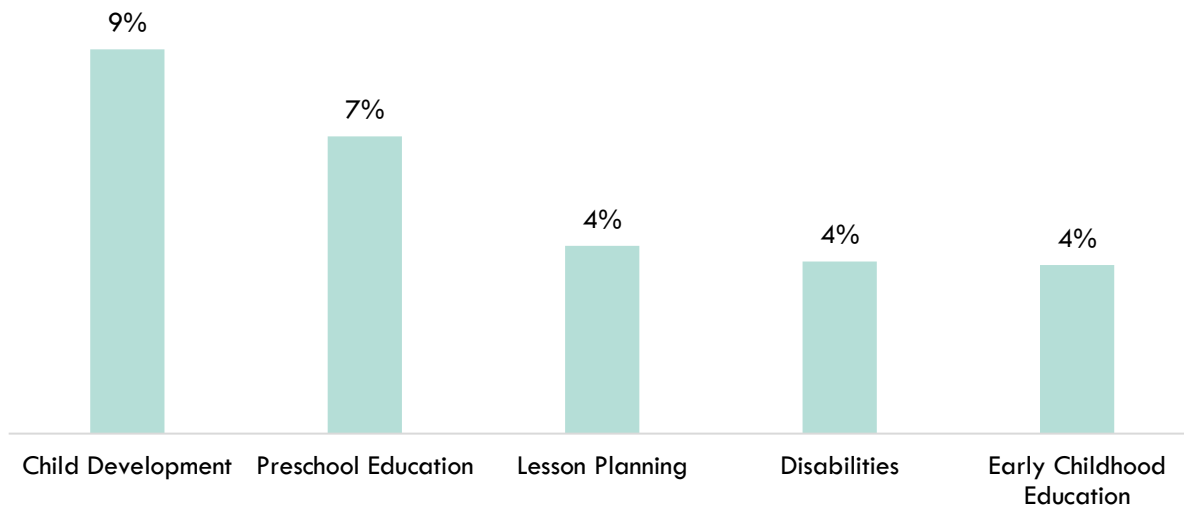
**Exhibit 34. Race/ethnicity composition of the top occupations in the education workforce**



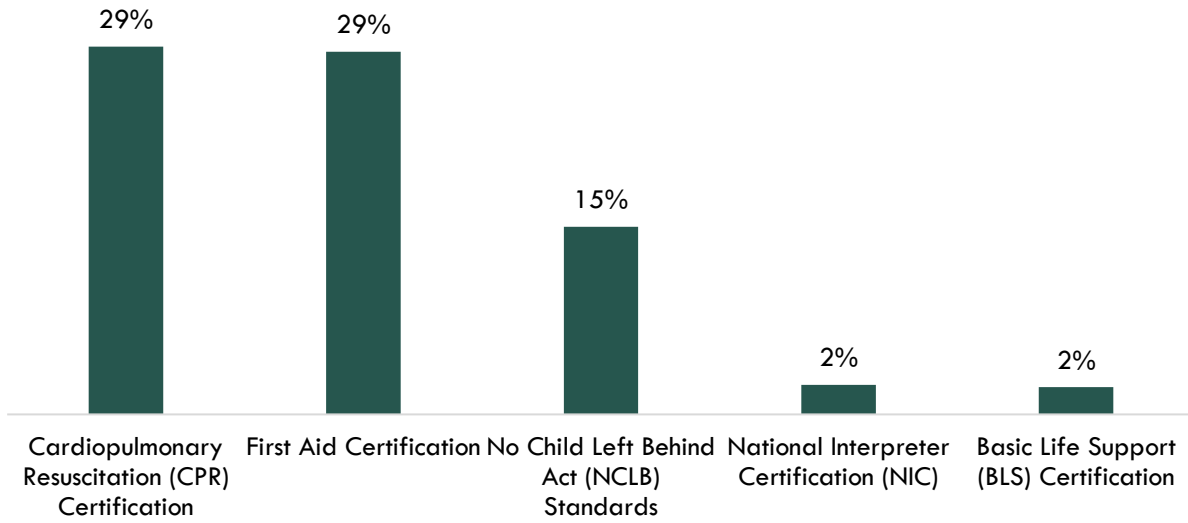
**Exhibit 35. Education employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Teaching Assistants, Except Postsecondary	13,013	14,713	1,700	13%	1,953	\$17.52
Childcare Workers	7,229	6,936	(294)	(4%)	1,259	\$15.33
Substitute Teachers, Short-Term	7,874	8,771	898	11%	1,123	\$17.97
Recreation Workers	2,100	2,387	287	14%	507	\$15.45
Preschool Teachers, Except Special Education	3,371	3,850	478	14%	482	\$18.00
Library Technicians	593	623	30	5%	93	\$21.23
Interpreters and Translators	534	605	72	13%	72	\$26.71
Teaching Assistants, Postsecondary	447	520	72	16%	70	\$17.19
Library Assistants, Clerical	348	375	27	8%	66	\$18.95
Education and Childcare Administrators, Preschool and Daycare	464	512	47	10%	47	\$24.72
Special Education Teachers, Preschool	252	288	36	14%	27	\$32.47

**Exhibit 36. Top specialized skills in job postings for education occupations, n=2,472**



**Exhibit 37. Top certifications in job postings for education occupations, n=510**



# ENERGY, CONSTRUCTION & UTILITIES

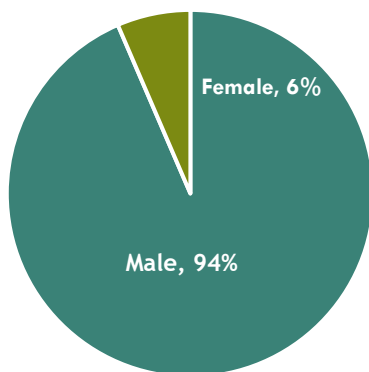
## Summary

- **Gender & race/ethnicity:** Comprising 6% of the workforce, women are underrepresented in this sector. Analysis shows underrepresentation of Asian American and Black workers and overrepresentation of White and Hispanic or Latino workers (Exhibits 38 and 39).
- **Employment and projected demand:** The largest middle-skill occupation is industrial truck and tractor operators, which will have 1,333 annual openings (Exhibit 40).
- **Wages:** The highest paid occupation is construction managers, \$43.72/hour median (Exhibit 40).
- **In-demand skills:** The top skill is plumbing, and the top certification is a Forklift Certification (Exhibits 41 and 42).

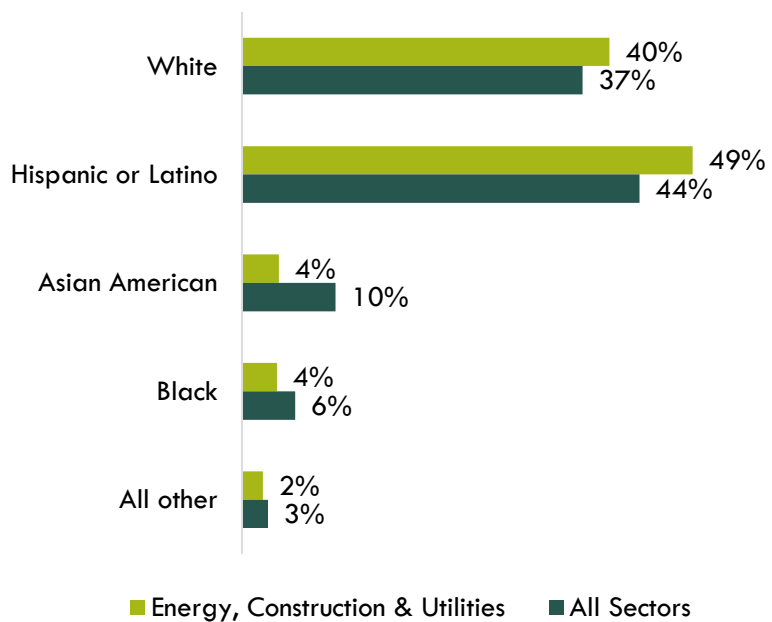
### Top Job Titles

- **Forklift Operators**
- **Maintenance Technicians**
- **Field Service Technicians**

**Exhibit 38. Gender composition of the top occupations in the energy, construction, and utilities workforce**



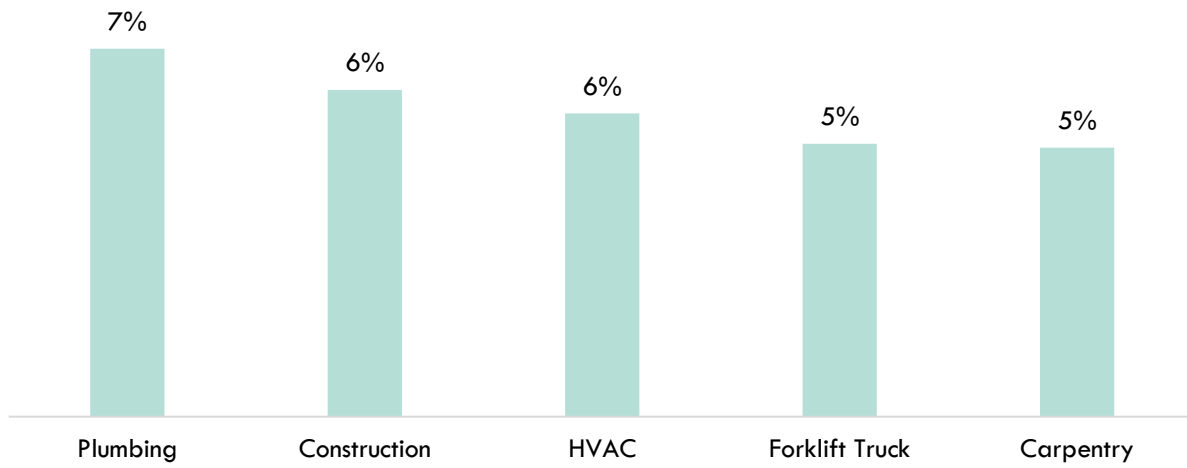
**Exhibit 39. Race/ethnicity composition of the top occupations in the energy, construction, and utilities workforce**



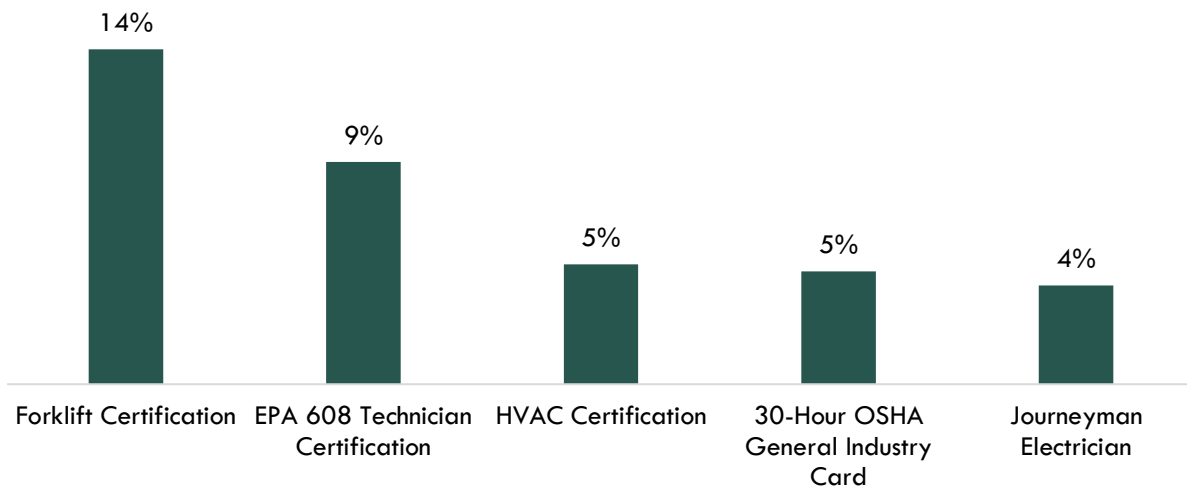
**Exhibit 40. Energy, construction, and utilities employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Industrial Truck and Tractor Operators	8,631	10,014	1,383	16%	1,333	\$20.03
Maintenance and Repair Workers, General	9,970	10,933	963	10%	1,205	\$22.38
Carpenters	6,542	6,942	400	6%	719	\$26.73
Electricians	4,505	5,251	746	17%	645	\$29.85
First-Line Supervisors of Construction Trades and Extraction Workers	4,330	4,748	418	10%	513	\$37.16
Plumbers, Pipefitters, and Steamfitters	2,793	3,194	401	14%	383	\$28.18
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	2,861	3,289	429	15%	374	\$27.08
Operating Engineers and Other Construction Equipment Operators	2,607	2,841	234	9%	325	\$31.41
Construction Managers	3,126	3,465	339	11%	318	\$43.72
Installation, Maintenance, and Repair Workers, All Other	1,728	1,839	111	6%	205	\$19.56
Water and Wastewater Treatment Plant and System Operators	1,102	1,150	48	4%	120	\$31.11
Telecommunications Equipment Installers and Repairers, Except Line Installers	887	936	49	6%	113	\$31.14
Construction and Building Inspectors	856	887	31	4%	113	\$35.96
Solar Photovoltaic Installers	699	808	108	15%	102	\$23.51
Sheet Metal Workers	756	834	78	10%	93	\$31.22

**Exhibit 41. Top specialized skills in job postings for energy, construction, and utilities occupations, n=8,468**



**Exhibit 42. Top certifications in job postings for energy, construction, and utilities occupations, n=671**





# HEALTH

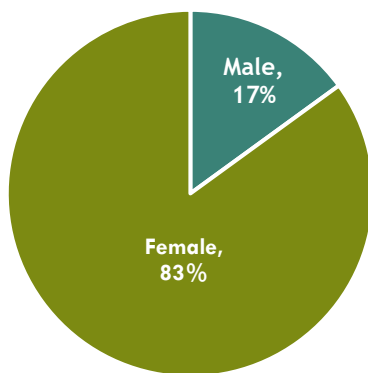
## Summary

- **Gender & race/ethnicity:** Comprising 17% of the workforce, men are underrepresented in this sector. Analysis shows underrepresentation of White workers, and overrepresentation of Hispanic or Latino, Asian American, and Black workers (Exhibits 43 and 44).
- **Employment and projected demand:** The largest middle-skill occupation is home health and personal care aides, which will have 11,488 annual openings (Exhibit 45).
- **Wages:** The highest paid occupation is registered nurses, \$55.18/hour median (Exhibit 45).
- **In-demand skills:** The top skill is nursing, and the top certification is Registered Nurse (RN) (Exhibits 46 and 47).

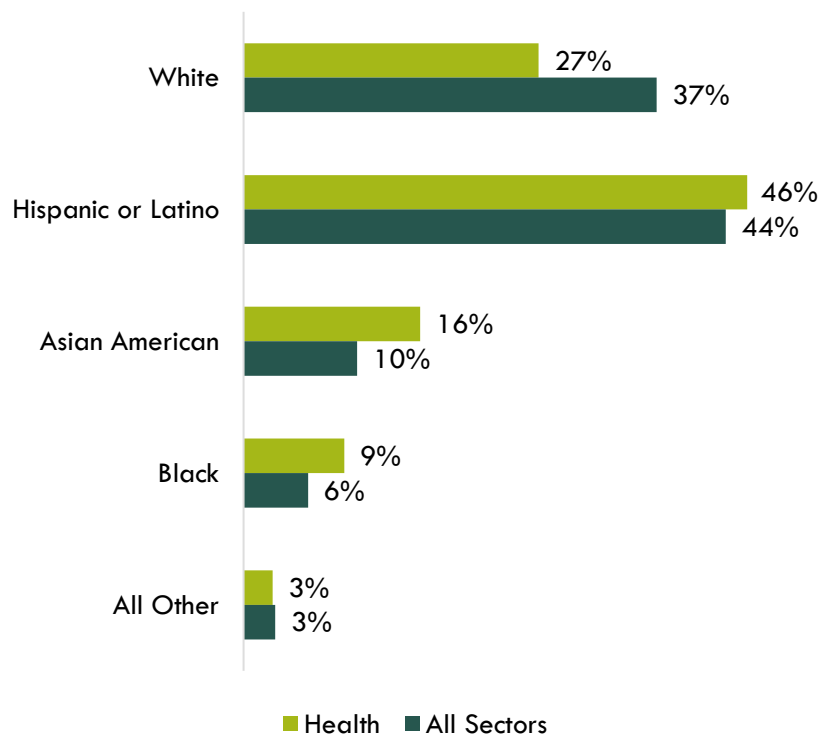
## Top Job Titles

- **Registered Nurses**
- **Licensed Vocational Nurses**
- **Medical Assistants**

**Exhibit 43. Gender composition of the top occupations in the health workforce**



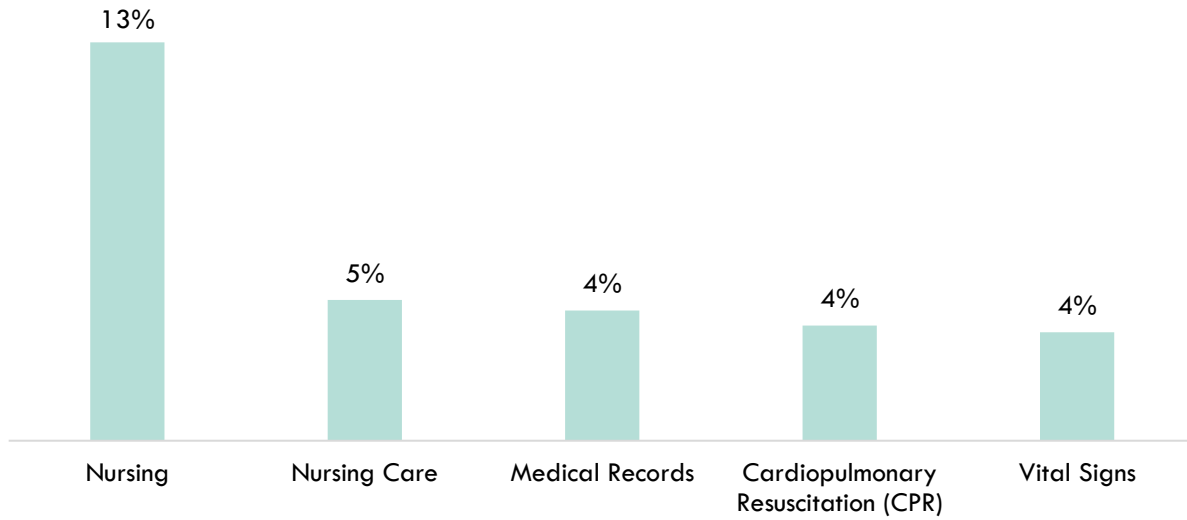
**Exhibit 44. Race/ethnicity composition of the top occupations in the health workforce**



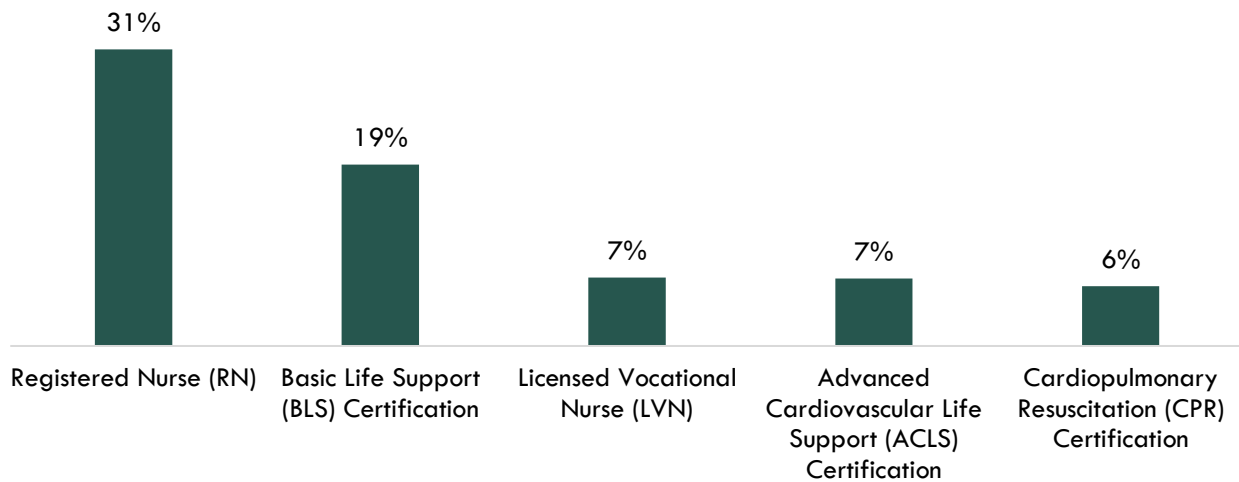
**Exhibit 45. Health employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Home Health and Personal Care Aides	50,353	64,708	14,355	29%	11,488	\$14.08
Registered Nurses	19,051	21,084	2,033	11%	1,558	\$55.18
Medical Assistants	7,826	8,785	959	12%	1,342	\$18.38
Nursing Assistants	6,077	7,008	932	15%	1,163	\$17.86
Medical Secretaries and Administrative Assistants	5,940	6,474	533	9%	822	\$17.99
Dental Assistants	3,150	3,500	350	11%	545	\$21.51
Social and Human Service Assistants	3,434	3,984	550	16%	527	\$19.96
Licensed Practical and Licensed Vocational Nurses	4,356	4,862	506	12%	474	\$30.03
Pharmacy Technicians	2,606	2,760	153	6%	273	\$22.31
Massage Therapists	956	1,126	170	18%	174	\$23.98
Healthcare Support Workers, All Other	1,004	1,084	80	8%	163	\$18.66
Health Technologists and Technicians, All Other	1,285	1,490	205	16%	140	\$20.99
Phlebotomists	792	856	63	8%	131	\$21.78
Medical Records Specialists	1,329	1,421	92	7%	117	\$21.64
Clinical Laboratory Technologists and Technicians	1,152	1,311	159	14%	117	\$25.80

**Exhibit 46. Top specialized skills in job postings for health occupations, n=22,534**



**Exhibit 47. Top certifications in job postings for health occupations, n=12,844**



# ICT/DIGITAL MEDIA

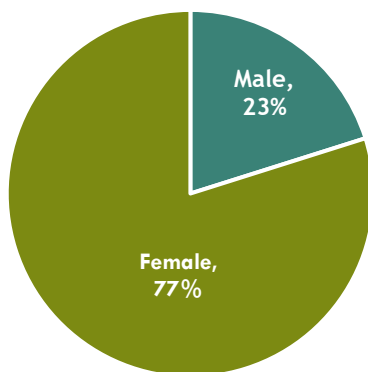
## Summary

- **Gender & race/ethnicity:** Comprising 23% of the workforce, men are underrepresented in this sector. Analysis shows an underrepresentation of Hispanic or Latino workers and an overrepresentation of White workers (Exhibits 48 and 49).
- **Employment and projected demand:** The largest middle-skill occupation is office clerks, general, which will have 3,282 annual openings (Exhibit 50).
- **Wages:** The highest paid occupation is network and computer systems administrators, \$40.67/hour median (Exhibit 50).
- **In-demand skills:** The top skill is administrative support, and the top certification is a CompTIA A+ (Exhibits 51 and 52).

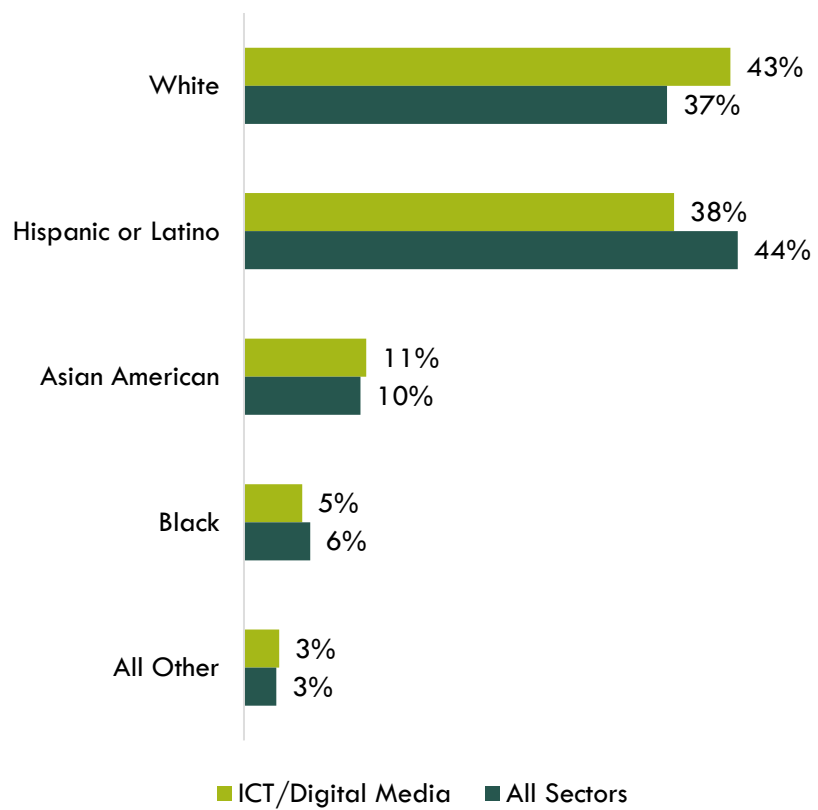
## Top Job Titles

- **Administrative Assistants**
- **Office Assistants**
- **Executive Assistants**

**Exhibit 48. Gender composition of the top occupations in the ICT/digital media workforce**



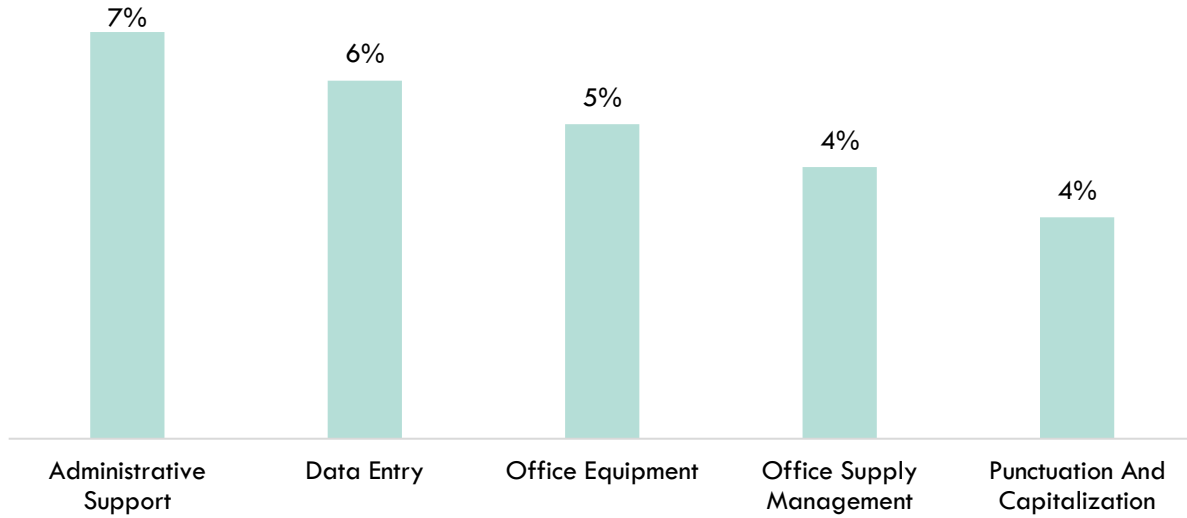
**Exhibit 49. Race/ethnicity composition of the top occupations in the ICT/digital media workforce**



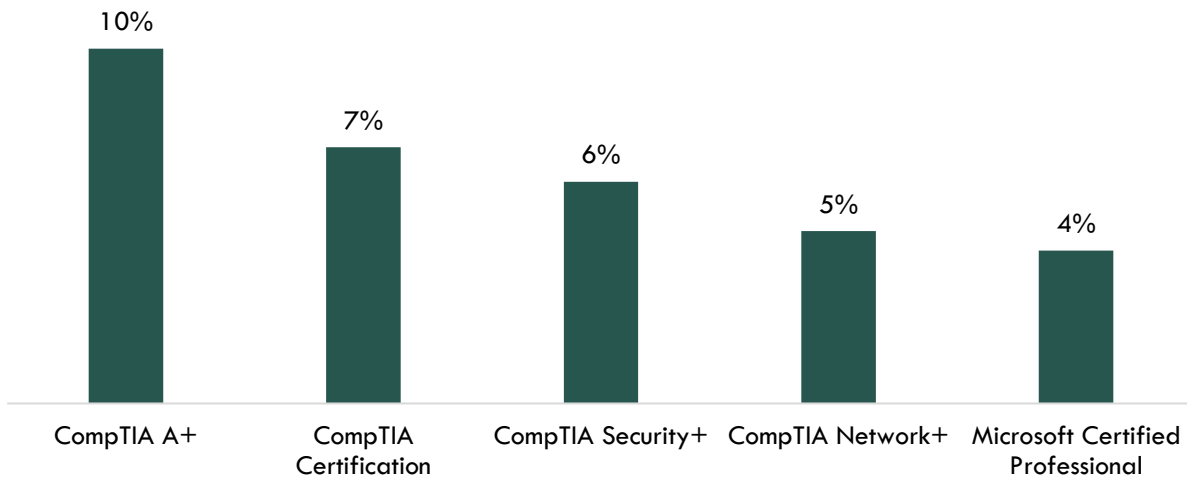
**Exhibit 50. ICT/digital media employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Office Clerks, General	27,629	28,093	463	2%	3,282	\$17.77
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	16,235	16,166	(69)	(0%)	1,760	\$21.54
Executive Secretaries and Executive Administrative Assistants	3,100	2,888	(212)	(7%)	324	\$29.59
Computer Occupations, All Other	3,148	3,296	147	5%	262	\$37.72
Computer User Support Specialists	2,834	2,980	146	5%	239	\$27.45
Network and Computer Systems Administrators	1,458	1,512	54	4%	107	\$40.67
Switchboard Operators, Including Answering Service	913	800	(113)	(12%)	95	\$17.47
Graphic Designers	973	979	6	1%	94	\$24.00
Computer Network Support Specialists	983	1,015	32	3%	79	\$30.10
Procurement Clerks	624	612	(12)	(2%)	57	\$21.61
Audio and Video Technicians	374	402	28	8%	44	\$22.66
Surveying and Mapping Technicians	294	313	19	6%	41	\$30.44
Computer Network Architects	535	549	14	3%	35	\$40.04
Audiovisual Equipment Installers and Repairers	298	289	(9)	(3%)	32	\$24.38
Broadcast Technicians	280	287	7	3%	30	\$17.73

**Exhibit 51. Top specialized skills in job postings for ICT/digital media occupations, n=6,327**



**Exhibit 52. Top certifications in job postings for ICT/digital media occupations, n=727**



# PUBLIC SAFETY

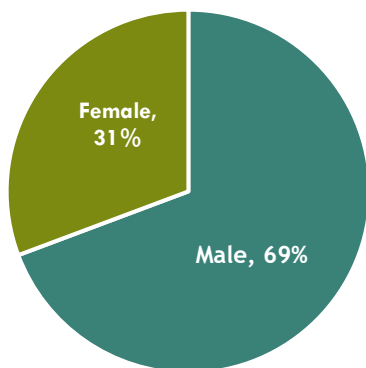
## Summary

- **Gender & race/ethnicity:** Comprising 31% of the workforce, women are underrepresented in this sector. Analysis shows underrepresentation of Asian American and Hispanic or Latino workers and overrepresentation of Black workers (Exhibits 53 and 54).
- **Employment and projected demand:** The largest middle-skill occupation is correctional officers and jailers, which will have 755 annual openings (Exhibit 55).
- **Wages:** The highest paid occupation is first-line supervisors of police and detectives, \$61.46/hour median (Exhibit 55).
- **In-demand skills:** The top skill is law enforcement, and the top certification is an Operator of Uninspected Passenger Vessels (OUPV) License (Exhibits 56 and 57).

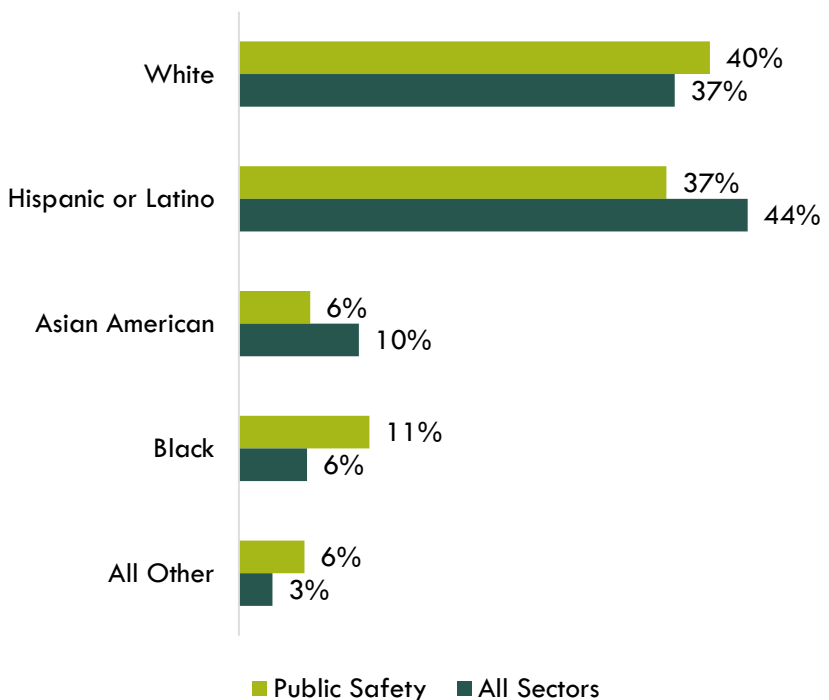
### Top Job Titles

- Marine Interdiction Agents
- Store Protection Specialists
- Border Patrol Agents

**Exhibit 53. Gender composition of the top occupations in the public safety workforce**



**Exhibit 54. Race/ethnicity composition of the top occupations in the public safety workforce**

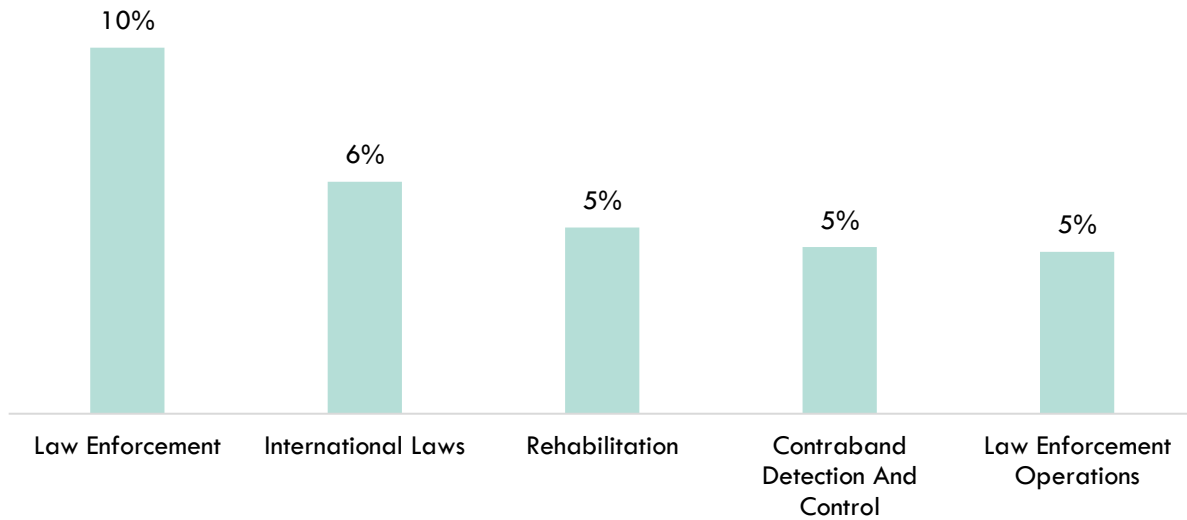


**Exhibit 55. Public safety employment, occupational projections, and median wages**

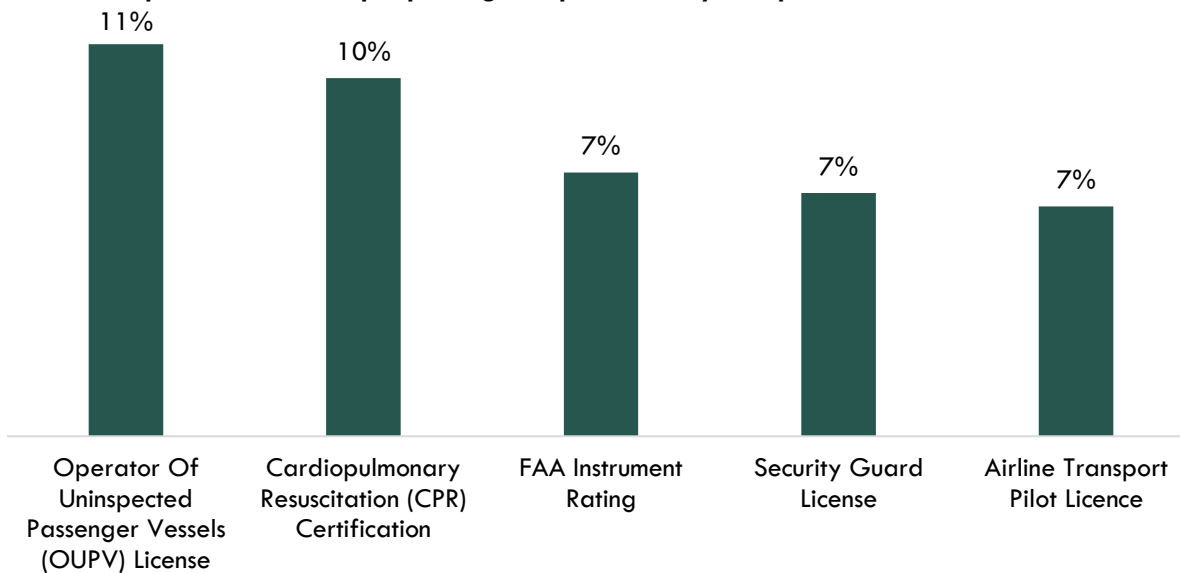
OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
Correctional Officers and Jailers	7,853	7,921	68	1%	755	\$44.87
Protective Service Workers, All Other	2,283	2,473	191	8%	659	\$16.01
Police and Sheriff's Patrol Officers	5,214	5,706	492	9%	538	\$37.97
Firefighters	2,653	2,895	241	9%	269	\$29.44
Public Safety Telecommunicators	632	689	57	9%	80	\$27.45
First-Line Supervisors of Correctional Officers	816	850	34	4%	78	\$54.20
First-Line Supervisors of Firefighting and Prevention Workers	691	752	61	9%	64	\$40.78
Detectives and Criminal Investigators	681	724	43	6%	64	\$43.69
First-Line Supervisors of Police and Detectives	639	718	79	12%	60	\$61.46
First-Line Supervisors of Security Workers	437	458	21	5%	48	\$29.61
Transportation Security Screeners	377	385	8	2%	37	\$23.22
Private Detectives and Investigators	307	330	22	7%	34	\$30.33



**Exhibit 56. Top specialized skills in job postings for public safety occupations, n=2,191**



**Exhibit 57. Top certifications in job postings for public safety occupations, n=521**



# RETAIL, HOSPITALITY & TOURISM

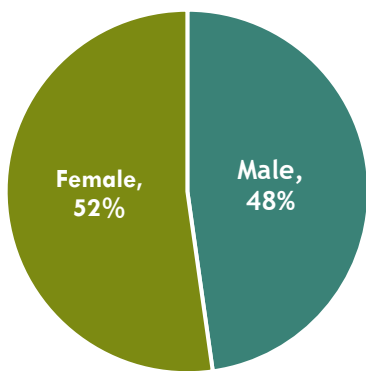
## Summary

- **Gender & race/ethnicity:** Comprising 48% of the workforce, men are slightly underrepresented in this sector. Analysis shows overrepresentation of white workers and Asian American workers and underrepresentation of Hispanic or Latino and Black workers (Exhibits 58 and 59).
- **Employment and projected demand:** The largest middle-skill occupation is first-line supervisors of food preparation and serving workers, which will have 1,796 annual openings (Exhibit 60).
- **Wages:** The highest paid occupation is musicians and singers, \$30/hour median (Exhibit 60).
- **In-demand skills:** The top skill is merchandising, and the top certification is a ServSafe Certification (Exhibits 61 and 62).

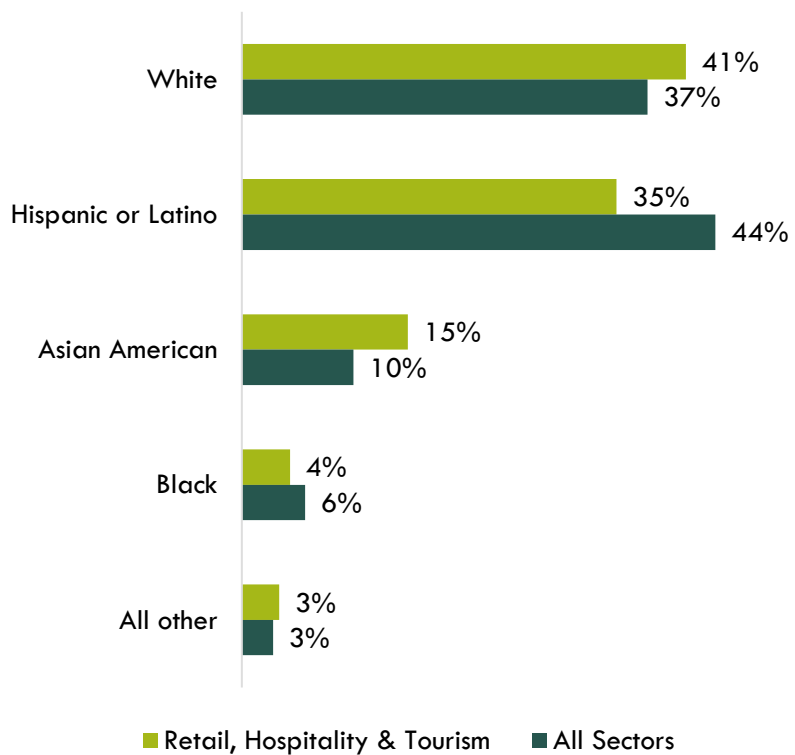
### Top Job Titles

- **Assistant Store Managers**
- **Assistant Managers**
- **Store Managers**

**Exhibit 58. Gender composition of the top occupations in the retail, hospitality, and tourism workforce**



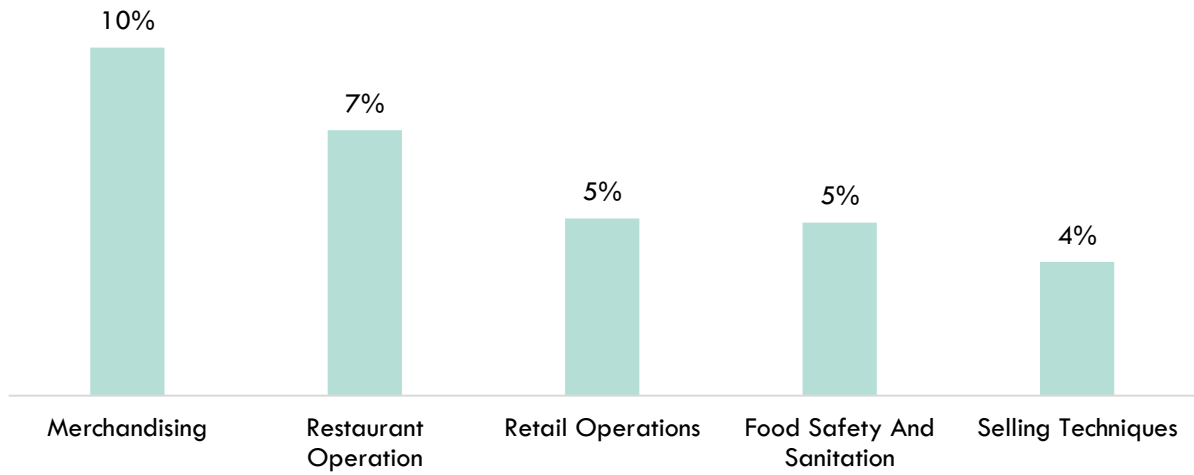
**Exhibit 59. Race/ethnicity composition of the top occupations in the retail, hospitality, and tourism workforce**



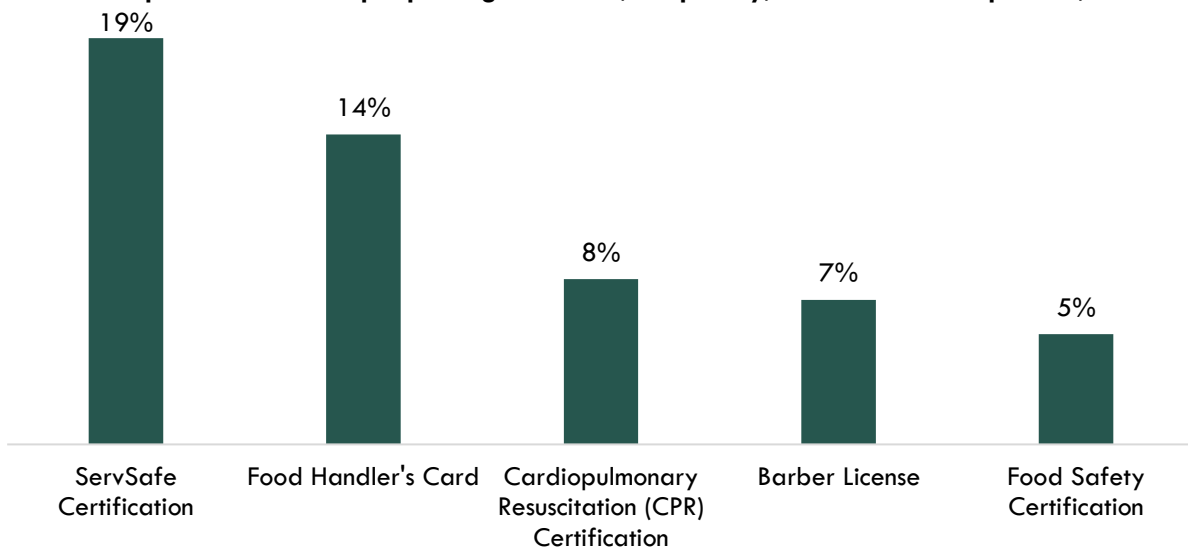
**Exhibit 60. Retail, hospitality, and tourism employment, occupational projections, and median wages**

OCCUPATION	2022 JOBS	2027 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGES
First-Line Supervisors of Food Preparation and Serving Workers	8,647	10,273	1,626	19%	1,796	\$17.50
Cooks, Restaurant	6,437	8,369	1,932	30%	1,506	\$17.05
First-Line Supervisors of Retail Sales Workers	8,510	8,997	487	6%	1,081	\$20.68
Hairdressers, Hairstylists, and Cosmetologists	3,626	3,956	330	9%	598	\$16.68
Food Service Managers	2,692	3,000	308	11%	414	\$23.84
Exercise Trainers and Group Fitness Instructors	1,555	1,829	273	18%	355	\$22.40
Manicurists and Pedicurists	1,794	2,234	440	25%	340	\$14.07
Self-Enrichment Teachers	1,946	2,194	248	13%	285	\$19.73
First-Line Supervisors of Housekeeping and Janitorial Workers	1,279	1,428	148	12%	183	\$21.86
Chefs and Head Cooks	935	1,088	154	16%	165	\$27.50
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	1,225	1,348	123	10%	160	\$24.19
Skincare Specialists	484	591	107	22%	96	\$16.23
First-Line Supervisors of Personal Service Workers	487	584	97	20%	88	\$21.54
Musicians and Singers	615	617	2	0%	86	\$30.00
Barbers	533	588	54	10%	78	\$11.10

**Exhibit 61. Top specialized skills in job postings for retail, hospitality, and tourism occupations, n=7,079**



**Exhibit 62. Top certifications in job postings for retail, hospitality, and tourism occupations, n=624**



# CONCLUSION

## Gap analysis

In the SCV/SML subregion, the 10 sectors detailed in this study are projected to offer more than **80,300 annual openings** each year for middle-skill occupations, those requiring more education and training than a high school diploma, but less than a bachelor's degree. By comparison, postsecondary institutions in the region are conferring **12,407 awards** (degrees and certificates) on average each year. A comparison between workforce demand and the number of awards being earned shows a **potential undersupply of 67,920 workers** in the subregion.

On average each year, the greatest number of awards are being conferred by programs in the health sector (3,518 awards), education sector (1,755 awards), and business and entrepreneurship sector (1,731 awards). The fewest awards are being conferred in the ICT/digital media sector (509 awards) and public safety (443 awards).

The three sectors with the greatest number of annual openings also have the largest potential gaps in workforce supply in the region:

- **Health**, a shortage of 17,062 workers
- **Business and entrepreneurship**, a shortage of 11,978 workers
- **Energy, construction, and utilities**, a shortage of 7,239 workers

Please refer to the separate supplemental section of this report for a comprehensive list of occupations by sector along with current employment, projected demand, and wages. The supplemental section also lists typical education level, work experience, and on-the-job training required for each occupation discussed in the sector sections. Current Population Survey (CPS) data are included, which is used to evaluate whether bachelor's-degree-education-level occupations are considered middle skill. An occupation is considered middle skill when one-third or more of current workers in B.A./B.S.-level occupations have completed some college up to an associate degree as their highest level of education. Finally, a thorough inventory of awards by program has also been compiled for the subregion and is included for review.

## Occupational titles in job postings

While job postings should not be used as a direct measure of employment demand, they can indicate hiring needs and preferences among employers.<sup>3</sup> To provide additional insights into the occupations that are at the forefront of the current hiring wave, job postings were examined to identify frequently occurring occupational titles. The most commonly occurring occupational titles can indicate jobs with hiring challenges, such as a high churn rate or a severe worker shortage due to other factors.

**Advanced Manufacturing**—Job postings are highly concentrated for the sector’s two largest occupations—first-line supervisors of production and operating workers, and inspectors, testers, sorters, samplers, and weighers.

**Advanced Transportation & Logistics**—Job postings for heavy and tractor-trailer truck drivers account for 977 out of 2,946 postings, or 33%.

**Agriculture, Water & Environmental Technologies**—Job postings for sales representatives, wholesale and manufacturing, except technical and scientific products, account for 68% of postings. This reflects anecdotes from regional directors for employer engagement concerning heightened demand for this type of position due to the poaching of experienced agricultural sales representatives by ag companies. This is a highly in-demand occupation in the CVML region.

**Business & Entrepreneurship**—Job postings are concentrated among the sector’s two largest occupations: bookkeeping, accounting, and auditing clerks; and general and operations managers. There is also a high number of postings seeking human resources specialists, indicating that this well-paid occupation, \$31.69/hour median, may have a shortage of workers in the subregion.

**Education**—Analysis shows the top occupational title in job postings are for preschool teachers, except special education.

**Energy, Construction & Utilities**—About 43% of job postings are for maintenance and repair workers, general in this sector. This occupation is a promising career choice for students since it is projected to offer 1,205 annual openings in the subregion and pays a median wage of \$22.38/hour.

**Health**—It has been widely reported that the Central Valley/Mother Lode region is facing an extreme shortage of registered nurses, and hospitals are hiring traveling nurses as a stop-gap measure. In the subregion, 34% of job postings are for registered nurses, which is also the top job title for the sector.

**ICT/Digital Media**—Ads for secretaries and administrative assistants, except legal, medical, and executive, comprise of 37% of all job postings, a total of 944. This is the second largest occupation in the sector in terms of employment in the subregion. It is possible that this occupation has crossover skills with office clerks, general, which is the largest occupation in the sector and has

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<sup>3</sup> Job postings should not be used as a direct measure of demand for specific occupations in the economy since an employer can post more than one job ad for the same position or may post job ads to test out a potential labor market without actually filling any positions.

the most projected annual openings. Office clerks, general, has the second highest number of job postings, 518.

**Public Safety**—Job postings for customs and border protection officers account for 25% of all ads. Police and sheriff's patrol officer, has the second highest number of job postings, 108.

**Retail, Hospitality & Tourism**—Nearly half, 47%, of all job postings are for first-line supervisors of retail sales workers. Job postings are also concentrated for food service managers, 449 ads, and first-line supervisors of food preparation and serving workers, 349 ads.

### **Workforce demographics**

The starkest degree of underrepresentation of women in the subregion exists in the energy construction, and utilities sector, in which women make up only 6% of the workforce. The advanced transportation and logistics sector also have a low percentage of women in its workforce, only 12%, and is followed by advanced manufacturing and agriculture, water & environmental technologies, 28%. (Women comprise about a third of the public safety workforce.)

By contrast, men are most severely underrepresented in the education sector, in which only 16% of the workforce is male. Men comprise only 17% of the health sector workforce and 23% of the ICT/digital media sector workforce.

In terms of race/ethnicity composition of the subregion's workforce, Black workers are overrepresented in the public safety sector, comprising 11% of the sector's workforce but only 6% of the overall workforce in the subregion.

Hispanic or Latino workers are overrepresented by 11% in advanced manufacturing and by 6% in advanced transportation and logistics. They are underrepresented in agriculture, water, and environmental technologies, ICT/digital media, public safety, and retail, hospitality, and tourism.

Asian American workers are underrepresented in the energy, construction, and utilities sector by 6%, and by 4% in the public safety sector. They are overrepresented in the health sector and retail, hospitality, and tourism sector

White workers are underrepresented in the advanced manufacturing, education sector, and health sector. They are noticeably overrepresented in the agriculture, water, and environmental technologies sector, comprising 52% of the sector's workforce but only 37% of the overall workforce in the subregion. Overrepresentation also appears to exist in the business and entrepreneurship sector and ICT/digital media sector.

### **In-demand occupations**

The 10 occupations with the most annual openings across all sectors are listed below.<sup>4</sup> Given that these are highly in-demand jobs in the subregion, these occupations can provide a promising entry-point for students transitioning to the workforce.

In addition, some sectors contain more than one of these occupations due to strong projected growth projections or large employment size for these occupations. These occupations' sectors are highlighted to bring attention to the fact that there are certain areas with more job opportunities than others. To demonstrate this, each occupation with the most annual openings is listed along with the name of the sector in which it occurs. For example, the business and entrepreneurship sector contains three of these occupations. Similarly, the ICT/digital media sector, and the retail, hospitality, and tourism sector each contain two occupations.

1. Heavy and tractor-trailer truck drivers, 3,424 annual openings (advanced transportation and logistics)
2. Office clerks, general, 3,282 annual openings (ICT/digital media)
3. Teaching assistants, except postsecondary, 1,953 annual openings (education)
4. First-line supervisors of food preparation and serving workers, 1,796 annual openings (retail, hospitality & tourism)
5. Farmers, ranchers, and other agricultural managers, 1,775 annual openings (agriculture, water & environmental technologies)
6. Secretaries and administrative assistants, except legal, medical, and executive, 1,760 annual openings (ICT/digital media)
7. Registered nurses, 1,558 annual openings (business and entrepreneurship)
8. General and operations managers, 1,526 annual openings (business & entrepreneurship)
9. Cooks, restaurant, 1,506 annual openings (retail, hospitality, and tourism)
10. Customer service representatives, 1,407 annual openings (business and entrepreneurship)

### **Well-paid occupations**

There are 12 occupations in the subregion that pay median wages above \$40/hour and that have more than 50 annual openings. These occupations present a particularly promising opportunity for students preparing to enter the workforce. College administrators and faculty may choose to highlight these occupations as avenues that can advance economic opportunities for students.

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<sup>4</sup> Although home health and personal care aides is an occupation with a substantial number of annual openings in the subregion, it was not included in the top 10 list due to its low hourly wage, \$14.08/hour.



1. Airline Pilots, Copilots, and Flight Engineers, \$104.42 (advanced transportation and logistics)
2. First-line supervisors of police and detectives, \$61.46 (public safety)
3. Registered nurses, \$55.18 (health)
4. First-line supervisors of correctional officers, \$54.20 (public safety)
5. Industrial production managers, \$49.69 (advanced manufacturing)
6. General and operations managers, \$46.26 (business & entrepreneurship)
7. Correctional officers and jailers, \$44.87 (public safety)
8. Commercial pilots, \$43.92 (ICT/digital media)
9. Construction managers, \$43.72 (energy, construction, and utilities)
10. Detectives and criminal investigators, \$43.69 (public safety)
11. Transportation, storage, and distribution managers, \$41.93 (advanced transportation & logistics)
12. Avionics Technicians, \$41.30 (advanced transportation & logistics)

## Recommendations

- **Close workforce gaps through careful program outcome analysis.** The gap analysis identifies areas in which an undersupply of workers exist. The largest undersupplies exist for health, business and entrepreneurship, and energy, construction, and utilities. A localized examination of program offerings by college and how they supply students for career pathways leading into top occupations in these sectors may be warranted to address the shortages and ensure that employer needs are being met in the subregion.
- **Assess the support and services available to help underrepresented students access and succeed in careers in which they may be a minority.** Based on the findings on the composition of the workforce by sector in terms of gender and race/ethnicity, the community colleges in the subregion are encouraged to conduct a comparison with the demographic composition of students in programs that they offer, in order to evaluate whether programs are moving the needle regarding equitable access for and diversity of students entering related pathways. The colleges may want to take a closer look at what types of supports are needed for underrepresented students to succeed and persist in careers in sectors containing disparities in terms of gender or race/ethnicity.
- **Target high-wage, in-demand occupations as workforce entry-points for students.** Community colleges in the region may want to conduct deep-dive analyses into program outcomes to determine if existing programs are targeting this report's top occupations that are well paid and in high demand as workforce entry-points for students. The occupations with high annual

openings, high wages, or both that are highlighted in this section are particularly worth analyzing. In particular, several standout occupations are general and operations managers, \$46.26/hour median with 1,526 annual openings in the business and entrepreneurship sector; registered nurses, \$55.18/hour median with 1,558 annual openings in the health sector; and correctional officers and jailers, \$44.87/hour median with 755 annual openings in the public safety sector. The energy, construction, and utilities sector also has several occupations that pay the highest wages among all occupations in all sectors.

- ***Evaluate the role that specific skills may be playing in employer hiring decisions by sector.*** During the pandemic, the value that employers place on skills, as opposed to degrees and certificates, increased due to the widespread workforce shortage affecting nearly every sector and transforming many jobs. Employers are requiring workers to be adept at many different types of tasks to compensate for positions that are unfilled or experiencing high turnover. Community colleges can use the in-demand certifications and specialized skills identified for each sector to calibrate programs to meet employer needs in the subregion.

# APPENDIX A: BELOW-MIDDLE-SKILL OCCUPATIONS

**Exhibit A1. A list of all below-middle-skill occupations with 25 or more annual openings for the SCV/SML subregion. Each occupation's respective number of annual openings and median hourly wage are presented.**

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	17,978	\$14.84
Fast Food and Counter Workers	6,900	\$14.99
Cashiers	4,995	\$14.91
Stockers and Order Fillers	4,270	\$17.03
Laborers and Freight, Stock, and Material Movers, Hand	4,082	\$18.65
Retail Salespersons	3,307	\$15.75
Waiters and Waitresses	2,466	\$14.37
Cooks, Fast Food	1,761	\$14.99
Packers and Packagers, Hand	1,603	\$15.09
Landscaping and Groundskeeping Workers	1,558	\$17.29
Food Preparation Workers	1,337	\$14.95
Maids and Housekeeping Cleaners	1,264	\$16.04
Light Truck Drivers	1,126	\$17.97
Security Guards	1,042	\$15.66
Farmworkers, Farm, Ranch, and Aquacultural Animals	1,031	\$14.83
Construction Laborers	939	\$20.75
Cleaners of Vehicles and Equipment	804	\$15.42
Dining Room and Cafeteria Attendants and Bartender Helpers	659	\$14.36
Amusement and Recreation Attendants	658	\$14.68
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	632	\$14.53
Driver/Sales Workers	582	\$16.72
Dishwashers	572	\$15.15
Miscellaneous Assemblers and Fabricators	571	\$16.77

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Bartenders	570	\$14.46
Agricultural Workers, All Other	550	\$15.22
Counter and Rental Clerks	496	\$17.32
Animal Caretakers	441	\$15.96
Graders and Sorters, Agricultural Products	422	\$14.77
Cooks, Institution and Cafeteria	375	\$18.00
Food Servers, Nonrestaurant	320	\$16.28
Hotel, Motel, and Resort Desk Clerks	303	\$15.39
Production Workers, All Other	293	\$16.81
Ushers, Lobby Attendants, and Ticket Takers	287	\$14.83
Food Preparation and Serving Related Workers, All Other	286	\$15.51
Bus Drivers, School	273	\$22.91
Food Batchmakers	236	\$18.03
Shuttle Drivers and Chauffeurs	229	\$16.35
Painters, Construction and Maintenance	228	\$20.98
Helpers--Production Workers	227	\$16.50
Bakers	226	\$16.35
Dispatchers, Except Police, Fire, and Ambulance	217	\$21.39
Drywall and Ceiling Tile Installers	208	\$24.91
Cooks, Short Order	206	\$16.50
Meat, Poultry, and Fish Cutters and Trimmers	193	\$15.43
Butchers and Meat Cutters	187	\$18.03
Slaughterers and Meat Packers	185	\$14.82
Refuse and Recyclable Material Collectors	185	\$22.83
Crossing Guards and Flaggers	184	\$16.71
Food Processing Workers, All Other	182	\$16.96
Merchandise Displayers and Window Trimmers	177	\$17.34
Postal Service Mail Carriers	171	\$24.35
Laundry and Dry-Cleaning Workers	158	\$15.58
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	157	\$16.91
Couriers and Messengers	155	\$15.93

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Cement Masons and Concrete Finishers	148	\$24.84
Machine Feeders and Offbearers	141	\$18.74
Service Unit Operators, Oil and Gas	129	\$28.89
Automotive and Watercraft Service Attendants	126	\$16.57
Personal Care and Service Workers, All Other	126	\$16.28
Tire Repairers and Changers	112	\$16.80
Taxi Drivers	108	\$14.04
First-Line Supervisors of Entertainment and Recreation Workers, Except Gambling Services	105	\$19.12
Roofers	101	\$28.75
Tree Trimmers and Pruners	96	\$23.76
Residential Advisors	95	\$17.70
Food Cooking Machine Operators and Tenders	95	\$16.15
Motor Vehicle Operators, All Other	92	\$21.72
Helpers--Installation, Maintenance, and Repair Workers	89	\$17.91
Roustabouts, Oil and Gas	89	\$28.80
Material Moving Workers, All Other	85	\$16.38
Tile and Stone Setters	78	\$27.20
Paper Goods Machine Setters, Operators, and Tenders	70	\$22.05
Tour and Travel Guides	60	\$17.23
Highway Maintenance Workers	60	\$24.85
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	59	\$18.15
Cabinetmakers and Bench Carpenters	58	\$17.74
School Bus Monitors	57	\$15.57
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	57	\$18.56
Demonstrators and Product Promoters	56	\$17.12
Plasterers and Stucco Masons	54	\$26.96
Helpers, Construction Trades, All Other	52	\$20.66
Parking Attendants	50	\$15.11
Religious Workers, All Other	49	\$19.61
Helpers--Electricians	49	\$19.06
Fence Erectors	48	\$18.93

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Building Cleaning Workers, All Other	48	\$21.49
Hazardous Materials Removal Workers	46	\$22.92
Sewing Machine Operators	44	\$16.20
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	44	\$19.14
Postal Service Mail Sorters, Processors, and Processing Machine Operators	43	\$24.91
Passenger Attendants	43	\$16.95
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	43	\$17.11
Word Processors and Typists	42	\$19.60
Postal Service Clerks	42	\$28.05
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	39	\$17.75
Conveyor Operators and Tenders	38	\$17.90
Insulation Workers, Floor, Ceiling, and Wall	38	\$23.72
Grounds Maintenance Workers, All Other	38	\$22.15
Painting, Coating, and Decorating Workers	38	\$19.03
Coin, Vending, and Amusement Machine Servicers and Repairers	38	\$21.49
Floor Layers, Except Carpet, Wood, and Hard Tiles	37	\$20.57
Rotary Drill Operators, Oil and Gas	37	\$46.51
Septic Tank Servicers and Sewer Pipe Cleaners	37	\$20.55
Cooks, All Other	36	\$15.65
Tapers	36	\$26.02
Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	36	\$19.96
Crane and Tower Operators	34	\$28.64
Funeral Attendants	32	\$17.57
Telemarketers	32	\$15.29
Molders, Shapers, and Casters, Except Metal and Plastic	31	\$19.50
Pipelayers	29	\$24.41
Pressers, Textile, Garment, and Related Materials	29	\$14.94
Gambling Dealers	28	\$17.47
Carpet Installers	28	\$21.08
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	28	\$16.97

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Tailors, Dressmakers, and Custom Sewers	28	\$15.05
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	27	\$19.45
Sawing Machine Setters, Operators, and Tenders, Wood	27	\$17.60
Jewelers and Precious Stone and Metal Workers	26	\$22.69
Concierges	25	\$20.15
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	17,978	\$14.84
Fast Food and Counter Workers	6,900	\$14.99
Cashiers	4,995	\$14.91
Stockers and Order Fillers	4,270	\$17.03
Laborers and Freight, Stock, and Material Movers, Hand	4,082	\$18.65
Retail Salespersons	3,307	\$15.75
Waiters and Waitresses	2,466	\$14.37
Cooks, Fast Food	1,761	\$14.99
Packers and Packagers, Hand	1,603	\$15.09
Landscaping and Groundskeeping Workers	1,558	\$17.29
Food Preparation Workers	1,337	\$14.95
Maids and Housekeeping Cleaners	1,264	\$16.04
Light Truck Drivers	1,126	\$17.97
Security Guards	1,042	\$15.66
Farmworkers, Farm, Ranch, and Aquacultural Animals	1,031	\$14.83
Construction Laborers	939	\$20.75
Cleaners of Vehicles and Equipment	804	\$15.42
Dining Room and Cafeteria Attendants and Bartender Helpers	659	\$14.36
Amusement and Recreation Attendants	658	\$14.68
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	632	\$14.53
Driver/Sales Workers	582	\$16.72
Dishwashers	572	\$15.15
Miscellaneous Assemblers and Fabricators	571	\$16.77
Bartenders	570	\$14.46
Agricultural Workers, All Other	550	\$15.22
Counter and Rental Clerks	496	\$17.32

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Animal Caretakers	441	\$15.96
Graders and Sorters, Agricultural Products	422	\$14.77
Cooks, Institution and Cafeteria	375	\$18.00
Food Servers, Nonrestaurant	320	\$16.28
Hotel, Motel, and Resort Desk Clerks	303	\$15.39
Production Workers, All Other	293	\$16.81
Ushers, Lobby Attendants, and Ticket Takers	287	\$14.83
Food Preparation and Serving Related Workers, All Other	286	\$15.51
Bus Drivers, School	273	\$22.91
Food Batchmakers	236	\$18.03
Shuttle Drivers and Chauffeurs	229	\$16.35
Painters, Construction and Maintenance	228	\$20.98
Helpers--Production Workers	227	\$16.50
Bakers	226	\$16.35
Dispatchers, Except Police, Fire, and Ambulance	217	\$21.39
Drywall and Ceiling Tile Installers	208	\$24.91
Cooks, Short Order	206	\$16.50
Meat, Poultry, and Fish Cutters and Trimmers	193	\$15.43
Butchers and Meat Cutters	187	\$18.03
Slaughterers and Meat Packers	185	\$14.82
Refuse and Recyclable Material Collectors	185	\$22.83
Crossing Guards and Flaggers	184	\$16.71
Food Processing Workers, All Other	182	\$16.96
Merchandise Displayers and Window Trimmers	177	\$17.34
Postal Service Mail Carriers	171	\$24.35
Laundry and Dry-Cleaning Workers	158	\$15.58
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	157	\$16.91
Couriers and Messengers	155	\$15.93
Cement Masons and Concrete Finishers	148	\$24.84
Machine Feeders and Offbearers	141	\$18.74
Service Unit Operators, Oil and Gas	129	\$28.89



OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Automotive and Watercraft Service Attendants	126	\$16.57
Personal Care and Service Workers, All Other	126	\$16.28
Tire Repairers and Changers	112	\$16.80
Taxi Drivers	108	\$14.04
First-Line Supervisors of Entertainment and Recreation Workers, Except Gambling Services	105	\$19.12
Roofers	101	\$28.75
Tree Trimmers and Pruners	96	\$23.76
Residential Advisors	95	\$17.70
Food Cooking Machine Operators and Tenders	95	\$16.15
Motor Vehicle Operators, All Other	92	\$21.72
Helpers--Installation, Maintenance, and Repair Workers	89	\$17.91
Roustabouts, Oil and Gas	89	\$28.80
Material Moving Workers, All Other	85	\$16.38
Tile and Stone Setters	78	\$27.20
Paper Goods Machine Setters, Operators, and Tenders	70	\$22.05
Tour and Travel Guides	60	\$17.23
Highway Maintenance Workers	60	\$24.85
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	59	\$18.15
Cabinetmakers and Bench Carpenters	58	\$17.74
School Bus Monitors	57	\$15.57
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	57	\$18.56
Demonstrators and Product Promoters	56	\$17.12
Plasterers and Stucco Masons	54	\$26.96
Helpers, Construction Trades, All Other	52	\$20.66
Parking Attendants	50	\$15.11
Religious Workers, All Other	49	\$19.61
Helpers--Electricians	49	\$19.06
Fence Erectors	48	\$18.93
Building Cleaning Workers, All Other	48	\$21.49
Hazardous Materials Removal Workers	46	\$22.92
Sewing Machine Operators	44	\$16.20

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	44	\$19.14
Postal Service Mail Sorters, Processors, and Processing Machine Operators	43	\$24.91
Passenger Attendants	43	\$16.95
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	43	\$17.11
Word Processors and Typists	42	\$19.60
Postal Service Clerks	42	\$28.05
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	39	\$17.75
Conveyor Operators and Tenders	38	\$17.90
Insulation Workers, Floor, Ceiling, and Wall	38	\$23.72
Grounds Maintenance Workers, All Other	38	\$22.15
Painting, Coating, and Decorating Workers	38	\$19.03
Coin, Vending, and Amusement Machine Servicers and Repairers	38	\$21.49
Floor Layers, Except Carpet, Wood, and Hard Tiles	37	\$20.57
Rotary Drill Operators, Oil and Gas	37	\$46.51
Septic Tank Servicers and Sewer Pipe Cleaners	37	\$20.55
Cooks, All Other	36	\$15.65
Tapers	36	\$26.02
Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	36	\$19.96
Crane and Tower Operators	34	\$28.64
Funeral Attendants	32	\$17.57
Telemarketers	32	\$15.29
Molders, Shapers, and Casters, Except Metal and Plastic	31	\$19.50
Pipelayers	29	\$24.41
Pressers, Textile, Garment, and Related Materials	29	\$14.94
Gambling Dealers	28	\$17.47
Carpet Installers	28	\$21.08
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	28	\$16.97
Tailors, Dressmakers, and Custom Sewers	28	\$15.05
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	27	\$19.45
Sawing Machine Setters, Operators, and Tenders, Wood	27	\$17.60

OCCUPATION	ANNUAL OPENINGS	MEDIAN HOURLY WAGES
Jewelers and Precious Stone and Metal Workers	26	\$22.69
Concierges	25	\$20.15

# APPENDIX B: TERMS & DEFINITIONS

## Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including Lightcast, the California Community Colleges Chancellor’s Office Management Information Systems Data Mart, and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

Data Type	Source
Labor Market Information/Population Estimates and Projections/Educational Attainment	Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates are affected by county-level Lightcast earnings by industry: <a href="https://lightcast.io/">https://lightcast.io/</a> .
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: <a href="https://www.bls.gov/emp/tables/educational-attainment.htm">https://www.bls.gov/emp/tables/educational-attainment.htm</a> .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: <a href="http://labormarketinfo.edd.ca.gov">labormarketinfo.edd.ca.gov</a> .
Job Posting and Skills Data	Lightcast.
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: <a href="http://onetonline.org">onetonline.org</a> .

## Key Terms and Concepts

**Annual Job Openings:** Annual openings are calculated by dividing the number of years in the projection period by total job openings.

**Education Attainment Level:** The highest education attainment level of workers age 25 years or older.

**Employment Estimate:** The total number of workers currently employed.

**Employment Projections:** Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (LIGHTCAST) formula that includes historical employment and economic indicators along with national, state and local trends.

**Living Wage:** The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

**Occupation:** An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

**Percent Change:** Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

**Replacements:** Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

**Total Job Openings (New + Replacements):** Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

**Typical Education Requirement:** represents the typical education level most workers need to enter an occupation.

**Typical On-The-Job Training:** indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.