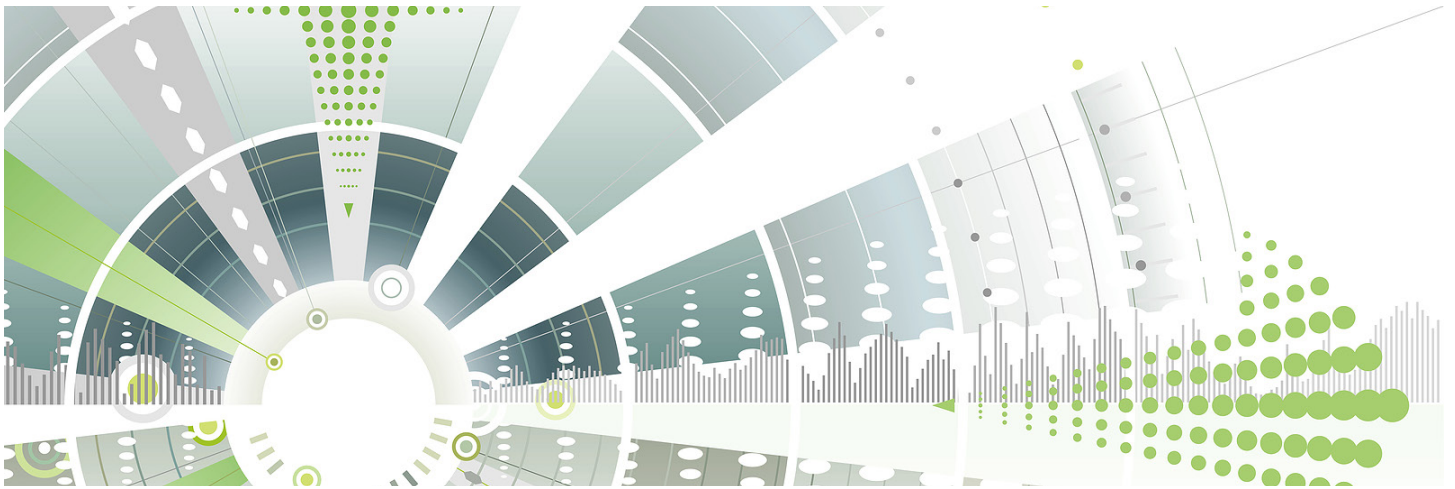


June 2018



OPPORTUNITIES FOR CAREER EDUCATION TO CLOSE THE MIDDLE-SKILL JOBS GAP

IMPERIAL COUNTY



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About the Centers of Excellence

This study was funded by Strong Workforce Program funds and produced by the Centers of Excellence for Labor Market Research (COE). The COE are funded in part by the California Community Colleges Chancellor’s Office, Economic and Workforce Development (EWD) Program. One of the goals of EWD is to “support the regional alignment between the Career Technical Education programs of the community college system and the needs of California’s Priority and Emerging Sectors.”¹ The COE supports this goal by delivering regional workforce research and technical expertise to the California Community Colleges for program decision-making and resource development. More information about the Centers of Excellence is available at coeccc.net.

1. Economic and Workforce Development Program. Annual Report. California Community Colleges Chancellor’s Office. 2017

Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence, COE host district, nor California Community Colleges Chancellor’s Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

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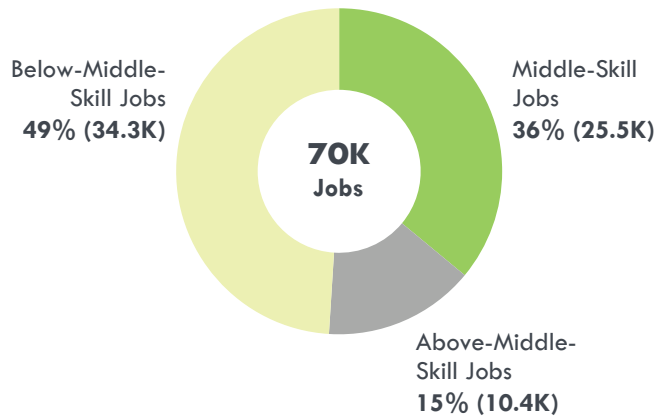
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THE MIDDLE-SKILL JOB MARKET IN IMPERIAL COUNTY

This summary highlights key points from the study, Opportunities for Career Education to Close the Middle-Skill Jobs Gap. The study explores where the middle-skill job opportunities are in Imperial County and identifies job gaps that could potentially be filled with public Career Education programs.

Middle-skill jobs constitute a significant portion of the Imperial County labor market. In 2017, 36% of the 69,859 jobs in Imperial County were middle-skill jobs.

Jobs Breakdown in Imperial County, 2017



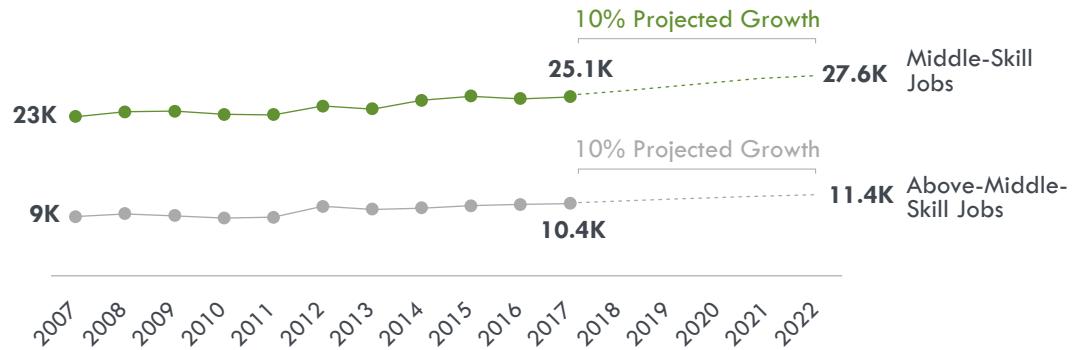
What is a Middle-Skill Job?

A middle-skill job has the following training requirements:

- > Some college coursework, a postsecondary certificate, and/or an associate degree; or
- > High school diploma or equivalent with on-the-job training greater than 12 months; or
- > Apprenticeship; or
- > Bachelor's degree if at least 33% of workers in the occupation, age 25 or older, have completed, as their highest level of education, some college coursework or an associate degree.

Number of People Employed in Middle-Skill and Above-Middle-Skill Jobs in Imperial County

Between 2017 and 2022, the number of middle-skill jobs in the region is projected to increase by 2,409 jobs or 10%.



TOP 100 MIDDLE-SKILL JOBS

There are 298 Standard Occupational Classification (SOC) codes that define middle-skill jobs. This study analyzes the top 100 SOC codes for middle-skill jobs that have the most labor market demand, stable employment growth, and entry-level wages at or above the Self-Sufficiency Standard.¹

90

The number of top middle-skill jobs with supply gaps in the region.

2,260

The number of job openings per year between 2017 and 2022 for the top 100 middle-skill jobs.

1,861

The number of awards that training providers will need to generate to close the supply gap for the top 100 middle-skill jobs.

¹ The Self-Sufficiency Standard is the hourly wage (\$11.32) that a single adult in a two-adult household with two children needs to earn to meet basic needs in Imperial County.

TOP 100 MIDDLE-SKILL JOBS

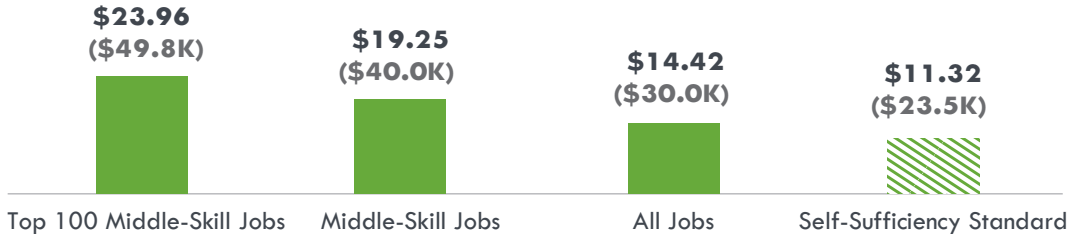
A comparison of labor market demand (annual job openings) with labor supply (program awards) from the region's educational institutions indicates that there are 91 top middle-skill jobs with supply gaps. Occupations with an asterisk (*) indicate an oversupply.

Administrative Services Managers*	Heating, Air Conditioning, and Refrigeration Mechanics and Installers*
Automotive Body and Related Repairers	Heavy and Tractor-Trailer Truck Drivers
Bookkeeping, Accounting, and Auditing Clerks	Human Resources Assistants, Except Payroll and Timekeeping
Bus and Truck Mechanics and Diesel Engine Specialists	Industrial Machinery Mechanics
Bus Drivers, School or Special Client	Industrial Production Managers
Bus Drivers, Transit and Intercity	Insurance Sales Agents
Business Operations Specialists, All Other	Interpreters and Translators
Carpenters	Legal Secretaries
Chefs and Head Cooks	Library Technicians
Claims Adjusters, Examiners, and Investigators	Licensed Practical and Licensed Vocational Nurses
Community Health Workers	Loan Interviewers and Clerks
Computer Network Support Specialists	Loan Officers
Computer Occupations, All Other	Machinists
Computer User Support Specialists*	Maintenance and Repair Workers, General
Computer, Automated Teller, and Office Machine Repairers	Massage Therapists
Construction and Building Inspectors	Medical and Clinical Laboratory Technicians
Construction Managers	Medical Assistants
Correctional Officers and Jailers	Medical Records and Health Information Technicians
Cost Estimators*	Medical Secretaries
Customer Service Representatives	Mobile Heavy Equipment Mechanics, Except Engines
Data Entry Keyers	Network and Computer Systems Administrators
Dental Assistants	Nursing Assistants
Detectives and Criminal Investigators	Operating Engineers and Other Construction Equipment Operators
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay*	Paralegals and Legal Assistants
Electrical Power-Line Installers and Repairers	Payroll and Timekeeping Clerks
Electricians	Pesticide Handlers, Sprayers, and Applicators, Vegetation
Emergency Medical Technicians and Paramedics	Pharmacy Technicians*
Executive Secretaries and Executive Administrative Assistants	Phlebotomists
Farm Equipment Mechanics and Service Technicians	Plumbers, Pipefitters, and Steamfitters
Firefighters	Police and Sheriff's Patrol Officers
First-Line Supervisors of Construction Trades and Extraction Workers	Power Plant Operators
First-Line Supervisors of Correctional Officers	Preschool Teachers, Except Special Education*
First-Line Supervisors of Farming, Fishing, and Forestry Workers	Production, Planning, and Expediting Clerks
First-Line Supervisors of Fire Fighting and Prevention Workers	Property, Real Estate, and Community Association Managers
First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	Purchasing Agents, Except Wholesale, Retail, and Farm Products
First-Line Supervisors of Housekeeping and Janitorial Workers	Radiologic Technologists
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	Real Estate Sales Agents
First-Line Supervisors of Mechanics, Installers, and Repairers	Registered Nurses
First-Line Supervisors of Non-Retail Sales Workers	Sales and Related Workers, All Other
First-Line Supervisors of Office and Administrative Support Workers	Sales Representatives, Services, All Other
First-Line Supervisors of Personal Service Workers	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
First-Line Supervisors of Production and Operating Workers	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive
First-Line Supervisors of Protective Service Workers, All Other	Social and Human Service Assistants
First-Line Supervisors of Retail Sales Workers	Telecommunications Equipment Installers and Repairers, Except Line Installers
First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	Tellers
Fitness Trainers and Aerobics Instructors	Training and Development Specialists
Forest and Conservation Technicians	Transportation, Storage, and Distribution Managers
Graphic Designers	Water and Wastewater Treatment Plant and System Operators*
Health Technologists and Technicians, All Other	Welders, Cutters, Solderers, and Brazers
Healthcare Support Workers, All Other	Wholesale and Retail Buyers, Except Farm Products

KEY FINDINGS

Training for the top 100 middle-skill jobs can provide job seekers with opportunities for income mobility: The average median hourly wage of all middle-skill jobs is \$19.25, the average median hourly wage of all jobs in the region is \$14.42, and the Self-Sufficiency Standard is \$11.32. The average median hourly earnings of the top 100 middle-skill jobs analyzed in this study is \$23.96, which is higher than all three.

Median Hourly Earnings (Annual Salary) vs. Self-Sufficiency Standard



Of the top 100 middle-skill jobs identified in this study, 90 have supply gaps, 8 have labor surpluses (an oversupply of labor), and 2 have neither. Comparatively, the top 100 above-middle-skill jobs have 70 supply gaps, suggesting that middle-skill jobs have more opportunities to develop programs than above-middle-skill jobs.



The top 100 middle-skill jobs have a labor market demand of 2,260 annual job openings and a program supply of 399 awards. That is a difference of 1,861 awards that could be produced by the region to meet labor market demand.

Not all middle-skill jobs require an associate degree. Of the 2,260 annual job openings, 18% are related to supervisory or management roles, 15% are related to administrative or secretarial roles, and 13% are related to sales roles. The majority of these occupations require less than an associate degree as their typical entry-level education. This suggests that there are opportunities for short-term certificate programs that can fill these roles. Short-term certificate programs require less than two years to complete.

Percentage of Annual Job Openings with Management, Sales or Administrative Job Titles³ (Top 100 Middle-Skill Jobs)



² There is insufficient data to calculate the supply gap for 13 occupational codes in the above-middle-skill jobs category

³ These percentages have some overlap because an occupation may have more than one role: For example, First-Line Supervisors of Office and Administrative Support Workers are both supervisory and administrative positions.

RECOMMENDATIONS FOR MORE PROGRAM SUPPLY

Career Education programs can help fill the supply gaps with short-term certificates or associate degrees. The following list of six-digit Taxonomy of Programs (TOP6) codes are recommended for increased awards to close the supply gap. The TOP system is used at the state level to collect and report information on community college programs. TOP6 programs that train for occupations with a supply gap of at least 5 job openings are included below. Programs with an asterisk (*) may be suitable for short-term certificate programs.

TOP6	TOP6 Program Title	TOP6	TOP6 Program Title
010300	Plant Science	095220	Electrical
010310	Agricultural Pest Control Adviser and Operator (Licensed)*	095230	Plumbing, Pipefitting, and Steamfitting
010930	Nursery Technology*	095600	Manufacturing and Industrial Technology
011400	Forestry	095630	Machining and Machine Tools
011600	Agricultural Power Equipment Technology	095650	Welding Technology
050200	Accounting	095700	Civil and Construction Management Technology
050400	Banking and Finance*	120510	Phlebotomy*
050630	Management Development and Supervision*	120800	Medical Assisting
050640	Small Business and Entrepreneurship	120810	Clinical Medical Assisting
050650	Retail Store Operations and Management*	120820	Administrative Medical Assisting*
050800	International Business and Trade*	120830	Health Facility Unit Coordinator*
050900	Marketing and Distribution*	122000	Speech/Language Pathology and Audiology*
050920	Purchasing	122300	Health Information Technology*
050940	Sales and Salesmanship*	122310	Health Information Coding*
050970	E-Commerce (Business Emphasis)*	122500	Radiologic Technology
051000	Logistics and Materials Transportation*	123000	Nursing
051100	Real Estate*	123010	Registered Nursing
051110	Escrow	123020	Licensed Vocational Nursing
051200	Insurance*	123030	Certified Nurse Assistant
051400	Office Technology/Office Computer Applications*	124010	Dental Assistant
051410	Legal Office Technology*	126200	Massage Therapy*
051420	Medical Office Technology*	130600	Nutrition, Foods, and Culinary Arts*
051440	Office Management	130630	Culinary Arts*
086000	Educational Technology	130710	Restaurant and Food Services and Management*
093430	Telecommunications Technology	140200	Paralegal
093440	Electrical Systems and Power Transmission	160200	Library Technician (Aide)*
094500	Industrial Systems Technology and Maintenance	210400	Human Services*
094700	Diesel Technology	210440	Alcohol and Controlled Substances*
094720	Heavy Equipment Maintenance	210510	Corrections
094730	Heavy Equipment Operation	210540	Forensics, Evidence, and Investigation*
094740	Railroad and Light Rail Operations	210550	Police Academy
094750	Truck and Bus Driving*	213300	Fire Technology
094900	Automotive Collision Repair*	213350	Fire Academy
095200	Construction Crafts Technology	219900	Other Public and Protective Services*
095210	Carpentry	300700	Cosmetology and Barbering*

RECOMMENDATIONS FOR FURTHER ANALYSIS

Further research coupled with this labor market study may help with decision-making in regard to programs and course offerings:

- **Conduct primary research to validate these recommendations with employers:** This study provides lists of recommended TOP codes for short-term certificate and associate degree programs. However, the recommendations have not been validated by industry or businesses. Collecting primary data directly from employers will help further confirm program recommendations.
- **Examine how well existing programs currently meet labor market needs:** While this study makes recommendations for program development based on labor market information, it lacks information about the programs themselves. By conducting a program evaluation, the community colleges can gain insight as to why so many programs exist in the region for the top 100 middle-skill jobs, but supply from each program is low.
- **Validate whether the recommended TOP codes for short-term certificate programs currently train skills-builders:** Many of the TOP codes that this study recommends for short-term certificate programs may already train for skills-builders in the region. Skills-builders are students who take higher-level Career Education courses, but do not complete a community college program or transfer to a four-year institution. These skills-builders may take a college course to obtain new skills and/or to increase their earnings, but do not need to complete an associate degree program to achieve those goals. By understanding what programs train skills-builders, colleges in the region may want to consider which courses, rather than programs, to market to students and working professionals.

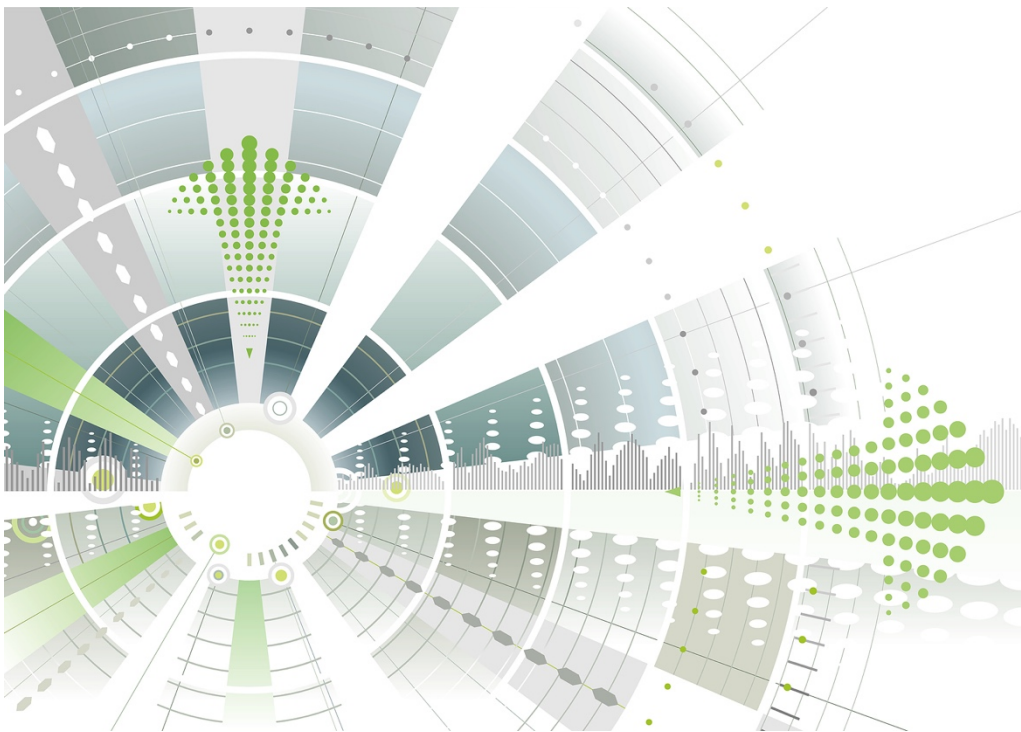
Introduction

Imperial County is uniquely positioned to grow in various industries. The region is home to one of the largest geothermal energy resources in the world and is expected to increase cross-border trade with Mexico from its expanded international port.¹ While Imperial County's unemployment rate continues to decline, the county still has 11,600 people unemployed in the region.² Filling opportunities in the middle-skill job market can further lower the county's unemployment rate and increase economic prosperity.

Community colleges have the potential to close the middle-skill jobs gap with Career Education³ programs. By providing training for the top middle-skill jobs, the community colleges can help workers progress into careers that provide a living wage and provide employers with qualified employees as they compete in a global economy.⁴

Public Career Education programs have already been proven to benefit students and workers. A recent report by the Brookings Institution analyzed labor market outcomes and debt incurred by students who completed Career Education programs across the United States and found that "public sector students outperform for-profit students on nearly every measure, suggesting that the overwhelming majority of for-profit students would be better off attending a public institution."⁵

Beyond the national level, this study aims to understand where the middle-skill job opportunities are in Imperial County and explores job gaps (or labor supply gaps) that could potentially be filled with public Career Education programs.



¹ Imperial Valley: California's Resource of Opportunity. Regional Profile 2015. Imperial Valley Economic Development Corporation.

² Employment Development Department. Employment Snapshot: Imperial County. March 2018.

³ Also known as Career Technical Education or CTE programs

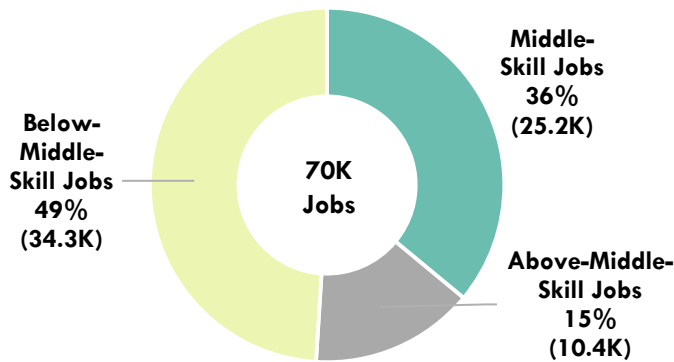
⁴ Economic and Workforce Development Program. Annual Report. California Community Colleges Chancellor's Office. 2017.

⁵ [brookings.edu/blog/brown-center-chalkboard/2018/02/09/gainfully-employed-new-evidence-on-the-earnings-employment-and-debt-of-for-profit-certificate-students](https://www.brookings.edu/blog/brown-center-chalkboard/2018/02/09/gainfully-employed-new-evidence-on-the-earnings-employment-and-debt-of-for-profit-certificate-students)

The Middle-Skill Job Market in Imperial County

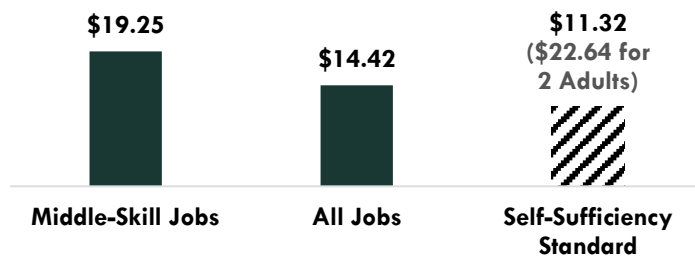
Middle-skill jobs constitute a significant portion of the Imperial County labor market. In 2017, 36 percent of the 69,859 jobs in Imperial County were middle-skill jobs and 15 percent were above-middle-skill jobs (Figure 1).⁶

Figure 1. Jobs Breakdown in Imperial County, 2017



Middle-skill jobs have median hourly earnings⁷ of \$19.25, which is higher than the average median hourly earnings of all jobs (\$14.42) in the region⁸ and higher than the self-sufficient hourly wage⁹ (\$11.32) that an adult needs to earn for a household with two adults and two school-age children to minimally meet basic living needs without public assistance (Figure 2).

Figure 2. Median Hourly Earnings vs. Self-Sufficiency Standard



Imperial County employers have difficulty filling middle-skill jobs in the region. Between January and December 2017, employers posted 100,412 online job postings for middle-skill jobs. Only 14,927 of these job postings were unique, which indicates that, on average, an employer posted a job seven times in an effort to fill the position. Comparatively, employers posted 22,369 online job

Defining Middle-Skill Jobs

To define “middle-skill jobs,” the Centers of Excellence for Labor Market Research across the state of California examined 867 occupational codes from the Standard Occupational Classification (SOC)¹ system and classified 298 occupational codes as “middle-skill jobs” and 204 codes as “above-middle-skill jobs.”

Middle-skill jobs include:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor’s degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

Above-middle-skill jobs include occupations that require an educational attainment of a bachelor’s degree or higher (excluding those in the middle-skills jobs category, as defined above). Below-middle-skill jobs require an educational attainment of a high school diploma or less.

For more information, see Appendix B.

¹ “The 2018 Standard Occupational Classification (SOC) system is a federal statistical standard used by federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data.” (bls.gov/soc)

⁶ Economic Modeling Specialists Int’l. (Emsi). Imperial County (6073). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2007-2022.

⁷ Hourly earnings are the wages per hour, excluding benefits, of a worker in an occupation. Median hourly earnings are in the middle of the wage distribution for an occupation: half of the workers make more, half of them make less.

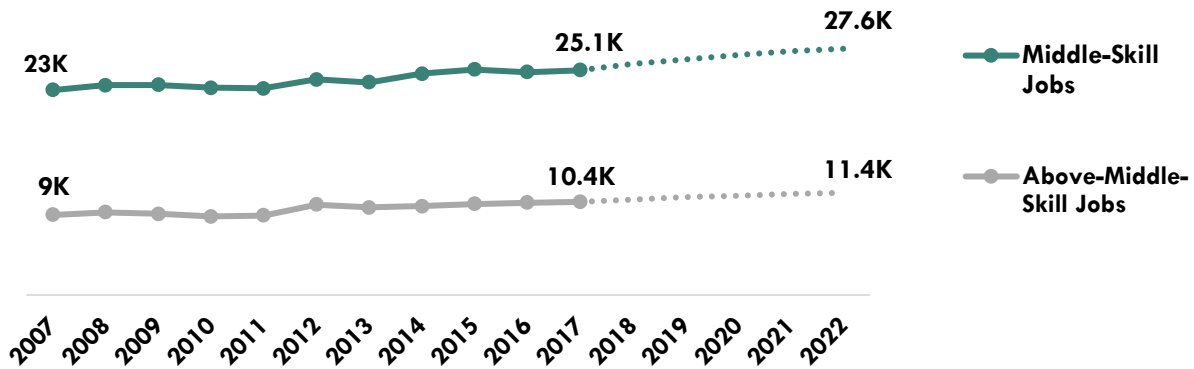
⁸ Emsi. Imperial County (6073). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2007-2022.

⁹ selfsufficiencystandard.org. The standard for two adults and two children was chosen due to the average 3.68 persons per household in the U.S. Census.

postings for above-middle-skill jobs, and only 4,108 were unique.¹⁰

Not only do employers have difficulty filling existing middle-skill jobs, but they will also experience hiring challenges as these middle-skill jobs continue to grow. Between 2017 and 2022, the number of middle-skill jobs in the region is projected to increase by 2,409 jobs or 10 percent (Figure 3).¹¹

Figure 3. Number of People Employed in Middle-Skill and Above-Middle-Skill Jobs in Imperial County



Labor Market Demand for Top Middle-Skill Jobs

To better understand employers’ needs, this study analyzes the top 100 middle-skill jobs with the greatest labor market demand and their supply gaps and makes recommendations for program development. “Top jobs” are occupations that have the most labor market demand, stable employment growth, and entry-level wages at or above the Self-Sufficiency Standard. The top 100 middle-skill jobs have the following characteristics:

- Highest number of annual openings between 2017 and 2022
- Entry-level hourly earnings (25th percentile) greater than or equal to \$11.32

Table 1 lists the top 100 middle-skill jobs that are analyzed in this study. (For specific details on each top middle-skill job, including wages, job growth and educational requirements, see [Appendix C.](#)) Occupational titles in Table 1 with an asterisk (*) have an oversupply of labor. The remaining occupations have supply gaps. A supply gap indicates that there is more labor market demand than labor market supply for an occupation. Conversely, a labor surplus (oversupply) indicates that there is more labor market supply than labor demand.

Labor Market Demand: Annual Openings

Annual (job) openings are used to determine labor market demand. This number estimates employment change and turnover for an occupation each year between 2017 and 2022. Annual openings include:

- **Job Growth:** An employer experiences increased demand for products and hires new employees to increase production. If job growth is zero or negative, then any and all openings are due to replacement needs.
- **Replacement Needs:** An employer hires replacement workers for employees who leave the workforce or change occupations. Replacement rates are derived from national 10-year, occupation-specific percentages published by the U.S. Bureau of Labor Statistics Employment Projections program.

¹⁰ Emsi. Imperial County (6025). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2017-2022.

¹¹ Emsi. Imperial County (6025). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2007-2022.

Defining Top Middle-Skill Jobs

“Top jobs” are occupations that have the most labor market demand, stable employment growth, and entry-level wages at or above the Self-Sufficiency Standard. The most labor market demand is defined as the highest number of annual job openings between 2017 and 2022. For more information about annual openings, see “Labor Market Demand: Annual Openings.” Stable employment growth indicates that an occupation is projected to have little to no employment decline between 2017 and 2022. Entry-level wages are the hourly earnings, excluding benefits, that the 25th percentile of current workers within an occupation make. Only occupations with entry-level wages of at least \$11.32 per hour were included in this study because they allowed entry-level workers to earn a self-sufficient wage.

In addition to listing the labor market demand for the top 100 middle-skill jobs, Table 1 also illustrates their relationship to the California Community Colleges’ Priority and Emerging Sectors. According to the California Community Colleges Chancellor’s Office, 10 industry sectors merit priority in terms of resources and program development due to their “labor market needs and opportunities to prepare students to complete in a global economy.”¹² These Priority and Emerging Sectors include:

- Advanced Manufacturing
- Business and Entrepreneurship
- Energy, Construction and Utilities
- Health Care
- Life Sciences/Biotechnology
- Global Trade
- Tourism
- Agriculture, Water and Environmental Technologies
- Information and Communication Technologies (ICT) and Digital Media
- Advanced Transportation and Logistics

Top Jobs’ Relationship to Priority and Emerging (P&E) Sectors

Table 1 defines the top 100 middle-skill jobs’ relationship to the Priority and Emerging Sectors in two ways:

- The top middle-skill job is also a top job in one of the sectors based on staffing patterns
- The top middle-skill job is also a sector-specific job based on feedback from industry experts

To find the top jobs in the Priority and Emerging (P&E) Sectors, the Centers of Excellence (COE) first defined each sector by North American Industry Classification System (NAICS) codes. NAICS is the standard used by federal statistical agencies to collect, analyze and publish data related to the industry sectors. An industry sector is defined as a group of businesses that produce similar goods and services and share similar production processes for creating the goods and services they sell. After defining the industry sectors, the COE conducted a staffing patterns analysis to identify the middle-skill jobs in each sector. Any middle-skill job that had a significant number of jobs in the sector (i.e., at least 10 employed in that sector as of 2017) was considered a P&E top job. According to the California Employment Development Department, “Staffing patterns are a list of the occupations employed within a particular industry, or a list of the industries that employ a particular occupation.” These staffing patterns were then cross-referenced with the top 100 middle-skill jobs in Table 1. Additionally, industry experts reviewed the top 100 middle-skill jobs in Table 1 and provided feedback on their importance in each sector. Table 1 illustrates these relationships from the quantitative and qualitative analyses with a notation (•).

¹² Economic and Workforce Development Program. Annual Report. California Community Colleges Chancellor’s Office. 2017.

Table 1. Top 100 Middle-Skill Jobs by Labor Market Demand Within Priority and Emerging Sectors

* = Oversupply

AM = Advanced Manufacturing

BE = Business and Entrepreneurship

ECU = Energy, Construction and Utilities

HC = Health Care

LS = Life Sciences/Biotech

GT = Global Trade

T = Tourism

AWET = Agriculture, Water and Environmental Technologies

ICT = ICT and Digital Media

ATL = Advanced Transportation and Logistics

SOC	Occupational Title	2017-22 Annual Openings	AM	BE	ECU	HC	LS	GT	T	AWET	ICT	ATL
53-3032	Heavy and Tractor-Trailer Truck Drivers	220	•		•			•		•		•
33-3012	Correctional Officers and Jailers	122										
41-1011	First-Line Supervisors of Retail Sales Workers	107		•					•			
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	97	•	•	•	•	•	•	•	•	•	•
21-1093	Social and Human Service Assistants	95				•						
43-3031	Bookkeeping, Accounting, and Auditing Clerks	88	•	•	•	•	•	•	•	•	•	•
43-1011	First-Line Supervisors of Office and Administrative Support Workers	78	•	•	•	•	•	•	•	•	•	•
29-1141	Registered Nurses	75				•	•					
49-9071	Maintenance and Repair Workers, General	67	•	•	•	•	•	•	•	•	•	•
31-9092	Medical Assistants	62				•						
43-4051	Customer Service Representatives	62	•	•	•	•	•	•	•	•	•	•
47-2111	Electricians	53	•		•			•		•		•
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	52	•	•	•		•		•	•		•
33-3021	Detectives and Criminal Investigators*	47										
43-6013	Medical Secretaries	45				•						
31-1014	Nursing Assistants	40				•						
45-1011	First-Line Supervisors of Farming, Fishing, & Forestry Workers	33			•			•		•		
47-2031	Carpenters	31	•		•			•				
13-1199	Business Operations Specialists, All Other	30	•	•	•	•	•	•	•	•	•	•
47-2073	Operating Engineers & Other Construction Equipment Operators	29			•					•		
51-8013	Power Plant Operators	26	•		•					•		
41-3099	Sales Representatives, Services, All Other	26	•	•	•	•	•		•		•	•
33-3051	Police and Sheriff's Patrol Officers	24										
31-9091	Dental Assistants	24				•						
29-2061	Licensed Practical and Licensed Vocational Nurses	23				•						
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers*	23			•					•		
43-3071	Tellers	21		•								
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	20						•		•		•
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	20	•	•	•			•	•	•		•
33-2011	Firefighters	18										
53-3021	Bus Drivers, Transit and Intercity	18						•		•		•
49-9041	Industrial Machinery Mechanics	18	•		•		•	•		•		•
47-2152	Plumbers, Pipefitters, and Steamfitters	17	•		•			•		•		
25-2011	Preschool Teachers, Except Special Education*	17										
43-3051	Payroll and Timekeeping Clerks	16		•								
41-1012	First-Line Supervisors of Non-Retail Sales Workers	15	•	•				•	•	•		
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	15						•		•		•
51-1011	First-Line Supervisors of Production & Operating Workers	15	•	•	•		•	•		•		•
29-2052	Pharmacy Technicians*	14				•						
37-1011	First-Line Supervisors of Housekeeping & Janitorial Workers	14		•	•	•		•	•	•		
39-1021	First-Line Supervisors of Personal Service Workers	14				•			•			
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	14			•			•		•		
43-6011	Executive Secretaries & Executive Admin Assistants	13	•	•	•	•	•	•	•		•	•
51-4121	Welders, Cutters, Solderers, and Brazers*	12	•		•			•		•		•
53-3022	Bus Drivers, School or Special Client	12						•		•		•
41-9099	Sales and Related Workers, All Other	12	•	•	•	•	•	•	•	•	•	•
41-3021	Insurance Sales Agents	11		•								
29-2041	Emergency Medical Technicians and Paramedics	11				•						
33-1011	First-Line Supervisors of Correctional Officers	11										
11-3011	Administrative Services Managers*	10		•		•	•	•	•	•		•
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers*	10			•							

Table 1. Top 100 Middle-Skill Jobs by Labor Market Demand Within Priority and Emerging Sectors (Continued)

* = Oversupply

AM = Advanced Manufacturing

BE = Business and Entrepreneurship

ECU = Energy, Construction and Utilities

HC = Health Care

LS = Life Sciences/Biotech

GT = Global Trade

T = Tourism

AWET = Agriculture, Water and Environmental Technologies

ICT = ICT and Digital Media

ATL = Advanced Transportation and Logistics

SOC	Occupational Title	2017-22 Annual Openings	AM	BE	ECU	HC	LS	GT	T	AWET	ICT	ATL
35-1011	Chefs and Head Cooks	10							•			
51-8031	Water & Wastewater Treatment Plant & System Operators*	10			•					•		
43-5061	Production, Planning, and Expediting Clerks	10	•	•	•		•	•	•	•		•
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	9			•						•	
15-1151	Computer User Support Specialists*	9	•		•	•	•				•	•
49-9051	Electrical Power-Line Installers and Repairers	9			•						•	
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	8		•		•						
11-9021	Construction Managers*	8		•	•					•		•
23-2011	Paralegals and Legal Assistants	8		•			•					
13-2072	Loan Officers	8		•								
13-1023	Purchasing Agents, Except Wholesale, Retail, & Farm Products	8	•	•	•		•	•	•	•	•	•
41-9022	Real Estate Sales Agents	8		•								
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	8			•				•	•		
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	8	•					•		•		•
51-4041	Machinists	8	•				•	•		•		•
25-4031	Library Technicians	8										
43-9021	Data Entry Keyers	7		•	•	•	•	•		•	•	
11-9141	Property, Real Estate, and Community Association Managers	7		•	•							
39-9031	Fitness Trainers and Aerobics Instructors	7							•			
49-3041	Farm Equipment Mechanics and Service Technicians	7						•		•		•
13-1151	Training and Development Specialists	7	•	•	•	•	•	•	•		•	•
29-2071	Medical Records and Health Information Technicians	7				•						
13-1051	Cost Estimators*	7	•	•	•			•		•		•
13-1022	Wholesale and Retail Buyers, Except Farm Products	7		•				•				
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	6					•	•		•		
31-9097	Phlebotomists	6				•						
31-9099	Healthcare Support Workers, All Other	6				•						
43-6012	Legal Secretaries	6		•								
19-4093	Forest and Conservation Technicians	6										
49-3021	Automotive Body and Related Repairers	5						•		•		
29-2034	Radiologic Technologists	5				•						
29-2099	Health Technologists and Technicians, All Other	5				•						
31-9011	Massage Therapists	5		•					•			
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay*	5			•					•		
11-3071	Transportation, Storage, and Distribution Managers*	5		•				•		•		•
33-1099	First-Line Supervisors of Protective Service Workers, All Other	5							•			
43-4131	Loan Interviewers and Clerks	5		•								
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	5										
13-1031	Claims Adjusters, Examiners, and Investigators	5		•								
27-3091	Interpreters and Translators	4										
27-1024	Graphic Designers	4		•							•	
15-1142	Network and Computer Systems Administrators	4	•	•	•		•	•			•	•
47-4011	Construction and Building Inspectors	4			•							•
21-1094	Community Health Workers	4				•						
15-1152	Computer Network Support Specialists	4		•							•	
29-2012	Medical and Clinical Laboratory Technicians	4				•	•					
11-3051	Industrial Production Managers*	4	•	•			•	•		•		•
49-2011	Computer, Automated Teller, and Office Machine Repairers	4	•									
15-1199	Computer Occupations, All Other	4	•	•			•	•			•	•
Total Labor Market Demand		2,260	AM	BE	ECU	HC	LS	GT	T	AWET	ICT	ATL

Program Supply for Top Middle-Skill Jobs

Labor market demand for the top middle-skill jobs amounts to 2,260¹³ job openings each year between 2017 and 2022. To determine whether there are enough qualified workers to meet this labor market demand, this study examines potential labor supply from the educational institutions in the region. Supply for an occupation can be estimated by analyzing the number of program completers or awards in a related Taxonomy or Programs (TOP) code. There are more than 80 six-digit TOP (TOP6) program codes related to the middle-skill jobs analyzed in this study. Table 2 lists the top middle-skill jobs and their related programs in the region. Because a TOP code or program may train for more than one occupation, simply aggregating all supply from a related TOP code may overestimate supply for that occupation. For example, TOP6 code 050940 Sales and Salesmanship trains for both Customer Service Representatives (43-4051) and Sales Representatives, Services, All Other (41-3099). Therefore, 050940 Sales and Salesmanship was omitted from Sales Representatives, Services, All Other in Table 2 because it was already accounted for in Customer Service Representatives. Table 2 analyzes program supply for the top middle-skill jobs with this method, removing duplicate codes whenever necessary.

Labor Market Supply: Program Awards

Program award data represents the supply of students that can potentially fill labor market demand. Supply can be estimated by analyzing Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP) codes. TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

TOP is a system of numerical codes used at the state level to collect and report information on community college programs and courses throughout the state that have similar outcomes. TOP was designed to aggregate information about programs, but local program titles often differ substantially from college to college. For example, one college's program may be titled "Mechanized Agriculture," another college's program may be titled "Agriculture Engineering Technology," and a third college's program may be titled "Agriculture Equipment Operations & Maintenance." Because they have similar outcomes, information on all three is collected and reported at the state level under TOP code 011600, which carries the standardized title "Agricultural Power Equipment Technology."

Non-community college programs were identified using CIP codes and noted in the footnotes for Table 2. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. CIP codes are used at the federal level and for non-community-college programs. The CIP was originally developed by the National Center for Education Statistics of the United States Department of Education. For more information about the differences between TOP and CIP codes, see Appendix B.

¹³ Emsi, Imperial County (6025). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2017-2022.

Table 2. Labor Market Demand vs. Program Supply for the Top 100 Middle-Skill Jobs in Imperial County

“-” indicates that the TOP code(s) for that job was(were) omitted and accounted for elsewhere in the table

“0” indicates that a program for that TOP code exists in the region, but there was no supply

“N/A” indicates that no program exists for that TOP code in the region

SOC	Occupational Title	2017-22 Annual Openings	Supply Gap or Oversupply	2013-15 Average Awards	TOP6	TOP6 Program Title
53-3032	Heavy and Tractor-Trailer Truck Drivers	220	Supply Gap	N/A	094750	Truck and Bus Driving
33-3012	Correctional Officers and Jailers	122	Supply Gap	25	210510	Corrections
41-1011	First-Line Supervisors of Retail Sales Workers ¹⁴	107	Supply Gap	N/A	050650	Retail Store Operations and Management
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	97	Supply Gap	25	051400	Office Technology/Office Computer Applications
21-1093	Social and Human Service Assistants	95	Supply Gap	15	210400 210440	Human Services Alcohol and Controlled Substances
43-3031	Bookkeeping, Accounting, and Auditing Clerks ¹⁵	88	Supply Gap	N/A	050200	Accounting
43-1011	First-Line Supervisors of Office and Administrative Support Workers	78	Supply Gap	4	050630 051440	Management Development and Supervision Office Management
29-1141	Registered Nurses	75	Supply Gap	42	123010	Registered Nursing
49-9071	Maintenance and Repair Workers, General	67	Supply Gap	N/A	094500	Industrial Systems Technology and Maintenance
31-9092	Medical Assistants	62	Supply Gap	34	120800 120810	Medical Assisting Clinical Medical Assisting
43-4051	Customer Service Representatives	62	Supply Gap	N/A	050940	Sales and Salesmanship
47-2111	Electricians	53	Supply Gap	N/A	095220	Electrical
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	52	Supply Gap	3	050900	Marketing and Distribution
33-3021	Detectives and Criminal Investigators ¹⁶	47	Supply Gap	--	--	--
43-6013	Medical Secretaries	45	Supply Gap	N/A	120820	Administrative Medical Assisting
31-1014	Nursing Assistants	40	Supply Gap	N/A	123000 123030	Nursing Certified Nurse Assistant
45-1011	First-Line Supervisors of Farming, Fishing, & Forestry Workers	33	Supply Gap	0	010300	Plant Science
47-2031	Carpenters	31	Supply Gap	8	095200 095210	Construction Crafts Technology Carpentry
13-1199	Business Operations Specialists, All Other	30	Supply Gap	N/A	050640 050800 050970	Small Business and Entrepreneurship International Business and Trade E-Commerce (Business Emphasis)
47-2073	Operating Engineers & Other Construction Equipment Operators	29	Supply Gap	--	--	--
51-8013	Power Plant Operators	26	Supply Gap	N/A	N/A	N/A
41-3099	Sales Representatives, Services, All Other	26	Supply Gap	--	--	--
33-3051	Police and Sheriff's Patrol Officers ¹⁷	24	Supply Gap	N/A	210540 210550	Forensics, Evidence, and Investigation Police Academy
31-9091	Dental Assistants	24	Supply Gap	1	124010	Dental Assistant
29-2061	Licensed Practical and Licensed Vocational Nurses	23	Supply Gap	13	123020	Licensed Vocational Nursing
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers ¹⁸	23	Supply Gap	N/A	095700	Civil and Construction Management Technology
43-3071	Tellers	21	Supply Gap	4	050400	Banking and Finance
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	20	Supply Gap	N/A	094700	Diesel Technology

¹⁴ Center for Employment Training (CET) in El Centro supplies 73 awards for this occupation.

¹⁵ CET in El Centro supplies 47 awards for this occupation.

¹⁶ The Administration of Justice (210500) TOP6 code is associated with Detectives and Criminal Investigators, Police and Sheriff's Patrol Officers, First-Line Supervisors of Correctional Officers, and First-Line Supervisors of Protective Service Workers, All Other. However, this TOP6 code does not train directly for these occupations. If 210500 directly supplied workers for all these occupations, then each one would have an oversupply of labor.

¹⁷ See above footnote.

¹⁸ CET in El Centro supplies 58 awards for this occupation.

Table 2. Labor Market Demand vs. Program Supply for the Top 100 Middle-Skill Jobs in Imperial County (Continued)

“--” indicates that the TOP code(s) for that job was(were) omitted and accounted for elsewhere in the table

“0” indicates that a program for that TOP code exists in the region, but there was no supply

“N/A” indicates that no program exists for that TOP code in the region

SOC	Occupational Title	2017-22 Annual Openings	Supply Gap or Oversupply	2013-15 Average Awards	TOP6	TOP6 Program Title
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	20	Supply Gap	--	--	--
33-2011	Firefighters	18	Supply Gap	12	213300 213350	Fire Technology Fire Academy
53-3021	Bus Drivers, Transit and Intercity	18	Supply Gap	--	--	--
49-9041	Industrial Machinery Mechanics	18	Supply Gap	N/A	095600	Manufacturing and Industrial Technology
47-2152	Plumbers, Pipefitters, and Steamfitters	17	Supply Gap	N/A	095230	Plumbing, Pipefitting, and Steamfitting
25-2011	Preschool Teachers, Except Special Education	17	Oversupply	32	130500	Child Development/Early Care and Education
43-3051	Payroll and Timekeeping Clerks	16	Supply Gap	--	--	--
41-1012	First-Line Supervisors of Non-Retail Sales Workers	15	Supply Gap	--	--	--
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	15	Supply Gap	N/A	051000 094740	Logistics and Materials Transportation Railroad and Light Rail Operations
51-1011	First-Line Supervisors of Production & Operating Workers	15	Supply Gap	--	--	--
29-2052	Pharmacy Technicians	14	Oversupply	30	122100	Pharmacy Technology
37-1011	First-Line Supervisors of Housekeeping & Janitorial Workers	14	Supply Gap	--	--	--
39-1021	First-Line Supervisors of Personal Service Workers	14	Supply Gap	N/A	300700	Cosmetology and Barbering
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	14	Supply Gap	N/A	094720 094730	Heavy Equipment Maintenance Heavy Equipment Operation
43-6011	Executive Secretaries & Executive Admin Assistants	13	Supply Gap	--	--	--
51-4121	Welders, Cutters, Solderers, and Brazers ¹⁹	12	Supply Gap	9	095650	Welding Technology
53-3022	Bus Drivers, School or Special Client	12	Supply Gap	--	--	--
41-9099	Sales and Related Workers, All Other	12	Supply Gap	--	--	--
41-3021	Insurance Sales Agents	11	Supply Gap	N/A	051200	Insurance
29-2041	Emergency Medical Technicians and Paramedics	11	Neither	11	125000 125100	Emergency Medical Services Paramedic
33-1011	First-Line Supervisors of Correctional Officers	11	Supply Gap	--	--	--
11-3011	Administrative Services Managers	10	Oversupply	64	050500	Business Administration
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	10	Oversupply	13	094600 094610	Environmental Control Technology Energy Systems Technology
35-1011	Chefs and Head Cooks	10	Supply Gap	N/A	130600 130630 130710	Nutrition, Foods, and Culinary Arts Culinary Arts Restaurant and Food Services and Management
51-8031	Water & Wastewater Treatment Plant & System Operators	10	Oversupply	13	095800	Water and Wastewater Technology
43-5061	Production, Planning, and Expediting Clerks	10	Supply Gap	--	--	--
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	9	Supply Gap	N/A	093430	Telecommunications Technology
15-1151	Computer User Support Specialists	9	Oversupply	12	070200 070210	Computer Information Systems Software Applications
49-9051	Electrical Power-Line Installers and Repairers	9	Supply Gap	N/A	093440	Electrical Systems and Power Transmission

¹⁹ CET in El Centro supplies 66 awards for this occupation.

Table 2. Labor Market Demand vs. Program Supply for the Top 100 Middle-Skill Jobs in Imperial County (Continued)

“--” indicates that the TOP code(s) for that job was(were) omitted and accounted for elsewhere in the table

“0” indicates that a program for that TOP code exists in the region, but there was no supply

“N/A” indicates that no program exists for that TOP code in the region

SOC	Occupational Title	2017-22 Annual Openings	Supply Gap or Oversupply	2013-15 Average Awards	TOP6	TOP6 Program Title
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	8	Supply Gap	N/A	N/A	N/A
11-9021	Construction Managers ²⁰	8	Supply Gap	--	--	--
23-2011	Paralegals and Legal Assistants	8	Supply Gap	N/A	140200	Paralegal
13-2072	Loan Officers	8	Supply Gap	N/A	051110	Escrow
13-1023	Purchasing Agents, Except Wholesale, Retail, & Farm Products	8	Supply Gap	N/A	050920	Purchasing
41-9022	Real Estate Sales Agents	8	Supply Gap	N/A	051100	Real Estate
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	8	Supply Gap	N/A	010900 010910 010940 011510	Horticulture Landscape Design and Maintenance Turfgrass Technology Parks and Outdoor Recreation
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	8	Supply Gap	--	--	--
51-4041	Machinists	8	Supply Gap	N/A	095630	Machining and Machine Tools
25-4031	Library Technicians	8	Supply Gap	0	160200	Library Technician (Aide)
43-9021	Data Entry Keyers	7	Supply Gap	--	--	--
11-9141	Property, Real Estate, and Community Association Managers	7	Supply Gap	--	--	--
39-9031	Fitness Trainers and Aerobics Instructors	7	Supply Gap	0	083500 083510 083550 083560 083700	Physical Education Physical Fitness and Body Movement Intercollegiate Athletics Coaching Health Education
49-3041	Farm Equipment Mechanics and Service Technicians	7	Supply Gap	N/A	011600	Agricultural Power Equipment Technology
13-1151	Training and Development Specialists	7	Supply Gap	N/A	086000	Educational Technology
29-2071	Medical Records and Health Information Technicians	7	Supply Gap	N/A	051420 122300 122310	Medical Office Technology Health Information Technology Health Information Coding
13-1051	Cost Estimators	7	Oversupply	9	050600	Business Management
13-1022	Wholesale and Retail Buyers, Except Farm Products	7	Supply Gap	--	--	--
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	6	Supply Gap	N/A	010310 010930	Agricultural Pest Control Adviser and Operator (Licensed) Nursery Technology
31-9097	Phlebotomists	6	Supply Gap	N/A	120510	Phlebotomy
31-9099	Healthcare Support Workers, All Other	6	Supply Gap	N/A	120830 122000	Health Facility Unit Coordinator Speech/Language Pathology and Audiology
43-6012	Legal Secretaries	6	Supply Gap	4	051410	Legal Office Technology
19-4093	Forest and Conservation Technicians	6	Supply Gap	N/A	011400	Forestry
49-3021	Automotive Body and Related Repairers	5	Supply Gap	0	094900	Automotive Collision Repair
29-2034	Radiologic Technologists	5	Supply Gap	N/A	122500	Radiologic Technology
29-2099	Health Technologists and Technicians, All Other	5	Supply Gap	N/A	122600 121100 121200 121400 121700	Radiation Therapy Technician Polysomnography Electro-Neurodiagnostic Technology Orthopedic Assistant Surgical Technician
31-9011	Massage Therapists	5	Supply Gap	N/A	126200	Massage Therapy
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	5	Oversupply	16	093400	Electronics and Electric Technology

²⁰ TOP6 codes 050100 Business and Commerce, General; 050500 Business Administration; and 050600 Business Management are associated with Construction Managers; Transportation, Storage, and Distribution Managers; and Industrial Production Managers. However, these TOP6 codes do not train directly for the occupations and were not included in the supply.

Table 2. Labor Market Demand vs. Program Supply for the Top 100 Middle-Skill Jobs in Imperial County (Continued)

“--” indicates that the TOP code(s) for that job was(were) omitted and accounted for elsewhere in the table

“0” indicates that a program for that TOP code exists in the region, but there was no supply

“N/A” indicates that no program exists for that TOP code in the region

SOC	Occupational Title	2017-22 Annual Openings	Supply Gap or Oversupply	2013-15 Average Awards	TOP6	TOP6 Program Title
11-3071	Transportation, Storage, and Distribution Managers ²¹	5	Supply Gap	--	--	--
33-1099	First-Line Supervisors of Protective Service Workers, All Other	5	Supply Gap	N/A	219900	Other Public and Protective Services
43-4131	Loan Interviewers and Clerks	5	Supply Gap	--	--	--
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	5	Supply Gap	--	--	--
13-1031	Claims Adjusters, Examiners, and Investigators	5	Supply Gap	--	--	--
27-3091	Interpreters and Translators	4	Supply Gap	0	085010	Sign Language Interpreting
27-1024	Graphic Designers	4	Supply Gap	2	061400 061430 061460 100900 103000	Digital Media Website Design and Development Computer Graphics and Digital Imagery Applied Design Graphic Art and Design
15-1142	Network and Computer Systems Administrators	4	Supply Gap	2	070800	Computer Infrastructure and Support
47-4011	Construction and Building Inspectors	4	Supply Gap	N/A	095720	Construction Inspection
21-1094	Community Health Workers	4	Supply Gap	N/A	126100 130900	Community Health Care Worker Gerontology
15-1152	Computer Network Support Specialists	4	Supply Gap	0	070700 070810	Computer Software Development Computer Networking
29-2012	Medical and Clinical Laboratory Technicians	4	Supply Gap	N/A	043000 093470 095500 120500	Biotechnology and Biomedical Technology Electron Microscopy Laboratory Science Technology Medical Laboratory Technology
11-3051	Industrial Production Managers ²²	4	Supply Gap	--	--	--
49-2011	Computer, Automated Teller, and Office Machine Repairers	4	Supply Gap	N/A	093410	Computer Electronics
15-1199	Computer Occupations, All Other	4	Neither	4	070100 070600 070710	Information Technology, General Computer Science (Transfer) Computer Programming
Total Demand		2,260		399	Total Supply	

Disclaimer About Supply Gap Analysis

Subtracting program awards (labor supply) from annual openings (labor demand) is a basic analysis of supply gaps in labor market research. The data should be used to discuss the potential gaps or oversupply of workers for these occupations; however, it should not be the only basis for determining whether or not a program should be developed. The data is incomplete; it does not include workers who are currently in the labor force who could fill these positions or program supply from educational institutions that do not publicly disclose their completion or outcomes data.

²¹ See footnote for Construction Managers.

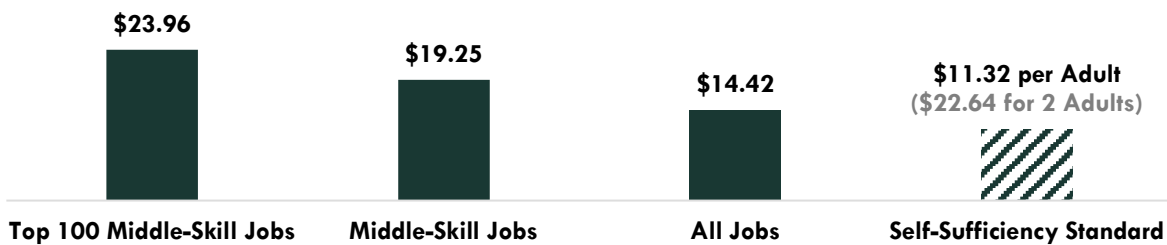
²² See footnote for Construction Managers.

Key Findings

The following findings resulted from analyzing labor market demand, program supply and supply gaps of the top middle-skill jobs in Imperial County:

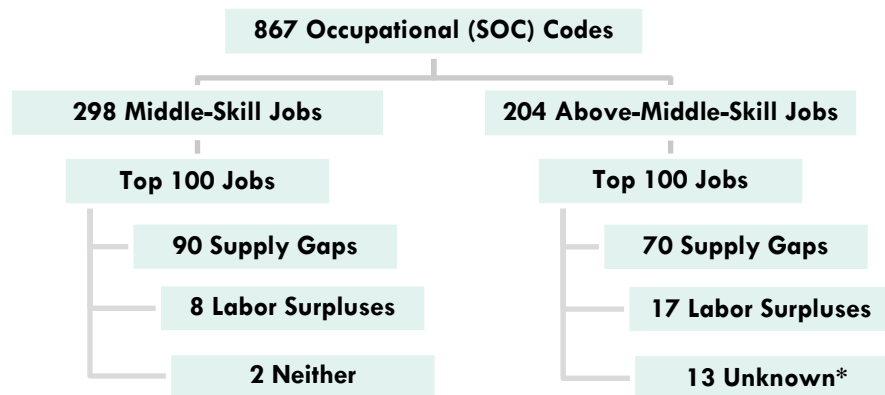
- Training for the top middle-skill jobs can provide job seekers with opportunities for income mobility. As previously mentioned, the average median hourly wage of all middle-skill jobs is \$19.25, the average median hourly wage of all jobs in the region is \$14.42, and the Self-Sufficiency Standard is \$11.32. The average median hourly wage of the top 100 middle-skill jobs analyzed in this study is \$23.96, which is higher than all three (Figure 4).

Figure 4. Median Hourly Earnings vs. Self-Sufficiency Standard



- Of the top 100 middle-skill jobs identified in this study, 90 have supply gaps, 8 have labor surpluses, and 2 have neither. Comparatively, the top 100 above-middle-skill jobs have only 70 supply gaps, suggesting that middle-skill jobs have more opportunities to develop programs than above-middle-skill jobs (Figure 5).

Figure 5. Analysis of Middle-Skill Job Gaps



*There is insufficient data to calculate the supply gap for 13 occupational codes in the above-middle-skill jobs category

- The top 100 middle-skill jobs have a labor market demand of 2,260 annual job openings and a program supply of 399 awards. That is a difference of 1,861 awards that could be produced by the region to meet labor market demand.

- Not all middle-skill jobs need to be filled with an associate degree. Of the 2,260 annual job openings, 18 percent are related to supervisory or management roles, 15 percent are related to administrative or secretarial roles, and 13 percent are related to sales roles (Figure 6). The majority of these occupations require less than an associate degree as their typical entry-level education. This suggests that there are opportunities for short-term certificate programs that can fill these roles. Short-term certificate programs require less than two years to complete.

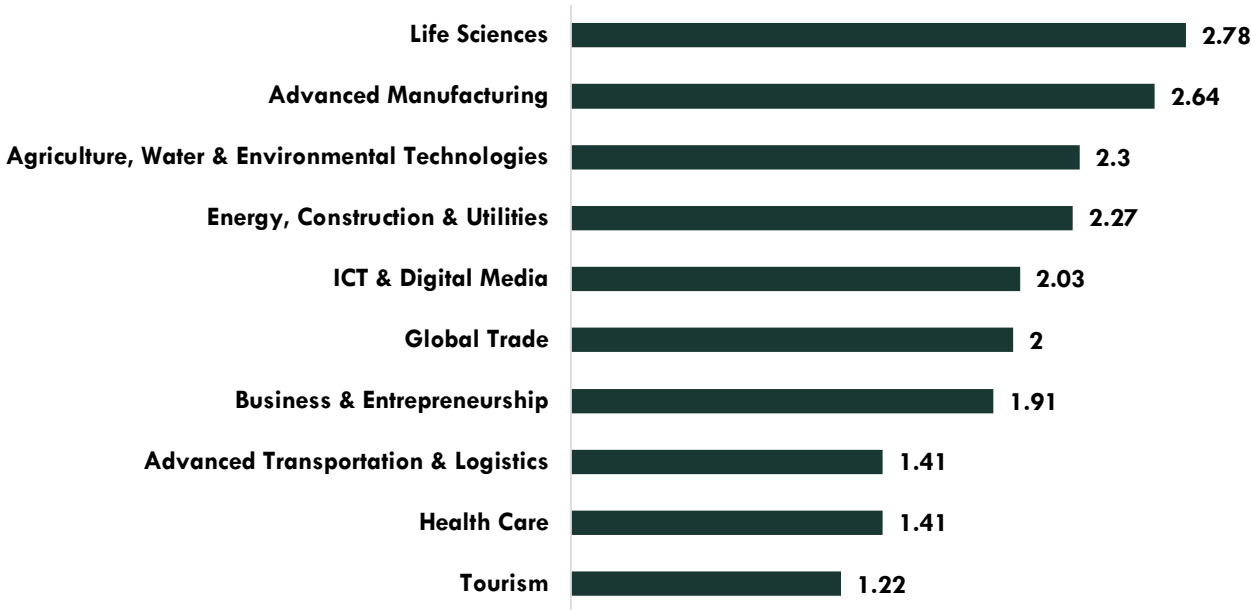
Figure 6. Percentage of Annual Job Openings with Management, Sales or Administrative Job Titles* (Top 100 Middle-Skill Jobs)



*These percentages have some overlap because an occupation may have more than one role: For example, First-Line Supervisors of Office and Administrative Support Workers are both supervisory and administrative positions.

- As indicated in Table 2, nearly all top middle-skill jobs are also a top job in one or more of the Priority and Emerging Sectors. By closing the supply gaps in the top middle-skill jobs, educational and training providers are also generating new jobs in the Priority and Emerging Sectors. Figure 7 illustrates how many total jobs will be added to the region as a result of a new job added to a Priority and Emerging Sector.²³ A jobs multiplier includes the initial job addition and its resulting yield. For example, the jobs multiplier for Life Sciences is 2.78, which consists of the initial job added (1.0) and the additional yield (1.78). In other words, a new job added in the Life Sciences sector generates 1.78 other jobs in the region.

Figure 7. Jobs Multipliers by Priority and Emerging Sector



²³ Emsi, Imperial County (6073). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2007-2022. Jobs multiplier data is based on Emsi's model, which incorporates data from the Bureau of Economic Analysis.

Recommendations

Comparing labor market demand with program supply suggests that there are 90 supply gaps for the top 100 middle-skill jobs. Depending on their training and education requirements, some of these supply gaps could be filled with short-term certificates or associate degrees. The following sections provide recommendations for short-term certificate programs and programs recommended for increased awards.

Recommendations for Short-Term Certificate Programs

A short-term certificate program can be a program with an award of at least one but less than two academic years, or a program with an award of less than one academic year.

Programs (TOP6 codes) with the following characteristics are recommended for short-term certificate programs:

- There is a supply gap of 5 or more for the occupation(s) that the program trains for; **and**
- The majority of middle-skill jobs that the program (TOP6) trains for require short- to moderate-term on-the-job training and/or a high school diploma; **and**
- The program trains for three or more top middle-skill jobs; **or**
- There are fewer than four other TOP6 codes that train for the same occupation.

The following tables list the TOP6 codes recommended for short-term certificate programs based on the California Community Colleges' Priority and Emerging Sectors. The TOP codes for each sector were derived from CalPASS Plus's "LaunchBoard Sector Explanation."²⁴ Some TOP codes are associated with more than one sector and are shown more than once in the tables below.

Disclaimer About Recommendations for Short-Term Certificate Programs

While this study makes recommendations for short-term programs based on specific parameters, this information should not be the only basis for developing short-term certificate programs. There are many factors to consider before developing a new program. For example, the TOP6 codes recommended in the Advanced Transportation and Logistics sector require significant investments in space and equipment (e.g., vehicles), and colleges in the region may not have the capacity or resources to meet those needs.

Additionally, some short-term certificate programs may be more suited for current working professionals (also known as incumbent workers) than for new graduates entering the labor force. For example, TOP6 050630 Management Development and Supervision presumably trains individuals for management positions after they have acquired prior training and experience. Short-term certificate programs can help incumbent workers upskill their knowledge base in a particular field. Incumbent workers who take courses to learn new skills are also known as "skills-builders" in the community college system. See Recommendations for Further Analysis, which further elaborates on developing short-term programs for skills-builders.

²⁴ calpassplus.org/MediaLibrary/calpassplus/publicweb/Documents/sector-explanation.docx

Table 3. TOP6 Codes Recommended for Short-Term Certificate Programs

Business and Entrepreneurship

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
050630	Management Development and Supervision	\$13.90 \$23.59 \$23.99 \$27.10 \$34.64 \$37.75 \$42.15	First-Line Supervisors of Housekeeping and Janitorial Workers Construction Managers First-Line Supervisors of Office and Administrative Support Workers First-Line Supervisors of Production and Operating Workers First-Line Supervisors of Mechanics, Installers, and Repairers Administrative Services Managers Industrial Production Managers	<ul style="list-style-type: none"> Imperial Valley
050900	Marketing and Distribution	\$21.30 \$23.86 \$29.38	Wholesale and Retail Buyers, Except Farm Products Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Purchasing Agents, Except Wholesale, Retail, and Farm Products	<ul style="list-style-type: none"> Imperial Valley
050940	Sales and Salesmanship	\$14.84 \$16.85 \$18.02 \$18.89 \$21.05 \$23.86 \$22.40	First-Line Supervisors of Retail Sales Workers Customer Service Representatives First-Line Supervisors of Non-Retail Sales Workers Real Estate Sales Agents Sales and Related Workers, All Other Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Sales Representatives, Services, All Other	<ul style="list-style-type: none"> None
050920	Purchasing	\$21.30 \$29.38 \$37.75	Wholesale and Retail Buyers, Except Farm Products Purchasing Agents, Except Wholesale, Retail, and Farm Products Administrative Services Managers	<ul style="list-style-type: none"> None

ICT and Digital Media

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
051400	Office Technology/Office Computer Applications	\$14.94 \$18.15 \$28.42	Data Entry Keyers Secretaries and Administrative Assistants, Except Legal, Medical, and Executive Executive Secretaries and Executive Administrative Assistants	<ul style="list-style-type: none"> Imperial Valley

Advanced Transportation and Logistics

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
051000	Logistics and Materials Transportation	\$18.88 \$24.75 \$26.49 \$42.15	Production, Planning, and Expediting Clerks First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators Industrial Production Managers	<ul style="list-style-type: none"> Imperial Valley
094750	Truck and Bus Driving	\$13.83 \$16.74 \$17.64	Bus Drivers, Transit and Intercity Bus Drivers, School or Special Client Heavy and Tractor-Trailer Truck Drivers	<ul style="list-style-type: none"> None

Global Trade

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
050800	International Business and Trade	\$21.30 \$23.86 \$27.70	Wholesale and Retail Buyers, Except Farm Products Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Business Operations Specialists, All Other	• None
050920	Purchasing	\$21.30 \$29.38 \$37.75	Wholesale and Retail Buyers, Except Farm Products Purchasing Agents, Except Wholesale, Retail, and Farm Products Administrative Services Managers	• None

Tourism

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
050630	Management Development and Supervision	\$13.90 \$23.59 \$23.99 \$27.10 \$34.64 \$37.75 \$42.15	First-Line Supervisors of Housekeeping and Janitorial Workers Construction Managers First-Line Supervisors of Office and Administrative Support Workers First-Line Supervisors of Production and Operating Workers First-Line Supervisors of Mechanics, Installers, and Repairers Administrative Services Managers Industrial Production Managers	• Imperial Valley
050900	Marketing and Distribution	\$21.30 \$23.86 \$29.38	Wholesale and Retail Buyers, Except Farm Products Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Purchasing Agents, Except Wholesale, Retail, and Farm Products	• Imperial Valley
050940	Sales and Salesmanship	\$14.84 \$16.85 \$18.02 \$18.89 \$21.05 \$23.86 \$22.40	First-Line Supervisors of Retail Sales Workers Customer Service Representatives First-Line Supervisors of Non-Retail Sales Workers Real Estate Sales Agents Sales and Related Workers, All Other Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Sales Representatives, Services, All Other	• None
051440	Office Management	\$23.99 \$37.75	First-Line Supervisors of Office and Administrative Support Workers Administrative Services Managers	• Imperial Valley

Other

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
051410	Legal Office Technology	\$22.39	Legal Secretaries	• Imperial Valley

Programs Recommended for Increased Awards

The supply gap analysis indicates that there are several TOP codes with existing training programs already in the region but could be further developed to meet labor market demand. Programs with the following characteristics are recommended for increased awards:

- There is a supply gap of 5 or more for the occupation(s) that the program trains for; **and**
- There are fewer than four other TOP6 codes that train for the same occupation(s).

The following tables list the recommended programs for increased awards. The TOP codes associated with each sector were derived from CalPASS Plus's "LaunchBoard Sector Explanation."²⁵ Some TOP codes are associated with more than one sector and are shown more than once in the tables below.

Disclaimer About Recommendations for Increased Awards

While this study makes recommendations for increased awards, this information should not be the only basis for growing existing programs. There are many factors to consider before expanding current programs. For example, some of the Health Care TOP6 codes require clinical placement at Health Care organizations for students to complete the programs, but the region may not have the capacity to meet those needs. Similarly, other programs may be at capacity due to limitations in space and resources and cannot expand.

Table 4. Programs Recommended for Increased Awards

Energy, Construction and Utilities

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
095200	Construction Crafts Technology	\$15.49 \$31.45 \$34.25	Carpenters First-Line Supervisors of Construction Trades and Extraction Workers Cost Estimators	• Imperial Valley
095220	Electrical	\$30.01 \$31.45 \$34.64 \$39.73	Electricians First-Line Supervisors of Construction Trades and Extraction Workers First-Line Supervisors of Mechanics, Installers, and Repairers Electrical Power-Line Installers and Repairers	• Imperial Valley
093440	Electrical Systems and Power Transmission	\$34.64 \$37.69 \$39.73	First-Line Supervisors of Mechanics, Installers, and Repairers Electrical and Electronics Repairers, Powerhouse, Substation, and Relay Electrical Power-Line Installers and Repairers	• Imperial Valley

Tourism

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
050650	Retail Store Operations and Management	\$14.84 \$21.30	First-Line Supervisors of Retail Sales Workers Wholesale and Retail Buyers, Except Farm Products	• CET-El Centro

²⁵ calpassplus.org/MediaLibrary/calpassplus/publicweb/Documents/sector-explanation.docx

Business and Entrepreneurship

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
050200	Accounting	\$15.01 \$16.61	Payroll and Timekeeping Clerks Bookkeeping, Accounting, and Auditing Clerks	<ul style="list-style-type: none"> Imperial Valley CET-El Centro
050400	Banking and Finance	\$13.92 \$16.17	Tellers Loan Interviewers and Clerks	<ul style="list-style-type: none"> Imperial Valley
050630	Management Development and Supervision	\$13.90 \$23.59 \$23.99 \$27.10 \$34.64 \$37.75 \$42.15	First-Line Supervisors of Housekeeping and Janitorial Workers Construction Managers First-Line Supervisors of Office and Administrative Support Workers First-Line Supervisors of Production and Operating Workers First-Line Supervisors of Mechanics, Installers, and Repairers Administrative Services Managers Industrial Production Managers	<ul style="list-style-type: none"> Imperial Valley
050900	Marketing and Distribution	\$21.30 \$23.86 \$29.38	Wholesale and Retail Buyers, Except Farm Products Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Purchasing Agents, Except Wholesale, Retail, and Farm Products	<ul style="list-style-type: none"> Imperial Valley
051400	Office Technology/Office Computer Applications	\$14.94 \$18.15 \$28.42	Data Entry Keyers Secretaries and Administrative Assistants, Except Legal, Medical, and Executive Executive Secretaries and Executive Administrative Assistants	<ul style="list-style-type: none"> Imperial Valley
051440	Office Management	\$23.99 \$37.75	First-Line Supervisors of Office and Administrative Support Workers Administrative Services Managers	<ul style="list-style-type: none"> Imperial Valley

Agriculture, Water and Environmental Technologies

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
010300	Plant Science	\$14.49 \$17.88	First-Line Supervisors of Farming, Fishing, and Forestry Workers Pesticide Handlers, Sprayers, and Applicators, Vegetation	<ul style="list-style-type: none"> Imperial Valley
094700	Diesel Technology	\$15.82 \$16.72 \$23.15	Bus and Truck Mechanics and Diesel Engine Specialists Farm Equipment Mechanics and Service Technicians Operating Engineers and Other Construction Equipment Operators	<ul style="list-style-type: none"> Imperial Valley
095220	Electrical	\$30.01 \$31.45 \$34.64 \$39.73	Electricians First-Line Supervisors of Construction Trades and Extraction Workers First-Line Supervisors of Mechanics, Installers, and Repairers Electrical Power-Line Installers and Repairers	<ul style="list-style-type: none"> Imperial Valley

Advanced Manufacturing

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
095600	Manufacturing and Industrial Technology	\$17.38 \$28.57	Machinists Industrial Machinery Mechanics	<ul style="list-style-type: none"> Imperial Valley

Advanced Transportation and Logistics

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
094700	Diesel Technology	\$15.82 \$16.72 \$23.15	Bus and Truck Mechanics and Diesel Engine Specialists Farm Equipment Mechanics and Service Technicians Operating Engineers and Other Construction Equipment Operators	<ul style="list-style-type: none"> Imperial Valley
094900	Automotive Collision Repair	\$13.40	Automotive Body and Related Repairers	<ul style="list-style-type: none"> Imperial Valley

Health Care

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
123030	Certified Nurse Assistant	\$13.64	Nursing Assistants	<ul style="list-style-type: none"> Imperial Valley
123010	Registered Nursing	\$38.86	Registered Nurses	<ul style="list-style-type: none"> Imperial Valley
120800	Medical Assisting	\$13.94 \$14.81	Medical Assistants Medical Secretaries	<ul style="list-style-type: none"> Imperial Valley
120810	Clinical Medical Assisting	\$13.94 \$14.81	Medical Assistants Medical Secretaries	<ul style="list-style-type: none"> Imperial Valley
124010	Dental Assistant	\$16.36	Dental Assistants	<ul style="list-style-type: none"> Imperial Valley
210400	Human Services	\$21.97 \$22.35	Social and Human Service Assistants Community Health Workers	<ul style="list-style-type: none"> Imperial Valley
210440	Alcohol and Controlled Substances	\$21.97 \$22.35	Social and Human Service Assistants Community Health Workers	<ul style="list-style-type: none"> Imperial Valley

ICT and Digital Media

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
093430	Telecommunications Technology	\$21.12	Telecommunications Equipment Installers and Repairers, Except Line Installers	<ul style="list-style-type: none"> Imperial Valley

Other

TOP6	TOP6 Program Title	Median Hourly Earnings	Related Top Middle-Skill Jobs	Colleges Offering the Program
083500	Physical Education	\$18.76	Fitness Trainers and Aerobics Instructors	<ul style="list-style-type: none"> Imperial Valley
140200	Paralegal	\$24.24	Paralegals and Legal Assistants	<ul style="list-style-type: none"> Imperial Valley
210510	Corrections	\$51.56 \$60.81	Correctional Officers and Jailers First-Line Supervisors of Correctional Officers	<ul style="list-style-type: none"> Imperial Valley
213300	Fire Technology	\$19.77 \$63.71	Firefighters First-Line Supervisors of Fire Fighting and Prevention Workers	<ul style="list-style-type: none"> Imperial Valley

TOP Codes Recommended for New Programs

The supply gap analysis indicates that there are several TOP codes that could train for the top 100 middle-skill jobs, but there are currently no programs offered in the region. TOP codes with the following characteristics are recommended for new programs:

- There is a supply gap of 5 or more for the occupation(s) that the program trains for; **and**
- No program exists for that TOP6 codes in the region.

The following tables list the recommended TOP6 codes for new programs. The TOP codes associated with each sector were derived from CalPASS Plus's "LaunchBoard Sector Explanation."²⁶ Some TOP codes are associated with more than one sector and are shown more than once in the tables below.

Disclaimer About Recommendations for New Programs

While this study makes recommendations for new programs, this information should not be the only basis for growing existing programs. There are many factors to consider before creating a new program. For example, the community colleges may be at capacity due to limitations in space and resources and cannot expand.

Table 5. TOP6 Codes Recommended for New Programs

TOP6	TOP6 Program Title	Related Top Middle-Skill Jobs	Median Hourly Earnings
010310	Agricultural Pest Control Adviser and Operator (Licensed)	Pesticide Handlers, Sprayers, and Applicators, Vegetation	\$17.88
011400	Forestry	Forest and Conservation Technicians	\$17.97
010910	Landscape Design and Maintenance	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers Pesticide Handlers, Sprayers, and Applicators, Vegetation	\$15.87 \$17.88
011600	Agricultural Power Equipment Technology	Farm Equipment Mechanics and Service Technicians Mobile Heavy Equipment Mechanics, Except Engines	\$16.72 \$27.59
050640	Small Business and Entrepreneurship	Business Operations Specialists, All Other Administrative Services Managers	\$27.70 \$37.75
050800	International Business and Trade	Wholesale and Retail Buyers, Except Farm Products Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Business Operations Specialists, All Other	\$21.30 \$23.86 \$27.70
050920	Purchasing	Wholesale and Retail Buyers, Except Farm Products Purchasing Agents, Except Wholesale, Retail, and Farm Products Administrative Services Managers	\$21.30 \$29.38 \$37.75
050940	Sales and Salesmanship	Customer Service Representatives Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products Sales Representatives, Services, All Other First-Line Supervisors of Non-Retail Sales Workers Sales and Related Workers, All Other Real Estate Sales Agents First-Line Supervisors of Retail Sales Workers	\$16.85 \$23.86 \$22.40 \$18.02 \$21.05 \$18.89 \$14.84
051000	Logistics and Materials Transportation	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators Production, Planning, and Expediting Clerks First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand Industrial Production Managers	\$26.49 \$18.88 \$24.75 \$42.15

²⁶ calpassplus.org/MediaLibrary/calpassplus/publicweb/Documents/sector-explanation.docx

TOP6	TOP6 Program Title	Related Top Middle-Skill Jobs	Median Hourly Earnings
051100	Real Estate	Loan Officers Real Estate Sales Agents Property, Real Estate, and Community Association Managers	\$39.37 \$18.89 \$21.82
051110	Escrow	Loan Officers Real Estate Sales Agents Property, Real Estate, and Community Association Managers	\$39.37 \$18.89 \$21.82
051200	Insurance	Claims Adjusters, Examiners, and Investigators Insurance Sales Agents	\$31.38 \$23.06
051420	Medical Office Technology	Medical Records and Health Information Technicians Medical Secretaries	\$15.03 \$14.81
086000	Educational Technology	Training and Development Specialists	\$23.33
094500	Industrial Systems Technology and Maintenance	Maintenance and Repair Workers, General Industrial Machinery Mechanics First-Line Supervisors of Production and Operating Workers	\$15.36 \$28.57 \$27.10
094720	Heavy Equipment Maintenance	Mobile Heavy Equipment Mechanics, Except Engines Farm Equipment Mechanics and Service Technicians	\$27.59 \$16.72
094730	Heavy Equipment Operation	Mobile Heavy Equipment Mechanics, Except Engines Farm Equipment Mechanics and Service Technicians Operating Engineers and Other Construction Equipment Operators	\$27.59 \$16.72 \$23.15
094750	Truck and Bus Driving	Heavy and Tractor-Trailer Truck Drivers Bus Drivers, Transit and Intercity Bus Drivers, School or Special Client	\$17.64 \$13.83 \$16.74
095230	Plumbing, Pipefitting, and Steamfitting	Plumbers, Pipefitters, and Steamfitters First-Line Supervisors of Construction Trades and Extraction Workers	\$21.12 \$31.45
095630	Machining and Machine Tools	Machinists	\$17.38
122310	Health Information Coding	Medical Records and Health Information Technicians Medical Secretaries	\$15.03 \$14.81
130630	Culinary Arts	Chefs and Head Cooks	\$20.39
160200	Library Technician (Aide)	Library Technicians	\$18.47
120510	Phlebotomy	Phlebotomists	\$17.28
120830	Health Facility Unit Coordinator	Healthcare Support Workers, All Other	\$15.61
122000	Speech/Language Pathology and Audiology	Healthcare Support Workers, All Other	\$15.61
122500	Radiologic Technology	Radiologic Technologists	\$30.51
122600	Radiation Therapy Technician	Health Technologists and Technicians, All Other	\$18.06
121100	Polysomnography		
121200	Electro-Neurodiagnostic Technology		
121400	Orthopedic Assistant		
121700	Surgical Technician		
126200	Massage Therapy	Massage Therapists	\$13.76
300700	Cosmetology and Barbering	First-Line Supervisors of Personal Service Workers	\$17.34

Recommendations for Further Analysis

The following recommendations for further research could be coupled with this labor market analysis to help with decision-making in regard to programs and course offerings:

- **Validate whether the recommended TOP codes for short-term certificate programs currently train skills-builders:** Many of the TOP codes that this study recommends for short-term certificate programs may already train for skills-builders in the region. Skills-builders are students who take higher-level Career Education courses, but do not complete a community college program or transfer to a four-year institution.²⁷ These skills-builders may take a college course to obtain new skills and/or to increase their earnings, but do not need to complete an associate degree program to achieve those goals. By understanding what programs train skills-builders, colleges in the region may want to consider which courses, rather than programs, to market to students and working professionals.
- **Examine how well existing programs currently meet labor market needs:** While this study makes recommendations for program development based on labor market information, it lacks information about the programs themselves. By conducting a program evaluation, the community colleges can gain insight as to why so many programs exist in the region for the top 100 middle-skill jobs, but supply from each program is significantly low. This analysis should be followed by recommendations on how the colleges could increase program supply for those recommended TOP codes.
- **Conduct primary research to validate these recommendations with employers:** This study provides lists of recommended TOP codes for short-term certificate and associate degree programs. However, the recommendations have not been validated by industry or businesses. Collecting primary data directly from employers will help further confirm program recommendations.
- **Analyze other occupations that might be affected by technology, policy, demographics, or other changes:** This study examines the top 100 middle-skill jobs by labor market demand in the region; however, training and educational providers in the region may also want to keep a pulse on occupations that will be affected by factors other than labor market demand. One factor to consider is that not all jobs are filled by workers who reside in the region. In comparing the number of jobs with the number of resident workers, there are thousands of occupations filled by people commuting into the region. Figures 8 and 9 list the top 10 middle-skill jobs that are filled by commuters and the top 10 middle-skill jobs that residents commute out of the region to fill. For example, employers in the region reported employing 1,293 Correctional Officers and Jailers and 1,055 residents in the region reported to be employed as Correctional Officers and Jailers in 2017. The difference between the number of jobs and resident workers suggests that there are 238 workers who commute into the region to fill the employment need for that occupation (Figure 8).²⁸ Comparatively, there are 390 jobs and 577 resident workers for the occupation Customer Service Representatives. The difference between the number of jobs and the number of resident workers suggests that 187 residents in Imperial County commute out or telecommute for work outside of the region (Figure 9).²⁹

²⁷ doingwhatmatters.cccco.edu/ForCollegeLeadership/SkillsBuilders.aspx

²⁸ Emsi. Imperial County (6073). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2007-2022.

²⁹ Emsi. Imperial County (6073). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2007-2022.

Figure 8. Top 10 Middle-Skill Jobs Filled by Commuters Into the Region, Imperial County 2017

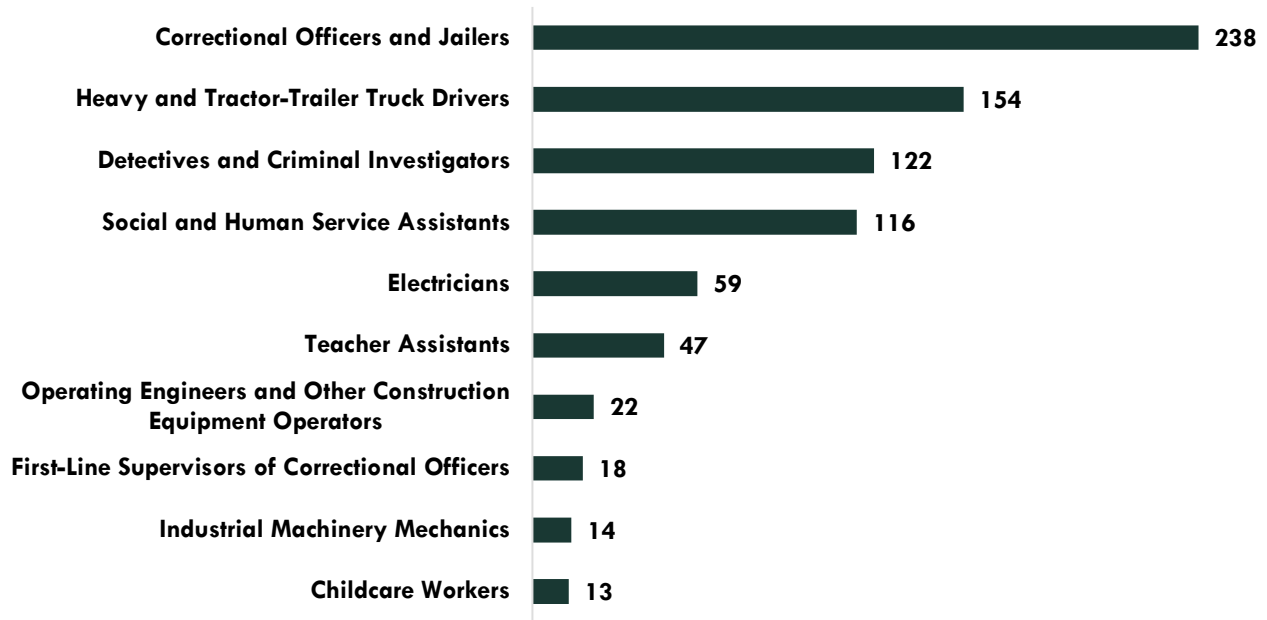
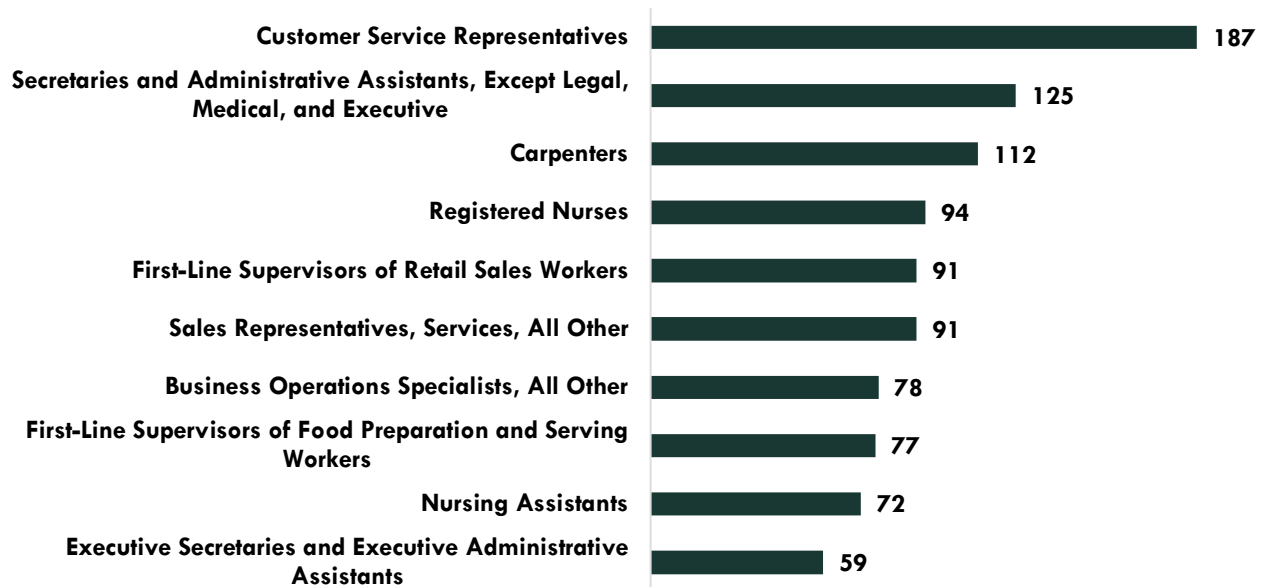


Figure 9. Top 10 Middle-Skill Jobs with Residents Commuting Out of the Region, Imperial County 2017



Appendix A: Data Definitions

SOC Code and Occupational Title: The Standard Occupational Classification System (SOC) is a statistical standard used by federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of the 867 SOC codes and their occupational titles.

Annual (Job) Openings are the estimated employment change and turnover for an occupation each year between 2017 and 2022. This number is used to determine labor market demand. Annual openings combine two types of data sets:

- **Job Growth:** An employer experiences greater demand for its products and hires new employees to increase production. If job growth is zero or negative, then any and all openings are due to replacement needs.
- **Replacement Needs:** An employer hires replacement workers for employees who leave the workforce or change occupations. Replacement rates are derived from national 10-year, occupation-specific percentages published by the U.S. Bureau of Labor Statistics (BLS) Employment Projections program. Annual openings data includes the new BLS “separations” methodology in its calculation of replacement-needs job opportunities.

Number of Jobs in 2017 indicates the total number of people employed in that occupation as of 2017.

2017-2022 % Jobs Change is the percentage change from 2017 to 2022, using number of jobs in 2017 as the baseline. This is new job expansion or contraction.

Entry-Level Hourly Earnings are the hourly earnings made by the 25th percentile of current workers within an occupation. The self-sufficient wage for Imperial County is \$11.32 per hour. Only occupations that allow entry-level workers to earn the self-sufficient wage or higher were included in the top 100 jobs list.

Median Hourly Earnings are the wages per hour, excluding benefits, of a worker in an occupation. Median hourly earnings are in the middle of the wage distribution for an occupation: Half of the workers make more, half make less.

Typical Entry-Level Education + On-the-Job Training (OJT) + Work Experience (Exp.) represents the educational attainment and training most often needed to enter the occupation. Typical entry-level education can be a high school diploma, associate degree, bachelor’s degree, etc. Work experience can range from less than five years to more than five years. On-the-job training needed to attain skills competency for an occupation has three levels:

- **Long-term OJT:** More than 12 months
- **Moderate-term OJT:** More than 1 month and up to 12 months
- **Short-term OJT:** One month or less

Priority and Emerging Sector Top Job indicates that the top middle-skill job is also one of the top 100 jobs in the listed Priority and Emerging Sector.

3-Year Average Supply is the three-year average of awards for a specific TOP6 code between the three program years between 2013 and 2016.

TOP6 and TOP6 Program Title illustrate which programs train for a specific occupational code (SOC). The TOP6 codes were selected based on the COE’s TOP-SOC crosswalk.

Self-Sufficiency Standard determines the hourly wages that an individual needs to earn in order to meet basic needs. selfsufficiencystandard.org.

Appendix B: Demand, Supply and Gaps – Definitions and Methodology

Middle-Skill and Above-Middle-Skill Jobs

In order to analyze employment trends, the Centers of Excellence for Labor Market Research (COE)³⁰ across the state of California examined 867 occupational codes from the Standard Occupational Classification (SOC)³¹ system and classified 298 occupations as “middle-skill jobs” and 204 occupations as “above-middle-skill jobs.” According to the COE, middle-skill jobs have the following training and education requirements:

- Some college coursework, a postsecondary certificate, and/or an associate degree; or
- High school diploma or equivalent with on-the-job training greater than 12 months; or
- Apprenticeship; or
- Bachelor’s degree if at least 33 percent of workers in the occupation, age 25 or higher, have completed, as their highest level of education, some college coursework or an associate degree.

Above-middle-skill jobs include occupations that require an educational attainment of a bachelor’s degree or higher (excluding those in the middle-skills jobs category, as defined above).

Top 100 Middle-Skill Jobs and Top 100 Above-Middle-Skill Jobs

The COE analyzed the Standard Occupational Classification codes for middle-skill and above-middle-skill jobs and applied filters to determine the top 100 middle-skill and above-middle-skill jobs.

Of the 298 middle-skill jobs, the top 100 jobs were defined by the following parameters:

- Highest number of annual openings between 2017 and 2022;
- Entry-level hourly earnings (25th percentile) greater than or equal to \$11.32; and
- No employment decline between 2017 and 2022.

Similarly, the top 100 above-middle-skill jobs were defined by the following parameters:

- Highest number of annual openings between 2017 and 2022;
- Entry-level hourly earnings (25th percentile) greater than or equal to \$11.32; and
- No employment decline between 2017 and 2022.

As previously mentioned, the \$11.32 per hour wage is the Self-Sufficiency Standard for Imperial County. Only occupations that provide earnings at the Self-Sufficiency Standard or higher were included in the report.

³⁰ coecc.net

³¹ bls.gov/soc

Defining Supply Gaps

To determine whether an occupation has a supply gap, simply subtract the labor supply from labor demand. For the purpose of this study, labor supply is defined as the number of completions or awards that the region produces for an occupation, and labor demand is defined as the number of annual openings for an occupation.

There are two sources of supply data that the COE analyzed for this study: the California Community Colleges Chancellor's Office Management Information System (MIS) Data Mart and Economic Modeling Specialists Int'l (Emsi). Supply data in Emsi originates from the Integrated Postsecondary Education Data System (IPEDS), which uses Classification of Instructional Program (CIP) codes. Conversely, supply data in the MIS Data Mart uses Taxonomy of Programs (TOP) codes. Different coding systems result in differences in supply numbers and, ultimately, supply gaps. For example, according to Emsi, there is an oversupply of workers for Registered Nurses. However, according to Data Mart, there is a supply gap:

SOC Code	Occupational Title	2017-2022 Annual Openings	2017 Regional Completions (Emsi)	Supply Gap or Oversupply (Emsi)	PY2013-15 3-Yr Average Supply (Data Mart)	Supply Gap or Oversupply (Data Mart)
29-1141	Registered Nurses	1,810	1,829	-19	560	1,250

In this study, the COE determined that only occupations with an oversupply of workers in both Emsi and Data Mart would be considered occupations that had an oversupply of workers. Because Data Mart is more up to date (see Differences Between Data Mart and IPEDS section below), if the occupation had an oversupply in Emsi and a supply gap in Data Mart, then that occupation would be considered to have a supply gap.

Data Mart Limitations:

- Data is provided as yearly snapshots, rather than following a cohort of students over time.
- Data on local low-unit certificate programs may be missing because districts are not required to report such data to the Chancellor's Office.
- Program award data is based on the number of awards given, rather than the number of students who received awards, which affects estimates of the supply of qualified workers.
- All information is based on a single TOP code, which may not align directly with colleges or their programs.

Emsi or IPEDS Limitations:

- Program completion data is not complete, likely related to reporting errors and compliance issues.
- Educational programs that do not participate in federal student aid programs are not included in the database.
- Program completion data is reported by CIP codes, not the TOP codes used by California community colleges.

Differences Between Data Mart and IPEDS:

- Academic years for which the number of awards is reported in IPEDS and Data Mart differ because of the longer time lag for IPEDS data. The COE supply tables use the latest available datasets; therefore, the data for the most recent academic year (e.g., 2015-2016) may be representative of community college awards only because IPEDS data for the same academic year might not be available yet.
- The COE supply tables are organized by TOP code program. To provide the number of awards for postsecondary institutions other than community colleges, TOP codes were cross-referenced with relevant CIP codes. This match is imperfect, with gaps and overlaps between the two coding systems.
- There is inconsistency in the classification of awards below an associate degree between the two data sources. IPEDS classifies certificate-level awards by program duration (e.g., award 1 < 2 academic year, award < 1 academic year, etc.), while Data Mart classifies data by type of certificate in semester units (e.g., certificate 30 to < 60 semester units, certificate 6 to < 18 semester units). Because of these differences in certificate-level award classification, it is difficult to compare certificate completion between community colleges and other postsecondary education providers.

Appendix C: Top 100 Middle-Skill Jobs in Imperial County

SOC Code	Occupational Title	# Jobs (Employed) in 2017	2017-2022 % Jobs Change	2017-22 Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Typical Entry-Level Education + On-the-Job Training (OJT) + Work Experience (Exp.)
53-3032	Heavy and Tractor-Trailer Truck Drivers	1,395	20%	220	\$15.08	\$17.64	Postsecondary non-degree award + Short-term OJT
33-3012	Correctional Officers and Jailers	1,293	6%	122	\$31.83	\$51.56	High school diploma or equivalent + Moderate-term OJT
41-1011	First-Line Supervisors of Retail Sales Workers	852	7%	107	\$12.92	\$14.84	High school diploma or equivalent + Less than 5 years exp.
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	744	9%	97	\$13.28	\$18.15	High school diploma or equivalent + Short-term OJT
21-1093	Social and Human Service Assistants	580	18%	95	\$17.71	\$21.97	High school diploma or equivalent + Short-term OJT
43-3031	Bookkeeping, Accounting, and Auditing Clerks	760	1%	88	\$13.35	\$16.61	Some college, no degree + Moderate-term on-the-job training
43-1011	First-Line Supervisors of Office and Administrative Support Workers	638	10%	78	\$15.69	\$23.99	High school diploma or equivalent
29-1141	Registered Nurses	867	16%	75	\$32.92	\$38.86	Bachelor's degree
49-9071	Maintenance and Repair Workers, General	546	10%	67	\$12.19	\$15.36	High school diploma or equivalent + Long-term OJT
31-9092	Medical Assistants	454	13%	62	\$11.69	\$13.94	Postsecondary non-degree award
43-4051	Customer Service Representatives	390	12%	62	\$12.03	\$16.85	High school diploma or equivalent + Short-term OJT
47-2111	Electricians	520	(13%)	53	\$20.16	\$30.01	High school diploma or equivalent + Apprenticeship
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	411	11%	52	\$15.14	\$23.86	High school diploma or equivalent + Moderate-term OJT
33-3021	Detectives and Criminal Investigators	757	0%	47	\$37.55	\$37.56	High school diploma or equivalent + Moderate-term OJT + Less than 5 years
43-6013	Medical Secretaries	322	13%	45	\$11.60	\$14.81	High school diploma or equivalent + Moderate-term OJT
31-1014	Nursing Assistants	181	44%	40	\$12.24	\$13.63	Postsecondary non-degree award
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	253	0%	33	\$12.85	\$14.49	High school diploma or equivalent + Less than 5 years
47-2031	Carpenters	291	6%	31	\$13.82	\$15.49	High school diploma or equivalent + Apprenticeship
13-1199	Business Operations Specialists, All Other	294	5%	30	\$11.68	\$27.70	Bachelor's degree
47-2073	Operating Engineers and Other Construction Equipment Operators	238	6%	29	\$19.79	\$23.15	High school diploma or equivalent + Moderate-term OJT
51-8013	Power Plant Operators	214	15%	26	\$22.56	\$35.12	High school diploma or equivalent + Long-term OJT
41-3099	Sales Representatives, Services, All Other	175	13%	26	\$18.40	\$22.40	High school diploma or equivalent + Moderate-term OJT
33-3051	Police and Sheriff's Patrol Officers	266	12%	24	\$27.76	\$36.12	High school diploma or equivalent + Moderate-term OJT

SOC Code	Occupational Title	# Jobs (Employed) in 2017	2017-2022 % Jobs Change	2017-22 Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Typical Entry-Level Education + On-the-Job Training (OJT) + Work Experience (Exp.)
31-9091	Dental Assistants	178	11%	24	\$12.27	\$16.36	Postsecondary non-degree award
29-2061	Licensed Practical and Licensed Vocational Nurses	199	19%	23	\$22.93	\$26.71	Postsecondary non-degree award
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	194	8%	23	\$17.52	\$31.45	High school diploma or equivalent + 5 years or more exp.
43-3071	Tellers	182	(2%)	21	\$12.30	\$13.92	High school diploma or equivalent + Short-term OJT
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	151	19%	20	\$13.15	\$15.82	High school diploma or equivalent + Long-term OJT
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	195	8%	20	\$23.29	\$34.64	High school diploma or equivalent + Less than 5 years exp.
33-2011	Firefighters	212	9%	18	\$14.08	\$19.77	Postsecondary non-degree award + Long-term OJT
53-3021	Bus Drivers, Transit and Intercity	102	23%	18	\$12.52	\$13.83	High school diploma or equivalent + Moderate-term OJT
49-9041	Industrial Machinery Mechanics	141	18%	18	\$21.91	\$28.57	High school diploma or equivalent + Long-term OJT
47-2152	Plumbers, Pipefitters, and Steamfitters	160	1%	17	\$16.09	\$21.12	High school diploma or equivalent + Apprenticeship
25-2011	Preschool Teachers, Except Special Education	171	(2%)	17	\$11.89	\$16.90	Associate degree
43-3051	Payroll and Timekeeping Clerks	150	3%	16	\$12.66	\$15.01	High school diploma or equivalent + Moderate-term OJT
41-1012	First-Line Supervisors of Non-Retail Sales Workers	137	10%	15	\$15.81	\$18.02	High school diploma or equivalent + Less than 5 years exp.
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	102	19%	15	\$13.17	\$26.49	High school diploma or equivalent + Less than 5 years exp.
51-1011	First-Line Supervisors of Production and Operating Workers	122	11%	15	\$18.98	\$27.10	High school diploma or equivalent + Less than 5 years exp.
29-2052	Pharmacy Technicians	124	15%	14	\$15.68	\$18.26	High school diploma or equivalent + Moderate-term OJT
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	94	15%	14	\$12.23	\$13.90	High school diploma or equivalent + Less than 5 years exp.
39-1021	First-Line Supervisors of Personal Service Workers	81	30%	14	\$13.79	\$17.34	High school diploma or equivalent + Less than 5 years exp.
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	120	8%	14	\$17.46	\$27.59	High school diploma or equivalent + Long-term OJT
43-6011	Executive Secretaries and Executive Administrative Assistants	98	9%	13	\$24.82	\$28.42	High school diploma or equivalent + Less than 5 years exp.
51-4121	Welders, Cutters, Solderers, and Brazers	95	7%	12	\$15.95	\$18.74	High school diploma or equivalent + Moderate-term OJT
53-3022	Bus Drivers, School or Special Client	46	52%	12	\$13.07	\$16.74	High school diploma or equivalent + Short-term OJT
41-9099	Sales and Related Workers, All Other	73	11%	12	\$15.13	\$21.05	High school diploma or equivalent

SOC Code	Occupational Title	# Jobs (Employed) in 2017	2017-2022 % Jobs Change	2017-22 Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Typical Entry-Level Education + On-the-Job Training (OJT) + Work Experience (Exp.)
41-3021	Insurance Sales Agents	110	4%	11	\$19.52	\$23.06	High school diploma or equivalent + Moderate-term OJT
29-2041	Emergency Medical Technicians and Paramedics	72	43%	11	\$14.98	\$18.53	Postsecondary non-degree award
33-1011	First-Line Supervisors of Correctional Officers	142	6%	11	\$43.27	\$60.81	High school diploma or equivalent + Moderate-term OJT + Less than 5 years exp.
11-3011	Administrative Services Managers	102	10%	10	\$27.71	\$37.75	Bachelor's degree + Less than 5 years exp.
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	96	3%	10	\$15.41	\$20.75	Postsecondary non-degree award + Long-term OJT
35-1011	Chefs and Head Cooks	58	19%	10	\$12.86	\$20.39	High school diploma or equivalent + 5 or more years exp.
51-8031	Water and Wastewater Treatment Plant and System Operators	98	7%	10	\$18.48	\$29.04	High school diploma or equivalent + Long-term OJT
43-5061	Production, Planning, and Expediting Clerks	83	7%	10	\$16.44	\$18.88	High school diploma or equivalent + Moderate-term OJT
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	79	5%	9	\$16.99	\$21.12	Postsecondary non-degree award + Moderate-term OJT
15-1151	Computer User Support Specialists	93	6%	9	\$16.55	\$21.88	Some college, no degree
49-9051	Electrical Power-Line Installers and Repairers	73	18%	9	\$27.68	\$39.73	High school diploma or equivalent + Long-term OJT
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	67	6%	8	\$13.62	\$18.82	Associate degree
11-9021	Construction Managers	111	2%	8	\$15.14	\$23.59	Bachelor's degree + Moderate-term OJT
23-2011	Paralegals and Legal Assistants	78	1%	8	\$21.05	\$24.24	Associate degree
13-2072	Loan Officers	84	6%	8	\$28.80	\$39.37	Bachelor's degree + Moderate-term OJT
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	86	2%	8	\$19.24	\$29.38	Bachelor's degree + Long-term OJT
41-9022	Real Estate Sales Agents	87	(2%)	8	\$17.67	\$18.89	High school diploma or equivalent + Moderate-term OJT
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	81	1%	8	\$14.19	\$15.87	High school diploma or equivalent + Less than 5 years exp.
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	63	10%	8	\$17.47	\$24.75	High school diploma or equivalent + Less than 5 years exp.
51-4041	Machinists	63	8%	8	\$13.71	\$17.38	High school diploma or equivalent + Long-term OJT
25-4031	Library Technicians	52	4%	8	\$13.85	\$18.47	Postsecondary non-degree award
43-9021	Data Entry Keyers	59	3%	7	\$12.18	\$14.94	High school diploma or equivalent + Moderate-term OJT
11-9141	Property, Real Estate, and Community Association Managers	80	8%	7	\$19.50	\$21.82	High school diploma or equivalent + Less than 5 years exp.
39-9031	Fitness Trainers and Aerobics Instructors	40	8%	7	\$14.24	\$18.76	High school diploma or equivalent + Short-term OJT
49-3041	Farm Equipment Mechanics and Service Technicians	79	(5%)	7	\$13.24	\$16.72	High school diploma or equivalent + Long-term OJT
13-1151	Training and Development Specialists	51	18%	7	\$19.92	\$23.33	Bachelor's degree + Less than 5 years exp.

SOC Code	Occupational Title	# Jobs (Employed) in 2017	2017-2022 % Jobs Change	2017-22 Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Typical Entry-Level Education + On-the-Job Training (OJT) + Work Experience (Exp.)
29-2071	Medical Records and Health Information Technicians	79	11%	7	\$12.29	\$15.03	Postsecondary non-degree award
13-1051	Cost Estimators	64	5%	7	\$23.45	\$34.25	Bachelor's degree
13-1022	Wholesale and Retail Buyers, Except Farm Products	56	2%	7	\$14.71	\$21.30	Bachelor's degree + Long-term OJT
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	46	4%	6	\$15.54	\$17.88	High school diploma or equivalent + Moderate-term OJT
31-9097	Phlebotomists	44	11%	6	\$14.95	\$17.28	Postsecondary non-degree award
31-9099	Healthcare Support Workers, All Other	37	14%	6	\$12.43	\$15.61	High school diploma or equivalent
43-6012	Legal Secretaries	53	0%	6	\$16.97	\$22.39	High school diploma or equivalent + Moderate-term OJT
19-4093	Forest and Conservation Technicians	50	(4%)	6	\$14.87	\$17.97	Associate degree
49-3021	Automotive Body and Related Repairers	47	9%	5	\$11.82	\$13.40	High school diploma or equivalent
29-2034	Radiologic Technologists	68	13%	5	\$26.24	\$30.51	Associate degree
29-2099	Health Technologists and Technicians, All Other	51	18%	5	\$15.64	\$18.06	High school diploma or equivalent
31-9011	Massage Therapists	45	2%	5	\$11.96	\$13.76	Postsecondary non-degree award
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	39	21%	5	\$30.96	\$37.69	Postsecondary non-degree award + Long-term OJT
11-3071	Transportation, Storage, and Distribution Managers	52	10%	5	\$24.06	\$33.78	High school diploma or equivalent + 5 years or more exp.
33-1099	First-Line Supervisors of Protective Service Workers, All Other	49	0%	5	\$20.59	\$36.07	High school diploma or equivalent + Less than 5 years exp.
43-4131	Loan Interviewers and Clerks	40	8%	5	\$12.66	\$16.17	High school diploma or equivalent + Short-term OJT
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	56	7%	5	\$39.33	\$63.71	Postsecondary non-degree award + Moderate-term OJT + Less than 5 years exp.
13-1031	Claims Adjusters, Examiners, and Investigators	57	(2%)	5	\$22.02	\$31.38	High school diploma or equivalent
27-3091	Interpreters and Translators	32	19%	4	\$14.51	\$18.84	Bachelor's degree + Short-term OJT
27-1024	Graphic Designers	36	14%	4	\$14.76	\$18.41	Bachelor's degree
15-1142	Network and Computer Systems Administrators	44	16%	4	\$25.85	\$35.23	Bachelor's degree
47-4011	Construction and Building Inspectors	31	13%	4	\$24.82	\$31.17	High school diploma or equivalent + Moderate-term OJT + 5 years or more exp.
21-1094	Community Health Workers	20	30%	4	\$17.70	\$22.35	High school diploma or equivalent + Short-term OJT
15-1152	Computer Network Support Specialists	46	4%	4	\$23.62	\$32.45	Associate degree
29-2012	Medical and Clinical Laboratory Technicians	45	13%	4	\$15.04	\$16.91	Associate degree
11-3051	Industrial Production Managers	39	10%	4	\$33.75	\$42.15	Bachelor's degree + 5 years or more exp.
49-2011	Computer, Automated Teller, and Office Machine Repairers	30	10%	4	\$15.05	\$17.22	Some college, no degree + Short-term OJT
15-1199	Computer Occupations, All Other	43	7%	4	\$25.11	\$35.31	Bachelor's degree

Source: Emsi. Imperial County (6073). 2017.04 Class of Worker. QCEW + Non-QCEW + Self-employed. 2017-2022.

