

September 2020

Environmental Scan

West Hills College Lemoore



Prepared by the Central Valley/Mother Lode Center of Excellence



California
Community
Colleges



Table of Contents

Summary of Findings	3
Agriculture, Water, and Environmental Technologies.....	5
Advanced Manufacturing	9
Business & Entrepreneurship	15
Energy, Construction, and Utilities.....	21
Education	28
Global Trade.....	30
Health Care	32
ICT & Digital Media	38
Logistics.....	42
Mechanics & Welding	45
Protective Services.....	48
Retail, Hospitality & Tourism	51
Appendix A: Methodology & Data Sources	59

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.

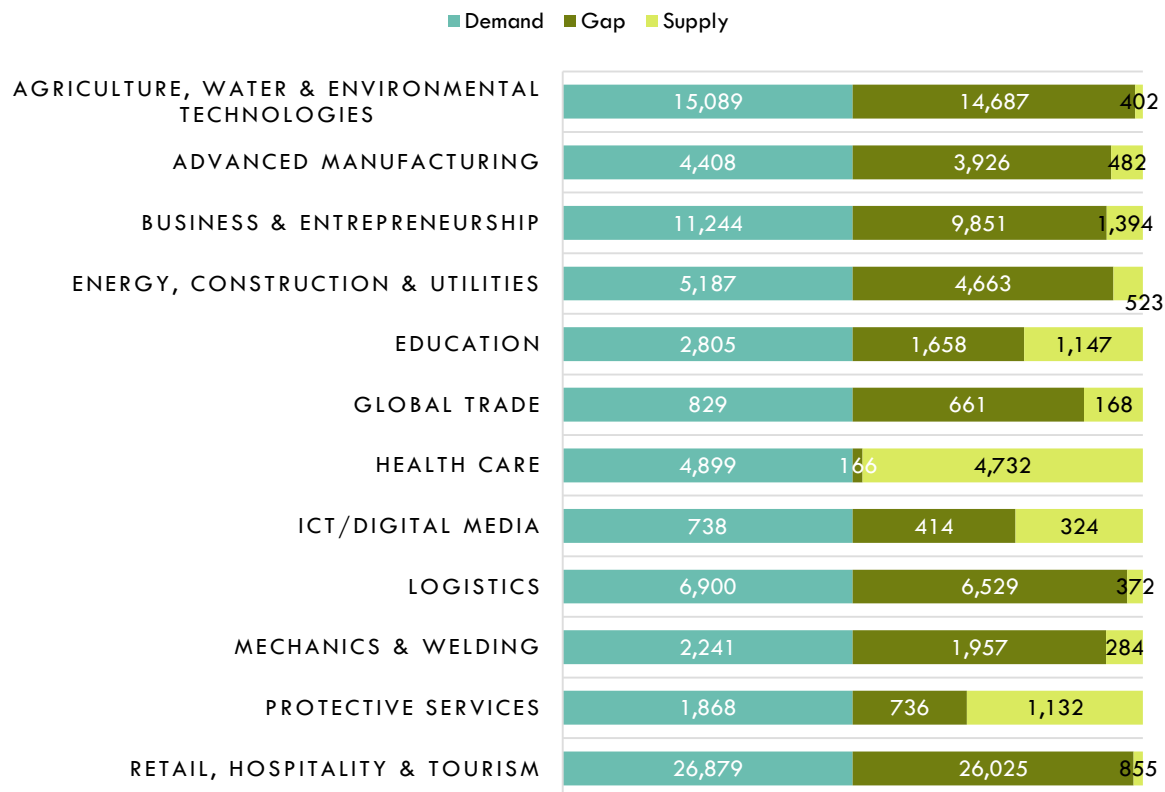
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Summary of Findings

The Central Valley/Mother Lode Center of Excellence was asked by West Hills College Lemoore to provide labor market information for the 12 industry sectors/occupational groupings critical to the economic vitality of the college's service area, namely Fresno, Kings, and Tulare counties. For each sector, this report examines current employment and projected occupational demand for low-skill and middle-skill jobs. Middle-skill jobs require more than a high school education but less than a bachelor's degree, making these occupations relevant to community college education. Whereas, many low- and middle-skill occupations can be relevant to adult education. In reviewing the data presented in this report, please keep in mind that forecasts are still being adjusted to reflect the economic impact of Covid-19 and may not accurately represent employer demand.

In the following report sections, occupational wages, educational attainment, and postsecondary supply are shown for each occupational grouping/industry sector. (Information on the report's methodology can be found in Appendix A.) Analysis by the Center of Excellence examined whether postsecondary institutions are supplying enough students to meet workforce demand. This analysis identified sectors with substantial projected growth and job openings and compared those sectors with postsecondary programs preparing students to enter occupations within those sectors. In the college's service area, the 12 sectors are expected to offer 83,039 low-skill and middle-skill job openings annually. A large proportion of job openings, a total of 26,879, are projected for the retail, hospitality, and tourism sector (Exhibit 1). The agriculture, water, and environmental technologies sector is projected to offer 15,089 annual openings, followed by the business and entrepreneurship sector with 11,244 annual openings.

Exhibit 1. Comparison of workforce demand and postsecondary supply for the 12 industry sectors



A comparison of postsecondary supply and projected workforce demand shows several substantial supply gaps. A shortage of more than 26,000 workers is projected for the retail, hospitality, and tourism sector; however, it is important to keep in mind that employment in this sector has declined dramatically in recent months, and there is speculation that many temporary job losses may become permanent. The agriculture, water, and environmental technologies sector is expected to have a shortage of 14,687 workers. In the college's service area and CVML region, strategic planning is imperative for the business sector, which will have a large supply gap in the service area, a shortage of 9,851 workers. The logistics sector is projected to have a shortage of 6,529 workers, and energy, construction, and utilities is projected to have a shortage of 4,663 workers. Many occupations in the business and entrepreneurship, logistics, and energy, construction, and utilities sectors pay strong wages that can assist students in achieving an improved quality of life. The college is strongly encouraged to consider supporting programs that train workers to enter these sectors.

Planning efforts should take into account occupations with strong workforce demand. The occupations with the most annual openings in the college's service area include:

- Farmworkers and laborers, crop, nursery, and greenhouse, 10,018 annual openings (low-skill)
- Laborers and freight, stock, and material movers (hand), 2,016 annual openings (low-skill)
- Office clerks (general), 1,560 annual openings
- Heavy and tractor-trailer truck drivers, 1,401 annual openings
- Teacher assistants, 1,396 annual openings
- Stock clerks and order fillers, 1,231 annual openings (low-skill)
- Secretaries and administrative assistants, except legal, medical, and executive, 1,034 annual openings
- Customer service representatives, 958 annual openings

The retail, hospitality, and tourism sector has six occupations that each have more than 1,000 annual openings, but these occupations should be considered with caution as this sector has been greatly impacted by the Covid-19 pandemic.

Occupations that pose a concern for training are those projected to contract over the next five years. These include:

- Farmers, ranchers, and other agricultural managers, a loss of 669 positions, a 7% decline
- Farmworkers and laborers, crop, nursery, and greenhouse, a loss of 411 positions, a 1% decline
- Farmworkers, farm, ranch, and aquacultural animals, a loss of 345 positions, an 8% decline
- Childcare workers, a loss of 223 positions, a 4% decline
- Security guards, a loss of 204 positions, a 6% decline

It is also important to keep in mind occupations that offer solid wages in conjunction with moderate to strong workforce demand. Industry sectors with these types of jobs include health care, business and entrepreneurship, and logistics. Within health care, occupations that have a promising outlook and that can lead to improved quality of life for socioeconomically disadvantaged students include dental hygienists, registered nurses, psychiatric technicians, and licensed vocational nurses. Business and entrepreneurship occupations include general and operations managers; claims adjusters, examiners, and investigators; and human resources specialists. Within logistics, occupations include transportation, storage, and distribution managers; and logisticians.

On average each year, postsecondary institutions in the service area confer 11,814 awards (degrees and certificates) in areas related to the 12 industry sectors. The greatest number of awards are in health care, 4,732, followed by business and entrepreneurship, 1,394, and education, 1,147.

Agriculture, Water, and Environmental Technologies

Exhibit 2. Agriculture, water and environmental technologies employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019- 2024 Change	2019- 2024 % Change	Annual Openings
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	60,900	60,489	(411)	(1%)	10,108
Farmers, Ranchers, and Other Agricultural Managers	9,538	8,869	(669)	(7%)	914
Landscaping and Groundskeeping Workers	5,409	5,595	186	3%	747
Farmworkers, Farm, Ranch, and Aquacultural Animals	4,528	4,183	(345)	(8%)	719
First-Line Supervisors of Farming, Fishing, and Forestry Workers	2,752	2,740	(12)	(0%)	416
Agricultural Equipment Operators	2,469	2,481	12	0%	414
Agricultural Workers, All Other	2,599	2,424	(175)	(7%)	412
Graders and Sorters, Agricultural Products	2,628	2,612	(16)	(1%)	394
Nonfarm Animal Caretakers	1,084	1,190	106	10%	205
Compliance Officers	839	903	64	8%	90
Agricultural Inspectors	507	515	8	2%	76
Pest Control Workers	446	472	26	6%	69
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	554	577	23	4%	66
Agricultural and Food Science Technicians	442	436	(6)	(1%)	54
Animal Trainers	351	359	8	2%	54
Tree Trimmers and Pruners	373	377	4	1%	50
Forest and Conservation Technicians	342	344	2	1%	42
Pesticide Handlers, Sprayers, and Applicators, Vegetation	289	304	15	5%	41
Veterinary Assistants and Laboratory Animal Caretakers	172	209	37	22%	38
Forest and Conservation Workers	186	195	9	5%	36
Veterinary Technologists and Technicians	169	208	39	23%	23
Floral Designers	222	218	(4)	(2%)	23
Food Scientists and Technologists	176	168	(8)	(5%)	19
Life, Physical, and Social Science Technicians, All Other	135	142	7	5%	18
Environmental Science and Protection Technicians, Including Health	108	116	8	7%	15
Animal Breeders	84	81	(3)	(4%)	14
Grounds Maintenance Workers, All Other	98	98	0	0%	13
Logging Equipment Operators	53	59	6	11%	10
Conservation Scientists	74	83	9	12%	10
TOTAL	97,528	96,447	(1,080)	(1%)	15,089

Exhibit 3. Agriculture, water, and environmental technologies wages

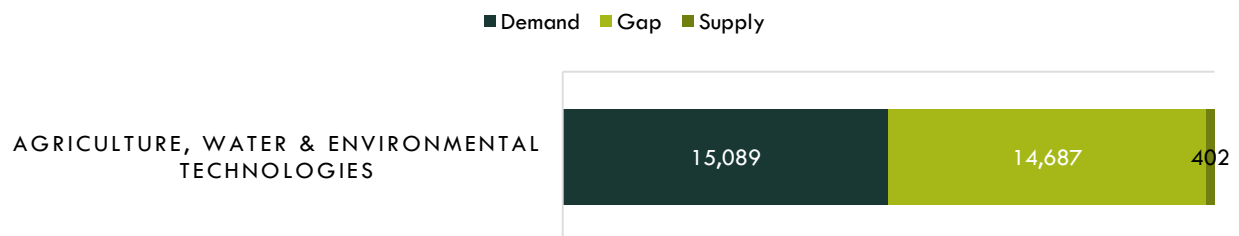
Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Compliance Officers	\$24.95	\$32.38
Food Scientists and Technologists	\$23.09	\$34.27
Farmers, Ranchers, and Other Agricultural Managers	\$19.95	\$29.18
Agricultural Inspectors	\$19.67	\$22.43
Environmental Science and Protection Technicians, Including Health	\$17.26	\$24.63
Life, Physical, and Social Science Technicians, All Other	\$16.52	\$20.00
Agricultural and Food Science Technicians	\$16.06	\$20.46
Pest Control Workers	\$15.61	\$17.88
First-Line Supervisors of Farming, Fishing, and Forestry Workers	\$15.24	\$18.03
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	\$13.59	\$20.82
Forest and Conservation Technicians	\$13.32	\$15.87
Animal Breeders	\$12.82	\$15.97
Conservation Scientists	\$12.47	\$18.68
Veterinary Technologists and Technicians	\$11.93	\$14.75
Agricultural Equipment Operators	\$11.86	\$13.27
Tree Trimmers and Pruners	\$11.82	\$16.57
Pesticide Handlers, Sprayers, and Applicators, Vegetation	\$11.79	\$13.99
Logging Equipment Operators	\$11.71	\$11.99
Veterinary Assistants and Laboratory Animal Caretakers	\$11.57	\$13.43
Agricultural Workers, All Other	\$11.48	\$12.80
Farmworkers, Farm, Ranch, and Aquacultural Animals	\$11.36	\$12.21
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	\$11.32	\$11.87
Floral Designers	\$11.18	\$14.98
Landscaping and Groundskeeping Workers	\$11.09	\$13.43
Graders and Sorters, Agricultural Products	\$11.09	\$11.68
Nonfarm Animal Caretakers	\$11.01	\$12.09
Grounds Maintenance Workers, All Other	\$11.01	\$11.03
Animal Trainers	\$11.00	\$12.41
Forest and Conservation Workers	\$11.00	\$11.00

Exhibit 4. Agriculture, water, and environmental technologies educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	Low-skill	No formal educational credential	None	Short-term
Farmers, Ranchers, and Other Agricultural Managers	Middle-skill	High school diploma or equivalent	5 years or more	None
Landscaping and Groundskeeping Workers	Low-skill	No formal educational credential	None	Short-term
Farmworkers, Farm, Ranch, and Aquacultural Animals	Low-skill	No formal educational credential	None	Short-term
First-Line Supervisors of Farming, Fishing, and Forestry Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Agricultural Equipment Operators	Middle-skill	No formal educational credential	None	Moderate-term
Agricultural Workers, All Other	Low-skill	No formal educational credential	None	Short-term
Graders and Sorters, Agricultural Products	Low-skill	No formal educational credential	None	Short-term
Nonfarm Animal Caretakers	Low-skill	High school diploma or equivalent	None	Short-term
Compliance Officers	Middle-skill	Bachelor's degree	None	Moderate-term
Agricultural Inspectors	Middle-skill	Bachelor's degree	None	Moderate-term
Pest Control Workers	Low-skill	High school diploma or equivalent	None	Moderate-term
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Agricultural and Food Science Technicians	Middle-skill	Associate degree	None	Moderate-term
Animal Trainers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Tree Trimmers and Pruners	Low-skill	High school diploma or equivalent	None	Short-term
Forest and Conservation Technicians	Middle-skill	Associate degree	None	None
Pesticide Handlers, Sprayers, and Applicators, Vegetation	Middle-skill	High school diploma or equivalent	None	Moderate-term
Veterinary Assistants and Laboratory Animal Caretakers	Low-skill	High school diploma or equivalent	None	Short-term
Forest and Conservation Workers	Low-skill	High school diploma or equivalent	None	Moderate-term
Veterinary Technologists and Technicians	Middle-skill	Associate degree	None	None
Floral Designers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Food Scientists and Technologists	Middle-skill	Bachelor's degree	None	None
Life, Physical, and Social Science Technicians, All Other	Middle-skill	Associate degree	None	None
Environmental Science and Protection Technicians, Including Health	Middle-skill	Associate degree	None	None
Animal Breeders	Low-skill	High school diploma or equivalent	None	Short-term
Grounds Maintenance Workers, All Other	Low-skill	No formal educational credential	None	Short-term
Logging Equipment Operators	Low-skill	High school diploma or equivalent	None	Moderate-term
Conservation Scientists	Middle-skill	Bachelor's degree	None	None

Exhibit 5. Agriculture, water, and environmental technologies postsecondary supply

TOP Code-Title	College	3-year Average
010100 - Agriculture Technology and Sciences, General	Porterville	7
	Reedley College	2
	West Hills Coalinga	5
010200 - Animal Science	Reedley College	15
	Sequoias	13
010210 - Veterinary Technician (Licensed)	San Joaquin Valley College-Visalia	69
	Sequoias	1
010230 - Dairy Science	Sequoias	3
010240 - Equine Science	Reedley College	2
	Sequoias	2
010300 - Plant Science	Reedley College	47
	Sequoias	9
	West Hills Coalinga	11
010310 - Agricultural Pest Control Adviser and Operator (Licensed)	Sequoias	2
	West Hills Coalinga	2
010900 - Horticulture	Sequoias	5
010910 - Landscape Design and Maintenance	Sequoias	6
011200 - Agriculture Business, Sales and Service	Porterville	1
	Reedley College	10
	Sequoias	16
011300 - Food Processing and Related Technologies	Clovis	4
011400 - Forestry	Reedley College	20
011500 - Natural Resources	Fresno City	0
	Reedley College	18
011510 - Parks and Outdoor Recreation	Reedley College	3
011600 - Agricultural Power Equipment Technology	Reedley College	128
	Sequoias	1
TOTAL		402

Exhibit 6. Agriculture, water, and environmental technologies annual demand and supply


Advanced Manufacturing

Exhibit 7. Advanced manufacturing employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Packers and Packagers, Hand	5,141	5,238	97	2%	773
Packaging and Filling Machine Operators and Tenders	3,830	3,778	(52)	(1%)	450
Assemblers and Fabricators, All Other, Including Team Assemblers	3,289	3,255	(34)	(1%)	391
Food Batchmakers	2,369	2,271	(98)	(4%)	347
Inspectors, Testers, Sorters, Samplers, and Weighers	2,099	2,008	(91)	(4%)	256
Slaughterers and Meat Packers	1,851	1,949	98	5%	256
First-Line Supervisors of Production and Operating Workers	2,122	2,217	95	4%	241
Production Workers, All Other	1,458	1,483	25	2%	177
Helpers--Production Workers	843	906	63	7%	141
Food Cooking Machine Operators and Tenders	904	869	(35)	(4%)	141
Meat, Poultry, and Fish Cutters and Trimmers	695	754	59	8%	101
Machinists	770	812	42	5%	90
Mixing and Blending Machine Setters, Operators, and Tenders	652	679	27	4%	83
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	609	618	9	1%	73
Paper Goods Machine Setters, Operators, and Tenders	495	541	46	9%	65
Machine Feeders and Offbearers	353	378	25	7%	53
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	427	442	15	4%	53
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	295	330	35	12%	51
Cutting and Slicing Machine Setters, Operators, and Tenders	370	379	9	2%	48
Printing Press Operators	425	423	(2)	(0%)	47
Industrial Production Managers	497	528	31	6%	44
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	366	373	7	2%	44
Food Processing Workers, All Other	352	353	1	0%	38
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	224	209	(15)	(7%)	34
Painters, Transportation Equipment	224	243	19	8%	29
Sawing Machine Setters, Operators, and Tenders, Wood	186	205	19	10%	27
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	194	205	11	6%	24
Engineering Technicians, Except Drafters, All Other	215	226	11	5%	24
Sewing Machine Operators	182	186	4	2%	22
Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	148	167	19	13%	21
Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	144	146	2	1%	21
Pressers, Textile, Garment, and Related Materials	170	160	(10)	(6%)	19
Electrical and Electronics Engineering Technicians	168	179	11	7%	19
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	113	129	16	14%	19

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	157	163	6	4%	19
Computer-Controlled Machine Tool Operators, Metal and Plastic	149	155	6	4%	17
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	138	140	2	1%	17
Stationary Engineers and Boiler Operators	136	142	6	4%	16
Tailors, Dressmakers, and Custom Sewers	121	118	(3)	(2%)	16
Print Binding and Finishing Workers	104	100	(4)	(4%)	14
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	107	113	6	6%	13
Engine and Other Machine Assemblers	107	102	(5)	(5%)	13
Mechanical Drafters	112	113	1	1%	12
Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	113	108	(5)	(4%)	12
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	96	98	2	2%	12
Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	83	83	0	0%	12
Molders, Shapers, and Casters, Except Metal and Plastic	95	94	(1)	(1%)	11
TOTAL	33,697	34,164	470	1%	4,408

Exhibit 8. Advanced manufacturing wages

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Stationary Engineers and Boiler Operators	\$32.70	\$37.89
Industrial Production Managers	\$32.18	\$42.48
Electrical and Electronics Engineering Technicians	\$25.01	\$34.36
Mechanical Drafters	\$20.97	\$25.28
First-Line Supervisors of Production and Operating Workers	\$19.81	\$27.25
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	\$17.21	\$23.44
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	\$16.58	\$21.48
Printing Press Operators	\$15.98	\$20.91
Computer-Controlled Machine Tool Operators, Metal and Plastic	\$15.23	\$18.66
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	\$14.97	\$17.74
Engineering Technicians, Except Drafters, All Other	\$14.67	\$22.57
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$14.37	\$27.72
Mixing and Blending Machine Setters, Operators, and Tenders	\$14.19	\$17.27
Machinists	\$13.89	\$17.39
Painters, Transportation Equipment	\$13.81	\$16.84
Paper Goods Machine Setters, Operators, and Tenders	\$13.55	\$17.00
Engine and Other Machine Assemblers	\$13.43	\$17.34
Molders, Shapers, and Casters, Except Metal and Plastic	\$13.33	\$14.81
Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$13.32	\$16.97

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	\$13.20	\$16.44
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	\$13.08	\$15.11
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	\$13.00	\$14.44
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	\$12.64	\$15.34
Slaughterers and Meat Packers	\$12.57	\$13.70
Cutting and Slicing Machine Setters, Operators, and Tenders	\$12.54	\$14.88
Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	\$12.46	\$17.07
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	\$12.31	\$16.02
Sawing Machine Setters, Operators, and Tenders, Wood	\$12.25	\$14.65
Food Cooking Machine Operators and Tenders	\$12.15	\$15.28
Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	\$12.08	\$15.55
Food Batchmakers	\$11.90	\$14.22
Packaging and Filling Machine Operators and Tenders	\$11.89	\$14.28
Inspectors, Testers, Sorters, Samplers, and Weighers	\$11.83	\$14.34
Production Workers, All Other	\$11.70	\$13.52
Pressers, Textile, Garment, and Related Materials	\$11.65	\$12.99
Machine Feeders and Offbearers	\$11.61	\$12.91
Assemblers and Fabricators, All Other, Including Team Assemblers	\$11.60	\$13.24
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	\$11.58	\$13.06
Food Processing Workers, All Other	\$11.56	\$12.57
Meat, Poultry, and Fish Cutters and Trimmers	\$11.46	\$12.25
Packers and Packagers, Hand	\$11.37	\$12.09
Helpers--Production Workers	\$11.34	\$12.51
Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	\$11.29	\$12.05
Print Binding and Finishing Workers	\$11.26	\$13.06
Sewing Machine Operators	\$11.06	\$12.98
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	\$11.01	\$11.18
Tailors, Dressmakers, and Custom Sewers	\$7.35	\$11.76

Exhibit 9. Advanced manufacturing educational attainment

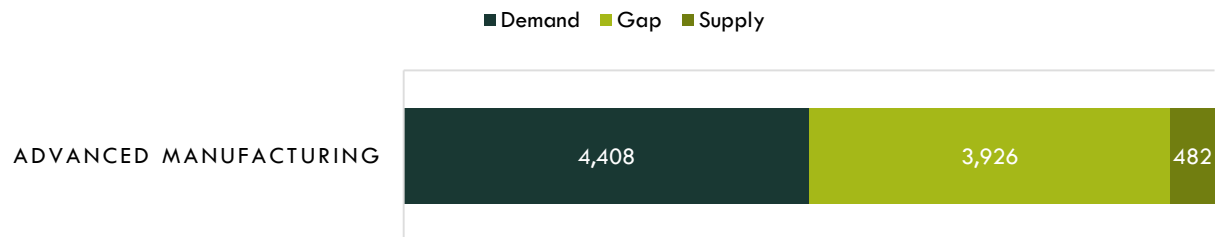
Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Packers and Packagers, Hand	Low-skill	No formal educational credential	None	Short-term
Packaging and Filling Machine Operators and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Assemblers and Fabricators, All Other, Including Team Assemblers	Low-skill	High school diploma or equivalent	None	Moderate-term
Food Batchmakers	Low-skill	High school diploma or equivalent	None	Moderate-term
Inspectors, Testers, Sorters, Samplers, and Weighers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Slaughterers and Meat Packers	Low-skill	No formal educational credential	None	Short-term
First-Line Supervisors of Production and Operating Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Production Workers, All Other	Low-skill	High school diploma or equivalent	None	Moderate-term
Helpers--Production Workers	Low-skill	High school diploma or equivalent	None	Short-term
Food Cooking Machine Operators and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Meat, Poultry, and Fish Cutters and Trimmers	Low-skill	No formal educational credential	None	Short-term
Machinists	Middle-skill	High school diploma or equivalent	None	Long-term
Mixing and Blending Machine Setters, Operators, and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Paper Goods Machine Setters, Operators, and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Machine Feeders and Offbearers	Low-skill	No formal educational credential	None	Short-term
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	Low-skill	High school diploma or equivalent	None	Moderate-term
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	Low-skill	High school diploma or equivalent	None	Moderate-term
Cutting and Slicing Machine Setters, Operators, and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Printing Press Operators	Middle-skill	High school diploma or equivalent	None	Moderate-term
Industrial Production Managers	Middle-skill	Bachelor's degree	5 years or more	None
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Low-skill	High school diploma or equivalent	None	Moderate-term
Food Processing Workers, All Other	Low-skill	No formal educational credential	None	Moderate-term
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Painters, Transportation Equipment	Low-skill	High school diploma or equivalent	None	Moderate-term

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Sawing Machine Setters, Operators, and Tenders, Wood	Low-skill	High school diploma or equivalent	None	Moderate-term
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Engineering Technicians, Except Drafters, All Other	Middle-skill	Associate degree	None	None
Sewing Machine Operators	Low-skill	No formal educational credential	None	Short-term
Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Low-skill	High school diploma or equivalent	None	Moderate-term
Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	Low-skill	No formal educational credential	None	Moderate-term
Pressers, Textile, Garment, and Related Materials	Low-skill	No formal educational credential	None	Short-term
Electrical and Electronics Engineering Technicians	Middle-skill	Associate degree	None	None
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	Low-skill	High school diploma or equivalent	None	Moderate-term
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Computer-Controlled Machine Tool Operators, Metal and Plastic	Middle-skill	High school diploma or equivalent	None	Moderate-term
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	Low-skill	High school diploma or equivalent	None	Moderate-term
Stationary Engineers and Boiler Operators	Middle-skill	High school diploma or equivalent	None	Long-term
Tailors, Dressmakers, and Custom Sewers	Low-skill	No formal educational credential	None	Moderate-term
Print Binding and Finishing Workers	Low-skill	High school diploma or equivalent	None	Moderate-term
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	Low-skill	High school diploma or equivalent	None	Moderate-term
Engine and Other Machine Assemblers	Low-skill	High school diploma or equivalent	None	Moderate-term
Mechanical Drafters	Middle-skill	Associate degree	None	None
Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	Low-skill	High school diploma or equivalent	None	Moderate-term
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Low-skill	High school diploma or equivalent	None	Moderate-term
Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	Low-skill	High school diploma or equivalent	None	Moderate-term
Molders, Shapers, and Casters, Except Metal and Plastic	Middle-skill	High school diploma or equivalent	None	Long-term

Exhibit 10. Advanced manufacturing postsecondary supply

TOP Code-Title	College	3-year Average
093400 - Electronics and Electric Technology	Fresno City	25
	ITT Technical Institute-Clovis	12
	Sequoias	2
093410 - Computer Electronics	UEI College-Fresno	25
093420 - Industrial Electronics	Fresno City	21
093600 - Printing and Lithography	Fresno City	5
094500 - Industrial Systems Technology and Maintenance	Clovis	0
	Fresno City	26
	San Joaquin Valley College-Visalia	122
	Sequoias	58
095000 - Aeronautical and Aviation Technology	Reedley College	9
	San Joaquin Valley College-Visalia	32
	Sequoias	0
095340 - Mechanical Drafting	Sequoias	3
095500 - Laboratory Science Technology	Fresno City	2
095600 - Manufacturing and Industrial Technology	Fresno City	27
	Porterville	41
	Reedley College	54
095630 - Machining and Machine Tools	Reedley College	17
TOTAL		482

Exhibit 11. Advanced manufacturing annual demand and supply



Business & Entrepreneurship

Exhibit 12. Business and entrepreneurship employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Office Clerks, General	12,130	12,489	359	3%	1,560
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	8,990	9,015	25	0%	1,034
Customer Service Representatives	6,605	6,890	285	4%	958
Bookkeeping, Accounting, and Auditing Clerks	6,803	6,845	42	1%	817
General and Operations Managers	6,510	6,980	470	7%	681
First-Line Supervisors of Office and Administrative Support Workers	5,050	5,232	182	4%	578
Receptionists and Information Clerks	3,363	3,654	291	9%	529
Sales Representatives, Services, All Other	2,881	3,143	262	9%	435
Business Operations Specialists, All Other	3,569	3,794	225	6%	398
Insurance Sales Agents	3,102	3,249	147	5%	341
Eligibility Interviewers, Government Programs	2,309	2,423	114	5%	247
Billing and Posting Clerks	1,872	2,022	150	8%	242
Managers, All Other	2,496	2,634	138	6%	223
Insurance Claims and Policy Processing Clerks	1,729	1,819	90	5%	194
Human Resources Specialists	1,566	1,684	118	8%	187
Office and Administrative Support Workers, All Other	1,407	1,474	67	5%	181
Information and Record Clerks, All Other	1,356	1,400	44	3%	169
Tellers	1,414	1,253	(161)	(11%)	162
Executive Secretaries and Executive Administrative Assistants	1,322	1,264	(58)	(4%)	147
Tax Examiners and Collectors, and Revenue Agents	1,685	1,690	5	0%	142
Production, Planning, and Expediting Clerks	1,131	1,216	85	8%	139
Real Estate Sales Agents	1,312	1,360	48	4%	137
Interviewers, Except Eligibility and Loan	982	1,000	18	2%	128
Claims Adjusters, Examiners, and Investigators	1,335	1,375	40	3%	124
First-Line Supervisors of Non-Retail Sales Workers	1,133	1,168	35	3%	119
Paralegals and Legal Assistants	864	928	64	7%	109
Property, Real Estate, and Community Association Managers	1,103	1,162	59	5%	99
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	736	767	31	4%	92
Mail Clerks and Mail Machine Operators, Except Postal Service	799	786	(13)	(2%)	89
Payroll and Timekeeping Clerks	771	780	9	1%	88
Training and Development Specialists	662	724	62	9%	87
Order Clerks	671	684	13	2%	82
Human Resources Assistants, Except Payroll and Timekeeping	680	688	8	1%	81
Bill and Account Collectors	617	630	13	2%	78
Sales and Related Workers, All Other	485	512	27	6%	70
Loan Officers	753	734	(19)	(3%)	63

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Tax Preparers	471	483	12	3%	57
Advertising Sales Agents	417	406	(11)	(3%)	56
Court, Municipal, and License Clerks	522	551	29	6%	56
Legal Secretaries	500	468	(32)	(6%)	55
Loan Interviewers and Clerks	525	509	(16)	(3%)	52
File Clerks	395	382	(13)	(3%)	48
Compensation, Benefits, and Job Analysis Specialists	197	210	13	7%	22
Credit Counselors	244	243	(1)	(0%)	21
New Accounts Clerks	136	119	(17)	(13%)	15
Office Machine Operators, Except Computer	106	102	(4)	(4%)	14
Appraisers and Assessors of Real Estate	173	173	0	0%	14
Title Examiners, Abstractors, and Searchers	132	132	0	0%	12
Legal Support Workers, All Other	102	108	6	6%	11
TOTAL	94,112	97,355	3,241	3%	11,244

Exhibit 13. Business and entrepreneurship wages

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
General and Operations Managers	\$30.59	\$42.57
Claims Adjusters, Examiners, and Investigators	\$23.77	\$32.00
Appraisers and Assessors of Real Estate	\$23.15	\$35.37
Human Resources Specialists	\$22.37	\$29.23
Credit Counselors	\$22.23	\$27.56
Executive Secretaries and Executive Administrative Assistants	\$21.79	\$26.12
Court, Municipal, and License Clerks	\$21.08	\$23.05
Loan Officers	\$20.72	\$29.73
First-Line Supervisors of Office and Administrative Support Workers	\$20.11	\$25.58
Compensation, Benefits, and Job Analysis Specialists	\$19.87	\$24.81
Managers, All Other	\$19.79	\$37.22
Training and Development Specialists	\$19.41	\$27.35
Eligibility Interviewers, Government Programs	\$19.11	\$23.49
Title Examiners, Abstractors, and Searchers	\$19.01	\$25.07
Legal Support Workers, All Other	\$18.83	\$23.24
Business Operations Specialists, All Other	\$18.67	\$28.57
Property, Real Estate, and Community Association Managers	\$18.61	\$29.48
Tax Examiners and Collectors, and Revenue Agents	\$18.20	\$21.87
New Accounts Clerks	\$17.96	\$21.18
Payroll and Timekeeping Clerks	\$17.95	\$22.39
Paralegals and Legal Assistants	\$17.63	\$22.71
Real Estate Sales Agents	\$16.55	\$26.46
Bookkeeping, Accounting, and Auditing Clerks	\$16.52	\$20.39
Production, Planning, and Expediting Clerks	\$16.18	\$20.13

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
First-Line Supervisors of Non-Retail Sales Workers	\$16.04	\$26.40
Legal Secretaries	\$15.73	\$22.65
Human Resources Assistants, Except Payroll and Timekeeping	\$15.59	\$19.18
Sales Representatives, Services, All Other	\$15.55	\$22.71
Interviewers, Except Eligibility and Loan	\$15.09	\$17.95
Insurance Claims and Policy Processing Clerks	\$15.06	\$17.95
Bill and Account Collectors	\$14.88	\$17.90
Advertising Sales Agents	\$14.79	\$28.35
Information and Record Clerks, All Other	\$14.78	\$17.65
Loan Interviewers and Clerks	\$14.64	\$18.88
Sales and Related Workers, All Other	\$14.43	\$22.84
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	\$14.19	\$18.04
Insurance Sales Agents	\$13.77	\$23.56
Billing and Posting Clerks	\$13.72	\$16.52
Mail Clerks and Mail Machine Operators, Except Postal Service	\$12.79	\$13.19
Office Machine Operators, Except Computer	\$12.71	\$16.91
Order Clerks	\$12.69	\$16.60
Customer Service Representatives	\$12.31	\$15.12
Receptionists and Information Clerks	\$12.26	\$14.08
Tellers	\$12.23	\$13.84
Office Clerks, General	\$11.98	\$15.57
File Clerks	\$11.86	\$13.83
Office and Administrative Support Workers, All Other	\$11.80	\$14.79
Tax Preparers	\$11.53	\$13.26
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	\$11.40	\$13.35

Exhibit 14. Business and entrepreneurship educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Office Clerks, General	Low-skill	High school diploma or equivalent	None	Short-term
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	Middle-skill	High school diploma or equivalent	None	Short-term
Customer Service Representatives	Middle-skill	High school diploma or equivalent	None	Short-term
Bookkeeping, Accounting, and Auditing Clerks	Middle-skill	Some college, no degree	None	Moderate-term
General and Operations Managers	Middle-skill	Bachelor's degree	5 years or more	None
First-Line Supervisors of Office and Administrative Support Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Receptionists and Information Clerks	Low-skill	High school diploma or equivalent	None	Short-term
Sales Representatives, Services, All Other	Middle-skill	High school diploma or equivalent	None	Moderate-term
Business Operations Specialists, All Other	Middle-skill	Bachelor's degree	None	None

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Insurance Sales Agents	Middle-skill	High school diploma or equivalent	None	Moderate-term
Eligibility Interviewers, Government Programs	Low-skill	High school diploma or equivalent	None	Moderate-term
Billing and Posting Clerks	Low-skill	High school diploma or equivalent	None	Moderate-term
Managers, All Other	Middle-skill	Bachelor's degree	Less than 5 years	None
Insurance Claims and Policy Processing Clerks	Low-skill	High school diploma or equivalent	None	Moderate-term
Human Resources Specialists	High Skill	Bachelor's degree	None	None
Office and Administrative Support Workers, All Other	Low-skill	High school diploma or equivalent	None	Short-term
Information and Record Clerks, All Other	Low-skill	High school diploma or equivalent	None	Short-term
Tellers	Middle-skill	High school diploma or equivalent	None	Short-term
Executive Secretaries and Executive Administrative Assistants	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Tax Examiners and Collectors, and Revenue Agents	Middle-skill	Bachelor's degree	None	Moderate-term
Production, Planning, and Expediting Clerks	Middle-skill	High school diploma or equivalent	None	Moderate-term
Real Estate Sales Agents	Middle-skill	High school diploma or equivalent	None	Moderate-term
Interviewers, Except Eligibility and Loan	Low-skill	High school diploma or equivalent	None	Short-term
Claims Adjusters, Examiners, and Investigators	Middle-skill	High school diploma or equivalent	None	Long-term
First-Line Supervisors of Non-Retail Sales Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Paralegals and Legal Assistants	Middle-skill	Associate degree	None	None
Property, Real Estate, and Community Association Managers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	Low-skill	High school diploma or equivalent	None	Short-term
Mail Clerks and Mail Machine Operators, Except Postal Service	Low-skill	High school diploma or equivalent	None	Short-term
Payroll and Timekeeping Clerks	Middle-skill	High school diploma or equivalent	None	Moderate-term
Training and Development Specialists	Middle-skill	Bachelor's degree	Less than 5 years	None
Order Clerks	Low-skill	Some college, no degree	None	Short-term
Human Resources Assistants, Except Payroll and Timekeeping	Middle-skill	Associate degree	None	None
Bill and Account Collectors	Middle-skill	High school diploma or equivalent	None	Moderate-term
Sales and Related Workers, All Other	Middle-skill	High school diploma or equivalent	None	None
Loan Officers	Middle-skill	Bachelor's degree	None	Moderate-term
Tax Preparers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Advertising Sales Agents	Middle-skill	High school diploma or equivalent	None	Moderate-term
Court, Municipal, and License Clerks	Middle-skill	High school diploma or equivalent	None	Long-term

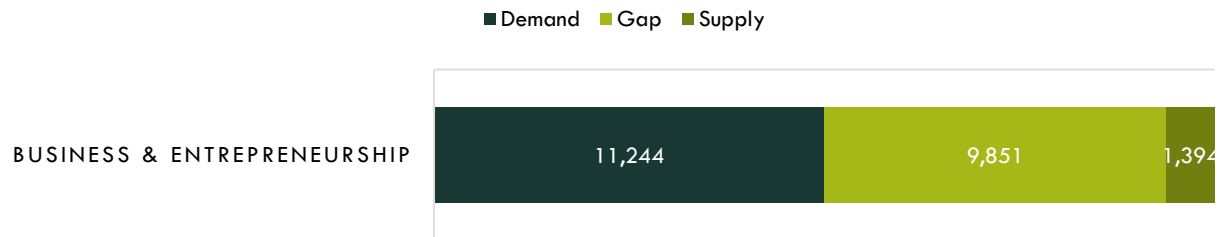
Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Legal Secretaries	Middle-skill	High school diploma or equivalent	None	Moderate-term
Loan Interviewers and Clerks	Middle-skill	High school diploma or equivalent	None	Short-term
File Clerks	Low-skill	High school diploma or equivalent	None	Short-term
Compensation, Benefits, and Job Analysis Specialists	Middle-skill	Bachelor's degree	Less than 5 years	None
Credit Counselors	Middle-skill	Bachelor's degree	None	Moderate-term
New Accounts Clerks	Middle-skill	High school diploma or equivalent	None	Moderate-term
Office Machine Operators, Except Computer	Low-skill	High school diploma or equivalent	None	Short-term
Appraisers and Assessors of Real Estate	Middle-skill	Bachelor's degree	None	Long-term
Title Examiners, Abstractors, and Searchers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Legal Support Workers, All Other	Middle-skill	Associate degree	None	None

Exhibit 15. Business and entrepreneurship postsecondary supply

TOP Code-Title	College	3-year Average
050200 - Accounting	Fresno City	44
	Institute of Technology	10
	Milan Institute-Visalia	15
	Porterville	2
	Reedley College	13
	Sequoias	15
	West Hills Coalinga	6
	West Hills Lemoore	13
050400 - Banking and Finance	Sequoias	1
050500 - Business Administration	Clovis	97
	Fresno City	227
	Porterville	37
	Reedley College	102
	Sequoias	93
	West Hills Coalinga	13
	West Hills Lemoore	65
050640 - Small Business and Entrepreneurship	Clovis	0
	Reedley College	2
051400 - Office Technology/Office Computer Applications	Clovis Adult Education	20
	Fresno City	55
	Institute of Technology	7
	Milan Institute-Visalia	18
	Reedley College	68

TOP Code-Title	College	3-year Average
	San Joaquin Valley College-Visalia	220
	Sequoias	3
	UEI College-Fresno	58
	West Hills Coalinga	5
	West Hills Lemoore	0
051410 - Legal Office Technology	Fresno City	2
	Sequoias	2
051420 - Medical Office Technology	Fresno City	23
	Milan Institute-Visalia	57
	Reedley College	40
051800 - Customer Service	Porterville	2
140200 - Paralegal	Fresno City	43
	ITT Technical Institute-Clovis	2
	Sequoias	15
TOTAL		1,394

Exhibit 16. Business and entrepreneurship annual demand and supply



Energy, Construction, and Utilities

Exhibit 17. Energy, construction and utilities employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Construction Laborers	4,700	5,087	387	8%	620
Industrial Truck and Tractor Operators	3,563	3,846	283	8%	474
Carpenters	3,821	4,069	248	6%	458
Cleaners of Vehicles and Equipment	2,526	2,737	211	8%	426
Electricians	2,344	2,669	325	14%	356
First-Line Supervisors of Construction Trades and Extraction Workers	1,802	1,960	158	9%	230
Plumbers, Pipefitters, and Steamfitters	1,599	1,790	191	12%	226
Operating Engineers and Other Construction Equipment Operators	1,143	1,222	79	7%	152
Painters, Construction and Maintenance	1,387	1,421	34	2%	149
Drywall and Ceiling Tile Installers	1,310	1,360	50	4%	144
Telecommunications Equipment Installers and Repairers, Except Line Installers	1,302	1,262	(40)	(3%)	143
Cement Masons and Concrete Finishers	1,039	1,123	84	8%	131
Construction Managers	1,185	1,278	93	8%	107
Telecommunications Line Installers and Repairers	858	899	41	5%	106
Refuse and Recyclable Material Collectors	616	650	34	6%	95
Roofers	639	728	89	14%	88
Installation, Maintenance, and Repair Workers, All Other	640	681	41	6%	80
Sheet Metal Workers	508	553	45	9%	66
Solar Photovoltaic Installers	341	429	88	26%	65
Water and Wastewater Treatment Plant and System Operators	578	578	0	0%	54
Helpers--Installation, Maintenance, and Repair Workers	352	387	35	10%	54
Plasterers and Stucco Masons	499	515	16	3%	50
Structural Iron and Steel Workers	363	386	23	6%	49
Construction and Building Inspectors	338	361	23	7%	48
Cabinetmakers and Bench Carpenters	347	375	28	8%	44
Carpet Installers	403	404	1	0%	41
Architectural and Civil Drafters	328	343	15	5%	38
Tapers	313	323	10	3%	35
Computer, Automated Teller, and Office Machine Repairers	254	271	17	7%	34
Hazardous Materials Removal Workers	206	232	26	13%	33
Tile and Marble Setters	229	253	24	10%	29
Miscellaneous Construction and Related Workers	206	225	19	9%	29
Civil Engineering Technicians	234	253	19	8%	28
Highway Maintenance Workers	181	207	26	14%	27
Riggers	228	242	14	6%	25

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Control and Valve Installers and Repairers, Except Mechanical Door	199	229	30	15%	24
Helpers--Electricians	121	150	29	24%	24
Glaziers	177	188	11	6%	23
Stonemasons	197	209	12	6%	23
Electrical and Electronics Repairers, Commercial and Industrial Equipment	229	239	10	4%	23
Paving, Surfacing, and Tamping Equipment Operators	163	170	7	4%	22
Structural Metal Fabricators and Fitters	195	188	(7)	(4%)	20
Brickmasons and Blockmasons	165	179	14	8%	20
Home Appliance Repairers	147	160	13	9%	20
Power Plant Operators	212	186	(26)	(12%)	19
Chemical Technicians	131	149	18	14%	18
Electrical Power-Line Installers and Repairers	101	137	36	36%	17
Helpers--Carpenters	101	112	11	11%	17
Earth Drillers, Except Oil and Gas	121	113	(8)	(7%)	16
Septic Tank Servicers and Sewer Pipe Cleaners	123	130	7	6%	16
Insulation Workers, Mechanical	98	115	17	17%	16
Fence Erectors	114	120	6	5%	15
Pipelayers	118	125	7	6%	15
Woodworkers, All Other	95	103	8	8%	14
Reinforcing Iron and Rebar Workers	102	107	5	5%	13
Explosives Workers, Ordnance Handling Experts, and Blasters	93	90	(3)	(3%)	12
Furniture Finishers	108	102	(6)	(6%)	12
Chemical Equipment Operators and Tenders	63	77	14	22%	11
Helpers, Construction Trades, All Other	69	76	7	10%	11
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	68	75	7	10%	11
Petroleum Pump System Operators, Refinery Operators, and Gaugers	58	75	17	29%	11
Mechanical Door Repairers	85	99	14	16%	11
TOTAL	39,835	42,822	2,987	7%	5,187

Exhibit 18. Energy, construction, and utilities wages

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Power Plant Operators	\$35.65	\$50.59
Telecommunications Line Installers and Repairers	\$34.93	\$41.26
Petroleum Pump System Operators, Refinery Operators, and Gaugers	\$33.62	\$38.23
Insulation Workers, Mechanical	\$25.90	\$37.83
First-Line Supervisors of Construction Trades and Extraction Workers	\$23.27	\$31.02
Explosives Workers, Ordnance Handling Experts, and Blasters	\$23.11	\$30.51
Construction Managers	\$21.82	\$34.60

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Paving, Surfacing, and Tamping Equipment Operators	\$21.78	\$26.62
Water and Wastewater Treatment Plant and System Operators	\$21.55	\$26.78
Telecommunications Equipment Installers and Repairers, Except Line Installers	\$21.50	\$26.87
Civil Engineering Technicians	\$21.49	\$32.39
Electricians	\$21.20	\$28.96
Operating Engineers and Other Construction Equipment Operators	\$21.07	\$25.50
Construction and Building Inspectors	\$21.00	\$29.08
Riggers	\$20.99	\$23.74
Hazardous Materials Removal Workers	\$20.48	\$25.31
Architectural and Civil Drafters	\$19.90	\$23.67
Highway Maintenance Workers	\$19.90	\$23.07
Tapers	\$19.44	\$26.91
Drywall and Ceiling Tile Installers	\$19.10	\$26.77
Fence Erectors	\$18.36	\$22.07
Pipelayers	\$18.00	\$24.90
Roofers	\$17.95	\$23.42
Plumbers, Pipefitters, and Steamfitters	\$17.23	\$23.10
Plasterers and Stucco Masons	\$16.99	\$20.18
Stonemasons	\$16.47	\$21.49
Control and Valve Installers and Repairers, Except Mechanical Door	\$16.35	\$21.37
Sheet Metal Workers	\$16.32	\$22.07
Electrical and Electronics Repairers, Commercial and Industrial Equipment	\$16.31	\$24.17
Cement Masons and Concrete Finishers	\$15.99	\$19.28
Earth Drillers, Except Oil and Gas	\$15.87	\$21.22
Brickmasons and Blockmasons	\$15.73	\$18.38
Helpers--Carpenters	\$15.66	\$17.89
Electrical Power-Line Installers and Repairers	\$15.50	\$18.42
Carpenters	\$15.21	\$20.48
Chemical Equipment Operators and Tenders	\$15.18	\$17.33
Miscellaneous Construction and Related Workers	\$15.15	\$19.23
Helpers--Electricians	\$15.00	\$18.14
Structural Metal Fabricators and Fitters	\$14.90	\$18.30
Glaziers	\$14.76	\$18.63
Solar Photovoltaic Installers	\$14.71	\$20.68
Structural Iron and Steel Workers	\$14.46	\$19.32
Tile and Marble Setters	\$14.36	\$22.32
Computer, Automated Teller, and Office Machine Repairers	\$14.03	\$18.43
Construction Laborers	\$13.77	\$18.25
Septic Tank Servicers and Sewer Pipe Cleaners	\$13.72	\$17.16
Painters, Construction and Maintenance	\$13.39	\$17.36

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Industrial Truck and Tractor Operators	\$12.99	\$14.82
Reinforcing Iron and Rebar Workers	\$12.93	\$20.77
Installation, Maintenance, and Repair Workers, All Other	\$12.85	\$16.18
Furniture Finishers	\$12.82	\$16.71
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	\$12.78	\$14.34
Helpers, Construction Trades, All Other	\$12.59	\$14.11
Home Appliance Repairers	\$12.48	\$16.69
Refuse and Recyclable Material Collectors	\$12.47	\$18.96
Carpet Installers	\$12.40	\$16.15
Cabinetmakers and Bench Carpenters	\$11.86	\$13.56
Chemical Technicians	\$11.79	\$13.94
Helpers--Installation, Maintenance, and Repair Workers	\$11.32	\$12.97
Woodworkers, All Other	\$11.30	\$16.14
Cleaners of Vehicles and Equipment	\$11.25	\$12.46
Mechanical Door Repairers	\$11.01	\$11.07

Exhibit 19. Energy, construction, and utilities educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Construction Laborers	Low-skill	No formal educational credential	None	Short-term
Industrial Truck and Tractor Operators	Middle-skill	No formal educational credential	None	Short-term
Carpenters	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Cleaners of Vehicles and Equipment	Low-skill	No formal educational credential	None	Short-term
Electricians	Middle-skill	High school diploma or equivalent	None	Apprenticeship
First-Line Supervisors of Construction Trades and Extraction Workers	Middle-skill	High school diploma or equivalent	5 years or more	None
Plumbers, Pipefitters, and Steamfitters	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Operating Engineers and Other Construction Equipment Operators	Middle-skill	High school diploma or equivalent	None	Moderate-term
Painters, Construction and Maintenance	Low-skill	No formal educational credential	None	Moderate-term
Drywall and Ceiling Tile Installers	Low-skill	No formal educational credential	None	Moderate-term
Telecommunications Equipment Installers and Repairers, Except Line Installers	Middle-skill	Postsecondary nondegree award	None	Moderate-term
Cement Masons and Concrete Finishers	Low-skill	No formal educational credential	None	Moderate-term
Construction Managers	Middle-skill	Bachelor's degree	None	Moderate-term
Telecommunications Line Installers and Repairers	Middle-skill	High school diploma or equivalent	None	Long-term
Refuse and Recyclable Material Collectors	Low-skill	No formal educational credential	None	Short-term
Roofers	Low-skill	No formal educational credential	None	Moderate-term

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Installation, Maintenance, and Repair Workers, All Other	Low-skill	High school diploma or equivalent	None	Moderate-term
Sheet Metal Workers	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Solar Photovoltaic Installers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Water and Wastewater Treatment Plant and System Operators	Middle-skill	High school diploma or equivalent	None	Long-term
Helpers--Installation, Maintenance, and Repair Workers	Low-skill	High school diploma or equivalent	None	Short-term
Plasterers and Stucco Masons	Low-skill	No formal educational credential	None	Long-term
Structural Iron and Steel Workers	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Construction and Building Inspectors	Middle-skill	High school diploma or equivalent	5 years or more	Moderate-term
Cabinetmakers and Bench Carpenters	Low-skill	High school diploma or equivalent	None	Moderate-term
Carpet Installers	Low-skill	No formal educational credential	None	Short-term
Architectural and Civil Drafters	Middle-skill	Associate degree	None	None
Tapers	Low-skill	No formal educational credential	None	Moderate-term
Computer, Automated Teller, and Office Machine Repairers	Middle-skill	Some college, no degree	None	Short-term
Hazardous Materials Removal Workers	Low-skill	High school diploma or equivalent	None	Moderate-term
Tile and Marble Setters	Low-skill	No formal educational credential	None	Long-term
Miscellaneous Construction and Related Workers	Low-skill	High school diploma or equivalent	None	Moderate-term
Civil Engineering Technicians	Middle-skill	Associate degree	None	None
Highway Maintenance Workers	Low-skill	High school diploma or equivalent	None	Moderate-term
Riggers	Low-skill	High school diploma or equivalent	None	Moderate-term
Control and Valve Installers and Repairers, Except Mechanical Door	Low-skill	High school diploma or equivalent	None	Moderate-term
Helpers--Electricians	Low-skill	High school diploma or equivalent	None	Short-term
Glaziers	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Stonemasons	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Electrical and Electronics Repairers, Commercial and Industrial Equipment	Middle-skill	Postsecondary nondegree award	None	Long-term
Paving, Surfacing, and Tamping Equipment Operators	Middle-skill	High school diploma or equivalent	None	Moderate-term
Structural Metal Fabricators and Fitters	Low-skill	High school diploma or equivalent	None	Moderate-term
Brickmasons and Blockmasons	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Home Appliance Repairers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Power Plant Operators	Middle-skill	High school diploma or equivalent	None	Long-term
Chemical Technicians	Middle-skill	Associate degree	None	Moderate-term

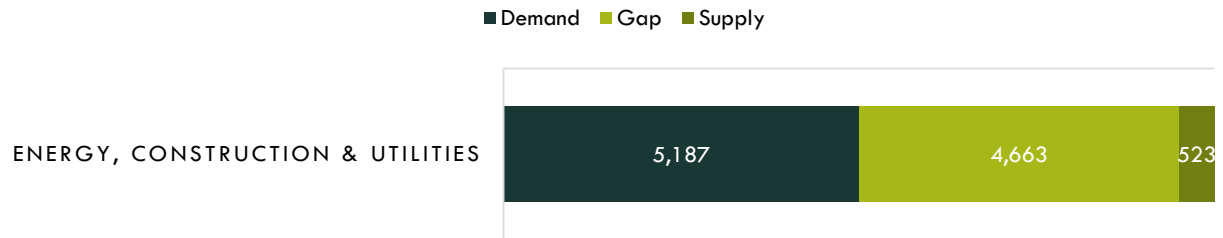
Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Electrical Power-Line Installers and Repairers	Middle-skill	High school diploma or equivalent	None	Long-term
Helpers--Carpenters	Low-skill	No formal educational credential	None	Short-term
Earth Drillers, Except Oil and Gas	Low-skill	High school diploma or equivalent	None	Moderate-term
Septic Tank Servicers and Sewer Pipe Cleaners	Low-skill	High school diploma or equivalent	None	Moderate-term
Insulation Workers, Mechanical	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Fence Erectors	Low-skill	No formal educational credential	None	Moderate-term
Pipelayers	Middle-skill	No formal educational credential	None	Short-term
Woodworkers, All Other	Middle-skill	High school diploma or equivalent	None	Moderate-term
Reinforcing Iron and Rebar Workers	Middle-skill	High school diploma or equivalent	None	Apprenticeship
Explosives Workers, Ordnance Handling Experts, and Blasters	Middle-skill	High school diploma or equivalent	Less than 5 years	Long-term
Furniture Finishers	Low-skill	High school diploma or equivalent	None	Short-term
Chemical Equipment Operators and Tenders	Middle-skill	High school diploma or equivalent	None	Moderate-term
Helpers, Construction Trades, All Other	Low-skill	No formal educational credential	None	Short-term
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	Low-skill	No formal educational credential	None	Short-term
Petroleum Pump System Operators, Refinery Operators, and Gaugers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Mechanical Door Repairers	Low-skill	High school diploma or equivalent	None	Moderate-term

Exhibit 20. Energy, construction, and utilities postsecondary supply

TOP Code-Title	College	3-year Average
020100 - Architecture and Architectural Technology	Fresno City	6
	Sequoias	26
093430 - Telecommunications Technology	Fresno City	22
094600 - Environmental Control Technology	Fresno City	45
	Institute of Technology	166
	San Joaquin Valley College-Visalia	150
	Sequoias	28
094730 - Heavy Equipment Operation	West Hills Coalinga	1
095200 - Construction Crafts Technology	Fresno City	2
	Sequoias	8
095220 - Electrical	Sequoias	18
095300 - Drafting Technology	Fresno City	13
	ITT Technical Institute-Clovis	6
095700 - Civil and Construction Management Technology	San Joaquin Valley College-Visalia	26

TOP Code-Title	College	3-year Average
095720 - Construction Inspection	Sequoias	3
095800 - Water and Wastewater Technology	Clovis	3
	Sequoias	1
TOTAL		523

Exhibit 21. Energy, construction, and utilities annual demand and supply



Education

Exhibit 22. Education employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Teacher Assistants	11,337	12,154	817	7%	1,396
Childcare Workers	6,281	6,058	(223)	(4%)	931
Preschool Teachers, Except Special Education	1,966	2,118	152	8%	235
Library Technicians	601	600	(1)	(0%)	93
Interpreters and Translators	608	656	48	8%	73
Library Assistants, Clerical	319	324	5	2%	50
Education Administrators, Preschool and Childcare Center/Program	299	317	18	6%	28
TOTAL	21,411	22,227	816	4%	2,805

Exhibit 22. Education wages

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Interpreters and Translators	\$24.33	\$29.30
Library Technicians	\$16.50	\$18.30
Education Administrators, Preschool and Childcare Center/Program	\$15.07	\$20.09
Teacher Assistants	\$12.61	\$15.16
Preschool Teachers, Except Special Education	\$12.44	\$16.22
Library Assistants, Clerical	\$11.68	\$14.90
Childcare Workers	\$10.68	\$11.91

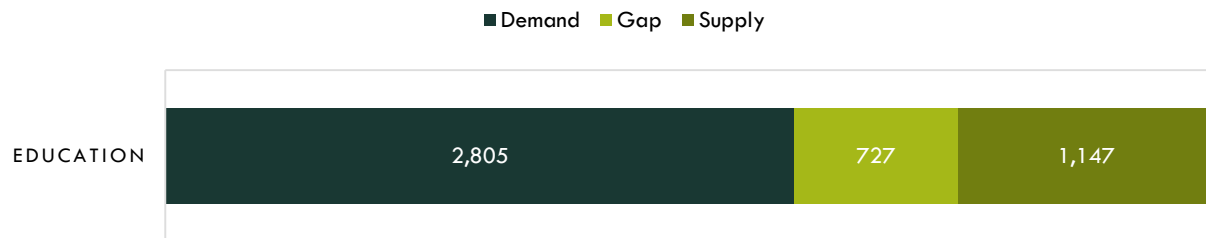
Exhibit 24. Education sector's educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Teacher Assistants	Middle-skill	Some college, no degree	None	None
Preschool Teachers, Except Special Education	Middle-skill	Associate degree	None	None
Library Technicians	Middle-skill	Postsecondary nondegree award	None	None
Interpreters and Translators	Middle-skill	Bachelor's degree	None	None
Library Assistants, Clerical	Low-skill	High school diploma or equivalent	None	Short-term
Education Administrators, Preschool and Childcare Center/Program	Middle-skill	Bachelor's degree	Less than 5 years	None

Exhibit 25. Education postsecondary supply

TOP Code-Title	College	3-year Average
080200 - Educational Aide (Teacher Assistant)	Fresno City	6
080900 - Special Education	Fresno City	2
083520 - Fitness Trainer	Milan Institute-Visalia	1
085010 - Sign Language Interpreting	Fresno City	3
130500 - Child Development/Early Care and Education	Clovis	35
	Fresno City	160
	Porterville	54
	Reedley College	175
	Sequoias	401
	West Hills Coalinga	120
	West Hills Lemoore	140
130520 - Children with Special Needs	Clovis	0
	Fresno City	5
	Reedley College	1
	Sequoias	7
130550 - The School Age Child	Clovis	6
	Reedley College	11
130570 - Foster and Kinship Care	Fresno City	1
130590 - Infants and Toddlers	Fresno City	6
160200 - Library Technician (Aide)	Fresno City	14
TOTAL		1,147

Exhibit 26. Education annual demand and supply



Global Trade

Exhibit 27. Global trade employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	4,553	4,688	135	3%	517
Cost Estimators	1,055	1,136	81	8%	125
Administrative Services Managers	954	1,015	61	6%	94
Demonstrators and Product Promoters	460	471	11	2%	83
Brokerage Clerks	104	101	(3)	(3%)	11
TOTAL	7,126	7,410	285	4%	829

Exhibit 28. Global trade wages

Occupation	25 th Percentile Hourly Wages	Median Hourly Wages
Administrative Services Managers	\$32.56	\$42.96
Cost Estimators	\$23.49	\$33.05
Brokerage Clerks	\$21.75	\$25.96
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$19.63	\$28.29
Demonstrators and Product Promoters	\$11.00	\$15.18

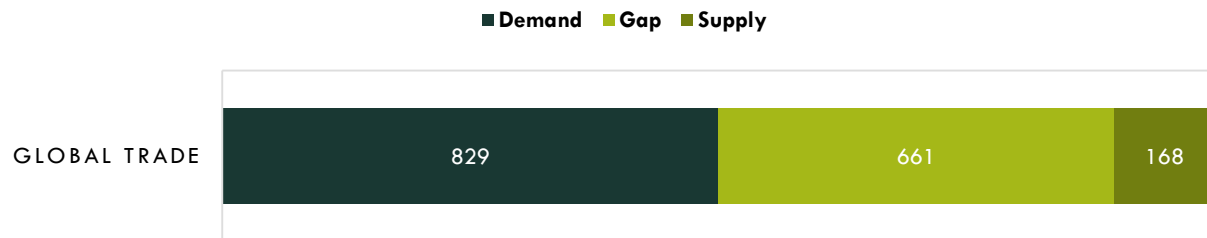
Exhibit 29. Global trade educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	Middle-skill	High school diploma or equivalent	None	Moderate-term
Cost Estimators	Middle-skill	Bachelor's degree	None	Moderate-term
Administrative Services Managers	Middle-skill	Bachelor's degree	Less than 5 years	None
Demonstrators and Product Promoters	Low-skill	No formal educational credential	None	Short-term
Brokerage Clerks	Middle-skill	High school diploma or equivalent	None	Moderate-term

Exhibit 30. Global trade postsecondary supply

TOP Code-Title	College	3-year Average
050100 - Business and Commerce, General	Clovis	0
	ITT Technical Institute-Clovis	0
	Porterville	5
	Reedley College	6
	Sequoias	11
050600 - Business Management	Clovis	2
	Fresno City	56
	Institute of Technology	27
	Porterville	0
	Reedley College	5
	San Joaquin Valley College-Visalia	37
	West Hills Coalinga	4
	West Hills Lemoore	8
050900 - Marketing and Distribution	Fresno City	6
TOTAL		168

Exhibit 31. Global trade annual demand and supply



Health Care

Exhibit 32. Health care employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Registered Nurses	11,129	12,283	1,154	10%	850
Nursing Assistants	4,396	4,871	475	11%	614
Medical Assistants	4,253	4,822	569	13%	611
Medical Secretaries	2,582	2,898	316	12%	369
Social and Human Service Assistants	2,149	2,490	341	16%	343
Home Health Aides	1,449	2,148	699	48%	339
Dental Assistants	1,913	2,151	238	12%	275
Licensed Practical and Licensed Vocational Nurses	2,485	2,744	259	10%	250
Pharmacy Technicians	1,578	1,664	86	5%	150
Psychiatric Technicians	1,288	1,404	116	9%	132
Health Technologists and Technicians, All Other	774	893	119	15%	80
Massage Therapists	442	497	55	12%	65
Dental Hygienists	597	705	108	18%	65
Medical Records and Health Information Technicians	704	771	67	10%	61
Healthcare Support Workers, All Other	448	484	36	8%	60
Phlebotomists	376	439	63	17%	55
Radiologic Technologists	685	756	71	10%	54
Physical Therapist Aides	297	333	36	12%	46
Respiratory Therapists	572	633	61	11%	44
Community Health Workers	275	302	27	10%	38
Surgical Technologists	306	350	44	14%	35
Biological Technicians	274	293	19	7%	34
Physical Therapist Assistants	174	218	44	25%	33
Dietetic Technicians	303	318	15	5%	28
Medical Transcriptionists	179	180	1	1%	26
Pharmacy Aides	203	196	(7)	(3%)	25
Cardiovascular Technologists and Technicians	304	322	18	6%	21
Diagnostic Medical Sonographers	239	270	31	13%	20
Psychiatric Aides	89	128	39	44%	20
Medical Equipment Repairers	144	160	16	11%	19
Medical Equipment Preparers	123	141	18	15%	19
Orderlies	129	138	9	7%	17
Healthcare Practitioners and Technical Workers, All Other	233	248	15	6%	17
Occupational Therapy Assistants	94	119	25	27%	16
Opticians, Dispensing	156	171	15	10%	16
Radiation Therapists	203	215	12	6%	12
Dental Laboratory Technicians	100	97	(3)	(3%)	12

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Social Science Research Assistants	93	97	4	4%	12
Ophthalmic Laboratory Technicians	75	81	6	8%	11
TOTAL	41,813	47,029	5,217	12%	4,899

Exhibit 33. Health care wages

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Radiation Therapists	\$48.10	\$59.00
Dental Hygienists	\$39.62	\$43.44
Registered Nurses	\$34.57	\$41.74
Diagnostic Medical Sonographers	\$33.75	\$40.74
Occupational Therapy Assistants	\$31.39	\$36.06
Psychiatric Technicians	\$28.88	\$33.09
Cardiovascular Technologists and Technicians	\$27.68	\$34.04
Radiologic Technologists	\$27.54	\$35.76
Physical Therapist Assistants	\$26.08	\$31.09
Surgical Technologists	\$23.21	\$27.54
Respiratory Therapists	\$21.60	\$24.69
Licensed Practical and Licensed Vocational Nurses	\$21.12	\$23.68
Healthcare Practitioners and Technical Workers, All Other	\$19.30	\$26.11
Medical Equipment Preparers	\$16.64	\$21.48
Phlebotomists	\$16.14	\$18.05
Opticians, Dispensing	\$15.96	\$18.78
Medical Equipment Repairers	\$15.34	\$17.54
Community Health Workers	\$15.07	\$20.05
Medical Secretaries	\$14.72	\$17.13
Healthcare Support Workers, All Other	\$14.66	\$17.85
Pharmacy Technicians	\$14.61	\$17.47
Medical Transcriptionists	\$14.53	\$18.57
Health Technologists and Technicians, All Other	\$14.49	\$17.98
Medical Records and Health Information Technicians	\$14.45	\$17.79
Social and Human Service Assistants	\$14.43	\$18.00
Biological Technicians	\$13.76	\$16.28
Dental Assistants	\$13.75	\$16.46
Medical Assistants	\$13.53	\$15.53
Orderlies	\$13.53	\$14.76
Dental Laboratory Technicians	\$13.11	\$18.98
Social Science Research Assistants	\$12.86	\$14.95
Dietetic Technicians	\$12.12	\$15.80
Nursing Assistants	\$12.05	\$13.60
Massage Therapists	\$11.97	\$18.02
Psychiatric Aides	\$11.91	\$13.29
Pharmacy Aides	\$11.76	\$12.72

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Physical Therapist Aides	\$11.62	\$13.18
Home Health Aides	\$11.41	\$12.20
Ophthalmic Laboratory Technicians	\$11.01	\$13.16

Exhibit 34. Health care educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Registered Nurses	Middle-skill	Bachelor's degree	None	None
Nursing Assistants	Middle-skill	Postsecondary nondegree award	None	None
Medical Assistants	Middle-skill	Postsecondary nondegree award	None	None
Medical Secretaries	Middle-skill	High school diploma or equivalent	None	Moderate-term
Social and Human Service Assistants	Middle-skill	High school diploma or equivalent	None	Short-term
Home Health Aides	Middle-skill	High school diploma or equivalent	None	Short-term
Dental Assistants	Middle-skill	Postsecondary nondegree award	None	None
Licensed Practical and Licensed Vocational Nurses	Middle-skill	Postsecondary nondegree award	None	None
Pharmacy Technicians	Middle-skill	High school diploma or equivalent	None	Moderate-term
Psychiatric Technicians	Middle-skill	Postsecondary nondegree award	Less than 5 years	Short-term
Health Technologists and Technicians, All Other	Middle-skill	Postsecondary nondegree award	None	None
Massage Therapists	Middle-skill	Postsecondary nondegree award	None	None
Dental Hygienists	Middle-skill	Associate degree	None	None
Medical Records and Health Information Technicians	Middle-skill	Postsecondary nondegree award	None	None
Healthcare Support Workers, All Other	Middle-skill	High school diploma or equivalent	None	None
Phlebotomists	Middle-skill	Postsecondary nondegree award	None	None
Radiologic Technologists	Middle-skill	Associate degree	None	None
Physical Therapist Aides	Low-skill	High school diploma or equivalent	None	Short-term
Respiratory Therapists	Middle-skill	Associate degree	None	None
Community Health Workers	Middle-skill	High school diploma or equivalent	None	Short-term
Surgical Technologists	Middle-skill	Postsecondary nondegree award	None	None
Biological Technicians	Middle-skill	Bachelor's degree	None	None
Physical Therapist Assistants	Middle-skill	Associate degree	None	None
Dietetic Technicians	Middle-skill	Associate degree	None	None
Medical Transcriptionists	Middle-skill	Postsecondary nondegree award	None	None
Pharmacy Aides	Low-skill	High school diploma or equivalent	None	Short-term

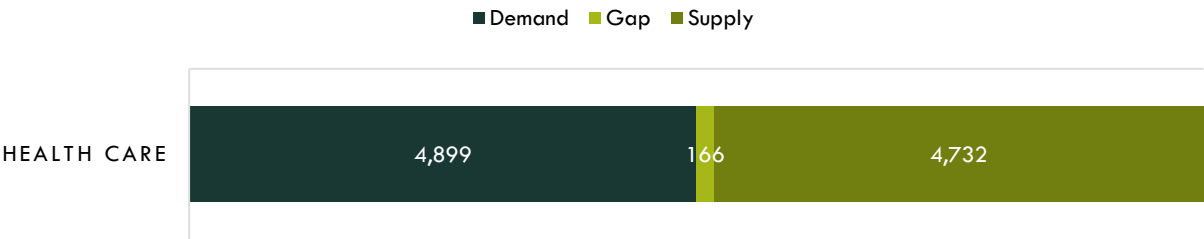
Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Cardiovascular Technologists and Technicians	Middle-skill	Associate degree	None	None
Diagnostic Medical Sonographers	Middle-skill	Associate degree	None	None
Psychiatric Aides	Middle-skill	High school diploma or equivalent	None	Short-term
Medical Equipment Repairers	Middle-skill	Associate degree	None	Moderate-term
Medical Equipment Preparers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Orderlies	Low-skill	High school diploma or equivalent	None	Short-term
Healthcare Practitioners and Technical Workers, All Other	Middle-skill	Postsecondary nondegree award	None	None
Occupational Therapy Assistants	Middle-skill	Associate degree	None	None
Opticians, Dispensing	Middle-skill	High school diploma or equivalent	None	Long-term
Radiation Therapists	Middle-skill	Associate degree	None	None
Dental Laboratory Technicians	Middle-skill	High school diploma or equivalent	None	Moderate-term
Social Science Research Assistants	Middle-skill	Bachelor's degree	None	None
Ophthalmic Laboratory Technicians	Middle-skill	High school diploma or equivalent	None	Moderate-term

Exhibit 35. Health care postsecondary supply

TOP Code-Title	College	3-year Average
120100 - Health Occupations, General	Clovis Adult Education	90
120600 - Physicians Assistant	San Joaquin Valley College-Visalia	15
120800 - Medical Assisting	Brightwood College-Fresno	132
	Clovis Adult Education	52
	Institute of Technology	187
	Milan Institute-Clovis	36
	Milan Institute-Visalia	123
	San Joaquin Valley College-Visalia	1,342
	UEI College-Fresno	189
120810 - Clinical Medical Assisting	Fresno City	88
121000 - Respiratory Care/Therapy	Fresno City	16
	San Joaquin Valley College-Visalia	195
121700 - Surgical Technician	San Joaquin Valley College-Visalia	39
122100 - Pharmacy Technology	Institute of Technology	18
	San Joaquin Valley College-Visalia	210
	Sequoias	18
	UEI College-Fresno	78
122200 - Physical Therapist Assistant	Sequoias	23
122300 - Health Information Technology	Fresno City	9
	Institute of Technology	41
122310 - Health Information Coding	Fresno City	6

TOP Code-Title	College	3-year Average
	Institute of Technology	6
	San Joaquin Valley College-Visalia	36
	UEI College-Fresno	70
122400 - School Health Clerk	Clovis Adult Education	46
	Milan Institute-Visalia	63
122500 - Radiologic Technology	Fresno City	27
122700 - Diagnostic Medical Sonography	San Joaquin Valley College-Visalia	12
122800 - Athletic Training and Sports Medicine	Sequoias	6
123000 - Nursing	Clovis Adult Education	42
	San Joaquin Valley College-Visalia	128
123010 - Registered Nursing	Fresno City	201
	Porterville	20
	Reedley College	15
	Sequoias	76
	West Hills Lemoore	31
123020 - Licensed Vocational Nursing	Institute of Technology	93
	Reedley College	25
123030 - Certified Nurse Assistant	Reedley College	0
	Sequoias	56
123900 - Psychiatric Technician	Porterville	32
	West Hills Coalinga	82
124000 - Dental Occupations	Brightwood College-Fresno	57
	Milan Institute-Visalia	44
	San Joaquin Valley College-Visalia	210
	UEI College-Fresno	58
124010 - Dental Assistant	Reedley College	31
124020 - Dental Hygienist	Fresno City	26
125000 - Emergency Medical Services	Porterville	59
	Sequoias	61
125100 - Paramedic	Fresno City	0
	West Hills Lemoore	13
210400 - Human Services	Fresno City	127
	Sequoias	18
	West Hills Lemoore	3
210440 - Alcohol and Controlled Substances	Fresno City	47
	Porterville	2
TOTAL		4,732

Exhibit 36. Health care annual demand and supply



ICT & Digital Media

Exhibit 37. ICT/digital media employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Data Entry Keyers	1,296	1,189	(107)	(8%)	145
Computer User Support Specialists	1,419	1,532	113	8%	144
Computer Occupations, All Other	767	810	43	6%	67
Graphic Designers	459	473	14	3%	50
Network and Computer Systems Administrators	572	604	32	6%	48
Audio and Video Equipment Technicians	328	353	25	8%	41
Computer Network Support Specialists	300	319	19	6%	29
Procurement Clerks	252	253	1	0%	28
Switchboard Operators, Including Answering Service	221	207	(14)	(6%)	27
Web Developers	251	275	24	10%	25
Security and Fire Alarm Systems Installers	183	193	10	5%	25
Word Processors and Typists	196	176	(20)	(10%)	23
Radio and Television Announcers	150	148	(2)	(1%)	18
Broadcast Technicians	134	136	2	1%	15
Multimedia Artists and Animators	128	129	1	1%	15
Computer Operators	118	106	(12)	(10%)	14
Media and Communication Workers, All Other	122	126	4	3%	14
Surveying and Mapping Technicians	84	90	6	7%	12
TOTAL	6,981	7,120	139	2%	738

Exhibit 38. ICT/digital media wages

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Network and Computer Systems Administrators	\$29.22	\$38.75
Computer Network Support Specialists	\$26.69	\$32.78
Surveying and Mapping Technicians	\$23.55	\$30.37
Computer Occupations, All Other	\$20.98	\$32.99
Security and Fire Alarm Systems Installers	\$18.74	\$24.74
Computer User Support Specialists	\$18.57	\$23.84
Procurement Clerks	\$17.80	\$20.47
Audio and Video Equipment Technicians	\$17.50	\$22.91
Radio and Television Announcers	\$16.74	\$21.39
Media and Communication Workers, All Other	\$16.08	\$20.35
Graphic Designers	\$14.66	\$19.44
Computer Operators	\$14.03	\$18.13
Multimedia Artists and Animators	\$13.60	\$27.82
Web Developers	\$13.54	\$22.39
Data Entry Keyers	\$13.53	\$15.08

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Switchboard Operators, Including Answering Service	\$12.86	\$14.98
Broadcast Technicians	\$11.74	\$16.08
Word Processors and Typists	\$11.18	\$13.01

Exhibit 39. ICT/digital media educational attainment

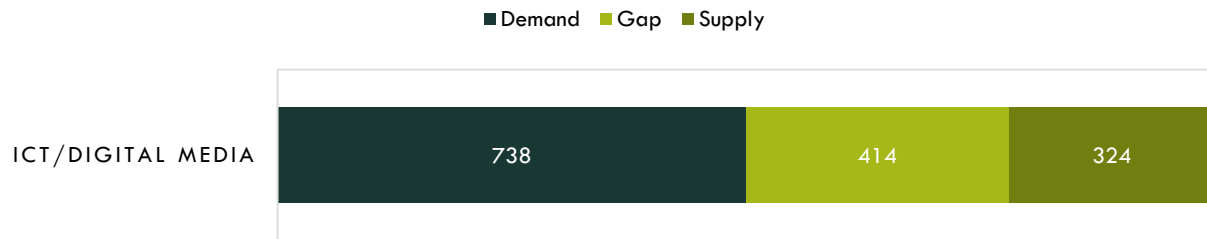
Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Data Entry Keyers	Middle-skill	High school diploma or equivalent	None	Short-term
Computer User Support Specialists	Middle-skill	Some college, no degree	None	None
Computer Occupations, All Other	Middle-skill	Bachelor's degree	None	None
Graphic Designers	Middle-skill	Bachelor's degree	None	None
Network and Computer Systems Administrators	Middle-skill	Bachelor's degree	None	None
Audio and Video Equipment Technicians	Middle-skill	Postsecondary nondegree award	None	Short-term
Computer Network Support Specialists	Middle-skill	Associate degree	None	None
Procurement Clerks	Middle-skill	High school diploma or equivalent	None	Moderate-term
Switchboard Operators, Including Answering Service	Low-skill	High school diploma or equivalent	None	Short-term
Web Developers	Middle-skill	Associate degree	None	None
Security and Fire Alarm Systems Installers	Low-skill	High school diploma or equivalent	None	Moderate-term
Word Processors and Typists	Low-skill	High school diploma or equivalent	None	Short-term
Radio and Television Announcers	Middle-skill	Bachelor's degree	None	None
Broadcast Technicians	Middle-skill	Associate degree	None	Short-term
Multimedia Artists and Animators	Middle-skill	Bachelor's degree	None	None
Computer Operators	Low-skill	High school diploma or equivalent	None	Moderate-term
Media and Communication Workers, All Other	Low-skill	High school diploma or equivalent	None	Short-term
Surveying and Mapping Technicians	Middle-skill	High school diploma or equivalent	None	Moderate-term

Exhibit 40. ICT/digital media postsecondary supply

TOP Code-Title	College	3-year Average
060200 - Journalism	Fresno City	11
	Sequoias	5
061400 - Digital Media	Sequoias	1
061430 - Website Design and Development	Clovis	0
	Fresno City	1
	Institute of Technology	1
070100 - Information Technology, General	Milan Institute-Visalia	5
	Porterville	3
	Sequoias	0
070200 - Computer Information Systems	Clovis	2
	Fresno City	6
	Porterville	12
	Reedley College	22
	San Joaquin Valley College-Visalia	10
	Sequoias	8
070210 - Software Applications	West Hills Coalinga	10
	West Hills Lemoore	43
070710 - Computer Programming	Reedley College	0
	West Hills Lemoore	7
070800 - Computer Infrastructure and Support	Fresno City	4
	Institute of Technology	5
	ITT Technical Institute-Clovis	10
	Sequoias	2
070810 - Computer Networking	Clovis	1
	Fresno City	26
	Institute of Technology	16
	Reedley College	12
	Sequoias	4
	West Hills Lemoore	3
070820 - Computer Support	Clovis	0
	Reedley College	7
	San Joaquin Valley College-Visalia	16
070900 - World Wide Web Administration	Fresno City	4
100500 - Commercial Music	Fresno City	6
	Sequoias	3
100600 - Technical Theater	Fresno City	2
101200 - Applied Photography	Fresno City	23
101300 - Commercial Art	Porterville	4
	Sequoias	1
103000 - Graphic Art and Design	Fresno City	11

TOP Code-Title	College	3-year Average
	ITT Technical Institute-Clovis	0
	Sequoias	15
TOTAL		324

Exhibit 41. ICT/digital media annual demand and supply



Logistics

Exhibit 42. Logistics employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019- 2024 Change	2019-2024 % Change	Annual Openings
Laborers and Freight, Stock, and Material Movers, Hand	12,547	13,538	991	8%	2,016
Heavy and Tractor-Trailer Truck Drivers	10,124	11,081	957	9%	1,401
Stock Clerks and Order Fillers	8,356	8,800	444	5%	1,231
Light Truck or Delivery Services Drivers	4,647	4,840	193	4%	581
Shipping, Receiving, and Traffic Clerks	2,705	2,830	125	5%	301
Bus Drivers, School or Special Client	1,412	1,595	183	13%	226
First-line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	1,651	1,823	172	10%	221
Driver/Sales Workers	1,701	1,751	50	3%	209
Taxi Drivers and Chauffeurs	1,032	1,299	267	26%	179
Logisticians	701	717	16	2%	73
Bus Drivers, Transit and Intercity	390	436	46	12%	61
Automotive and Watercraft Service Attendants	306	350	44	14%	57
Transportation, Storage, and Distribution Managers	503	544	41	8%	50
Transportation Attendants, Except Flight Attendants	276	288	12	4%	40
Parking Lot Attendants	239	251	12	5%	40
Material Moving Workers, All Other	264	271	7	3%	35
Motor Vehicle Operators, All Other	170	188	18	11%	34
Commercial Pilots	224	236	12	5%	26
Cargo and Freight Agents	129	165	36	28%	21
Airline Pilots, Copilots, and Flight Engineers	191	190	(1)	(1%)	21
Couriers and Messengers	187	198	11	6%	21
Transportation Inspectors	135	140	5	4%	15
Aerospace Engineering and Operations Technicians	132	138	6	5%	14
Sailors and Marine Oilers	95	99	4	4%	13
Conveyor Operators and Tenders	92	97	5	5%	12
TOTAL	48,209	51,868	3,656	8%	6,900

Exhibit 43. Logistics wages

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Airline Pilots, Copilots, and Flight Engineers	\$53.78	\$92.22
Transportation, Storage, and Distribution Managers	\$33.89	\$42.93
Transportation Inspectors	\$32.07	\$33.36
Logisticians	\$27.72	\$36.02
Conveyor Operators and Tenders	\$25.84	\$36.68
Commercial Pilots	\$24.75	\$35.55
Aerospace Engineering and Operations Technicians	\$23.15	\$31.36

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
First-line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	\$19.27	\$26.34
Bus Drivers, Transit and Intercity	\$18.46	\$24.29
Motor Vehicle Operators, All Other	\$18.44	\$23.31
Heavy and Tractor-Trailer Truck Drivers	\$15.51	\$19.87
Sailors and Marine Oilers	\$14.94	\$19.47
Bus Drivers, School or Special Client	\$14.44	\$17.81
Shipping, Receiving, and Traffic Clerks	\$12.88	\$15.21
Automotive and Watercraft Service Attendants	\$12.47	\$14.62
Cargo and Freight Agents	\$12.34	\$18.27
Driver/Sales Workers	\$12.02	\$17.84
Light Truck or Delivery Services Drivers	\$11.85	\$14.43
Laborers and Freight, Stock, and Material Movers, Hand	\$11.63	\$13.16
Transportation Attendants, Except Flight Attendants	\$11.56	\$18.91
Stock Clerks and Order Fillers	\$11.51	\$12.72
Material Moving Workers, All Other	\$11.41	\$13.03
Parking Lot Attendants	\$11.38	\$12.06
Taxi Drivers and Chauffeurs	\$11.01	\$12.05
Couriers and Messengers	\$11.00	\$11.38

Exhibit 44. Logistics educational attainment

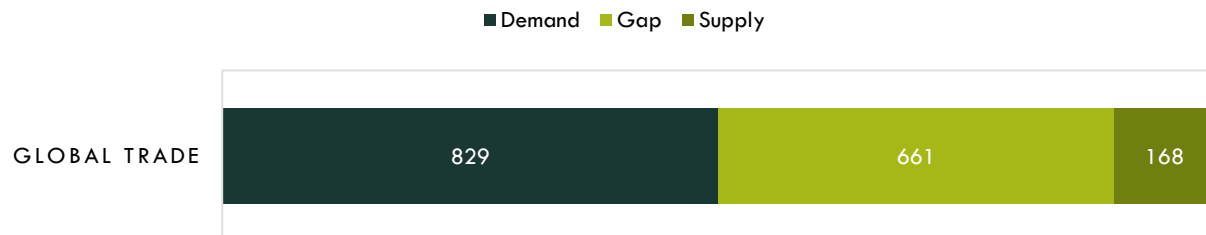
Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Laborers and Freight, Stock, and Material Movers, Hand	Low-skill	No formal educational credential	None	Short-term
Heavy and Tractor-Trailer Truck Drivers	Middle-skill	Postsecondary nondegree award	None	Short-term
Stock Clerks and Order Fillers	Low-skill	High school diploma or equivalent	None	Short-term
Light Truck or Delivery Services Drivers	Low-skill	High school diploma or equivalent	None	Short-term
Shipping, Receiving, and Traffic Clerks	Low-skill	High school diploma or equivalent	None	Short-term
Bus Drivers, School or Special Client	Middle-skill	High school diploma or equivalent	None	Short-term
First-line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Driver/Sales Workers	Low-skill	High school diploma or equivalent	None	Short-term
Taxi Drivers and Chauffeurs	Low-skill	No formal educational credential	None	Short-term
Logisticians	Middle-skill	Bachelor's degree	None	None
Bus Drivers, Transit and Intercity	Middle-skill	High school diploma or equivalent	None	Moderate-term
Automotive and Watercraft Service Attendants	Low-skill	No formal educational credential	None	Short-term
Transportation, Storage, and Distribution Managers	Middle-skill	High school diploma or equivalent	5 years or more	None

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Transportation Attendants, Except Flight Attendants	Middle-skill	High school diploma or equivalent	None	Short-term
Parking Lot Attendants	Low-skill	No formal educational credential	None	Short-term
Material Moving Workers, All Other	Low-skill	No formal educational credential	None	Short-term
Motor Vehicle Operators, All Other	Low-skill	No formal educational credential	None	Short-term
Commercial Pilots	Middle-skill	High school diploma or equivalent	None	Moderate-term
Cargo and Freight Agents	Middle-skill	High school diploma or equivalent	None	Short-term
Airline Pilots, Copilots, and Flight Engineers	Middle-skill	Bachelor's degree	Less than 5 years	Moderate-term
Couriers and Messengers	Low-skill	High school diploma or equivalent	None	Short-term
Transportation Inspectors	Middle-skill	High school diploma or equivalent	None	Moderate-term
Aerospace Engineering and Operations Technicians	Middle-skill	Associate degree	None	None
Sailors and Marine Oilers	Low-skill	No formal educational credential	None	Moderate-term
Conveyor Operators and Tenders	Low-skill	No formal educational credential	None	Short-term

Exhibit 45. Logistics postsecondary supply

No supply was available for global trade.

Exhibit 46. Logistics annual demand and supply



Mechanics & Welding

Exhibit 47. Mechanics and welding employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Maintenance and Repair Workers, General	5,328	5,675	347	7%	604
Automotive Service Technicians and Mechanics	3,307	3,383	76	2%	341
Industrial Machinery Mechanics	2,238	2,335	97	4%	231
First-Line Supervisors of Mechanics, Installers, and Repairers	1,609	1,724	115	7%	177
Welders, Cutters, Solderers, and Brazers	1,389	1,450	61	4%	169
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,237	1,371	134	11%	155
Bus and Truck Mechanics and Diesel Engine Specialists	1,090	1,163	73	7%	120
Mobile Heavy Equipment Mechanics, Except Engines	874	888	14	2%	92
Aircraft Mechanics and Service Technicians	645	728	83	13%	76
Farm Equipment Mechanics and Service Technicians	601	615	14	2%	65
Automotive Body and Related Repairers	407	417	10	2%	42
Tire Repairers and Changers	345	352	7	2%	41
Maintenance Workers, Machinery	374	395	21	6%	39
Bicycle Repairers	273	282	9	3%	32
Recreational Vehicle Service Technicians	251	230	(21)	(8%)	27
Automotive Glass Installers and Repairers	178	189	11	6%	20
Precision Instrument and Equipment Repairers, All Other	86	89	3	3%	10
TOTAL	20,231	21,286	1,054	5%	2,241

Exhibit 48. Mechanics and welding wages

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Aircraft Mechanics and Service Technicians	\$26.84	\$29.90
First-Line Supervisors of Mechanics, Installers, and Repairers	\$24.41	\$33.63
Mobile Heavy Equipment Mechanics, Except Engines	\$21.60	\$27.73
Industrial Machinery Mechanics	\$19.28	\$24.88
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$17.39	\$23.25
Bus and Truck Mechanics and Diesel Engine Specialists	\$16.59	\$22.12
Recreational Vehicle Service Technicians	\$16.31	\$18.59
Precision Instrument and Equipment Repairers, All Other	\$16.11	\$24.18
Maintenance Workers, Machinery	\$16.04	\$19.83
Welders, Cutters, Solderers, and Brazers	\$15.04	\$17.61
Farm Equipment Mechanics and Service Technicians	\$14.70	\$18.26
Maintenance and Repair Workers, General	\$14.10	\$18.79
Automotive Body and Related Repairers	\$14.03	\$18.12

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Automotive Glass Installers and Repairers	\$13.14	\$14.48
Automotive Service Technicians and Mechanics	\$12.45	\$17.74
Tire Repairers and Changers	\$12.31	\$13.82
Bicycle Repairers	\$11.63	\$12.75

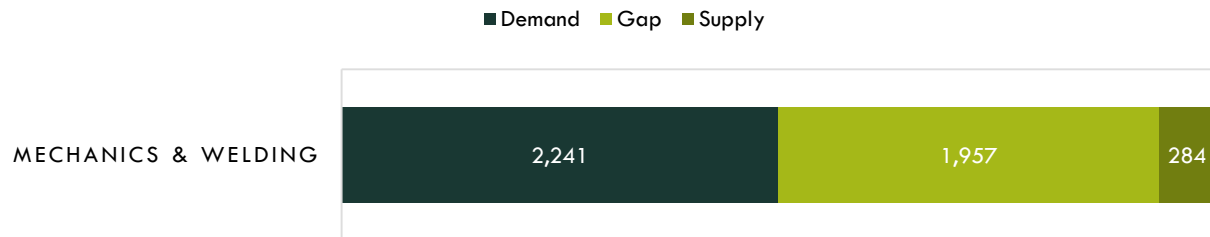
Exhibit 49. Mechanics and welding educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Maintenance and Repair Workers, General	Middle-skill	High school diploma or equivalent	None	Moderate-term
Automotive Service Technicians and Mechanics	Middle-skill	Postsecondary nondegree award	None	Short-term
Industrial Machinery Mechanics	Middle-skill	High school diploma or equivalent	None	Long-term
First-Line Supervisors of Mechanics, Installers, and Repairers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Welders, Cutters, Solderers, and Brazers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Middle-skill	Postsecondary nondegree award	None	Long-term
Bus and Truck Mechanics and Diesel Engine Specialists	Middle-skill	High school diploma or equivalent	None	Long-term
Mobile Heavy Equipment Mechanics, Except Engines	Middle-skill	High school diploma or equivalent	None	Long-term
Aircraft Mechanics and Service Technicians	Middle-skill	Postsecondary nondegree award	None	None
Farm Equipment Mechanics and Service Technicians	Middle-skill	High school diploma or equivalent	None	Long-term
Automotive Body and Related Repairers	Middle-skill	High school diploma or equivalent	None	Long-term
Tire Repairers and Changers	Low-skill	High school diploma or equivalent	None	Short-term
Maintenance Workers, Machinery	Low-skill	High school diploma or equivalent	None	Long-term
Bicycle Repairers	Low-skill	High school diploma or equivalent	None	Moderate-term
Recreational Vehicle Service Technicians	Middle-skill	High school diploma or equivalent	None	Long-term
Automotive Glass Installers and Repairers	Low-skill	High school diploma or equivalent	None	Moderate-term
Precision Instrument and Equipment Repairers, All Other	Middle-skill	High school diploma or equivalent	None	Long-term

Exhibit 50. Mechanics and welding postsecondary supply

TOP Code-Title	College	3-year Average
094800 - Automotive Technology	Fresno City	19
	Institute of Technology	5
	Reedley College	52
	Sequoias	49
094900 - Automotive Collision Repair	Fresno City	22
095650 - Welding Technology	Advanced Career Institute	57
	Fresno City	23
	Porterville	7
	Reedley College	23
	Sequoias	23
	West Hills Coalinga	5
TOTAL		284

Exhibit 51. Mechanics and welding annual demand and supply



Protective Services

Exhibit 52. Protective services employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Security Guards	3,213	3,009	(204)	(6%)	409
Correctional Officers and Jailers	3,778	3,925	147	4%	370
Police and Sheriff's Patrol Officers	2,912	3,028	116	4%	233
Protective Service Workers, All Other	607	653	46	8%	161
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	585	605	20	3%	148
Dispatchers, Except Police, Fire, and Ambulance	1,073	1,137	64	6%	118
Firefighters	1,284	1,328	44	3%	98
Emergency Medical Technicians and Paramedics	1,057	1,039	(18)	(2%)	77
Private Detectives and Investigators	531	546	15	3%	51
Police, Fire, and Ambulance Dispatchers	293	312	19	6%	33
First-Line Supervisors of Correctional Officers	404	411	7	2%	32
Detectives and Criminal Investigators	390	409	19	5%	30
Transportation Security Screeners	262	271	9	3%	27
First-Line Supervisors of Police and Detectives	293	315	22	8%	23
First-Line Supervisors of Protective Service Workers, All Other	200	194	(6)	(3%)	19
First-Line Supervisors of Fire Fighting and Prevention Workers	182	193	11	6%	14
Animal Control Workers	125	130	5	4%	13
Forensic Science Technicians	71	81	10	14%	11
TOTAL	17,260	17,586	326	2%	1,868

Exhibit 53. Protective services wages

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
First-Line Supervisors of Police and Detectives	\$45.86	\$69.88
First-Line Supervisors of Fire Fighting and Prevention Workers	\$35.94	\$42.73
Detectives and Criminal Investigators	\$35.90	\$44.32
Correctional Officers and Jailers	\$31.37	\$44.67
Police and Sheriff's Patrol Officers	\$28.31	\$38.24
First-Line Supervisors of Correctional Officers	\$27.92	\$47.95
Firefighters	\$23.93	\$29.70
Private Detectives and Investigators	\$21.65	\$29.45
First-Line Supervisors of Protective Service Workers, All Other	\$19.93	\$28.26
Forensic Science Technicians	\$15.95	\$24.60
Transportation Security Screeners	\$15.04	\$15.54
Dispatchers, Except Police, Fire, and Ambulance	\$14.82	\$17.38
Protective Service Workers, All Other	\$13.80	\$17.08
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	\$11.96	\$18.22

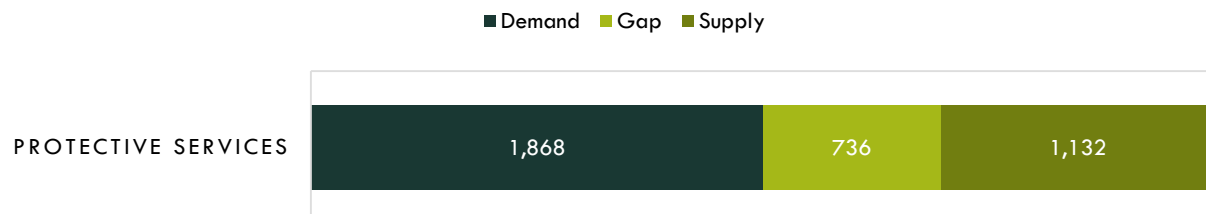
Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Security Guards	\$11.48	\$12.50
Emergency Medical Technicians and Paramedics	\$11.40	\$14.19
Animal Control Workers	\$11.11	\$11.88
Police, Fire, and Ambulance Dispatchers	\$11.09	\$12.06

Exhibit 54. Protective services educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Security Guards	Low-skill	High school diploma or equivalent	None	Short-term
Correctional Officers and Jailers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Police and Sheriff's Patrol Officers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Protective Service Workers, All Other	Low-skill	High school diploma or equivalent	None	Short-term
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	Low-skill	No formal educational credential	None	Short-term
Dispatchers, Except Police, Fire, and Ambulance	Low-skill	High school diploma or equivalent	None	Moderate-term
Firefighters	Middle-skill	Postsecondary nondegree award	None	Long-term
Emergency Medical Technicians and Paramedics	Middle-skill	Postsecondary nondegree award	None	None
Private Detectives and Investigators	Low-skill	High school diploma or equivalent	Less than 5 years	Moderate-term
Police, Fire, and Ambulance Dispatchers	Low-skill	High school diploma or equivalent	None	Moderate-term
First-Line Supervisors of Correctional Officers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Detectives and Criminal Investigators	Middle-skill	High school diploma or equivalent	Less than 5 years	Moderate-term
Transportation Security Screeners	Middle-skill	High school diploma or equivalent	None	Short-term
First-Line Supervisors of Police and Detectives	Middle-skill	High school diploma or equivalent	Less than 5 years	Moderate-term
First-Line Supervisors of Protective Service Workers, All Other	Middle-skill	High school diploma or equivalent	Less than 5 years	None
First-Line Supervisors of Fire Fighting and Prevention Workers	Middle-skill	Postsecondary nondegree award	Less than 5 years	Moderate-term
Animal Control Workers	Low-skill	High school diploma or equivalent	None	Moderate-term
Forensic Science Technicians	Middle-skill	Bachelor's degree	None	Moderate-term

Exhibit 55. Protective services postsecondary supply

TOP Code-Title	College	3-year Average
210500 - Administration of Justice	Brightwood College-Fresno	15
	Clovis	30
	Fresno City	146
	Institute of Technology	74
	ITT Technical Institute-Clovis	0
	Porterville	57
	Reedley College	89
	Sequoias	86
	West Hills Coalinga	20
	West Hills Lemoore	56
210510 - Corrections	Fresno City	6
	Reedley College	15
	San Joaquin Valley College-Visalia	205
	Sequoias	4
	West Hills Coalinga	6
	West Hills Lemoore	10
210540 - Forensics, Evidence, and Investigation	Fresno City	5
	ITT Technical Institute-Clovis	1
210550 - Police Academy	Fresno City	37
	Sequoias	101
213300 - Fire Technology	Fresno City	6
	Porterville	4
	Sequoias	9
213310 - Wildland Fire Technology	Porterville	30
213350 - Fire Academy	Fresno City	27
	Sequoias	29
219900 - Other Public and Protective Services	Porterville	6
	San Joaquin Valley College-Visalia	5
	UEI College-Fresno	52
TOTAL		1,132

Exhibit 56. Protective services annual demand and supply


Retail, Hospitality & Tourism

Exhibit 57. Retail, hospitality, and tourism employment and occupational projections

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Personal Care Aides	24,042	31,099	7,057	29%	5,227
Combined Food Preparation and Serving Workers, Including Fast Food	15,763	18,185	2,422	15%	3,493
Cashiers	16,188	16,521	333	2%	3,166
Retail Salespersons	15,836	16,311	475	3%	2,450
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	9,417	10,410	993	11%	1,506
Waiters and Waitresses	6,060	6,487	427	7%	1,289
First-Line Supervisors of Retail Sales Workers	6,048	6,139	91	2%	707
Cooks, Restaurant	3,726	4,210	484	13%	654
First-Line Supervisors of Food Preparation and Serving Workers	3,269	3,654	385	12%	606
Maids and Housekeeping Cleaners	4,312	4,184	(128)	(3%)	589
Cooks, Fast Food	4,033	4,060	27	1%	586
Food Preparation Workers	2,743	2,984	241	9%	543
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1,975	2,116	141	7%	473
Hairdressers, Hairstylists, and Cosmetologists	2,463	2,672	209	8%	362
Counter and Rental Clerks	2,360	2,446	86	4%	326
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1,240	1,336	96	8%	314
Recreation Workers	1,659	1,789	130	8%	312
Dishwashers	1,791	1,874	83	5%	308
Bartenders	1,429	1,515	86	6%	276
Dining Room and Cafeteria Attendants and Bartender Helpers	1,379	1,493	114	8%	268
Cooks, Institution and Cafeteria	1,500	1,623	123	8%	245
Food Service Managers	1,500	1,573	73	5%	196
Parts Salespersons	1,537	1,558	21	1%	192
Amusement and Recreation Attendants	728	784	56	8%	185
Fitness Trainers and Aerobics Instructors	1,027	1,080	53	5%	185
Food Preparation and Serving Related Workers, All Other	979	1,033	54	6%	183
First-Line Supervisors of Personal Service Workers	1,171	1,349	178	15%	158
Gaming Dealers	956	954	(2)	(0%)	152
Self-Enrichment Education Teachers	1,130	1,200	70	6%	147
Hotel, Motel, and Resort Desk Clerks	673	705	32	5%	124
Bakers	831	858	27	3%	122
Food Servers, Nonrestaurant	634	703	69	11%	118
Ushers, Lobby Attendants, and Ticket Takers	418	453	35	8%	113
Laundry and Dry-Cleaning Workers	736	763	27	4%	106
Manicurists and Pedicurists	660	744	84	13%	97

Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
First-Line Supervisors of Housekeeping and Janitorial Workers	601	673	72	12%	86
Butchers and Meat Cutters	628	657	29	5%	86
Musicians and Singers	555	561	6	1%	68
Chefs and Head Cooks	437	467	30	7%	65
Barbers	435	491	56	13%	62
Cooks, Short Order	399	419	20	5%	62
Skincare Specialists	416	465	49	12%	60
Residential Advisors	295	347	52	18%	59
Personal Care and Service Workers, All Other	248	291	43	17%	48
Reservation and Transportation Ticket Agents and Travel Clerks	366	378	12	3%	48
Merchandise Displayers and Window Trimmers	350	364	14	4%	39
Meeting, Convention, and Event Planners	256	276	20	8%	34
Photographers	316	309	(7)	(2%)	33
Tour and Travel Guides	182	203	21	12%	33
Real Estate Brokers	315	325	10	3%	32
Producers and Directors	266	278	12	5%	29
Telemarketers	163	167	4	2%	28
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	242	184	(58)	(24%)	26
Gaming Service Workers, All Other	162	151	(11)	(7%)	24
Funeral Attendants	128	131	3	2%	22
Coin, Vending, and Amusement Machine Servicers and Repairers	171	173	2	1%	21
Actors	137	139	2	1%	17
Lodging Managers	132	138	6	5%	16
Entertainers and Performers, Sports and Related Workers, All Other	116	125	9	8%	16
Baggage Porters and Bellhops	56	75	19	34%	13
Interior Designers	113	121	8	7%	13
Concierges	81	87	6	7%	13
Jewelers and Precious Stone and Metal Workers	97	90	(7)	(7%)	12
Cooks, All Other	78	80	2	3%	12
Fashion Designers	99	103	4	4%	11
Travel Agents	74	76	2	3%	11
TOTAL	148,124	163,209	15,082	10%	26,879

Exhibit 58. Retail, hospitality, and tourism wages

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Fitness Trainers and Aerobics Instructors	\$19.89	\$26.33
Producers and Directors	\$19.28	\$24.46
Actors	\$18.75	\$27.72
Real Estate Brokers	\$18.10	\$33.74
Musicians and Singers	\$16.27	\$20.97
Meeting, Convention, and Event Planners	\$15.50	\$20.61
Fashion Designers	\$14.75	\$19.98
Food Service Managers	\$14.34	\$18.79
First-Line Supervisors of Retail Sales Workers	\$13.98	\$18.71
Coin, Vending, and Amusement Machine Servicers and Repairers	\$13.88	\$16.57
First-Line Supervisors of Housekeeping and Janitorial Workers	\$13.87	\$19.09
Lodging Managers	\$13.41	\$24.72
Cooks, Institution and Cafeteria	\$13.20	\$15.43
Cooks, All Other	\$13.20	\$15.45
Jewelers and Precious Stone and Metal Workers	\$13.14	\$19.85
Reservation and Transportation Ticket Agents and Travel Clerks	\$13.10	\$15.80
Self-Enrichment Education Teachers	\$13.04	\$20.10
Travel Agents	\$12.93	\$15.16
First-Line Supervisors of Personal Service Workers	\$12.90	\$16.60
Funeral Attendants	\$12.69	\$17.04
Butchers and Meat Cutters	\$12.38	\$14.87
Baggage Porters and Bellhops	\$12.31	\$13.88
Chefs and Head Cooks	\$12.17	\$16.37
Bakers	\$12.16	\$13.86
Residential Advisors	\$12.06	\$13.81
First-Line Supervisors of Food Preparation and Serving Workers	\$11.96	\$14.56
Tour and Travel Guides	\$11.89	\$16.32
Photographers	\$11.88	\$18.20
Cooks, Restaurant	\$11.80	\$13.41
Counter and Rental Clerks	\$11.78	\$14.26
Parts Salespersons	\$11.72	\$14.07
Food Preparation and Serving Related Workers, All Other	\$11.55	\$12.39
Telemarketers	\$11.52	\$12.47
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	\$11.51	\$13.10
Food Preparation Workers	\$11.51	\$12.53
Laundry and Dry-Cleaning Workers	\$11.49	\$12.65
Retail Salespersons	\$11.46	\$12.37
Hotel, Motel, and Resort Desk Clerks	\$11.41	\$12.12

Occupation	25th Percentile Hourly Wages	Median Hourly Wages
Recreation Workers	\$11.39	\$12.08
Cooks, Short Order	\$11.39	\$12.34
Waiters and Waitresses	\$11.37	\$12.01
Bartenders	\$11.37	\$12.11
Food Servers, Nonrestaurant	\$11.37	\$12.08
Entertainers and Performers, Sports and Related Workers, All Other	\$11.36	\$17.68
Cashiers	\$11.32	\$11.88
Combined Food Preparation and Serving Workers, Including Fast Food	\$11.30	\$11.82
Amusement and Recreation Attendants	\$11.30	\$11.89
Personal Care Aides	\$11.29	\$11.81
Cooks, Fast Food	\$11.26	\$11.75
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	\$11.26	\$12.42
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	\$11.26	\$11.76
Gaming Dealers	\$11.23	\$11.56
Skincare Specialists	\$11.18	\$13.24
Dining Room and Cafeteria Attendants and Bartender Helpers	\$11.16	\$11.71
Maids and Housekeeping Cleaners	\$11.10	\$12.10
Dishwashers	\$11.10	\$11.71
Concierges	\$11.09	\$13.23
Merchandise Displayers and Window Trimmers	\$11.06	\$12.64
Ushers, Lobby Attendants, and Ticket Takers	\$11.02	\$11.33
Interior Designers	\$11.01	\$13.70
Hairdressers, Hairstylists, and Cosmetologists	\$11.00	\$13.49
Manicurists and Pedicurists	\$11.00	\$12.69
Personal Care and Service Workers, All Other	\$11.00	\$13.92
Gaming Service Workers, All Other	\$11.00	\$11.35
Barbers	\$10.10	\$11.37
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	\$5.48	\$11.89

Exhibit 59. Retail, hospitality, and tourism educational attainment

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Personal Care Aides	Low-skill	High school diploma or equivalent	None	Short-term
Combined Food Preparation and Serving Workers, Including Fast Food	Low-skill	No formal educational credential	None	Short-term
Cashiers	Low-skill	No formal educational credential	None	Short-term
Retail Salespersons	Low-skill	No formal educational credential	None	Short-term g
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Low-skill	No formal educational credential	None	Short-term
Waiters and Waitresses	Low-skill	No formal educational credential	None	Short-term
Childcare Workers	Middle-skill	High school diploma or equivalent	None	Short-term
First-Line Supervisors of Retail Sales Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Cooks, Restaurant	Middle-skill	No formal educational credential	Less than 5 years	Moderate-term
First-Line Supervisors of Food Preparation and Serving Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Maids and Housekeeping Cleaners	Low-skill	No formal educational credential	None	Short-term
Cooks, Fast Food	Middle-skill	No formal educational credential	None	Short-term
Food Preparation Workers	Low-skill	No formal educational credential	None	Short-term
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	Low-skill	No formal educational credential	None	Short-term
Hairdressers, Hairstylists, and Cosmetologists	Middle-skill	Postsecondary nondegree award	None	None
Counter and Rental Clerks	Low-skill	No formal educational credential	None	Short-term
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	Low-skill	No formal educational credential	None	Short-term
Recreation Workers	Middle-skill	High school diploma or equivalent	None	Short-term
Dishwashers	Low-skill	No formal educational credential	None	Short-term
Bartenders	Low-skill	No formal educational credential	None	Short-term
Dining Room and Cafeteria Attendants and Bartender Helpers	Low-skill	No formal educational credential	None	Short-term
Cooks, Institution and Cafeteria	Middle-skill	No formal educational credential	None	Short-term
Food Service Managers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Parts Salespersons	Low-skill	No formal educational credential	None	Moderate-term
Amusement and Recreation Attendants	Low-skill	No formal educational credential	None	Short-term
Fitness Trainers and Aerobics Instructors	Middle-skill	High school diploma or equivalent	None	Short-term
Food Preparation and Serving Related Workers, All Other	Low-skill	No formal educational credential	None	Short-term
First-Line Supervisors of Personal Service Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None

Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Gaming Dealers	Low-skill	High school diploma or equivalent	None	Short-term
Self-Enrichment Education Teachers	Low-skill	High school diploma or equivalent	Less than 5 years	None
Hotel, Motel, and Resort Desk Clerks	Low-skill	High school diploma or equivalent	None	Short-term g
Bakers	Middle-skill	No formal educational credential	None	Long-term
Food Servers, Nonrestaurant	Low-skill	No formal educational credential	None	Short-term
Ushers, Lobby Attendants, and Ticket Takers	Low-skill	No formal educational credential	None	Short-term
Laundry and Dry-Cleaning Workers	Low-skill	No formal educational credential	None	Short-term
Manicurists and Pedicurists	Middle-skill	Postsecondary nondegree award	None	None
First-Line Supervisors of Housekeeping and Janitorial Workers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Butchers and Meat Cutters	Low-skill	No formal educational credential	None	Long-term
Musicians and Singers	Middle-skill	No formal educational credential	None	Long-term
Chefs and Head Cooks	Middle-skill	High school diploma or equivalent	5 years or more	None
Barbers	Middle-skill	Postsecondary nondegree award	None	None
Cooks, Short Order	Low-skill	No formal educational credential	None	Short-term
Skincare Specialists	Middle-skill	Postsecondary nondegree award	None	None
Residential Advisors	Low-skill	High school diploma or equivalent	None	Short-term
Personal Care and Service Workers, All Other	Low-skill	High school diploma or equivalent	None	Short-term
Reservation and Transportation Ticket Agents and Travel Clerks	Middle-skill	High school diploma or equivalent	None	Short-term
Merchandise Displayers and Window Trimmers	Low-skill	High school diploma or equivalent	None	Short-term
Meeting, Convention, and Event Planners	Middle-skill	Bachelor's degree	None	None
Photographers	Middle-skill	High school diploma or equivalent	None	Moderate-term
Tour and Travel Guides	Middle-skill	High school diploma or equivalent	None	Moderate-term
Real Estate Brokers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Producers and Directors	Middle-skill	Bachelor's degree	Less than 5 years	None
Telemarketers	Low-skill	No formal educational credential	None	Short-term
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	Low-skill	No formal educational credential	None	Short-term
Gaming Service Workers, All Other	Low-skill	High school diploma or equivalent	None	Short-term
Funeral Attendants	Low-skill	High school diploma or equivalent	None	Short-term g
Coin, Vending, and Amusement Machine Servicers and Repairers	Low-skill	High school diploma or equivalent	None	Short-term

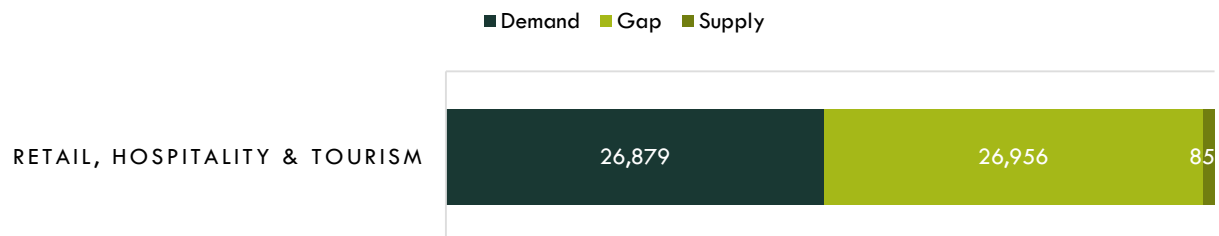
Occupation	Skill Level	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Actors	Middle-skill	Some college, no degree	None	Long-term
Lodging Managers	Middle-skill	High school diploma or equivalent	Less than 5 years	None
Entertainers and Performers, Sports and Related Workers, All Other	Middle-skill	No formal educational credential	None	Short-term
Baggage Porters and Bellhops	Low-skill	High school diploma or equivalent	None	Short-term g
Interior Designers	Middle-skill	Bachelor's degree	None	None
Concierges	Low-skill	High school diploma or equivalent	None	Moderate-term
Jewelers and Precious Stone and Metal Workers	Middle-skill	High school diploma or equivalent	None	Long-term
Cooks, All Other	Low-skill	No formal educational credential	None	Moderate-term
Fashion Designers	Middle-skill	Bachelor's degree	None	None
Travel Agents	Middle-skill	High school diploma or equivalent	None	Moderate-term

Exhibit 60. Retail, hospitality, and tourism postsecondary supply

TOP Code-Title	College	3-year Average
050650 - Retail Store Operations and Management	Fresno City	17
	West Hills Coalinga	2
	West Hills Lemoore	17
126200 - Massage Therapy	Milan Institute-Clovis	43
	Milan Institute-Visalia	26
	San Joaquin Valley College-Visalia	11
130310 - Fashion Design	Sequoias	6
130320 - Fashion Merchandising	Fresno City	4
	Sequoias	5
130600 - Nutrition, Foods, and Culinary Arts	Fresno City	3
130620 - Dietetic Services and Management	Fresno City	2
130630 - Culinary Arts	Institute of Technology	174
	Sequoias	6
130710 - Restaurant and Food Services and Management	Fresno City	2
	West Hills Lemoore	39
130720 - Lodging Management	West Hills Lemoore	2
130730 - Resort and Club Management	West Hills Lemoore	3
300700 - Cosmetology and Barbering	Estes Institute of Cosmetology Arts and Science	52
	Lawrence & Company College of Cosmetology	57
	Lyle's College of Beauty	36
	Milan Institute of Cosmetology-Visalia	69

TOP Code-Title	College	3-year Average
	Milan Institute-Clovis	152
	Paul Mitchell the School-Fresno	123
	Sequoias	0
TOTAL		855

Exhibit 61. Retail, hospitality, and trade annual supply and demand



Appendix A: 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.