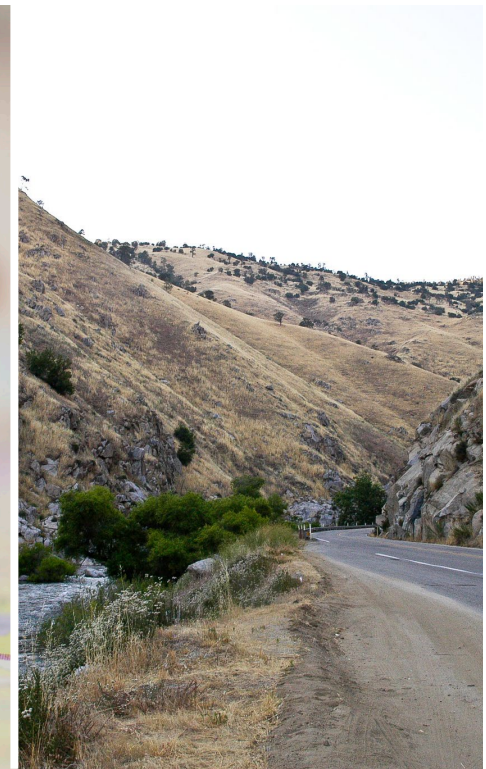
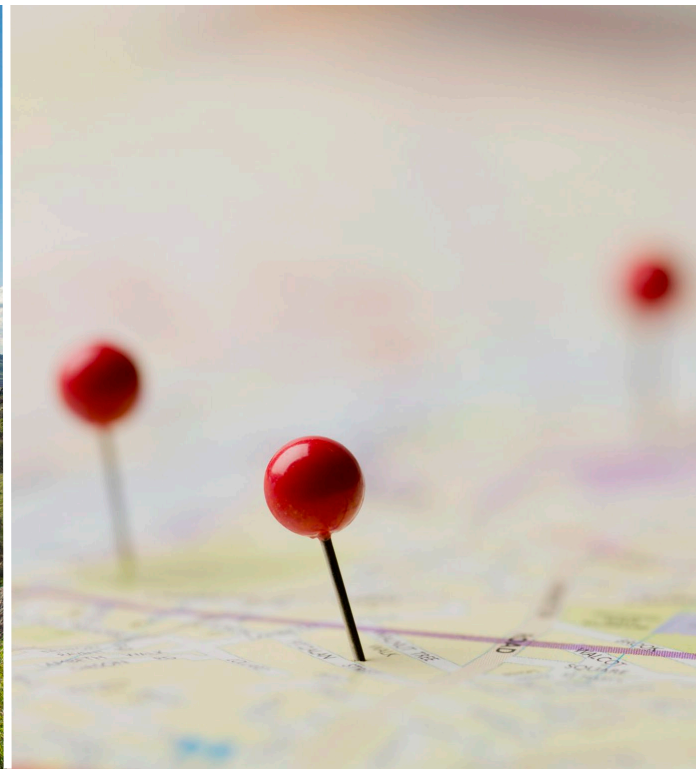


March 2022

Labor Market Scan

FRESNO, KERN, AND KINGS COUNTIES



Prepared by the Central Valley/Mother Lode Center of Excellence



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COVID-19 Statement: This report includes employment projection data by EMSI. EMSI's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

If for any reason this document is not accessible or if you have specific needs for readability, please contact us and we will do our utmost to accommodate you with a modified version. To make a request, contact Nora Seronello by phone at (209) 575-6894 or by email seronellon@mjc.edu.

Introduction

This report prepared by the Central Valley/Mother Lode Center of Excellence examines labor market demand and postsecondary supply in Fresno, Kern, and Kings Counties.

The report focuses on occupations in the (10) sectors that align with career education (CE) programs designated by the California Community Colleges Chancellor's Office (CCCCO).¹

Within each sector, this analysis focuses on middle-skill occupations, those occupations that require more education and training than a high school diploma, but less than a bachelor's degree at the state-level. For each occupation, data is presented on current employment, projected demand, entry-level wages, and educational attainment.

The average living wage for a single adult in the Fresno, Kern, and Kings is \$11.44/hour.² Top specialized skills were determined by analyzing job postings for all occupations in a related sector using Burning Glass. Postsecondary supply is presented for average annual awards (degrees and certificates) by program.

Please note: The analysis in this report only includes occupations with 25 or more annual openings. In the wage charts for each sector, entry-level wages represent 25th percentile wages. In addition, Current Population Survey (CPS) results are provided in the educational attainment tables. An occupation in which at least 30% of its workforce or higher possesses less than a bachelor's degree is considered a middle-skill occupation that is relevant to community college education.

More information on the report's methodology can be found in Appendix A.

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

² 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://insightcced.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

Summary of Findings

The Central Valley/Mother Lode Center of Excellence was asked to provide labor market information for the (10) CCCCCO sectors that are critical to the economic vitality of Fresno, Kern, and Kings Counties.

In the following report sections, occupational wages, educational attainment, and postsecondary supply are shown for each CCCCCO sector. Analysis by the Center of Excellence examined whether postsecondary institutions are supplying enough students to meet workforce demand. This analysis measured projected occupational growth and job openings and compared that with postsecondary programs preparing students to enter occupations within those sectors.

Key finding:

In Fresno, Kern, and Kings Counties, the 10 sectors are expected to offer 38,973 middle-skill job openings annually. Postsecondary institutions in the service area currently supply 12,198 awards (degrees and certificates) to students entering related fields on average each year. When postsecondary supply and projected annual openings are compared, an undersupply of 26,775 workers appears to exist in the district service area.

Employment and occupational data are presented in the following report sections for the occupations in each sector that have 25 or more annual openings. However, these snapshots of employment do not account for the entire picture. As a result, the analysis calculated the total employment and projected occupational demand for all middle-skill occupations associated with each sector (Exhibit 1).

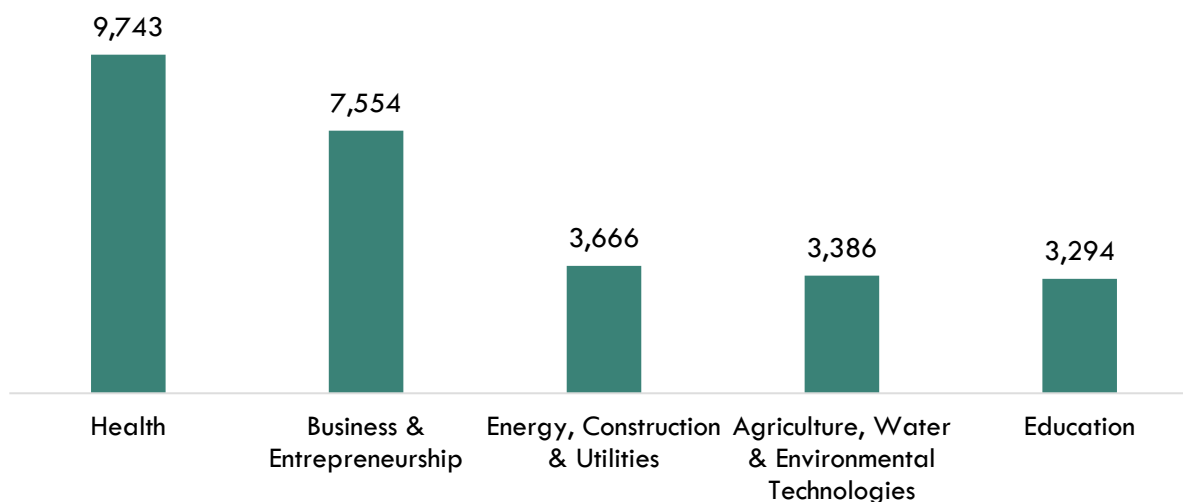
Sectors with the most jobs in 2020 are health, business and entrepreneurship, and energy, construction & utilities. These sectors also are projected to offer the greatest number of annual job openings. The smallest sectors in terms of 2020 employment are public safety, advanced manufacturing, and retail, hospitality, and tourism. These sectors also are projected to offer the smallest number of annual job openings.

Exhibit 1. Total employment and projected occupational demand for each sector in Fresno, Kern, and Kings Counties

Sector	2020 Jobs	2025 Jobs	5-Year Change	5-Year % Change	Annual Openings
Health	65,140	76,032	10,893	17%	9,743
Business & Entrepreneurship	70,754	72,115	1,361	2%	7,554
Energy, Construction & Utilities	31,750	33,963	2,212	7%	3,666
Agriculture, Water & Environmental Technologies	28,976	29,525	549	2%	3,386
Education	28,679	28,363	(316)	(1%)	3,294
Advanced Transportation & Logistics	25,432	27,884	2,453	10%	3,181
Retail, Hospitality & Tourism	20,486	22,119	1,633	8%	2,901
ICT/Digital Media	24,069	24,098	29	0%	2,608
Advanced Manufacturing	14,992	15,459	467	3%	1,673
Public Safety	10,988	11,094	106	1%	967
TOTAL	321,265	340,653	19,387	6%	38,973

In terms of projected occupational demand, the health sector is expected to offer the greatest number of annual openings in Fresno, Kern, and Kings Counties, more than 9,700 job openings each year. The business & entrepreneurship sector is expected to offer just over 7,500 annual openings, followed by the energy, construction & utilities sector with more than 3,600 annual openings.

Exhibit 2. Sectors with the highest number of projected annual job openings in Fresno, Kern, and Kings Counties



By comparison, sectors with the greatest number of postsecondary awards conferred on average each year are:

- Health, 4,945 awards
- Business & entrepreneurship, 1,502 awards
- Education, 1,219 awards
- Retail, Hospitality & Tourism, 813 awards

The study compared postsecondary supply (the number of awards conferred by community colleges and other training providers such as proprietary schools) with projected occupational demand (job openings) in the district service area to determine where the largest undersupply of workers exists. Industry sectors with the lowest number of awards include ICT/digital media, public safety, and agriculture, water & environmental technologies (Exhibit 3).

Exhibit 3. Comparison of projected occupational demand and postsecondary supply resulting in a gap or undersupply of prepared workers

Sector	Demand	Gap	Supply
Health	9,743	4,798	4,945
Business & Entrepreneurship	7,554	6,051	1,502
Energy, Construction & Utilities	3,666	3,010	656
Agriculture, Water & Environmental Technologies	3,386	2,774	612
Education	3,294	2,075	1,219
Advanced Transportation & Logistics	3,181	2,470	711
Retail, Hospitality & Tourism	2,901	2,088	813
ICT/Digital Media	2,608	2,131	477
Advanced Manufacturing	1,673	993	680
Public Safety	967	384	583
TOTAL	38,973	26,221	12,752

Based on the gap analysis, the business & entrepreneurship sector has the largest gap, an undersupply of 6,051 workers, followed by the health sector, an undersupply of 4,798 workers. The energy; construction and utilities sector also has a substantial undersupply, a shortage of 3,010 workers.

In addition to addressing the sectors with the largest undersupply of workers, planning efforts by the district could also consider occupations with strong workforce demand.

Occupations that have the most annual job openings and that are generally well paid in Fresno, Kern, and Kings Counties are:

- **Heavy and Tractor-Trailer Truck Drivers, 1,589 job openings**
- **Office Clerks, General, 1,446 job opening**
- **Teaching Assistants, Except Postsecondary, 974 job openings**
- **Registered Nurses, 812 job openings**
- **Secretaries and Administrative Assistants, Except Legal, Medical, and Executive, 739 job openings**
- **Bookkeeping, Accounting, and Auditing Clerks, 712 job openings**
- **Medical Assistants, 645 job openings**
- **First-Line Supervisors of Retail Sales Workers, 631 job openings**

Despite home health and personal care aides is projected to offer 5,387 annual job openings, this occupation pays a fairly low entry-level wage, only \$13.02 per hour. In addition, 1,180 annual job openings are projected for farmers, ranchers, and other agricultural managers, but this occupation pays an entry-level wage of \$12.03.

Occupations that pose a concern for training are those projected to contract over the next five years. These occupations will continue to offer annual openings, due to replacement jobs, but may be areas warranting attention since contraction may affect the future hiring of students.

These occupations include:

- **Customer Service Representatives, a loss of 136 positions, a 2% decline**
- **Childcare Workers, a loss of 366 positions, a 6% decline**
- **Secretaries and Administrative Assistants, Except Legal, Medical, and Executive, a loss of 169 positions, a 2% decline**

It is also important to keep in mind occupations that offer solid wages in conjunction with moderate to strong workforce demand. Sectors with these types of jobs include ICT/digital media; education, and business & entrepreneurship.

Within health care, occupations that have a promising outlook and that can lead to improved quality of life for students include dental hygienists, registered nurses, radiologic technologists and technicians, and physical therapist assistants. Within logistics, occupations include aircraft mechanics and service technicians and logisticians. Within business and entrepreneurship, general and operations managers, and sales representatives, wholesale and manufacturing, technical and scientific products are occupations that pay relatively high entry-level wages and have significant annual openings. Within the energy, construction, and utilities sector, occupations include administrative services and facilities managers and telecommunications line installers and repairers

Advanced Manufacturing

Summary

- **Gender & race/ethnicity:** Comprising 25% of the workforce, women are underrepresented in this sector. Analysis shows underrepresentation of white workers, and overrepresentation of Hispanic or Latino workers (Exhibits 4 and 5).
- **Employment and projected demand:** The largest middle-skill occupation is packaging and filling machine operators and tenders which will have the most annual openings, 397 (Exhibit 6).
- **Wages:** The highest paid occupation is industrial production managers, \$43.05/hour median (Exhibit 6).
- **In-demand qualifications:** The top skill is quality assurance and control, and the top certification is a driver's license (Exhibits 8 and 9).
- **Supply and Gap analysis:** The demand for advanced manufacturing occupations was 1,673 with a supply of 680 resulting in an undersupply of 993 workers (Exhibit 10 and 11).

Top Job Titles

- Welder
- Maintenance Mechanic
- Production Supervisor

Exhibit 4. Gender composition of the top occupations in the advanced manufacturing workforce

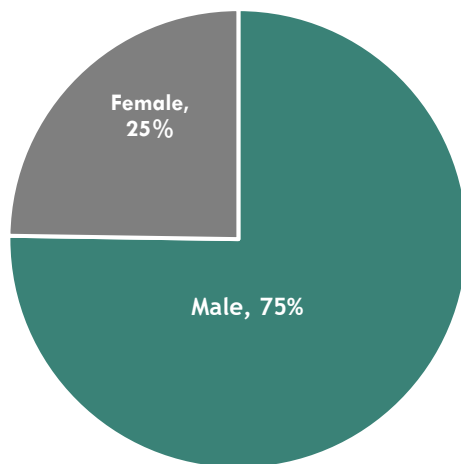


Exhibit 5. Race/ethnicity composition of the top occupations in the advanced manufacturing workforce

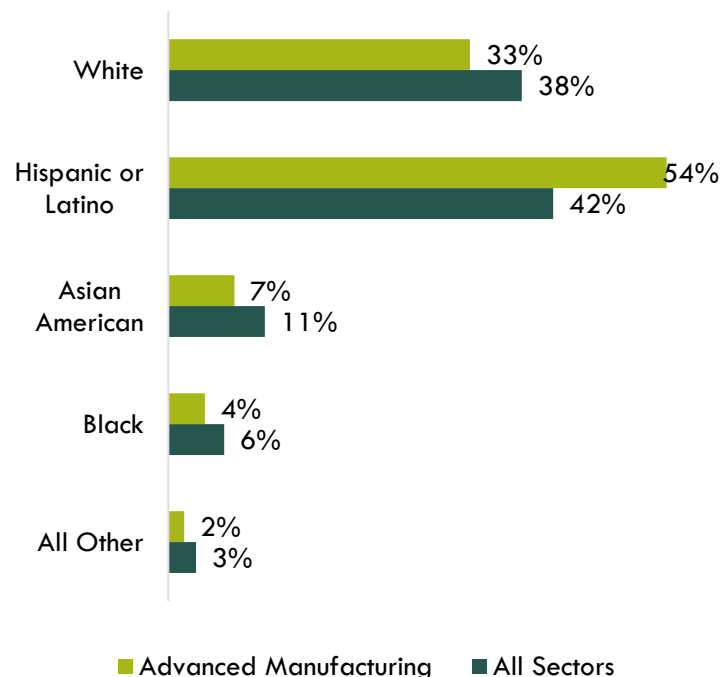


Exhibit 6. Advanced manufacturing employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Packaging and Filling Machine Operators and Tenders	3,609	3,599	(10)	(0%)	397	\$15.16
First-Line Supervisors of Production and Operating Workers	2,211	2,299	88	4%	237	\$29.86
Inspectors, Testers, Sorters, Samplers, and Weighers	1,862	1,822	(40)	(2%)	218	\$17.64
Welders, Cutters, Solderers, and Brazers	1,703	1,768	65	4%	195	\$18.96
Industrial Machinery Mechanics	1,462	1,651	189	13%	169	\$26.61
Machinists	900	944	44	5%	103	\$18.41
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	512	516	3	1%	52	\$15.10
Mixing and Blending Machine Setters, Operators, and Tenders	403	433	30	7%	51	\$17.31
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	387	428	40	10%	48	\$19.13
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	373	400	27	7%	44	\$24.16
Printing Press Operators	372	380	8	2%	44	\$20.58
Industrial Production Managers	537	561	24	4%	41	\$43.05
Cutting and Slicing Machine Setters, Operators, and Tenders	286	283	(2)	(1%)	35	\$17.05
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	282	287	5	2%	30	\$17.35
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	231	234	4	2%	26	\$19.28
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	234	234	1	0%	25	\$20.48

Exhibit 7. Advanced manufacturing educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Packaging and Filling Machine Operators and Tenders	High school diploma or equivalent	None	Moderate-term	21.1%
First-Line Supervisors of Production and Operating Workers	High school diploma or equivalent	Less than 5 years	None	35.3%
Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma or equivalent	None	Moderate-term	38.0%
Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	None	Moderate-term	32.2%
Industrial Machinery Mechanics	High school diploma or equivalent	None	Long-term	40.9%
Machinists	High school diploma or equivalent	None	Long-term	41.2%
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	High school diploma or equivalent	None	Short-term	35.9%
Mixing and Blending Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term	28.5%
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term	28.6%
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term	34.5%
Industrial Production Managers	Bachelor's degree	5 years or more	None	29.8%
Cutting and Slicing Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term	20.9%
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term	27.8%
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term	28.5%
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term	26.2%
Packaging and Filling Machine Operators and Tenders	High school diploma or equivalent	None	Moderate-term	21.1%

Exhibit 8. Top specialized skills in job postings for advanced manufacturing occupations, n=1,281

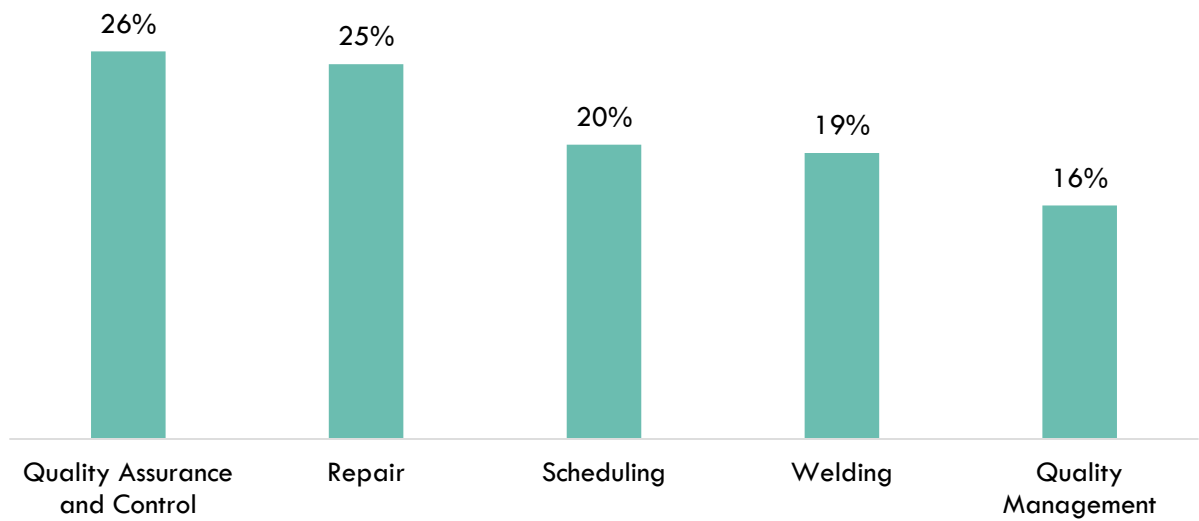


Exhibit 9. Top certifications in job postings for advanced manufacturing occupations, n=339

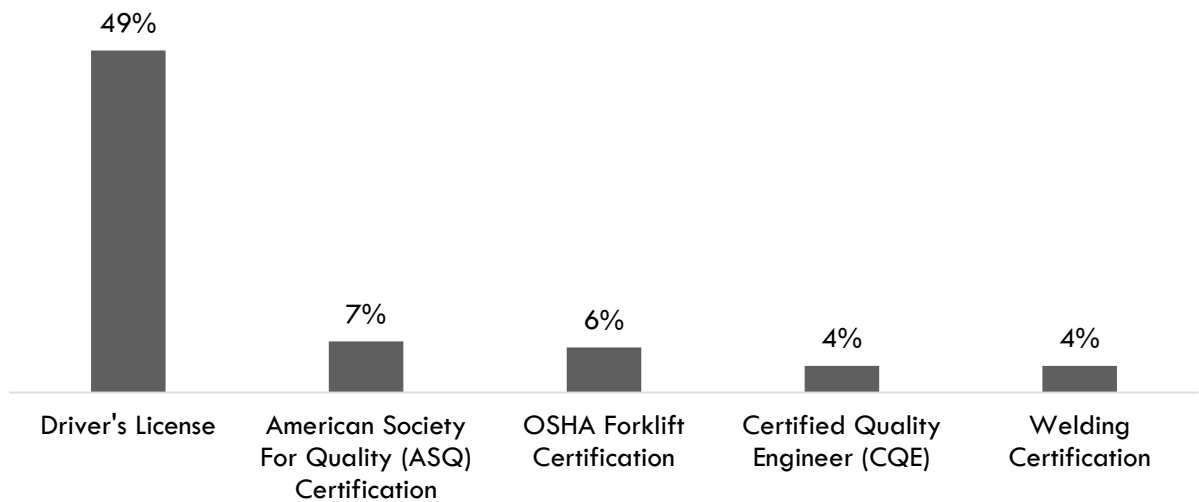


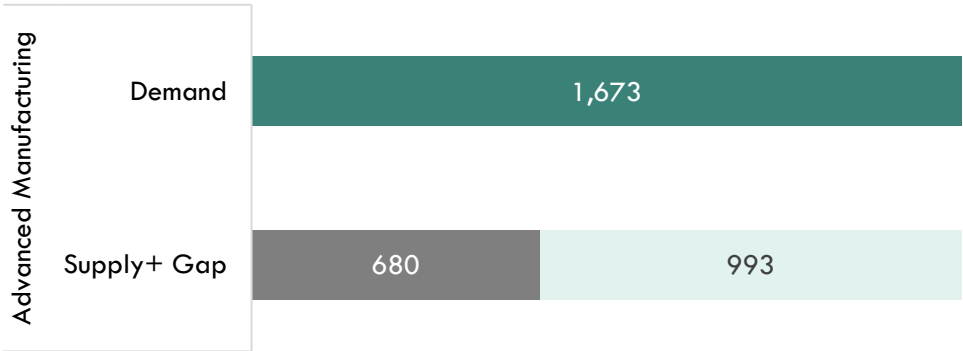
Exhibit 10. Advanced manufacturing postsecondary supply

TOP/CIP Code- Title	College	Associate Degree	Award < 1 academi c Year	Award 1 < 2 academi c Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Noncredit Award 192 < 288 hours	Noncredit Award 480 < 960 hours	Subtotal
093400 - Electronics and Electric Technology	Fresno City	15				4	1	12					32
	Sequoias						1		1				2
093420 - Industrial Electronics	Fresno City				16	1							17
093600 - Printing and Lithography	Fresno City	3						3					6
094500 - Industrial Systems Technology and Maintenance	Clovis	0				0	0						1
	Fresno City					8					31		39
	Sequoias	7				6		51		17			81
	West Hills Lemoore					1							1
095600 - Manufacturin g and Industrial Technology	Fresno City	2						7				22	31
	Porterville					3	11		18				32
	Reedley College	1				37	53	1					91
	Fresno City	7			11	6		5					29
095650 - Welding Technology	Porterville								10				10
	Reedley College	4				12	1	14					30
	Sequoias	8				2	13						23
	West Hills Coalinga					1	5						6
47.0104 - Computer Installation and Repair Technology/T echnician	UEI College- Fresno			24									24
47.0303 - Industrial Mechanics	San Joaquin Valley College- Visalia	15		117									132

TOP/CIP Code- Title	College	Associate Degree	Award < 1 academi c Year	Award 1 < 2 academi c Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Noncredit Award 192 < 288 hours	Noncredit Award 480 < 960 hours	Subtotal
and Maintenance Technology													
48.0508 - Welding Technology/W elder	Advanced Career Institute		89										89
	Institute of Technology			3									3
TOTAL		62	89	144	27	81	85	92	29	17	31	22	680

Exhibit 11. Advanced manufacturing workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
1,673	680	993



ADVANCED TRANSPORTATION & LOGISTICS

Summary

- **Gender & race/ethnicity:** Comprising 11% of the workforce, women are underrepresented in this sector. Analysis shows underrepresentation of white workers, and overrepresentation of Hispanic or Latino workers (Exhibits 12 and 13).
- **Employment and projected demand:** The largest middle-skill occupation is heavy and tractor-trailer truck drivers which will have the most annual openings, 1,589 (Exhibit 14).
- **Wages:** The highest paid occupation is airline pilots, copilots, and flight engineers, \$106.68/hour median (Exhibit 14).
- **In-demand qualifications:** The top skill is repair, and the top certification is a driver's license (Exhibits 16 and 17).
- **Supply and Gap analysis:** The demand for advanced transportation and logistics occupations was 3,181 with a supply of 711 resulting in an undersupply of 680 workers (Exhibit 18 and 19).

Top Job Titles

- Driver
- Class A Local Driver
- Class A Cdl Local Driver - Home Daily

Exhibit 12. Gender composition of the top occupations in the advanced transportation and logistics workforce

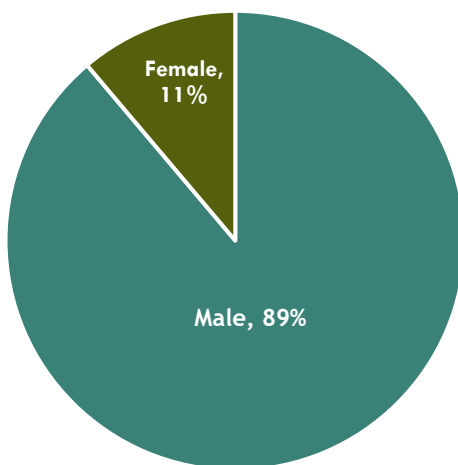


Exhibit 13. Race/ethnicity composition of the top occupations in the advanced transportation and logistics workforce

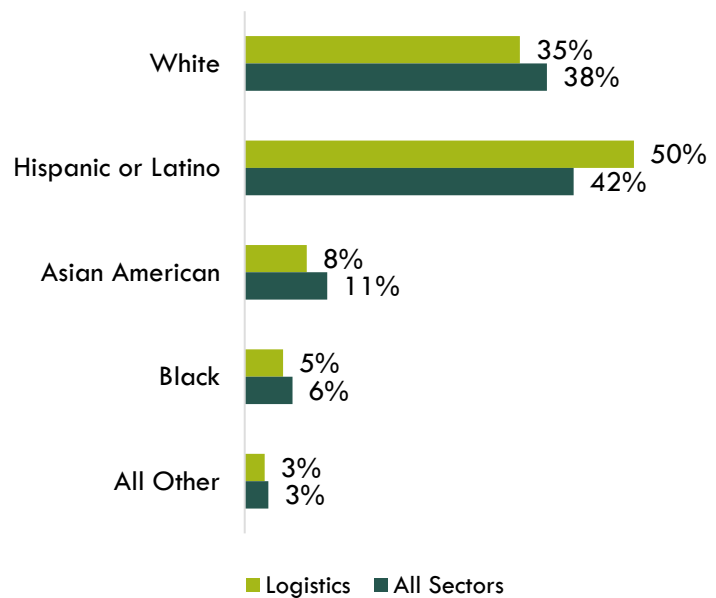


Exhibit 14. Advanced transportation and logistics employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Heavy and Tractor-Trailer Truck Drivers	11,093	12,630	1,537	14%	1,589	\$20.60
Automotive Service Technicians and Mechanics	3,223	3,295	72	2%	336	\$18.80
Shipping, Receiving, and Inventory Clerks	2,894	2,924	31	1%	285	\$15.84
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	1,904	2,140	236	12%	260	\$26.79
First-Line Supervisors of Mechanics, Installers, and Repairers	1,702	1,826	124	7%	180	\$33.99
Bus and Truck Mechanics and Diesel Engine Specialists	1,325	1,433	107	8%	146	\$23.30
Aircraft Mechanics and Service Technicians	769	836	67	9%	82	\$33.29
Logisticians	540	630	90	17%	68	\$36.16
Automotive Body and Related Repairers	542	596	54	10%	64	\$19.14
Transportation, Storage, and Distribution Managers	615	664	49	8%	57	\$42.27
Bus Drivers, Transit and Intercity	392	422	30	8%	57	\$25.70
Airline Pilots, Copilots, and Flight Engineers	229	252	23	10%	30	\$106.68
Cargo and Freight Agents	203	237	34	17%	29	\$22.47

Exhibit 15. Advanced transportation and logistics educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Heavy and Tractor-Trailer Truck Drivers	Postsecondary nondegree award	None	Short-term	29.8%
Automotive Service Technicians and Mechanics	Postsecondary nondegree award	None	Short-term	35.7%
Shipping, Receiving, and Inventory Clerks	High school diploma or equivalent	None	Short-term	33.8%
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	High school diploma or equivalent	Less than 5 years	None	39.4%
First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	Less than 5 years	None	41.7%
Bus and Truck Mechanics and Diesel Engine Specialists	High school diploma or equivalent	None	Long-term	36.4%
Aircraft Mechanics and Service Technicians	Postsecondary nondegree award	None	None	58.4%
Logisticians	Bachelor's degree	None	None	35.9%
Automotive Body and Related Repairers	High school diploma or equivalent	None	Long-term	26.2%
Transportation, Storage, and Distribution Managers	High school diploma or equivalent	5 years or more	None	34.7%
Bus Drivers, Transit and Intercity	High school diploma or equivalent	None	Moderate-term	39.5%
Airline Pilots, Copilots, and Flight Engineers	Bachelor's degree	Less than 5 years	Moderate-term	22.0%
Cargo and Freight Agents	High school diploma or equivalent	None	Short-term	40.7%
Heavy and Tractor-Trailer Truck Drivers	Postsecondary nondegree award	None	Short-term	29.8%
Automotive Service Technicians and Mechanics	Postsecondary nondegree award	None	Short-term	35.7%
Shipping, Receiving, and Inventory Clerks	High school diploma or equivalent	None	Short-term	33.8%
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	High school diploma or equivalent	Less than 5 years	None	39.4%

Exhibit 16. Top specialized skills in job postings for advanced transportation and logistics occupations, n=2,612

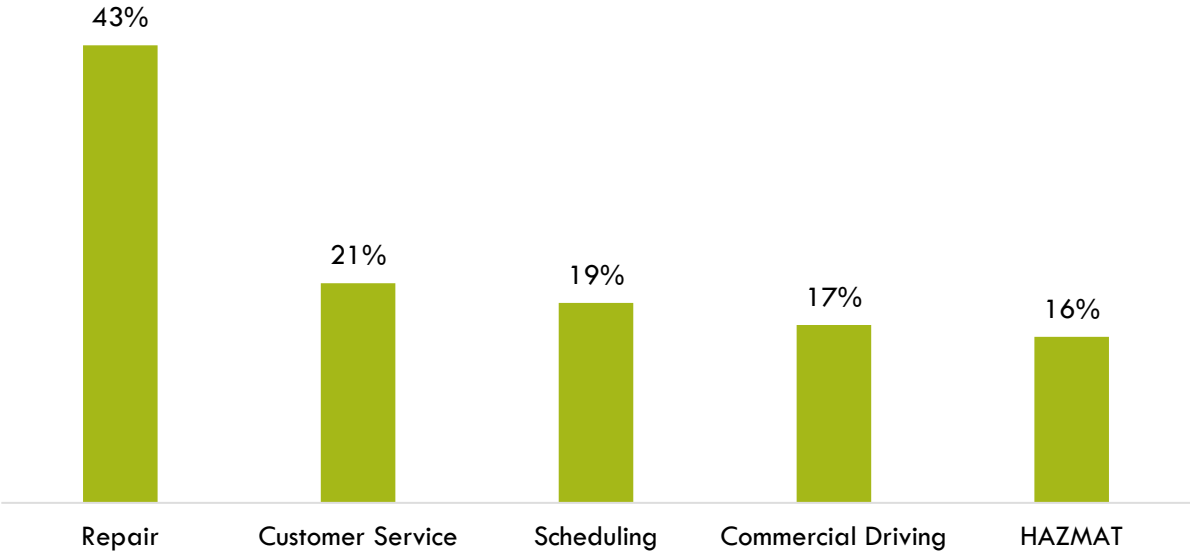


Exhibit 17. Top certifications in job postings for advanced transportation and logistics occupations, n=2,766

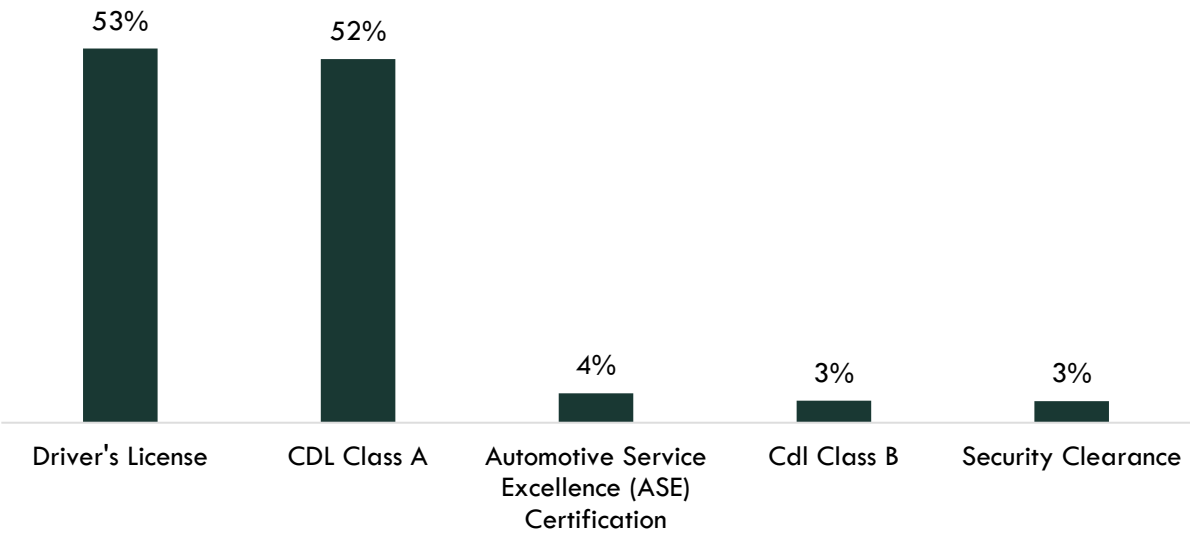
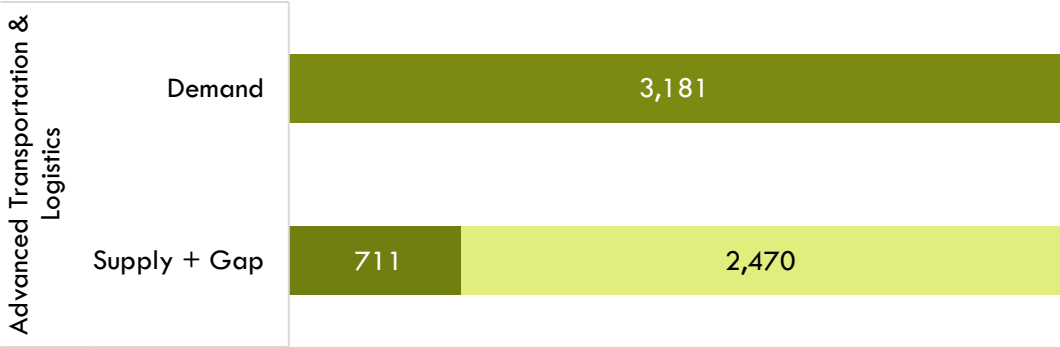


Exhibit 18. Advanced transportation and logistics postsecondary supply

TOP/CIP Code- Title	College	Associate Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Award 2 < 4 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 semester Units	Certificate 30 < 60 Semester units	Certificate 6 < 18 Semester Units	Certificate 60+ Semester Units	Noncredit Award 192 < 288 Hours	Noncredi t award 480 < 960 Hours	Noncredit Award 960+ Hours	Subtotal
051000 - Logistics and Materials Transportation	Fresno City										17			17
094730 - Heavy Equipment Operation	West Hills Coalinga						4							4
094750 - Truck and Bus Driving	West Hills Coalinga						1							1
094800 - Automotive Technology	Fresno City	12								1			6	19
	Reedley College	9						43						51
	Sequoias	6						1	37					43
094900 - Automotive Collision Repair	Fresno City	2						6				12		20
095000 - Aeronautical and Aviation Technology	Reedley College	5								10				15
095340 - Mechanical Drafting	Sequoias	0				3								3
15.0406 - Automation Engineer Technology/Tec hnician	Institute of Technology	10												10
47.0607 - Airframe Mechanics and Aircraft Maintenance Technology/Tec hnician	San Joaquin Valley College-Visalia	33		1	3									38
49.0205 - Truck and Bus Driver/Commer cial Vehicle Operator and Instructor	Advanced Career Institute		489											489
TOTAL		77	489	1	3	3	5	50	37	11	17	12	6	711

Exhibit 19. Advanced transportation and logistics workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
3,181	711	2,470



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 20 and 21).
- **Employment and projected demand:** The largest middle-skill occupation is farmers, ranchers, and other agricultural managers, which will have 1,180 annual openings (Exhibit 22).
- **Wages:** The highest paid occupation is cost estimators, \$37.27/hour median (Exhibit 22).
- **In-demand qualifications:** The top skill is sales, and the top certification is a driver's license (Exhibits 24 and 25).
- **Supply and Gap analysis:** The demand for agriculture, water, and environmental technologies occupations was 3,386 with a supply of 612 resulting in an undersupply of 2,774 workers (Exhibit 26 and 27).

Top Job Titles

- Sales Representative
- Outside Sales Representative
- Account Executive

Exhibit 20. Gender composition of the top occupations in the agriculture, water, and environmental technologies workforce

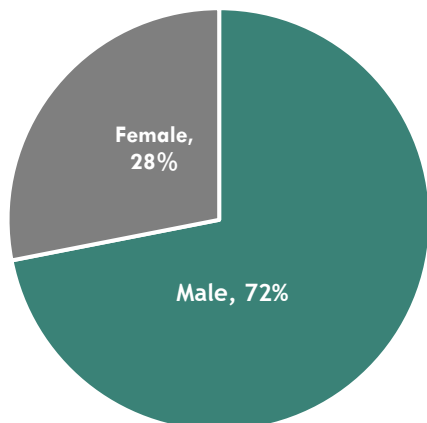


Exhibit 21. Race/ethnicity composition of the top occupations in the agriculture, water, and environmental technologies workforce

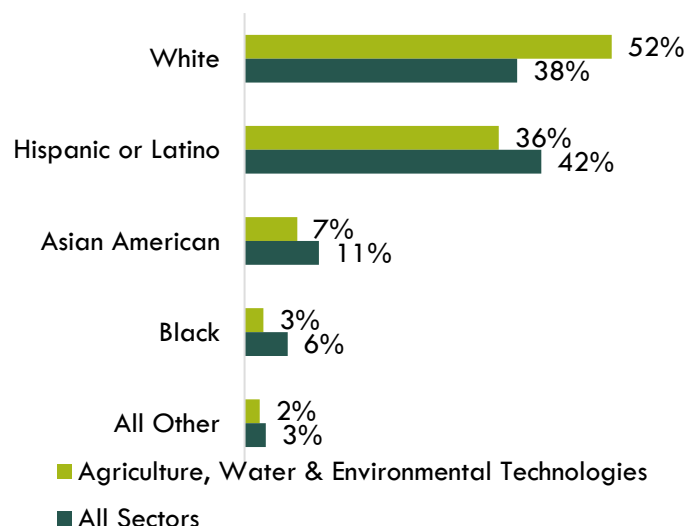


Exhibit 22. Agriculture, water, and environmental technologies employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Farmers, Ranchers, and Other Agricultural Managers	11,629	11,674	45	0%	1,180	\$16.62
Agricultural Equipment Operators	2,962	2,986	24	1%	481	\$14.00
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	4,292	4,523	230	5%	473	\$30.76
First-Line Supervisors of Farming, Fishing, and Forestry Workers	2,122	2,060	(62)	(3%)	299	\$18.14
Buyers and Purchasing Agents	953	960	7	1%	94	\$28.51
Mobile Heavy Equipment Mechanics, Except Engines	834	872	37	4%	90	\$28.41
Cost Estimators	859	911	52	6%	89	\$37.27
Farm Equipment Mechanics and Service Technicians	795	819	24	3%	83	\$20.24
Compliance Officers	906	963	56	6%	83	\$34.64
Agricultural Inspectors	470	460	(9)	(2%)	75	\$21.98
Pest Control Workers	464	492	28	6%	68	\$16.81
Agricultural and Food Science Technicians	459	473	14	3%	64	\$18.82
Animal Trainers	371	378	7	2%	48	\$13.88
Forest and Conservation Technicians	347	360	12	4%	45	\$17.88
Forest and Conservation Workers	273	276	3	1%	44	\$14.47
Veterinary Assistants and Laboratory Animal Caretakers	228	255	27	12%	44	\$15.15
Biological Technicians	276	287	11	4%	38	\$16.92
Veterinary Technologists and Technicians	336	378	42	12%	33	\$17.29
Environmental Science and Protection Technicians, Including Health	197	205	8	4%	26	\$21.31
Pesticide Handlers, Sprayers, and Applicators, Vegetation	203	195	(8)	(4%)	26	\$14.99

Exhibit 23. Agriculture, water, and environmental technologies educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Farmers, Ranchers, and Other Agricultural Managers	High school diploma or equivalent	5 years or more	None	30.2%
Agricultural Equipment Operators	No formal educational credential	None	Moderate-term	14.9%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	None	Moderate-term	32.1%
First-Line Supervisors of Farming, Fishing, and Forestry Workers	High school diploma or equivalent	Less than 5 years	None	21.9%
Buyers and Purchasing Agents	Bachelor's degree	None	Moderate-term	33.6%
Mobile Heavy Equipment Mechanics, Except Engines	High school diploma or equivalent	None	Long-term	35.2%
Cost Estimators	Bachelor's degree	None	Moderate-term	37.4%
Farm Equipment Mechanics and Service Technicians	High school diploma or equivalent	None	Long-term	35.2%
Compliance Officers	Bachelor's degree	None	Moderate-term	25.5%
Agricultural Inspectors	Bachelor's degree	None	Moderate-term	41.1%
Pest Control Workers	High school diploma or equivalent	None	Moderate-term	35.9%
Agricultural and Food Science Technicians	Associate's degree	None	Moderate-term	40.5%
Animal Trainers	High school diploma or equivalent	None	Moderate-term	32.0%
Forest and Conservation Technicians	Associate's degree	None	None	37.1%
Forest and Conservation Workers	High school diploma or equivalent	None	Moderate-term	24.4%
Veterinary Assistants and Laboratory Animal Caretakers	High school diploma or equivalent	None	Short-term	44.0%
Biological Technicians	Bachelor's degree	None	None	29.4%
Veterinary Technologists and Technicians	Associate's degree	None	None	56.9%
Environmental Science and Protection Technicians, Including Health	Associate's degree	None	None	33.0%
Pesticide Handlers, Sprayers, and Applicators, Vegetation	High school diploma or equivalent	None	Moderate-term	32.8%

Exhibit 24. Top specialized skills in job postings for agriculture, water, and environmental technologies occupations, n=3,133

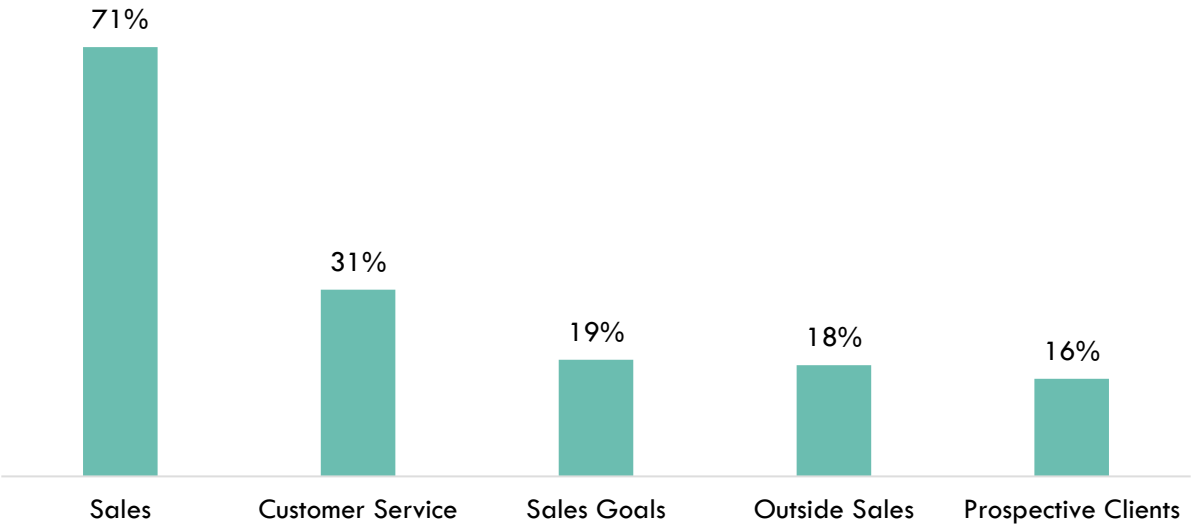


Exhibit 25. Top certifications in job postings for agriculture, water, and environmental technologies occupations, n=1,368

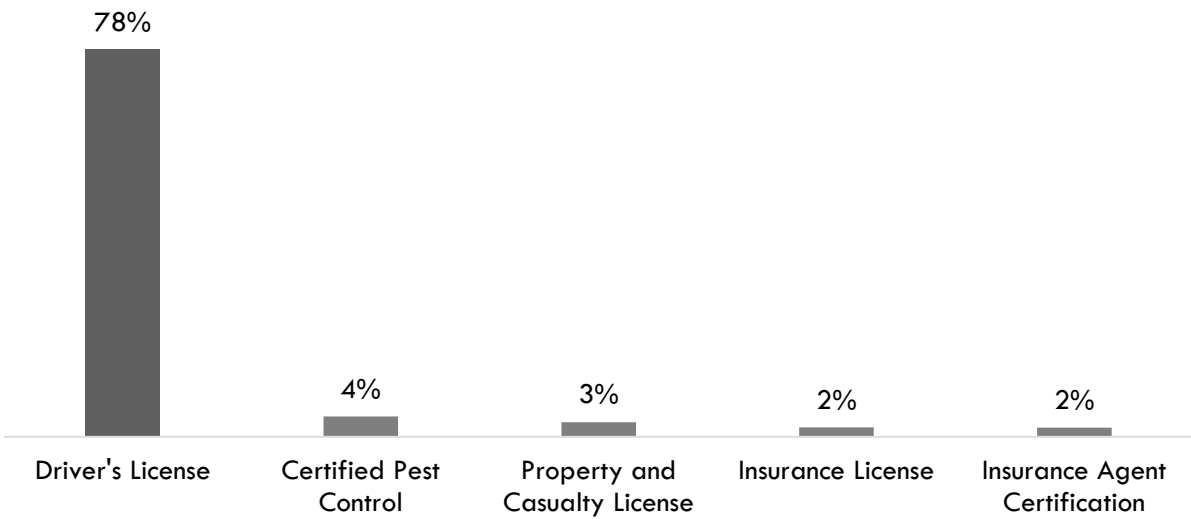


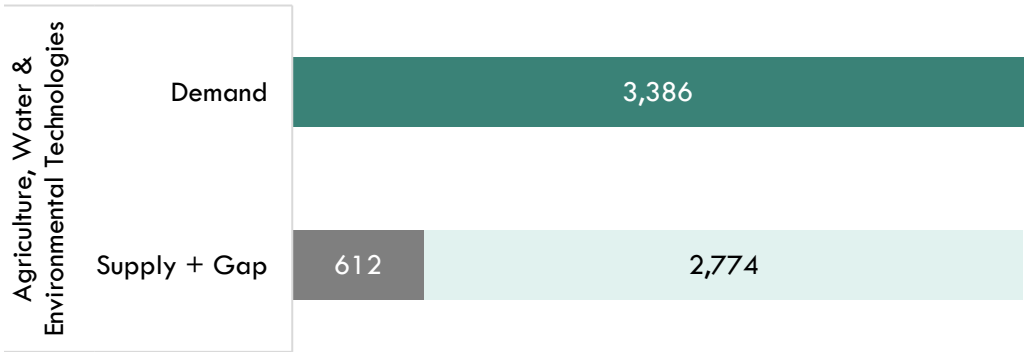
Exhibit 26. Agriculture, water, and environmental technologies postsecondary supply

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award 1 < 2 academic Years	Certificate 12 < 18 semester units	Certificate 16 < 30 semester units	Certificate 18 < 30 semester units	Certificate 30 < 60 semester units	Certificate 6 < 18 semester units	Certificate 8 < 16 semester units	Subtotal
010100 - Agriculture Technology and Sciences, General	Porterville	9									9
	Reedley College	1					1				2
	West Hills Coalinga	2					1		1		4
010200 - Animal Science	Reedley College	1	11		4	5					22
	Sequoias	5	10				3				18
010210 - Veterinary Technician (Licensed)	Sequoias						0				0
010230 - Dairy Science	Sequoias	0							3		3
010240 - Equine Science	Reedley College					3	2				5
	Sequoias					1	2				3
010300 - Plant Science	Reedley College	1	26		10	9	15	3			63
	Sequoias	2	8				1		2		13
	West Hills Coalinga		34								34
010310 - Agricultural Pest Control Adviser and Operator (Licensed)	Sequoias					0	1	0			2
	West Hills Coalinga					1	2				3
010400 - Viticulture, Enology, and Wine Business	Reedley College					1					1
010900 - Horticulture	Sequoias	1					2				3
010910 - Landscape Design and Maintenance	Sequoias	1					2		3		5
011200 - Agriculture Business, Sales and Service	Porterville		3								3
	Reedley College	0	18		1					5	25
	Sequoias	3	5			3	7				18
011300 - Food Processing and Related Technologies	Clovis						4				4

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award 1 < 2 academic Years	Certificate 12 < 18 semester units	Certificate 16 < 30 semester units	Certificate 18 < 30 semester units	Certificate 30 < 60 semester units	Certificate 6 < 18 semester units	Certificate 8 < 16 semester units	Subtotal
011400 - Forestry	Reedley College	10				5	9				23
011500 - Natural Resources	Fresno City					0	0				1
	Reedley College	5				5	13				23
011510 - Parks and Outdoor Recreation	Reedley College					1	2				3
011600 - Agricultural Power Equipment Technology	Reedley College	18				92	81	27			218
	Sequoias	1					0		0		2
51.0808 - Veterinary/Animal Health Technology/Technician and Veterinary Assistant	San Joaquin Valley College-Visalia	88		14							102
TOTAL		149	115	14	15	126	148	31	9	5	612

Exhibit 27. Agriculture, water, and environmental technologies workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
3,386	612	2,774



BUSINESS & ENTREPRENEURSHIP

Summary

- **Gender & race/ethnicity:** Comprising 37% of the workforce, men are underrepresented in this sector. Analysis shows underrepresentation of Hispanic or Latino workers, and overrepresentation of white workers (Exhibits 28 and 29).
- **Employment and projected demand:** The largest middle-skill occupation is customer service representatives, which will have 905 annual openings (Exhibit 30).
- **Wages:** The highest paid occupation is general and operations managers, \$44.45/hour median (Exhibit 30).
- **In-demand qualifications:** The top skill is customer service, and the top certification is a driver's license (Exhibits 32 and 33).
- **Supply and Gap analysis:** The demand for business & entrepreneurship was 7,554 with a supply of 1,502 resulting in an undersupply of 6,051 workers (Exhibit 34 and 35).

Top Job Titles

- **Customer Service Representative**
- **Receptionist**
- **Bookkeeper**

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

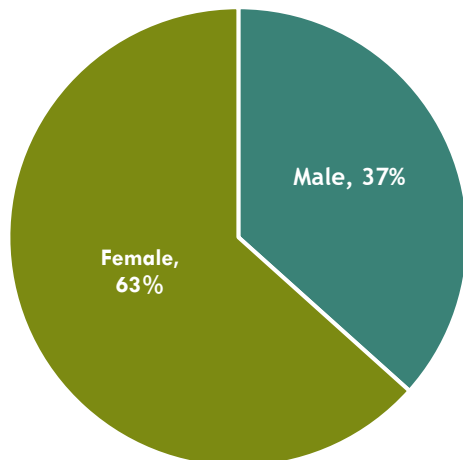


Exhibit 29. Race/ethnicity composition of the top occupations in the business and entrepreneurship workforce

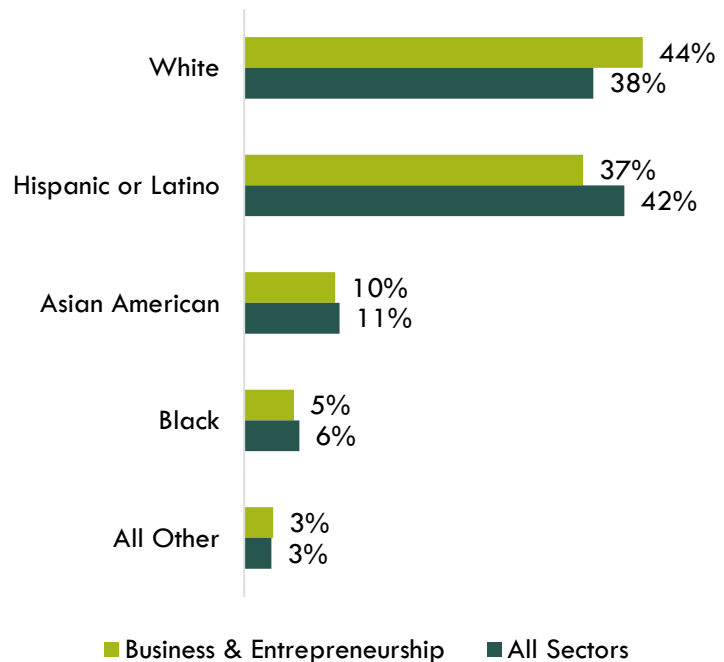


Exhibit 30. Business and entrepreneurship employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Customer Service Representatives	7,102	6,966	(136)	(2%)	905	\$16.46
Bookkeeping, Accounting, and Auditing Clerks	6,418	6,377	(41)	(1%)	712	\$20.71
General and Operations Managers	6,123	6,641	518	8%	623	\$44.45
First-Line Supervisors of Office and Administrative Support Workers	4,818	4,893	75	2%	492	\$27.39
Project Management Specialists and Business Operations Specialists, All Other	5,523	5,802	279	5%	463	\$29.64
Receptionists and Information Clerks	3,088	3,286	199	6%	438	\$15.31
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	2,282	2,404	122	5%	289	\$21.05
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	2,827	3,033	207	7%	252	\$36.27
Insurance Sales Agents	2,427	2,549	122	5%	251	\$25.00
Eligibility Interviewers, Government Programs	2,517	2,602	85	3%	247	\$23.58
Billing and Posting Clerks	1,819	1,893	73	4%	204	\$18.23
Human Resources Specialists	1,667	1,806	138	8%	191	\$28.52
Tax Examiners and Collectors, and Revenue Agents	1,957	1,953	(4)	(0%)	167	\$21.61
Office and Administrative Support Workers, All Other	1,197	1,206	10	1%	138	\$15.91
Information and Record Clerks, All Other	1,186	1,199	12	1%	134	\$19.10
Insurance Claims and Policy Processing Clerks	1,407	1,316	(91)	(6%)	131	\$20.71
Production, Planning, and Expediting Clerks	1,129	1,193	65	6%	130	\$20.99
Real Estate Sales Agents	1,260	1,344	84	7%	129	\$28.62
Sales and Related Workers, All Other	786	829	43	5%	111	\$15.23
Tellers	1,175	922	(253)	(22%)	110	\$15.63
Paralegals and Legal Assistants	885	943	58	7%	108	\$22.36

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Property, Real Estate, and Community Association Managers	1,228	1,277	49	4%	105	\$26.72
Data Entry Keyers	912	797	(115)	(13%)	93	\$16.48
Training and Development Specialists	815	871	56	7%	88	\$29.63
First-Line Supervisors of Non-Retail Sales Workers	944	923	(22)	(2%)	86	\$29.38
Claims Adjusters, Examiners, and Investigators	1,091	1,053	(38)	(4%)	86	\$30.57
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	728	784	56	8%	85	\$42.20
Interviewers, Except Eligibility and Loan	573	571	(2)	(0%)	72	\$20.33
First-Line Supervisors of Personal Service and Entertainment and Recreation Workers, Except Gambling Services	550	588	38	7%	70	\$16.34
Tax Preparers	537	561	24	5%	66	\$18.40
Loan Officers	836	769	(66)	(8%)	62	\$26.10
Bill and Account Collectors	594	531	(63)	(11%)	60	\$19.07
Payroll and Timekeeping Clerks	575	539	(36)	(6%)	57	\$24.73
File Clerks	476	432	(44)	(9%)	53	\$14.65
Order Clerks	476	452	(25)	(5%)	50	\$17.11
Court, Municipal, and License Clerks	452	464	12	3%	48	\$22.45
Human Resources Assistants, Except Payroll and Timekeeping	430	428	(3)	(1%)	44	\$20.80
Legal Secretaries and Administrative Assistants	397	358	(39)	(10%)	40	\$26.91
Real Estate Brokers	380	404	24	6%	38	\$40.22
Loan Interviewers and Clerks	415	380	(36)	(9%)	36	\$21.60
Meeting, Convention, and Event Planners	251	279	28	11%	33	\$22.37
Fundraisers	261	287	26	10%	31	\$27.81
Advertising Sales Agents	241	212	(29)	(12%)	28	\$30.63

Exhibit 31. Business and entrepreneurship educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Customer Service Representatives	High school diploma or equivalent	None	Short-term	41.9%
Bookkeeping, Accounting, and Auditing Clerks	Some college, no degree	None	Moderate-term	50.1%
General and Operations Managers	Bachelor's degree	5 years or more	None	34.3%
First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent	Less than 5 years	None	41.4%
Project Management Specialists and Business Operations Specialists, All Other	Bachelor's degree	None	None	22.2%
Receptionists and Information Clerks	High school diploma or equivalent	None	Short-term	45.8%
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	High school diploma or equivalent	None	Moderate-term	29.2%
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	Bachelor's degree	Less than 5 years	None	24.8%
Insurance Sales Agents	High school diploma or equivalent	None	Moderate-term	36.5%
Eligibility Interviewers, Government Programs	High school diploma or equivalent	None	Moderate-term	40.2%
Billing and Posting Clerks	High school diploma or equivalent	None	Moderate-term	49.1%
Human Resources Specialists	Bachelor's degree	None	None	24.6%
Tax Examiners and Collectors, and Revenue Agents	Bachelor's degree	None	Moderate-term	32.6%
Office and Administrative Support Workers, All Other	High school diploma or equivalent	None	Short-term	40.7%
Information and Record Clerks, All Other	High school diploma or equivalent	None	Short-term	44.1%
Insurance Claims and Policy Processing Clerks	High school diploma or equivalent	None	Moderate-term	45.2%
Production, Planning, and Expediting Clerks	High school diploma or equivalent	None	Moderate-term	39.8%
Real Estate Sales Agents	High school diploma or equivalent	None	Moderate-term	35.0%
Sales and Related Workers, All Other	High school diploma or equivalent	None	None	28.1%
Tellers	High school diploma or equivalent	None	Short-term	45.4%
Paralegals and Legal Assistants	Associate's degree	None	None	43.2%

OCCUPATION	TYPICAL ENTRY- LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Property, Real Estate, and Community Association Managers	High school diploma or equivalent	Less than 5 years	None	34.1%
Data Entry Keyers	High school diploma or equivalent	None	Short-term	46.0%
Training and Development Specialists	Bachelor's degree	Less than 5 years	None	31.0%
First-Line Supervisors of Non-Retail Sales Workers	High school diploma or equivalent	Less than 5 years	None	33.0%
Claims Adjusters, Examiners, and Investigators	High school diploma or equivalent	None	Long-term	33.8%
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	Bachelor's degree	None	Moderate-term	32.1%
Interviewers, Except Eligibility and Loan	High school diploma or equivalent	None	Short-term	43.7%
First-Line Supervisors of Personal Service and Entertainment and Recreation Workers, Except Gambling Services	High school diploma or equivalent	Less than 5 years	None	39.2%
Tax Preparers	High school diploma or equivalent	None	Moderate-term	33.2%
Loan Officers	Bachelor's degree	None	Moderate-term	32.3%
Bill and Account Collectors	High school diploma or equivalent	None	Moderate-term	50.1%
Payroll and Timekeeping Clerks	High school diploma or equivalent	None	Moderate-term	50.0%
File Clerks	High school diploma or equivalent	None	Short-term	44.2%
Order Clerks	Some college, no degree	None	Short-term	38.1%
Court, Municipal, and License Clerks	High school diploma or equivalent	None	Long-term	44.4%
Human Resources Assistants, Except Payroll and Timekeeping	Associate's degree	None	None	35.5%
Legal Secretaries and Administrative Assistants	High school diploma or equivalent	None	Moderate-term	53.2%
Real Estate Brokers	High school diploma or equivalent	Less than 5 years	None	35.0%
Loan Interviewers and Clerks	High school diploma or equivalent	None	Short-term	45.6%
Meeting, Convention, and Event Planners	Bachelor's degree	None	None	24.6%
Fundraisers	Bachelor's degree	None	None	9.2%
Advertising Sales Agents	High school diploma or equivalent	None	Moderate-term	26.8%

Exhibit 32. Top specialized skills in job postings for business and entrepreneurship occupations, n=10,313

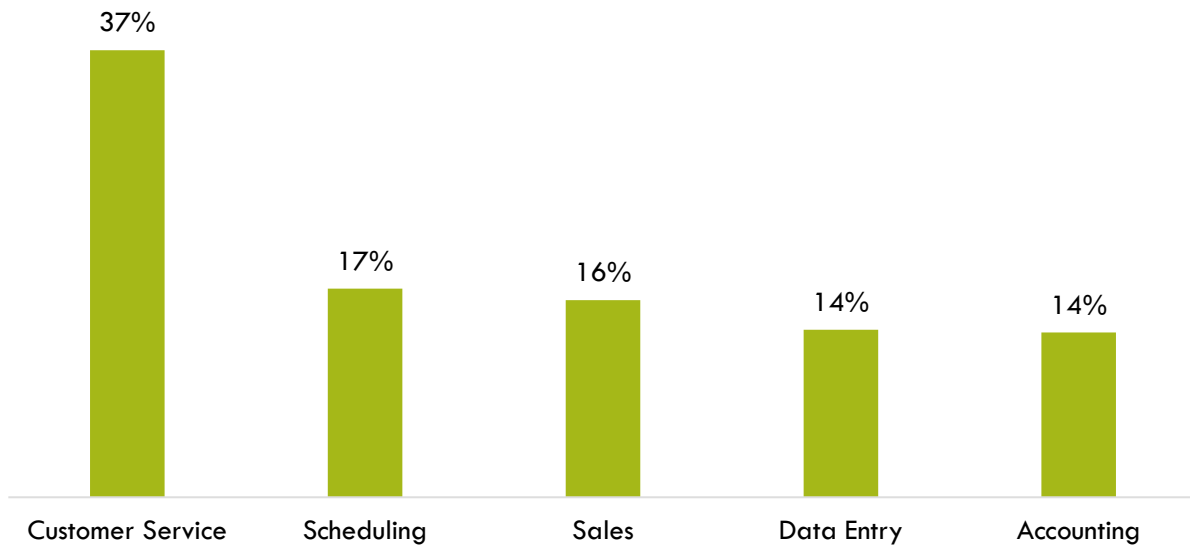


Exhibit 33. Top certifications in job postings for business and entrepreneurship occupations, n=3,031

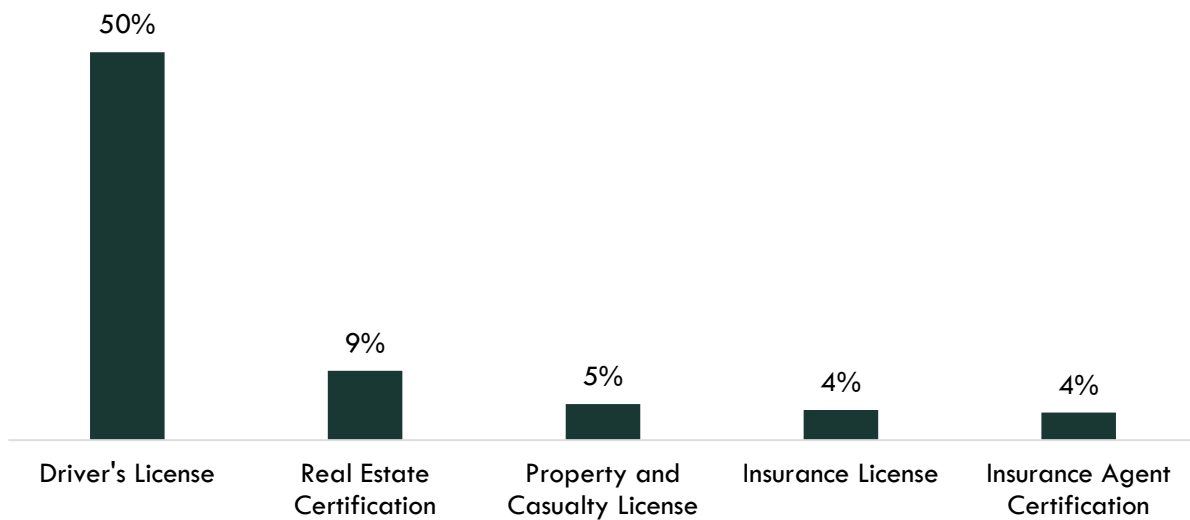


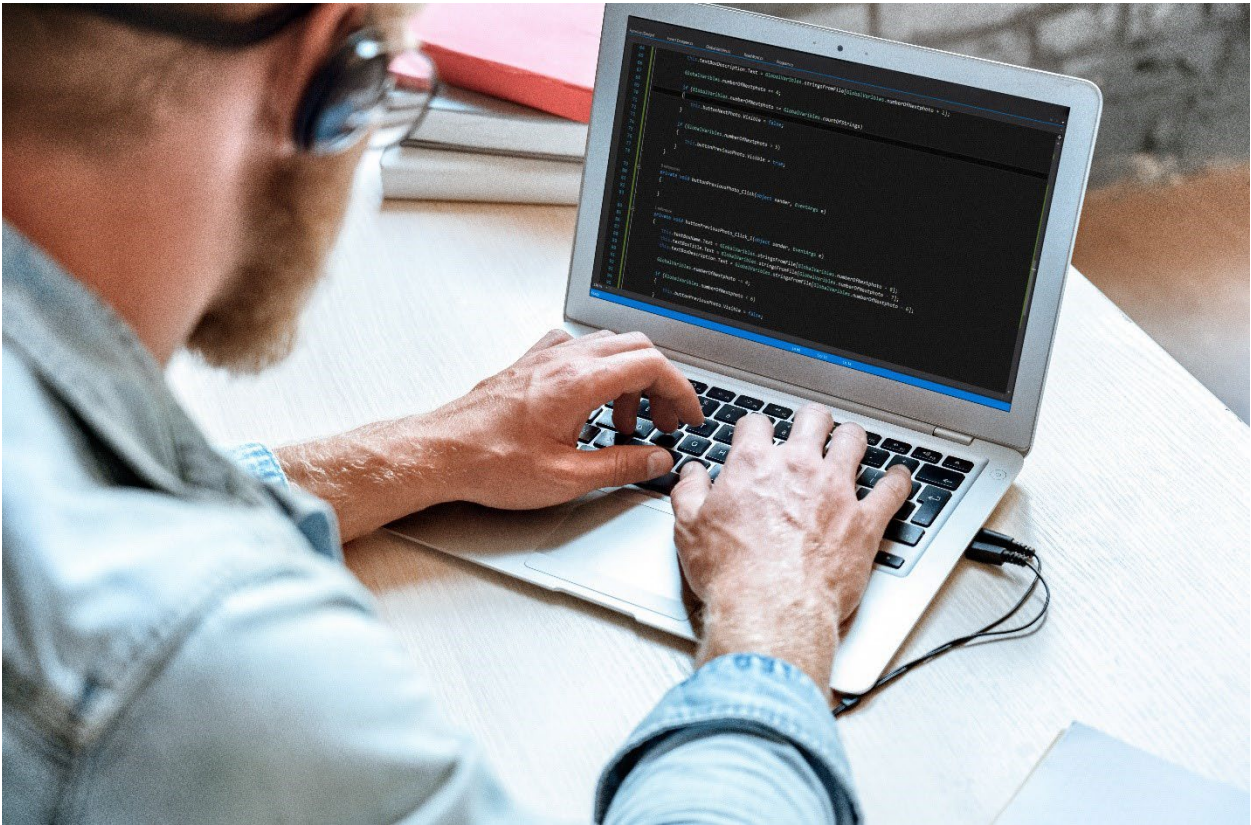
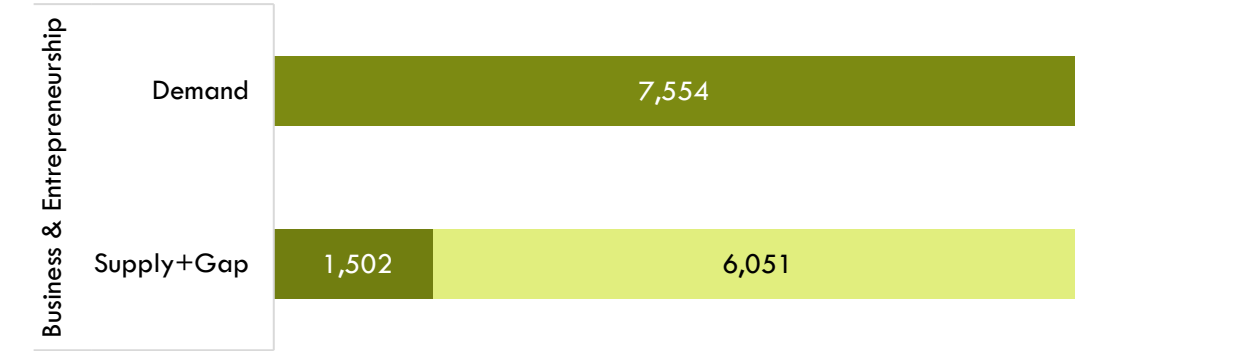
Exhibit 34. Business and entrepreneurship postsecondary supply

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Subtotal
050100 - Business and Commerce, General	Porterville	4										4
	Reedley College	0					141	6				147
	Sequoias	10							2			12
050200 - Accounting	Fresno City	12				19	1	1	14		7	54
	Porterville							1		0		1
	Reedley College	7					2	6				15
	Sequoias	12							3			15
	West Hills Coalinga	3					0	4				7
	West Hills Lemoore	3					2	7				12
050400 - Banking and Finance	Sequoias						0	1				1
050500 - Business Administration	Clovis	4	115									118
	Fresno City	9	234									243
	Porterville		44				0	1				45
	Reedley College	6	96									102
	Sequoias		101				1	2				105
	West Hills Coalinga	1	12									12
	West Hills Lemoore	20	49									69
050600 - Business Management	Clovis	1						1				2
	Fresno City	6					6	48				60
	Porterville	2										2
	Reedley College	3					0	1				4
	Sequoias	0										0

	West Hills Coalinga	2						1			3
	West Hills Lemoore	3				1	1	2			7
050630 - Management Development and Supervision	Porterville								0		0
050640 - Small Business and Entrepreneurship	Clovis	0									0
	Reedley College	1				0	1				2
050900 - Marketing and Distribution	Fresno City	4									4
051410 - Legal Office Technology	Fresno City	1				1		1			2
	Sequoias								1		1
051800 - Customer Service	Porterville								3		3
140200 - Paralegal	Fresno City	23						31			54
	Sequoias	13						4			17
52.0302 - Accounting Technology/Technician and Bookkeeping	Institute of Technology	7									7
52.0399 - Accounting and Related Services, Other	Milan Institute-Visalia			10							10
52.0401 - Administrative Assistant and Secretarial Science, General	Clovis Adult Education			18							18
	Institute of Technology							1			1
	Milan Institute-Visalia			15							15
52.0408 - General Office Occupations and Clerical Services	San Joaquin Valley College-Visalia	111					100				211
	UEI College-Fresno						62				62
52.1001 - Human Resources Management/Personnel Administration, General	Institute of Technology	17					1				18
	San Joaquin Valley College-Visalia	16					24				40
TOTAL		298	652	42	186	19	157	78	57	5	7 1,502

Exhibit 35. Business and entrepreneurship workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
7,554	1,502	6,051



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 36 and 37).
- **Employment and projected demand:** The largest middle-skill occupation is teaching assistants, except postsecondary, which will have 974 annual openings (Exhibit 38).
- **Wages:** The highest paid occupation is interpreters and translators, \$26.37/hour median (Exhibit 38).
- **In-demand qualifications:** The top skill is teaching, and the top certification is first aid cpr aed (Exhibits 40 and 41).
- **Supply and Gap analysis:** The demand for education was 3,294 with a supply of 1,219 resulting in an undersupply of 2,075 workers (Exhibit 42 and 43).

Top Job Titles

- Pre-School Teacher
- Nanny
- Activities Assistant

Exhibit 36. Gender composition of the top occupations in the education workforce

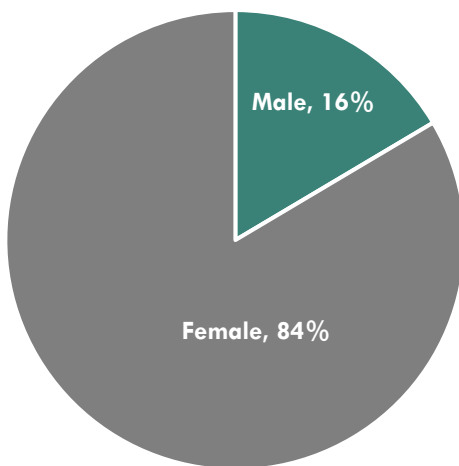


Exhibit 37. Race/ethnicity composition of the top occupations in the education workforce

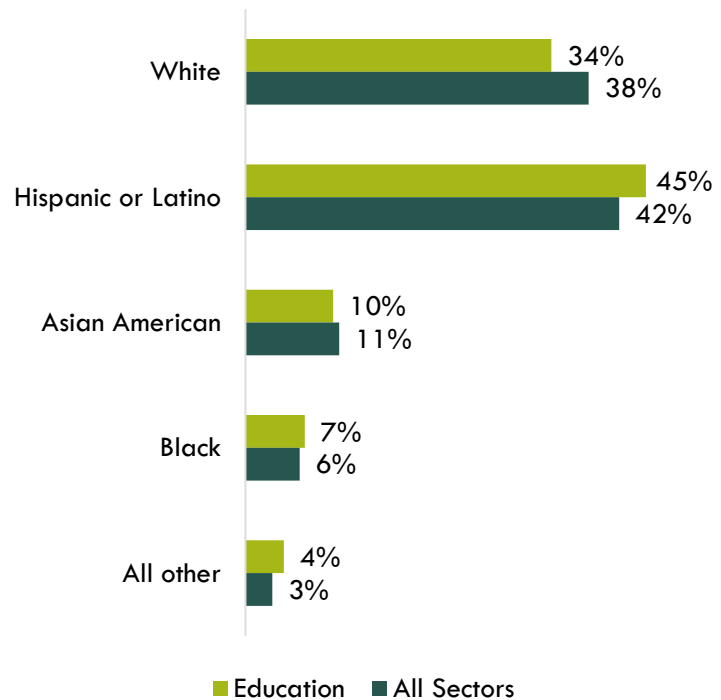


Exhibit 38. Education employment and occupational projections for occupations with 25 or more annual openings

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Teaching Assistants, Except Postsecondary	10,448	10,294	(155)	(1%)	974	\$16.41
Childcare Workers	5,932	5,566	(366)	(6%)	803	\$13.09
Substitute Teachers, Short-Term	5,105	5,096	(9)	(0%)	600	\$17.73
Recreation Workers	2,169	2,295	126	6%	372	\$14.25
Preschool Teachers, Except Special Education	1,965	2,089	124	6%	224	\$15.91
Teaching Assistants, Postsecondary	1,405	1,351	(54)	(4%)	131	\$15.04
Library Technicians	423	400	(23)	(5%)	59	\$21.00
Education and Childcare Administrators, Preschool and Daycare	586	605	19	3%	47	\$25.93
Interpreters and Translators	383	418	34	9%	45	\$26.37
Library Assistants, Clerical	262	250	(12)	(4%)	39	\$16.25

Exhibit 39. Education educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Teaching Assistants, Except Postsecondary	Some college, no degree	None	None	38.6%
Childcare Workers	High school diploma or equivalent	None	Short-term	35.1%
Substitute Teachers, Short-Term	Bachelor's degree	None	None	25.4%
Recreation Workers	High school diploma or equivalent	None	Short-term	35.7%
Preschool Teachers, Except Special Education	Associate's degree	None	None	31.6%
Teaching Assistants, Postsecondary	Bachelor's degree	None	None	38.6%
Library Technicians	Postsecondary nondegree award	None	None	25.9%
Education and Childcare Administrators, Preschool and Daycare	Bachelor's degree	Less than 5 years	None	11.4%
Interpreters and Translators	Bachelor's degree	None	None	35.5%
Library Assistants, Clerical	High school diploma or equivalent	None	Short-term	37.0%

Exhibit 40. Top specialized skills in job postings for education occupations, n=521

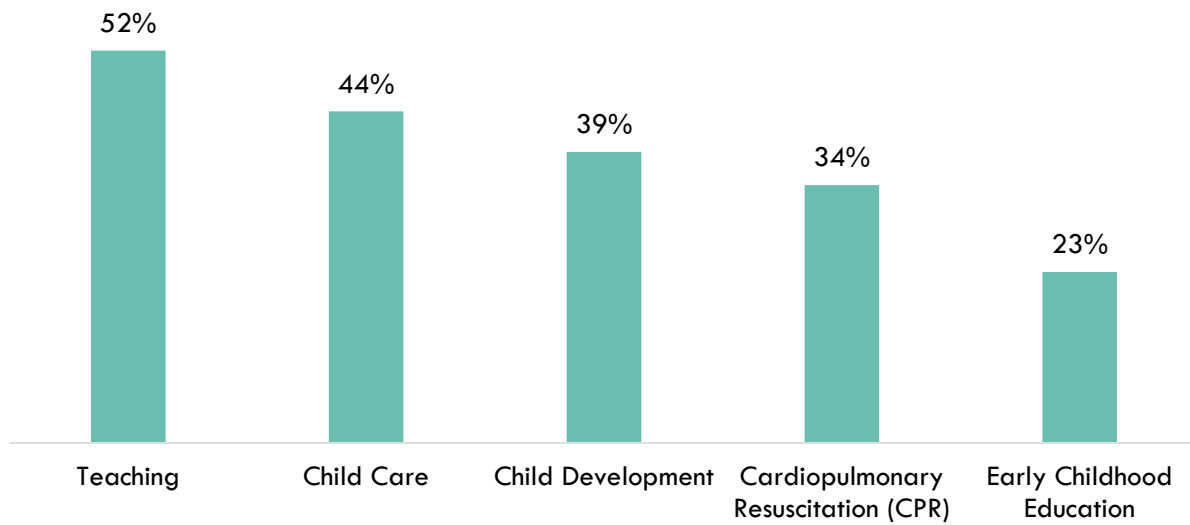


Exhibit 41. Top certifications in job postings for education occupations, n=340

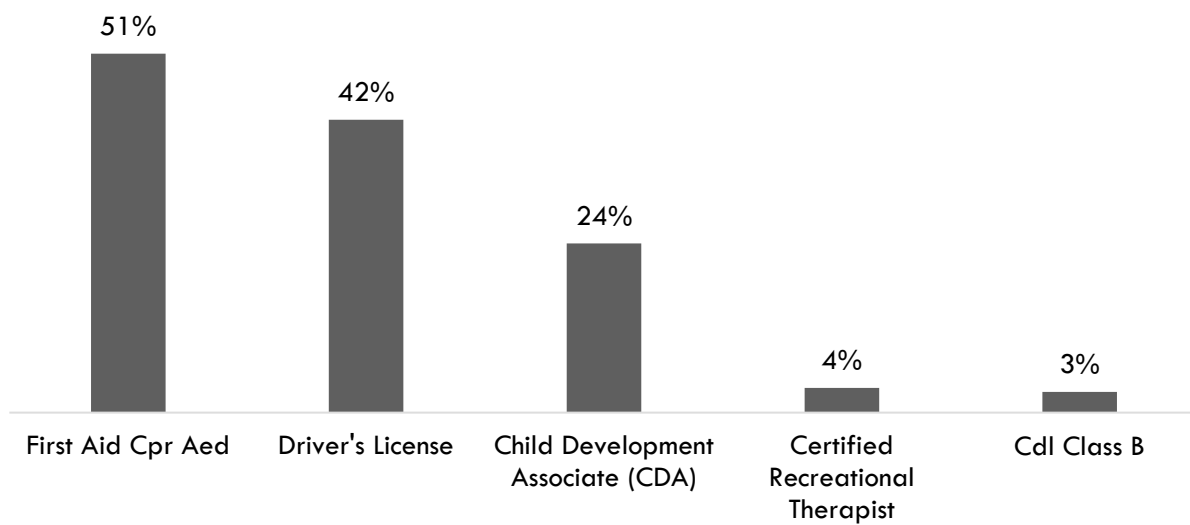
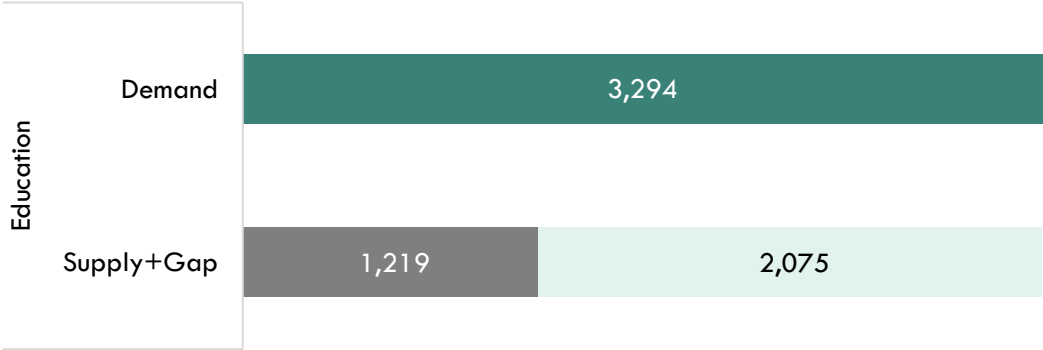


Exhibit 42. Education postsecondary supply

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Subtotal
080200 - Educational Aide (Teacher Assistant)	Fresno City	1				1				2
080900 - Special Education	Fresno City						3			3
085010 - Sign Language Interpreting	Fresno City				2	2				5
130500 - Child Development/Early Care and Education	Clovis	5	18		4	10				38
	Fresno City	16	44	10	15	71			5	162
	Porterville	31	12				22			65
	Reedley College	24	38	36	52	71			8	230
	Sequoias	38	52		18	39		292		440
	West Hills Coalinga	5	4			4		71		84
	West Hills Lemoore	19	9		2	10		95		134
	Fresno City	2					3			5
130520 - Children with Special Needs	Reedley College				1	1				2
	Sequoias					5				5
130550 - The School Age Child	Clovis				4	6				10
	Reedley College				1	9				9
130570 - Foster and Kinship Care	Fresno City			1					1	2
130590 - Infants and Toddlers	Fresno City			6	2					8
160200 - Library Technician (Aide)	Fresno City	4			2	8				15
TOTAL		145	178	53	105	237	28	458	14	1,219

Exhibit 43. Education workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
3,294	1,219	2,075



ENERGY, CONSTRUCTION & UTILITIES

Summary

- **Gender & race/ethnicity:** Comprising only 7% of the workforce, women are substantially underrepresented in this sector. Analysis shows underrepresentation of Asian American, and overrepresentation of white and Hispanic or Latino workers (Exhibits 44 and 45).
- **Employment and projected demand:** The largest middle-skill occupation is maintenance and repair workers, general, which will have 640 annual openings (Exhibit 46).
- **Wages:** The highest paid occupation is telecommunications line installers and repair, \$44.74/hour median (Exhibit 46).
- **In-demand qualifications:** The top skill is repair, and the top certification is a driver's license (Exhibits 48 and 49).
- **Supply and Gap analysis:** The demand for energy, construction, and utilities was 3,666 with a supply of 656 resulting in an undersupply of 3,010 workers (Exhibit 50 and 51).

Top Job Titles

- **Forklift Operator**
- **Maintenance Technician**
- **Service Technician**

Exhibit 44. Gender composition of the top occupations in the energy, construction, and utilities workforce

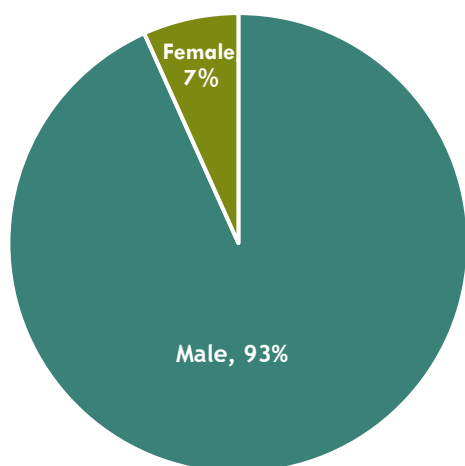


Exhibit 45. Race/ethnicity composition of the top occupations in the energy, construction, and utilities workforce

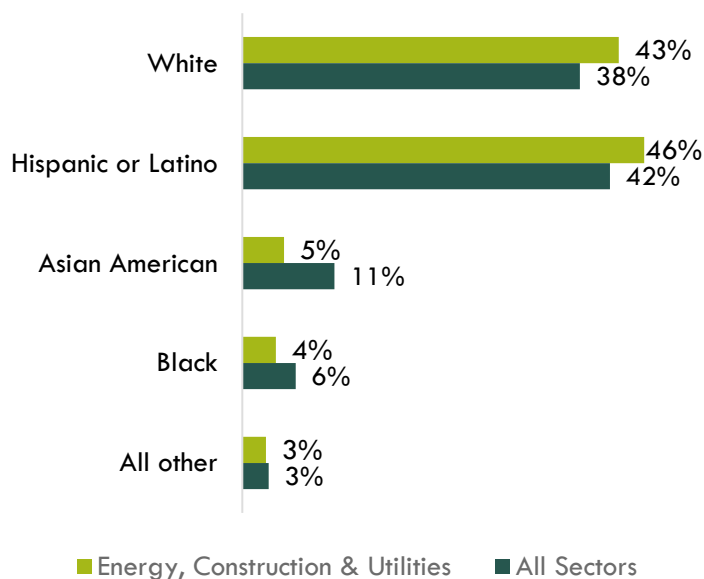


Exhibit 46. Energy, construction, and utilities employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Maintenance and Repair Workers, General	6,127	6,398	271	4%	640	\$19.95
Industrial Truck and Tractor Operators	4,096	4,250	154	4%	490	\$17.74
Carpenters	3,624	3,869	245	7%	393	\$22.41
Electricians	2,770	3,138	368	13%	372	\$27.82
Plumbers, Pipefitters, and Steamfitters	1,794	2,046	252	14%	244	\$25.06
First-Line Supervisors of Construction Trades and Extraction Workers	1,933	2,095	162	8%	224	\$34.33
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,318	1,519	202	15%	173	\$27.27
Operating Engineers and Other Construction Equipment Operators	1,194	1,295	101	8%	150	\$28.49
Construction Managers	1,333	1,522	189	14%	139	\$34.87
Telecommunications Equipment Installers and Repairers, Except Line Installers	1,142	1,100	(42)	(4%)	125	\$30.16
Installation, Maintenance, and Repair Workers, All Other	874	908	33	4%	99	\$19.21
Administrative Services and Facilities Managers	967	1,013	47	5%	90	\$43.22
Telecommunications Line Installers and Repairers	687	675	(12)	(2%)	75	\$44.74
Sheet Metal Workers	453	490	37	8%	51	\$24.90
Water and Wastewater Treatment Plant and System Operators	537	531	(6)	(1%)	50	\$27.68
Solar Photovoltaic Installers	274	340	67	24%	48	\$22.43
Construction and Building Inspectors	378	379	1	0%	45	\$35.21
Electrical Power-Line Installers and Repairers	392	416	23	6%	39	\$44.37
Structural Iron and Steel Workers	303	329	26	8%	38	\$23.94
Civil Engineering Technologists and Technicians	335	350	15	4%	35	\$33.16

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Woodworkers, All Other	283	306	24	8%	33	\$17.99
Glaziers	242	267	25	10%	32	\$21.73
Computer, Automated Teller, and Office Machine Repairers	270	258	(13)	(5%)	30	\$18.85
Architectural and Civil Drafters	249	263	14	6%	27	\$24.94
Security and Fire Alarm Systems Installers	175	205	30	17%	25	\$23.96

Exhibit 47. Energy, construction, and utilities educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Maintenance and Repair Workers, General	High school diploma or equivalent	None	Moderate-term	37.6%
Industrial Truck and Tractor Operators	No formal educational credential	None	Short-term	26.4%
Carpenters	High school diploma or equivalent	None	Apprenticeship	25.1%
Electricians	High school diploma or equivalent	None	Apprenticeship	45.8%
Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	None	Apprenticeship	32.9%
First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent	5 years or more	None	29.2%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Postsecondary nondegree award	None	Long-term	44.0%
Operating Engineers and Other Construction Equipment Operators	High school diploma or equivalent	None	Moderate-term	24.5%
Construction Managers	Bachelor's degree	None	Moderate-term	31.5%
Telecommunications Equipment Installers and Repairers, Except Line Installers	Postsecondary nondegree award	None	Moderate-term	53.0%
Installation, Maintenance, and Repair Workers, All Other	High school diploma or equivalent	None	Long-term	36.8%
Administrative Services and Facilities Managers	Bachelor's degree	Less than 5 years	None	34.8%
Telecommunications Line Installers and Repairers	High school diploma or equivalent	None	Long-term	46.3%
Sheet Metal Workers	High school diploma or equivalent	None	Apprenticeship	32.3%

OCCUPATION	TYPICAL ENTRY- LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Water and Wastewater Treatment Plant and System Operators	High school diploma or equivalent	None	Long-term	47.0%
Solar Photovoltaic Installers	High school diploma or equivalent	None	Moderate-term	51.6%
Construction and Building Inspectors	High school diploma or equivalent	5 years or more	Moderate-term	40.5%
Electrical Power-Line Installers and Repairers	High school diploma or equivalent	None	Long-term	47.4%
Structural Iron and Steel Workers	High school diploma or equivalent	None	Apprenticeship	35.7%
Civil Engineering Technologists and Technicians	Associate's degree	None	None	50.7%
Woodworkers, All Other	High school diploma or equivalent	None	Moderate-term	35.1%
Glaziers	High school diploma or equivalent	None	Apprenticeship	32.6%
Computer, Automated Teller, and Office Machine Repairers	Some college, no degree	None	Short-term	53.5%
Architectural and Civil Drafters	Associate's degree	None	None	53.4%
Security and Fire Alarm Systems Installers	High school diploma or equivalent	None	Moderate-term	49.2%

Exhibit 48. Top specialized skills in job postings for energy, construction, and utilities occupations, n=3,271

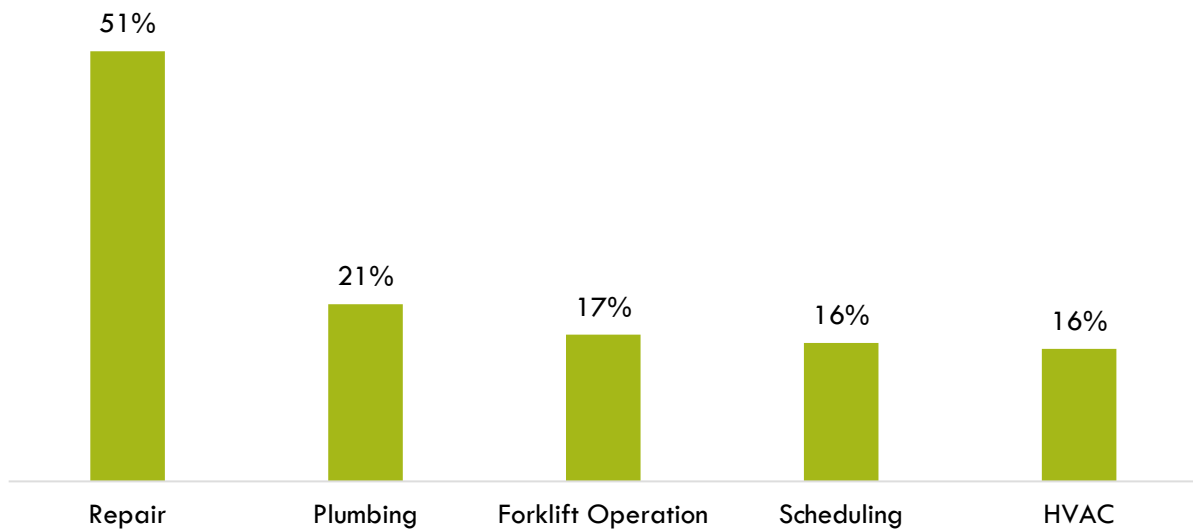


Exhibit 49. Top certifications in job postings for energy, construction, and utilities occupations, n=1,893

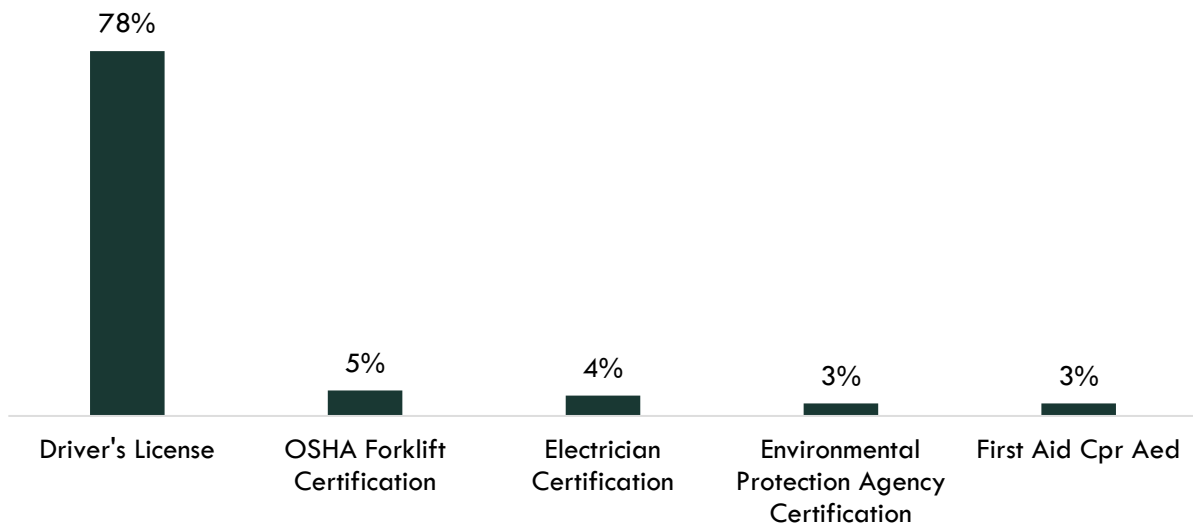
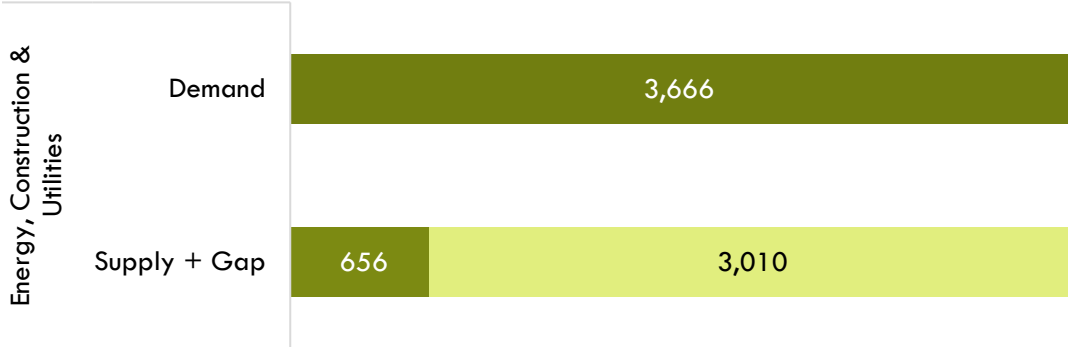


Exhibit 50. Energy, construction, and utilities educational attainment

TOP/CIP Code- Title	College	Associate Degree	Award 1 < 2 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 60+ Semester Units	Certificate 8 < 16 Semester Units	Subtotal
020100 - Architecture and Architectural Technology	Fresno City	7					5				12
	Sequoias	3		9	0		3	10		1	28
094600 - Environmental Control Technology	Fresno City	7		34			11		1	1	54
	Sequoias	2					24	2			28
	West Hills Coalinga				2						2
095200 - Construction Crafts Technology	Fresno City	1					1				2
	Sequoias	2					3	4			9
095220 - Electrical	Sequoias			16	1					2	19
095300 - Drafting Technology	Fresno City	4					6				10
095500 - Laboratory Science Technology	Fresno City				0	2					2
095630 - Machining and Machine Tools	Reedley College	3			8	5	7				24
095720 - Construction Inspection	Sequoias	1			1	1	1				4
095800 - Water and Wastewater Technology	Clovis				1	3					4
	Sequoias							2			2
46.0302 - Electrician	San Joaquin Valley College-Visalia	7	64								72
47.0201 - Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/	Institute of Technology		105								105
	San Joaquin Valley College-Visalia	54	157								211
	UEI College-Fresno		29								29
52.2001 - Construction Management	San Joaquin Valley College-Visalia	40									40
TOTAL		133	356	60	13	11	61	18	1	3	656

Exhibit 51. Energy, construction, and utilities workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
3,666	656	3,010



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 workers (Exhibits 52 and 53).
- **Employment and projected demand:** The largest middle-skill occupation is registered nurses, which will have 742 annual openings (Exhibit 54).
- **Wages:** The highest paid occupation is registered nurses, \$53.06/hour median (Exhibit 54).
- **In-demand qualifications:** The top skill is patient care, and the top certification is registered nurse (Exhibits 56 and 57).
- **Supply and Gap analysis:** The demand for health was 9,743 with a supply of 4,945 resulting in an undersupply of 4,798 workers (Exhibit 58 and 59).

Top Job Titles

- Registered Nurse
- Medical Assistant
- Licensed Vocational Nurse

Exhibit 52. Gender composition of the top occupations in the health workforce

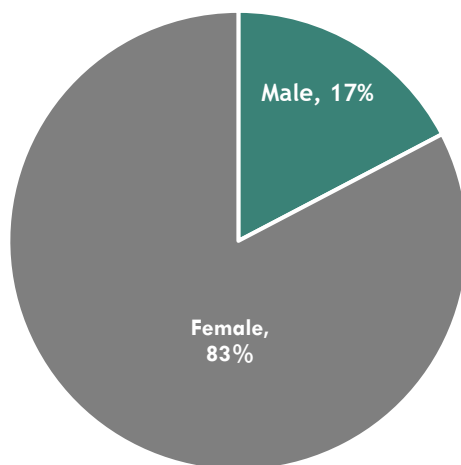


Exhibit 53. Race/ethnicity composition of the top occupations in the health workforce

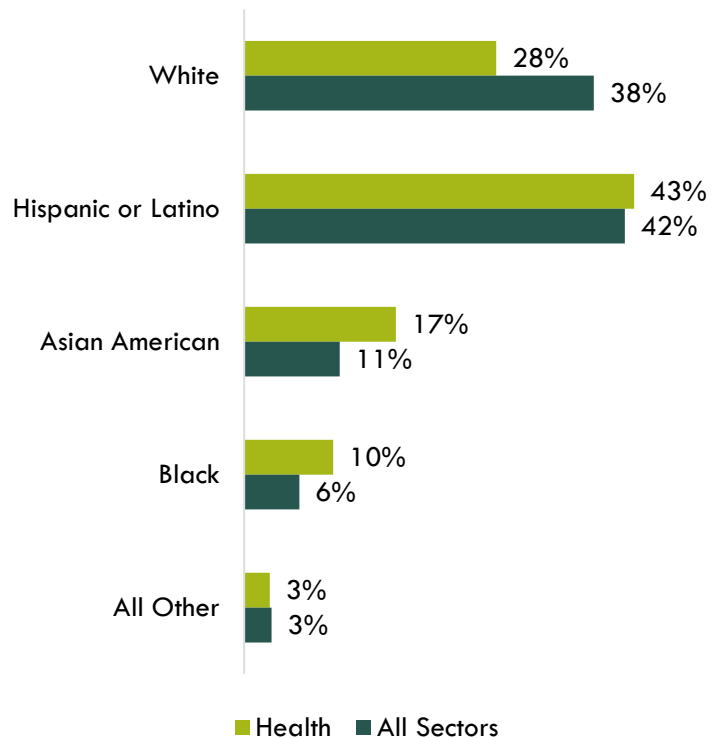


Exhibit 54. Health employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Home Health and Personal Care Aides	26,316	33,090	6,774	26%	5,387	\$13.17
Registered Nurses	10,932	12,008	1,076	10%	812	\$45.21
Medical Assistants	4,405	4,939	534	12%	645	\$16.70
Nursing Assistants	4,115	4,524	410	10%	600	\$15.00
Medical Secretaries and Administrative Assistants	3,210	3,526	315	10%	422	\$17.74
Social and Human Service Assistants	2,530	2,803	273	11%	358	\$17.82
Dental Assistants	1,833	2,120	288	16%	290	\$18.37
Licensed Practical and Licensed Vocational Nurses	2,664	2,889	225	8%	253	\$25.15
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	1,492	1,647	155	10%	140	\$19.37
Pharmacy Technicians	1,545	1,634	90	6%	129	\$18.96
Psychiatric Technicians	1,252	1,304	52	4%	103	\$30.04
Massage Therapists	567	661	94	17%	87	\$16.78
Dental Hygienists	536	665	129	24%	63	\$44.59
Respiratory Therapists	689	789	100	14%	55	\$21.86
Radiologic Technologists and Technicians	481	551	71	15%	50	\$39.99
Phlebotomists	257	313	57	22%	44	\$19.81
Physical Therapist Aides	255	303	49	19%	42	\$14.55
Physical Therapist Assistants	203	270	67	33%	41	\$36.38
Medical Equipment Preparers	241	264	22	9%	35	\$24.61
Community Health Workers	231	269	38	16%	33	\$19.68
Surgical Technologists	323	366	43	13%	33	\$32.24
Social Science Research Assistants	260	258	(3)	(1%)	32	\$19.74
Pharmacy Aides	252	236	(16)	(6%)	32	\$15.50
Health Education Specialists	241	265	24	10%	31	\$25.67
Health Information Technologists, Medical Registrars, Surgical Assistants, and Healthcare Practitioners and Technical Workers,	310	338	28	9%	28	\$25.80

Exhibit 55. Health educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Home Health and Personal Care Aides	High school diploma or equivalent	None	Short-term	34.9%
Registered Nurses	Bachelor's degree	None	None	33.3%
Medical Assistants	Postsecondary nondegree award	None	None	63.4%
Nursing Assistants	Postsecondary nondegree award	None	None	44.7%
Medical Secretaries and Administrative Assistants	High school diploma or equivalent	None	Moderate-term	53.6%
Social and Human Service Assistants	High school diploma or equivalent	None	Short-term	34.4%
Dental Assistants	Postsecondary nondegree award	None	None	55.9%
Licensed Practical and Licensed Vocational Nurses	Postsecondary nondegree award	None	None	73.3%
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	Postsecondary nondegree award	None	None	46.8%
Pharmacy Technicians	High school diploma or equivalent	None	Moderate-term	53.7%
Psychiatric Technicians	Postsecondary nondegree award	Less than 5 years	Short-term	37.6%
Massage Therapists	Postsecondary nondegree award	None	None	50.1%
Dental Hygienists	Associate's degree	None	None	60.1%
Respiratory Therapists	Associate's degree	None	None	65.0%
Radiologic Technologists and Technicians	Associate's degree	None	None	66.6%
Phlebotomists	Postsecondary nondegree award	None	None	59.7%
Physical Therapist Aides	High school diploma or equivalent	None	Short-term	60.2%
Physical Therapist Assistants	Associate's degree	None	None	60.2%
Medical Equipment Preparers	High school diploma or equivalent	None	Moderate-term	43.2%
Community Health Workers	High school diploma or equivalent	None	Short-term	26.7%
Surgical Technologists	Postsecondary nondegree award	None	None	72.6%
Social Science Research Assistants	Bachelor's degree	None	None	37.1%
Pharmacy Aides	High school diploma or equivalent	None	Short-term	39.5%
Health Education Specialists	Bachelor's degree	None	None	26.7%
Health Information Technologists, Medical Registrars, Surgical Assistants, and Healthcare Practitioners and Technical Workers,	Postsecondary nondegree award	None	None	20.2%

Exhibit 56. Top specialized skills in job postings for health occupations, n=9,796

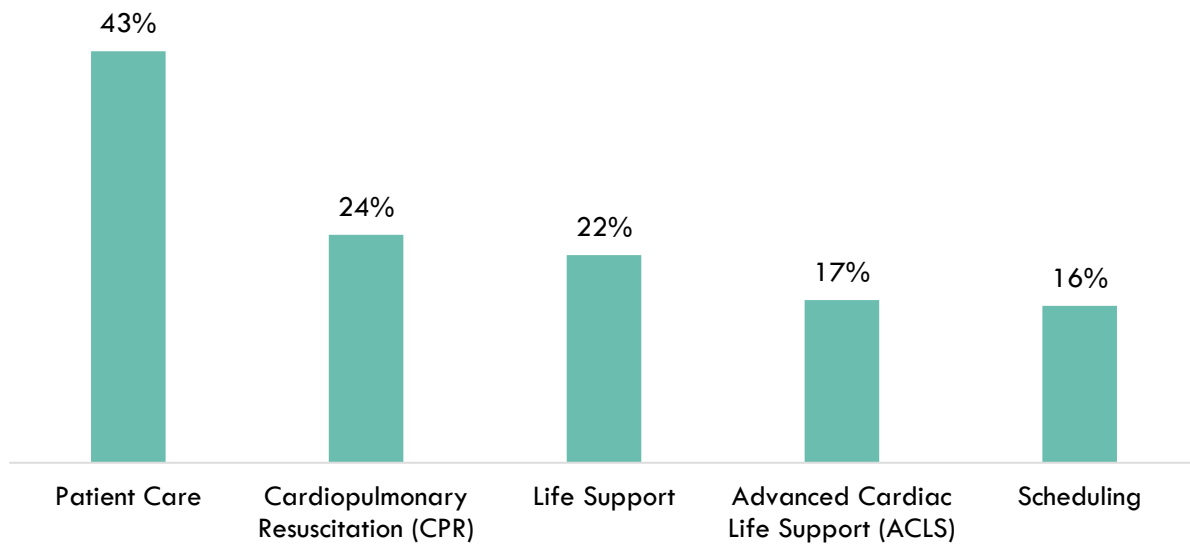


Exhibit 57. Top certifications in job postings for health occupations, n=9,308

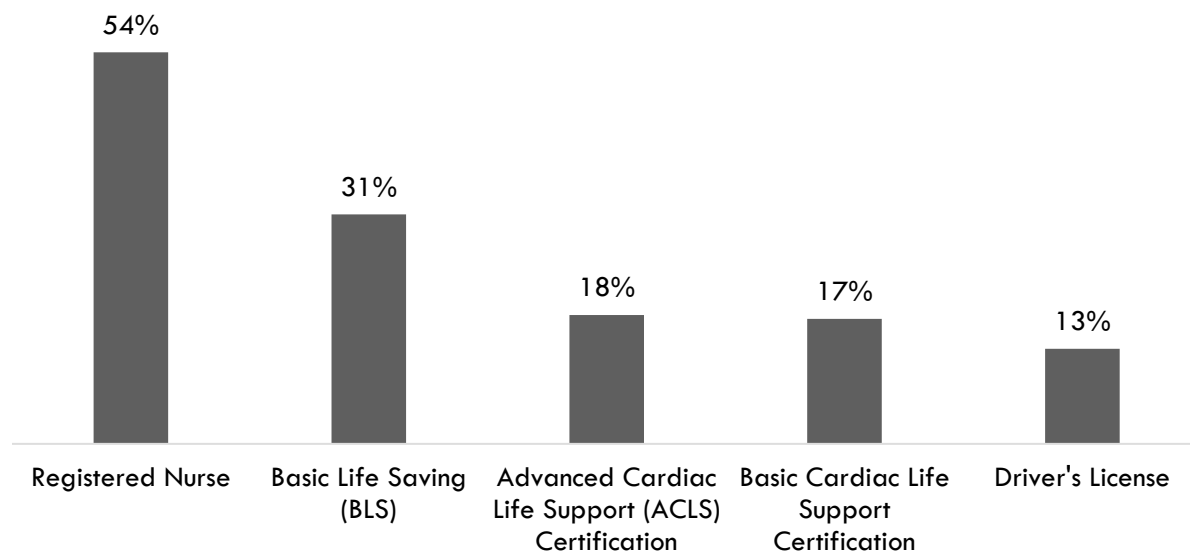


Exhibit 58. Health postsecondary supply

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Award 2 < 4 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Subtotal
051420 - Medical Office Technology	Fresno City	8					5	6	8			27
	Reedley College	16					5	15				36
120100 - Health Occupations, General	Clovis						0					0
	Fresno City		7				1					8
120810 - Clinical Medical Assisting	Fresno City	23					14	55				93
121000 - Respiratory Care/Therapy	Fresno City	18										18
122000 - Speech/Langu age Pathology and Audiology	Reedley College						0					0
122100 - Pharmacy Technology	Sequoias									14		14
122200 - Physical Therapist Assistant	Sequoias	24										24
122300 - Health Information Technology	Fresno City	11										11
122310 - Health Information Coding	Fresno City						2	5				7
122500 - Radiologic Technology	Fresno City	20										20
122800 - Athletic	Sequoias	7										7

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Award 2 < 4 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Subtotal
Training and Sports Medicine												
123010 - Registered Nursing	Fresno City	197							34			231
	Porterville	19										19
	Reedley College	11						4				15
	Sequoias	85										85
	West Hills Lemoore	31										31
123020 - Licensed Vocational Nursing	Reedley College	9							17			26
123030 - Certified Nurse Assistant	Reedley College						1	0				1
	Sequoias									70		70
123900 - Psychiatric Technician	Porterville								31			31
	West Hills Coalinga	27							53			80
124010 - Dental Assistant	Reedley College	5							16			21
124020 - Dental Hygienist	Fresno City	19										19
125000 - Emergency Medical Services	Porterville									63		63
	Sequoias									42	20	62
125100 - Paramedic	Fresno City								1			1
	West Hills Lemoore	3					3	8				14
130620 - Dietetic Services and Management	Fresno City								2			2
130630 - Culinary Arts	Sequoias						1	2		5		7

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Award 2 < 4 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Subtotal
130900 - Gerontology	Fresno City						4					4
	Fresno City	59							62			121
210400 - Human Services	Reedley College						0					0
	Sequoias	12							6			18
	West Hills Lemoore									1		1
210440 - Alcohol and Controlled Substances	Fresno City	16							25			42
	Porterville								2			2
51.0000 - Health Services/Allie d Health/Health Sciences, General	Clovis Adult Education			129								129
51.0601 - Dental Assisting/Ass istant	Milan Institute-Visalia			38								38
	San Joaquin Valley College-Visalia				155							155
	UEI College-Fresno				64							64
51.0602 - Dental Hygiene/Hygi enist	San Joaquin Valley College-Visalia	65										65
51.0706 - Health Information/ Medical Records Administratio n/Administrat or	Institute of Technology				57							57
51.0710 - Medical Office Assistant/Spe cialist	Clovis Adult Education			25								25
	San Joaquin Valley College-Visalia	64			152							216

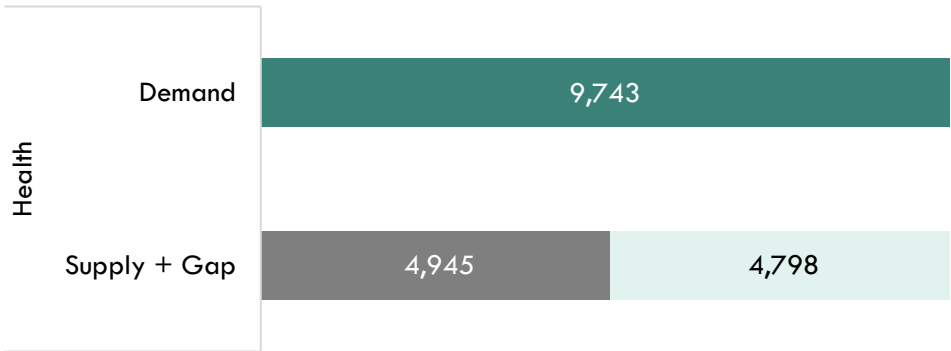
TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Award 2 < 4 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Subtotal
51.0713 - Medical Insurance Coding Specialist/Coder	San Joaquin Valley College-Visalia	22			47							69
	UEI College-Fresno				56							56
51.0716 - Medical Administrative/Executive Assistant and Medical Secretary	Milan Institute-Visalia			44								44
	California Institute of Medical Science			0								0
	Clovis Adult Education			26								26
	Institute of Technology					140						140
51.0801 - Medical/Clinical Assistant	Milan Institute-Fresno			24								24
	Milan Institute-Visalia			117								117
	San Joaquin Valley College-Visalia	339			846							1185
	UEI College-Fresno				199							199
	California Institute of Medical Science			17								17
51.0805 - Pharmacy Technician/Assistant	Institute of Technology					13						13
	San Joaquin Valley College-Visalia	113			83							196
	UEI College-Fresno				59							59
51.0806 - Physical Therapy Technician/Assistant	Institute of Technology	10										10
51.0908 - Respiratory Care	San Joaquin Valley College-Visalia	229										229

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Award 2 < 4 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Subtotal
Therapy/Therapist												
51.0909 - Surgical Technology/Technologist	San Joaquin Valley College-Visalia	41										41
51.0910 - Diagnostic Medical Sonography/Sonographer and Ultrasound Technician	San Joaquin Valley College-Visalia	17										17
51.1009 - Phlebotomy Technician/Phlebotomist	California Institute of Medical Science			6								6
51.3501 - Massage Therapy/Therapeutic Massage	Milan Institute-Fresno			22								22
	Milan Institute-Visalia			15								15
51.3801 - Registered Nursing/Registered Nurse	San Joaquin Valley College-Visalia	104										104
51.3901 - Licensed Practical/Vocational Nurse Training	Clovis Adult Education				54							54
	San Joaquin Valley College-Visalia	37										37
51.3902 - Nursing Assistant/Aide and Patient Care Assistant/Aide	Clovis Adult Education			83								83
	Institute of Technology			2								2
	Milan Institute-Visalia			40								40
51.3999 - Practical Nursing, Vocational	Institute of Technology				37	122						160

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Award 2 < 4 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Credit Award, < 6 Semester Units	Subtotal
Nursing and Nursing Assistants, Other												
TOTAL		1,663	7	587	1,963	122	35	97	255	195	20	4,945

Exhibit 59. Health workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
9,743	4,945	4,798



ICT/DIGITAL MEDIA

Summary

- **Gender & race/ethnicity:** Comprising 22% of the workforce, men are underrepresented in this sector. Analysis shows very slight underrepresentation of Hispanic or Latino workers (Exhibits 60 and 61).
- **Employment and projected demand:** The largest middle-skill occupation is office clerks, general, which will have 1,446 annual openings (Exhibit 62).
- **Wages:** The highest paid occupation is network and computer systems administrators, \$42.14/hour median (Exhibit 62).
- **In-demand qualifications:** The top skill is administrative support, and the top certification is a driver's license (Exhibits 64 and 65).
- **Supply and Gap analysis:** The demand for ICT/digital media was 2,608 with a supply of 477 resulting in an undersupply of 2,131 workers (Exhibit 66 and 67).

Top Job Titles

- **Administrative Assistant**
- **Office Assistant**
- **Executive Assistant**

Exhibit 60. Gender composition of the top occupations in the ICT/digital media workforce

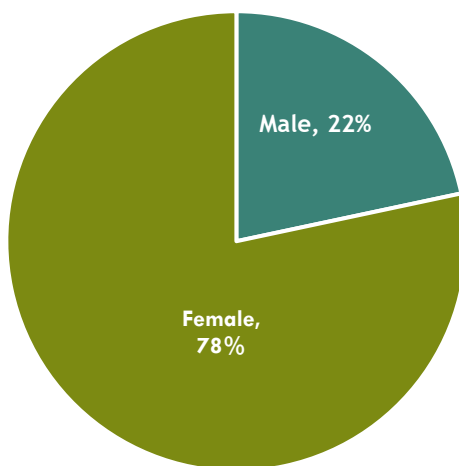


Exhibit 61. Race/ethnicity composition of the top occupations in the ICT/digital media workforce

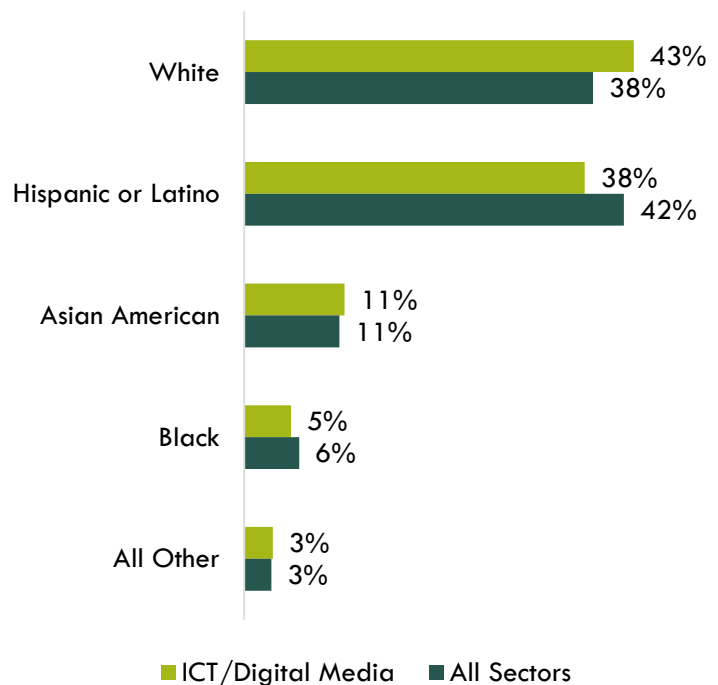


Exhibit 62. ICT/digital media employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Office Clerks, General	12,326	12,442	116	1%	1,446	\$16.77
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	6,989	6,820	(169)	(2%)	739	\$19.30
Executive Secretaries and Executive Administrative Assistants	1,098	1,019	(80)	(7%)	114	\$26.31
Computer User Support Specialists	1,289	1,321	32	3%	103	\$24.08
Computer Occupations, All Other	796	859	63	8%	72	\$35.94
Graphic Designers	484	495	12	2%	47	\$23.62
Network and Computer Systems Administrators	490	510	20	4%	37	\$42.14
Computer Network Support Specialists	323	333	10	3%	26	\$33.29
Web Developers and Digital Interface Designers	275	300	26	9%	26	\$28.30

Exhibit 63. ICT/digital media educational attainment

OCCUPATION	TYPICAL ENTRY- LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Office Clerks, General	High school diploma or equivalent	None	Short-term	45.2%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	High school diploma or equivalent	None	Short-term	45.9%
Executive Secretaries and Executive Administrative Assistants	High school diploma or equivalent	Less than 5 years	None	41.0%
Computer User Support Specialists	Some college, no degree	None	None	39.2%
Computer Occupations, All Other	Bachelor's degree	None	Moderate-term	27.2%
Graphic Designers	Bachelor's degree	None	None	26.5%
Network and Computer Systems Administrators	Bachelor's degree	None	None	37.4%
Computer Network Support Specialists	Associate's degree	None	None	39.2%
Web Developers and Digital Interface Designers	Associate's degree	None	None	23.4%

Exhibit 64. Top specialized skills in job postings for ICT/digital media occupations, n=4,414

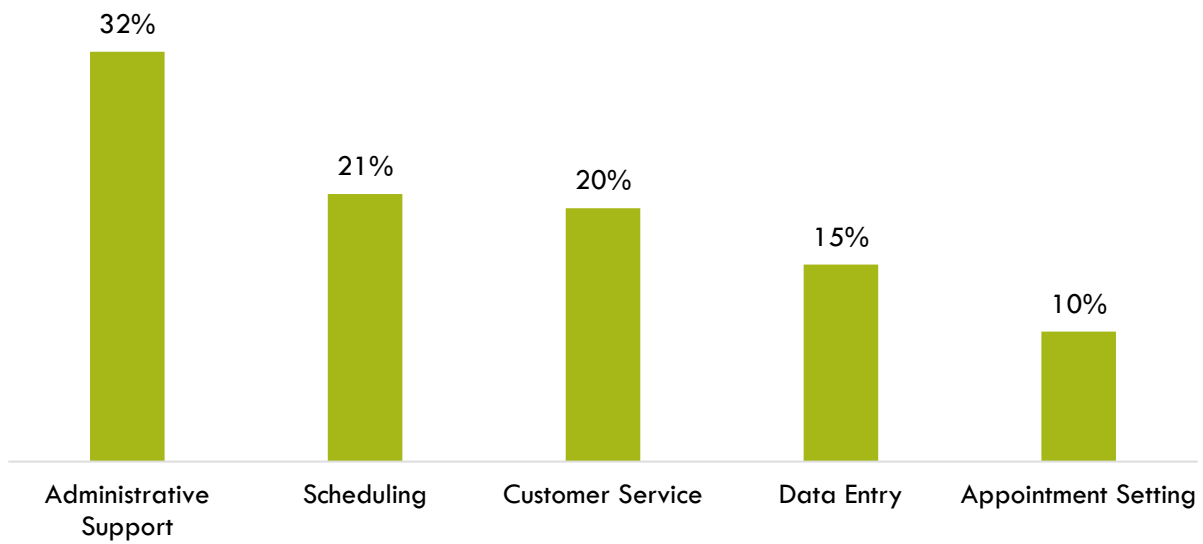


Exhibit 65. Top certifications in job postings for ICT/digital media occupations, n=1,176

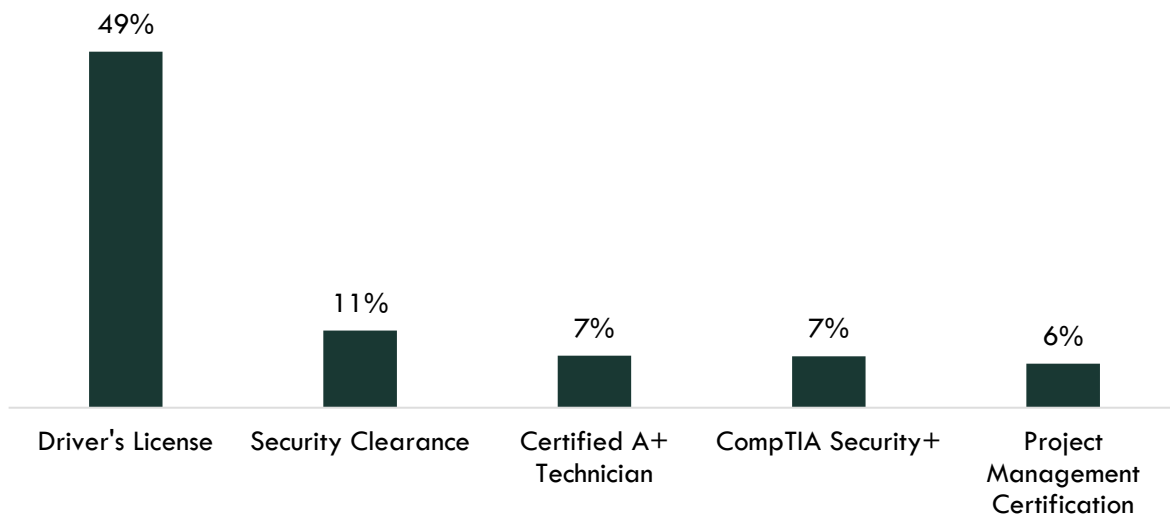


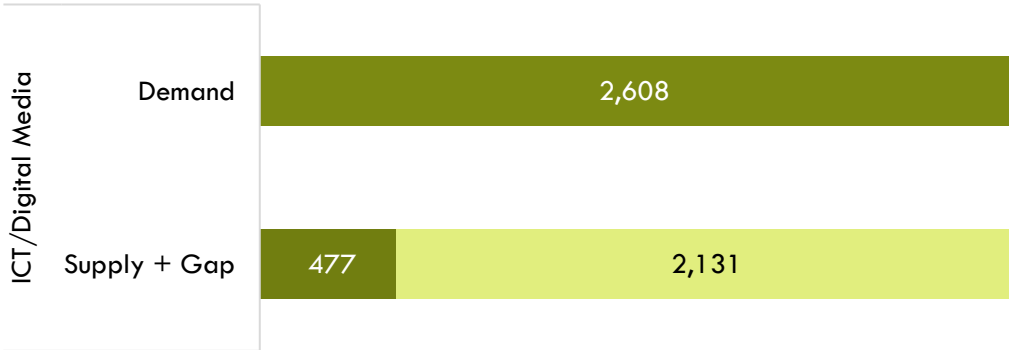
Exhibit 66. ICT/digital media postsecondary supply

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award 1 < 2 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Noncredit Award 480 < 960 hours	Subtotal
051400 - Office Technology/Office Computer Applications	Fresno City	16				6	19	4			8	53
	Reedley College	11			16	17	25			12		81
	Sequoias	0					1					2
	West Hills Coalinga	3				0	1					4
	West Hills Lemoore	0										0
060200 - Journalism	Fresno City		16									16
	Sequoias		4									4
061400 - Digital Media	Sequoias								0			0
061430 - Website Design and Development	Clovis	1										1
	Fresno City				1					0		1
070100 - Information Technology, General	Porterville	2							4			6
	Sequoias								0			0
070200 - Computer Information Systems	Clovis					0	1					1
	Fresno City	7				1						8
	Porterville	11						1				12
	Reedley College				10	15	7					32
	Sequoias	5						2				7
070210 - Software Applications	West Hills Coalinga	4					4					8
	West Hills Lemoore	17							15			32
070710 - Computer Programming	Reedley College	1				4	0					5
	West Hills Lemoore						2					2
070800 - Computer Infrastructure and Support	Fresno City				3	1						4
	Sequoias								2			2
	Clovis	2					1					3

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award 1 < 2 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Noncredit Award 480 < 960 hours	Subtotal
070810 - Computer Networking	Fresno City	22						22				45
	Reedley College	4				9	7					20
	Sequoias	1							5			6
	West Hills Lemoore					0	1					1
070820 - Computer Support	Clovis	0				0						1
	Reedley College	4					4					8
070900 - World Wide Web Administration	Fresno City	2				1	1					3
093430 - Telecommunications Technology	Fresno City				18	1		5				23
101300 - Commercial Art	Porterville	4										4
	Sequoias							1				1
103000 - Graphic Art and Design	Fresno City	5						5				10
	Sequoias	2			2				9	1		15
11.0101 - Computer and Information Sciences, General	Milan Institute-Visalia			6								6
11.0103 - Information Technology	San Joaquin Valley College-Visalia	12		19								31
11.0901 - Computer Systems Networking and Telecommunications	Institute of Technology			13								13
11.1006 - Computer Support Specialist	San Joaquin Valley College-Visalia	7										7
TOTAL		143	19	38	51	55	74	40	36	14	8	477

Exhibit 67. ICT/digital media workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
2,608	477	2,131



PUBLIC SAFETY

Summary

- **Gender & race/ethnicity:** Comprising 31% of the workforce, women are underrepresented in this sector. Analysis shows a slight underrepresentation of white workers and overrepresentation of Black workers (Exhibits 68 and 69).
- **Employment and projected demand:** The largest middle-skill occupation is correctional officers and jailers, which will have 332 annual openings (Exhibit 70).
- **Wages:** The highest paid occupation is first-line supervisors of correctional officers, \$49.06/hour median (Exhibit 70).
- **In-demand qualifications:** The top skill is cardiopulmonary resuscitation (CPR), and the top certification is a driver's license (Exhibits 72 and 73).
- **Supply and Gap analysis:** The demand for public safety was 967 with a supply of 583 resulting in an undersupply of 384 workers (Exhibit 74 and 75).

Top Job Titles

- Correctional Sergeant
- Surveillance Investigator
- Correctional Officer

Exhibit 68. Gender composition of the top occupations in the public safety workforce

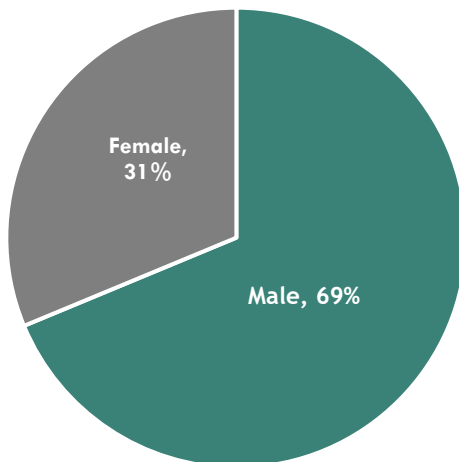


Exhibit 69. Race/ethnicity composition of the top occupations in the public safety workforce

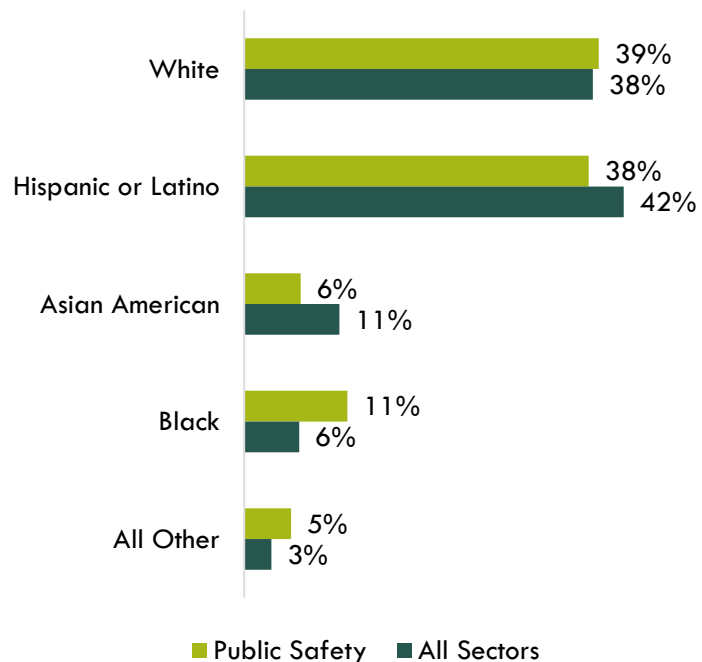


Exhibit 70. Public safety employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
Correctional Officers and Jailers	3,540	3,496	(43)	(1%)	332	\$38.70
Police and Sheriffs Patrol Officers	2,781	2,811	30	1%	227	\$39.96
Firefighters	1,246	1,257	11	1%	99	\$30.54
Emergency Medical Technicians and Paramedics	987	1,054	66	7%	85	\$16.54
Probation Officers and Correctional Treatment Specialists	471	474	3	1%	42	\$37.50
Public Safety Telecommunicators	342	346	4	1%	33	\$24.89
Detectives and Criminal Investigators	394	406	12	3%	32	\$42.40
Private Detectives and Investigators	338	344	6	2%	31	\$29.96
Miscellaneous First-Line Supervisors, Protective Service Workers	289	289	(1)	(0%)	30	\$32.10
First-Line Supervisors of Correctional Officers	325	329	4	1%	28	\$49.06
Transportation Security Screeners	274	287	13	5%	27	\$32.22

Exhibit 71. Public safety educational attainment

OCCUPATION	TYPICAL ENTRY- LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Correctional Officers and Jailers	High school diploma or equivalent	None	Moderate-term	49.3%
Police and Sheriffs Patrol Officers	High school diploma or equivalent	None	Moderate-term	46.4%
Firefighters	Postsecondary nondegree award	None	Long-term	59.4%
Emergency Medical Technicians and Paramedics	Postsecondary nondegree award	None	None	66.6%
Probation Officers and Correctional Treatment Specialists	Bachelor's degree	None	Short-term	11.9%
Public Safety Telecommunicators	High school diploma or equivalent	None	Moderate-term	54.0%
Detectives and Criminal Investigators	High school diploma or equivalent	Less than 5 years	Moderate-term	32.0%
Private Detectives and Investigators	High school diploma or equivalent	Less than 5 years	Moderate-term	32.7%
Miscellaneous First-Line Supervisors, Protective Service Workers	High school diploma or equivalent	Less than 5 years	None	37.8%
First-Line Supervisors of Correctional Officers	High school diploma or equivalent	Less than 5 years	None	42.4%
Transportation Security Screeners	High school diploma or equivalent	None	Short-term	46.7%

Exhibit 72. Top specialized skills in job postings for public safety occupations, n=364

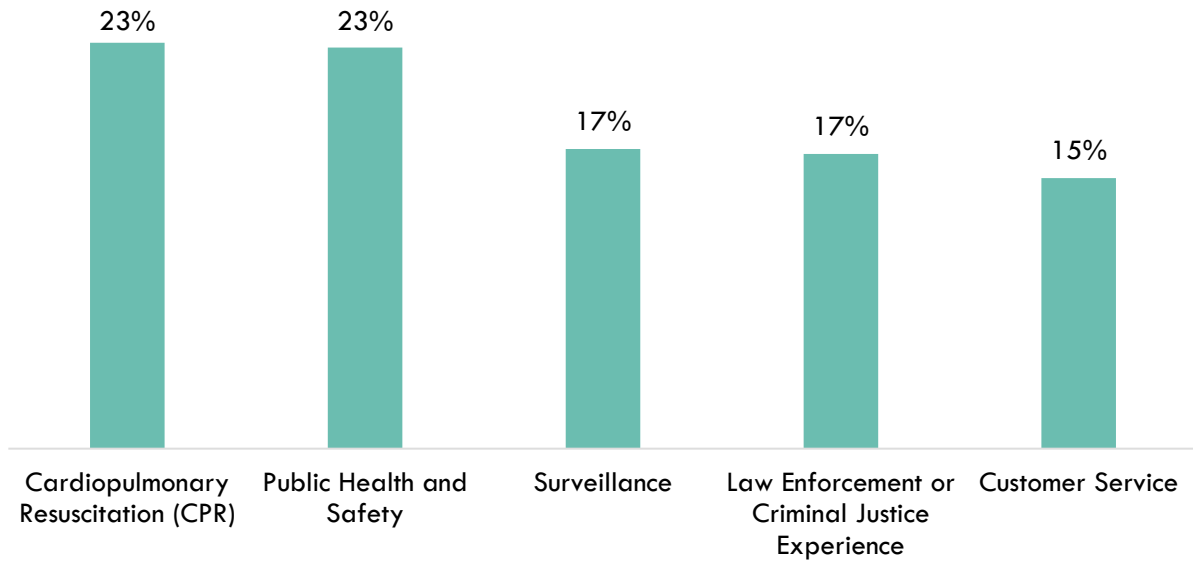


Exhibit 73. Top certifications in job postings for public safety occupations, n=325

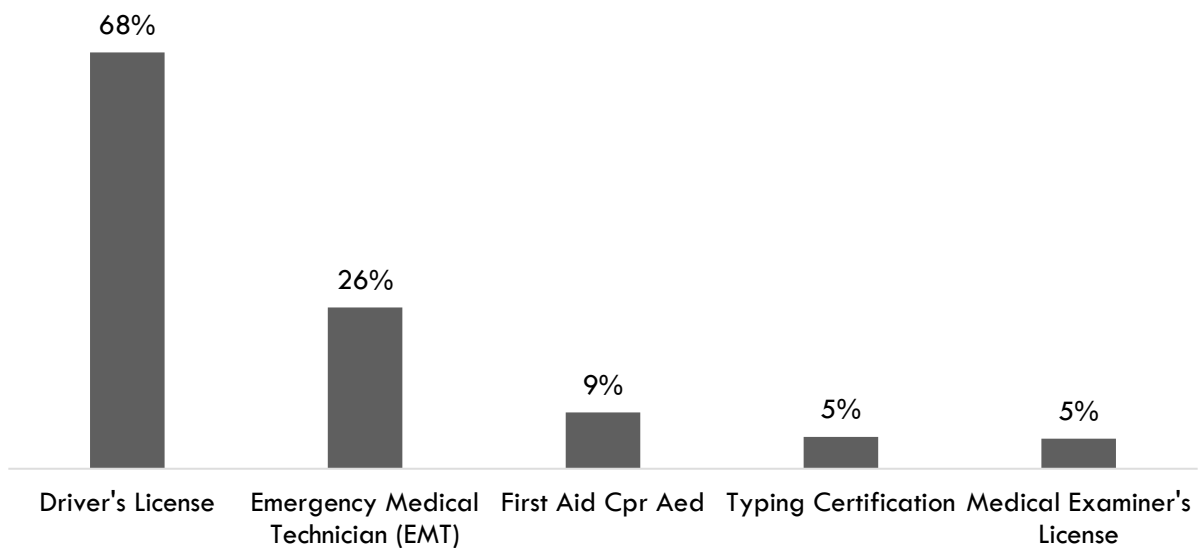


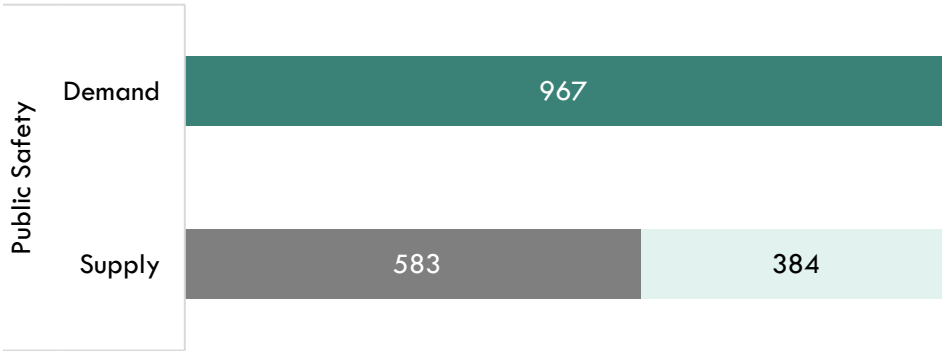
Exhibit 74. Public safety media postsecondary supply*

TOP/CIP Code- Title	College	Associate Degree	Award 1 < 2 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Subtotal
210510 - Corrections	Fresno City	3				5		8
	Reedley College	5		3	10			18
	Sequoias	3						3
	West Hills Coalinga	5						5
	West Hills Lemoore	10				3		13
210540 - Forensics, Evidence, and Investigation	Fresno City	2			3			5
210550 - Police Academy	Fresno City			0	28			28
	Sequoias					96		96
213300 - Fire Technology	Fresno City	9				1		10
	Porterville					4		4
	Sequoias	8				1		9
213310 - Wildland Fire Technology	Porterville						18	18
213350 - Fire Academy	Fresno City			7	16			24
	Sequoias						42	42
219900 - Other Public and Protective Services	Porterville	10						10
43.0102 - Corrections	San Joaquin Valley College-Visalia	181	1					182
43.0107 - Criminal Justice/Police Science	Institute of Technology	44						44
43.0109 - Security and Loss Prevention Services	UEI College-Fresno		63					63
TOTAL		281	64	11	57	110	60	583

*See appendix A for detail on Administration of Justice - 210500

Exhibit 75. Public safety workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
967	583	384



RETAIL, HOSPITALITY & TOURISM

Summary

- **Gender & race/ethnicity:** Comprising 48% of the workforce, men are slightly underrepresented in this sector. Analysis shows underrepresentation of Hispanic or Latino workers, and overrepresentation of white workers (Exhibits 76 and 77).
- **Employment and projected demand:** The largest middle-skill occupation is first-line supervisors of retail sales workers, which will have the most annual openings, 631 (Exhibit 78).
- **Wages:** The highest paid occupation is producers and directors, \$32.39/hour median (Exhibit 78).
- **In-demand qualifications:** The top skill is retail industry knowledge, and the top certification is a driver's license (Exhibits 80 and 81).
- **Supply and Gap analysis:** The demand for retail, hospitality, and tourism was 2,901 with a supply of 813 resulting in an undersupply of 2,088 workers (Exhibit 82 and 83).

Top Job Titles

- Assistant Store Manager
- Assistant Manager
- Store Manager

Exhibit 76. Gender composition of the top occupations in the retail, hospitality, and tourism workforce

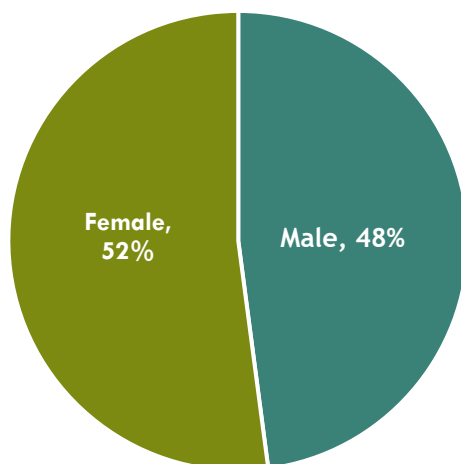


Exhibit 77. Race/ethnicity composition of the top occupations in the retail, hospitality, and tourism workforce

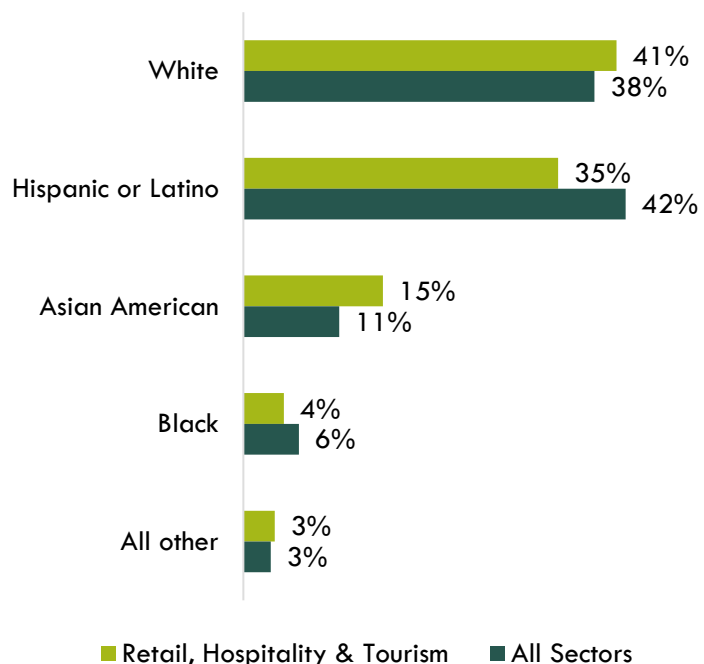


Exhibit 78. Retail, hospitality, and tourism employment, occupational projections, and median wages

OCCUPATION	2020 JOBS	2025 JOBS	5-YEAR CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS	MEDIAN WAGE
First-Line Supervisors of Retail Sales Workers	5,392	5,567	174	3%	631	\$19.71
Cooks, Restaurant	2,979	3,403	424	14%	540	\$14.58
First-Line Supervisors of Food Preparation and Serving Workers	2,579	2,997	418	16%	487	\$16.93
Hairdressers, Hairstylists, and Cosmetologists	2,255	2,390	135	6%	281	\$14.81
Self-Enrichment Teachers	1,114	1,184	70	6%	144	\$21.84
Food Service Managers	1,078	1,136	57	5%	138	\$19.26
Exercise Trainers and Group Fitness Instructors	721	690	(31)	(4%)	114	\$26.64
Manicurists and Pedicurists	810	920	110	14%	112	\$13.18
First-Line Supervisors of Housekeeping and Janitorial Workers	648	724	77	12%	92	\$23.78
Chefs and Head Cooks	574	604	31	5%	81	\$19.26
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	581	600	20	3%	65	\$22.83
Musicians and Singers	512	516	4	1%	61	\$20.00
Barbers	376	431	54	14%	49	\$13.25
Photographers	365	404	40	11%	47	\$23.25
Skincare Specialists	224	257	33	15%	32	\$14.21
Producers and Directors	280	297	17	6%	28	\$32.39

Exhibit 79. Retail, hospitality, and tourism educational attainment

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	Less than 5 years	None	38.8%
Cooks, Restaurant	No formal educational credential	Less than 5 years	Moderate-term	24.3%
First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	Less than 5 years	None	36.7%
Hairdressers, Hairstylists, and Cosmetologists	Postsecondary nondegree award	None	None	43.0%
Self-Enrichment Teachers	High school diploma or equivalent	Less than 5 years	None	25.4%
Food Service Managers	High school diploma or equivalent	Less than 5 years	None	35.8%
Exercise Trainers and Group Fitness Instructors	High school diploma or equivalent	None	Short-term	28.6%
Manicurists and Pedicurists	Postsecondary nondegree award	None	None	23.5%
First-Line Supervisors of Housekeeping and Janitorial Workers	High school diploma or equivalent	Less than 5 years	None	31.0%
Chefs and Head Cooks	High school diploma or equivalent	5 years or more	None	35.8%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	High school diploma or equivalent	Less than 5 years	None	31.0%
Musicians and Singers	No formal educational credential	None	Long-term	27.9%
Barbers	Postsecondary nondegree award	None	None	34.9%
Photographers	High school diploma or equivalent	None	Moderate-term	34.0%
Skincare Specialists	Postsecondary nondegree award	None	None	51.8%
Producers and Directors	Bachelor's degree	Less than 5 years	None	17.7%

Exhibit 80. Top specialized skills in job postings for retail, hospitality, and tourism occupations, n=3,697

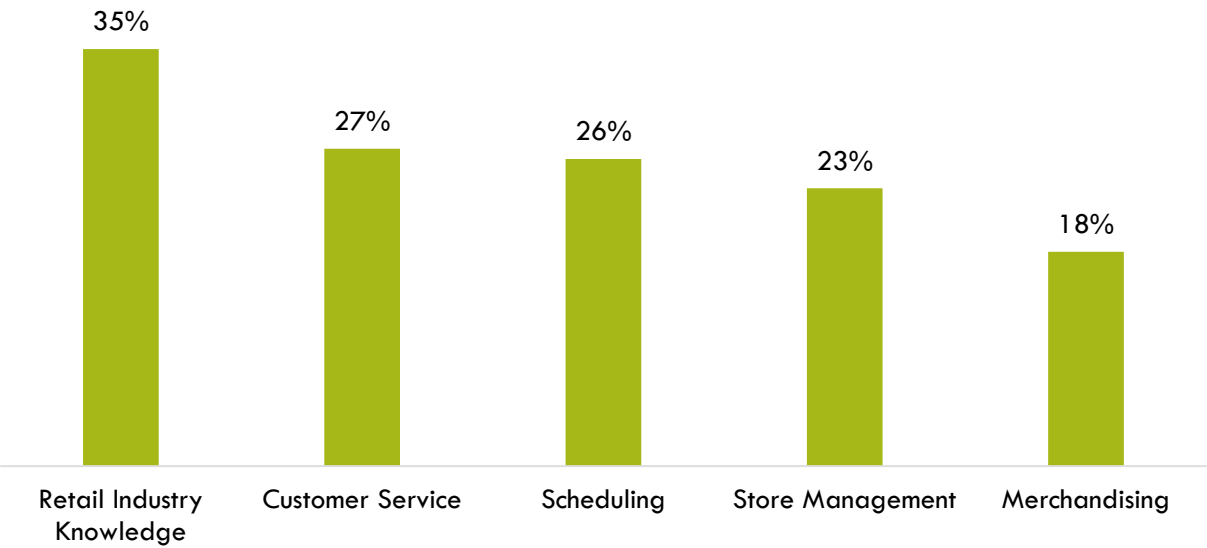


Exhibit 81. Top certifications in job postings for retail, hospitality, and tourism occupations, n=1,317

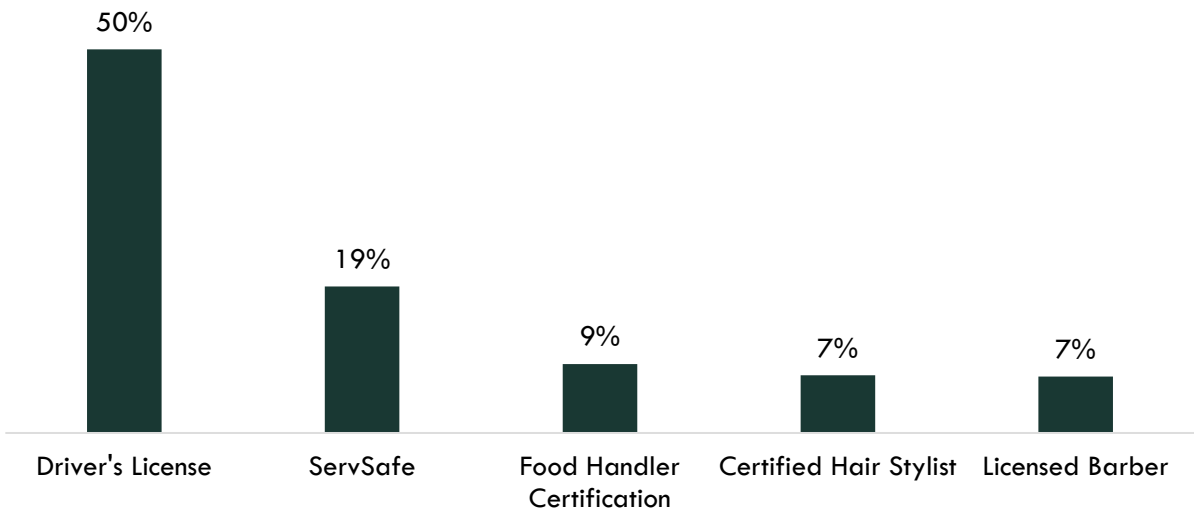


Exhibit 82. Retail, hospitality, and tourism postsecondary supply

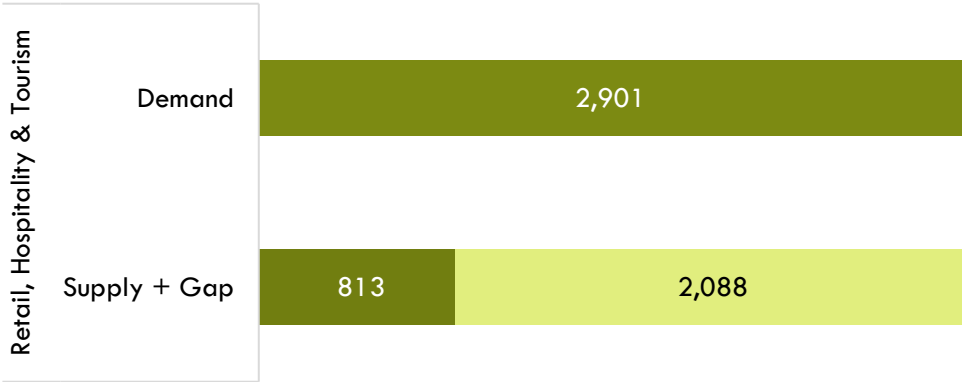
TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Subtotal
050650 - Retail Store Operations and Managemen t	Fresno City	3							22			25
	West Hills Coalinga	1						1				2
	West Hills Lemoore	0					0	4		5		10
100500 - Commercial Music	Fresno City	2				3			3			8
	Sequoias									4		4
100600 - Technical Theater	Fresno City	2										2
101200 - Applied Photography	Fresno City	6				12	1		6		6	30
12.0401 - Cosmetolog y/Cosmetolo gist, General	Estes Institute of Cosmetology Arts and Science				26							26
	Institute of Technology				0							0
	Lawrence & Company College of Cosmetology				43							43
	Lyle's College of Beauty				19							19
	Milan Institute of Cosmetology-Visalia (CLOSED)				75							75
	Milan Institute-Fresno				56							56
	Milan Institute-Visalia				0							0
	Paul Mitchell the School- Fresno				122							122
	Princess Institute of Beauty				7							7
	Institute of Technology				0							0
12.0402 - Barbering/B arber	Lawrence & Company College of Cosmetology				1							1
	Milan Institute-Fresno				23							23
	Paul Mitchell the School- Fresno				6							6

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Subtotal
12.0409 - Aesthetician /Esthetician and Skin Care Specialist	Lawrence & Company College of Cosmetology				7							7
	Lyle's College of Beauty			0								0
	Milan Institute-Fresno			98								98
	Princess Institute of Beauty			1								1
12.0410 - Nail Technician/S pecialist and Manicurist	Estes Institute of Cosmetology Arts and Science				1 8							18
	Lawrence & Company College of Cosmetology			6								6
	Lyle's College of Beauty			14								14
	Princess Institute of Beauty			1								1
12.0413 - Cosmetolog y, Barber/Stylin g, and Nail Instructor	Lyle's College of Beauty			0								0
12.0501 - Baking and Pastry Arts/Baker/P astry Chef	Institute of Technology				43							43
12.0503 - Culinary Arts/Chef Training	Institute of Technology	49		13	9							71
12.9999 - Personal and Culinary Services, Other	Institute of Technology				28							28
130300 - Fashion	Sequoias									0		0
130310 - Fashion Design	Sequoias	5					0	1			0	7
130320 - Fashion Merchandise ng	Fresno City	3							2			5
	Sequoias	4					0	1			1	5

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Award < 1 Academic Year	Award 1 < 2 Academic Years	Certificate 12 < 18 Semester Units	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Subtotal
130600 - Nutrition, Foods, and Culinary Arts	Fresno City	1	3						0			5
130710 - Restaurant and Food Services and Managemen t	Fresno City	2							2			4
	West Hills Lemoore						2	6		26		34
130720 - Lodging Managemen t	West Hills Lemoore							1		2		2
130730 - Resort and Club Managemen t	West Hills Lemoore	3										3
300700 - Cosmetolog y and Barbering	Sequoias						0	0				1
TOTAL		80	3	160	458	15	4	14	35	38	6	813

Exhibit 83. Retail, hospitality, and tourism workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill the gap

Demand	Supply	Gap
2,901	813	2,088



Appendix A: Supply for Administration of Justice

TOP code and title: 2105.00 – Administration of Justice applies to both the business and public safety sectors. The occupations with 25 or more annual openings for the public safety sector are better aligned to those TOP codes at the eight-digit level as all require EMT and academy certifications.

TOP/CIP Code- Title	College	Associate Degree	Associate for Transfer Degree	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Subtotal
210500 - Administration of Justice	Clovis	1	34	0	1		37
	Fresno City	13	133	2	1	23	173
	Porterville	1	46			12	58
	Reedley College	6	66	10	19		101
	Sequoias	11	86				97
	West Hills Coalinga	2	19				21
	West Hills Lemoore	23	43				67
TOTAL		57	428	13	22	35	554

Appendix B: Methodology & Data Sources

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 the Economic Modeling Specialists, Inc., 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	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI 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 also affected by county-level EMSI earnings by industry: economicmodeling.com .
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: https://www.bls.gov/emp/tables/educational-attainment.htm .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: labormarketinfo.edd.ca.gov .
Job Posting and Skills Data	Burning Glass: burning-glass.com/ .
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: onetonline.org .

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. (EMSI) 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.