

### California's 'Middle-Skill' Workforce

If recent trends in worker demand and education/training supply continue, California's labor force will not be adequately equipped to meet the needs employers by 2022. Based on occupational employment projections for the next 5 years, the demand for job seekers who have attained either college preparation (up to and including an Associate degree) and/or 3<sup>rd</sup>-party certification will overwhelm the actual number of labor force participants with these qualifications.

By 2022, the occupational outlook for 'middle-skill' jobs could create as many as 540,000 new jobs during the 5-year period (2017-2022). Additionally, about 817,000 replacement jobs are projected for these occupations – potentially creating demand for more than 1.3 million middle skill workers.<sup>1</sup>

### Occupational Demand by Preparation Level | 2017

To better understand the demand for middle-skill workers, this report focuses on occupations where one of the following conditions apply:

- The minimum education level is defined as either some college preparation, postsecondary certificate, or an Associate degree.
- 3<sup>rd</sup>-party certification is either required or likely plays a significant role in determining successful employment; 3<sup>rd</sup>-party certification includes state licensing/registration and industry-awarded certificates/exams.
- Regardless of the minimum education level identified, the on-the-job training required of the occupation is known to have been delivered by both educational institutions and employers, such as jobs requiring apprenticeship.

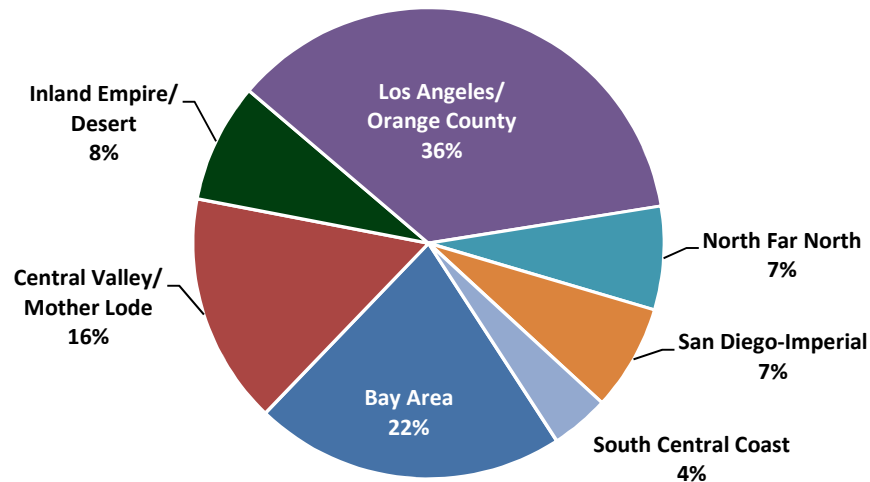


<sup>1</sup> Replacements are openings created when a worker leaves an occupation permanently – to work in another occupation, to retire, etc. , creating an opening for an entrant to the occupation – and should not be confused with “turnover” or when workers separate from an employer to work in the same occupation for another employer.

## Where are the Middle-Skill Jobs? | 5-year Outlook

To get a sense of how regions in California will be impacted by the demand for middle-skill workers, the chart and table below distribute the projected job openings among the seven community college regions and 15 subregions. It should be noted that distribution patterns generally reflect population density patterns – for example, since the Los Angeles and Orange County area account for at least one-third of the state’s population, it is not surprising to see that they also account for about one-third of all projected middle-skill job openings.

**Projected Openings by Community College Region<sup>2</sup>**



Regions & Subregions	2016 Jobs	% Change	Change	Openings	Annual Openings
<b>Bay</b>	<b>1,471,407</b>	<b>10%</b>	<b>148,492</b>	<b>341,464</b>	<b>56,911</b>
- East Bay	427,027	9%	37,607	93,724	15,621
- SF-San Mateo	378,704	13%	50,475	99,380	16,563
- North Bay	202,213	8%	16,739	44,647	7,441
- Santa Cruz-Monterey	97,172	7%	7,207	20,622	3,437
- South Bay	366,291	10%	36,464	83,091	13,849
<b>Central-Mother Lode</b>	<b>1,079,331</b>	<b>10%</b>	<b>104,799</b>	<b>253,436</b>	<b>42,239</b>
- Central - North	201,218	9%	18,031	46,188	7,698
- Central - South	340,171	8%	28,014	76,241	12,707
<b>Inland Empire/Desert</b>	<b>537,942</b>	<b>11%</b>	<b>58,754</b>	<b>131,007</b>	<b>21,835</b>
<b>Los Angeles/Orange County</b>	<b>2,767,361</b>	<b>7%</b>	<b>196,156</b>	<b>579,840</b>	<b>96,640</b>
- Los Angeles County <sup>3</sup>	1,666,602	7%	110,367	347,411	57,902
- Orange County	582,440	8%	44,540	118,901	19,817
<b>North Far North</b>	<b>518,319</b>	<b>8%</b>	<b>41,249</b>	<b>113,528</b>	<b>18,921</b>
- Greater Sacramento	388,173	8%	32,701	85,313	14,219
- Northern Coastal	43,136	5%	2,222	8,749	1,458
- Northern Inland	87,010	7%	6,326	19,466	3,244
<b>San Diego-Imperial</b>	<b>547,866</b>	<b>8%</b>	<b>44,692</b>	<b>116,252</b>	<b>19,375</b>
<b>South Central Coast</b>	<b>311,856</b>	<b>6%</b>	<b>19,728</b>	<b>63,927</b>	<b>10,655</b>
<b>State total<sup>4</sup></b>	<b>6,301,740</b>	<b>9%</b>	<b>538,471</b>	<b>1,357,526</b>	<b>226,255</b>

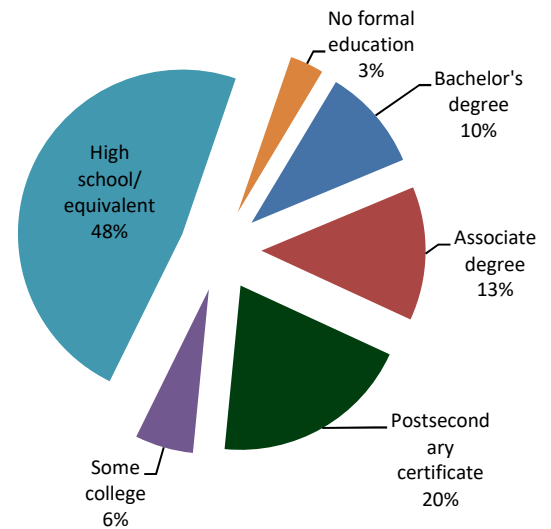
<sup>2</sup> **Data Source:** Economic Modeling Specialists International, 2017.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

<sup>3</sup> Does not include northern LA county zip codes affiliated with College of the Canyons and Antelope Valley; these zip codes are included in the South Central Coast data.

<sup>4</sup> Totals may not add due to estimates not affiliated to any region (state only) and rounding.

### Middle-Skill Occupations by Education Level

Disaggregating middle-skill demand by typical education level is helpful in assessing where education and training is most needed. In the chart to the right, the variety of education levels included in the middle-skill occupational group is shown. As previously mentioned, many of the occupations require apprenticeships, third-party credentials such as an industry certification or governmental license.



### 25 Most In-Demand Community College-Relevant Occupations

The table below details 25 middle-skill occupations known to have high relevance to community college instruction and anticipated to experience significant employment gains through 2022. The sum of openings for these 25 occupations accounts for close to 50% of all projected middle-skill openings for the 5-year period. Occupations are shown in descending order by annual openings. Also shown are median hourly and annual wages.

Occupational Title	2016 Jobs	5-year Openings	Annual Openings	Median Hourly Wage	Median Annual Wage
Registered Nurses	285,061	85,530	14,255	\$48.09	\$100,027
Nursing Assistants	112,180	43,942	7,324	\$14.51	\$30,185
Home Health Aides	48,368	42,342	7,057	\$11.61	\$24,149
Secretaries and Administrative Assistants	271,277	40,294	6,716	\$18.92	\$39,345
Maintenance and Repair Workers, General	140,687	37,262	6,210	\$19.32	\$40,195
Teacher Assistants	155,287	36,711	6,119	\$15.17	\$31,546
Supervisors of Food Preparation/Serving Workers	102,349	34,906	5,818	\$14.93	\$31,050
Supervisors of Office/Admin Support Workers	187,315	32,469	5,412	\$27.57	\$57,355
Sales Representatives, Wholesale and Manufacturing	157,932	30,495	5,083	\$26.72	\$55,573
Licensed Practical and Licensed Vocational Nurses	73,151	27,129	4,522	\$25.33	\$52,688
Medical Assistants	85,485	26,327	4,388	\$16.73	\$34,806
Hairdressers, Hairstylists, and Cosmetologists	80,329	22,828	3,805	\$14.93	\$31,050
Police and Sheriff's Patrol Officers	77,686	21,034	3,506	\$47.23	\$98,238
Social and Human Service Assistants	52,978	19,171	3,195	\$18.21	\$37,883
Electricians	69,400	18,233	3,039	\$28.86	\$60,038
Automotive Service Technicians and Mechanics	83,721	17,723	2,954	\$19.05	\$39,625
Computer User Support Specialists	75,919	17,083	2,847	\$27.90	\$58,029
Medical Secretaries	77,598	16,375	2,729	\$18.36	\$38,187
Carpenters	139,744	15,781	2,630	\$11.79	\$24,523
Dental Assistants	52,813	15,330	2,555	\$18.38	\$38,224
Preschool Teachers, Except Special Education	57,664	14,001	2,334	\$15.46	\$32,151
Bookkeeping, Accounting, and Auditing Clerks	209,439	13,826	2,304	\$21.03	\$43,751
Plumbers, Pipefitters, and Steamfitters	50,984	11,685	1,948	\$24.70	\$51,380
Correctional Officers and Jailers	38,144	9,754	1,626	\$36.77	\$76,482
Machinists	36,389	9,450	1,575	\$11.79	\$24,523

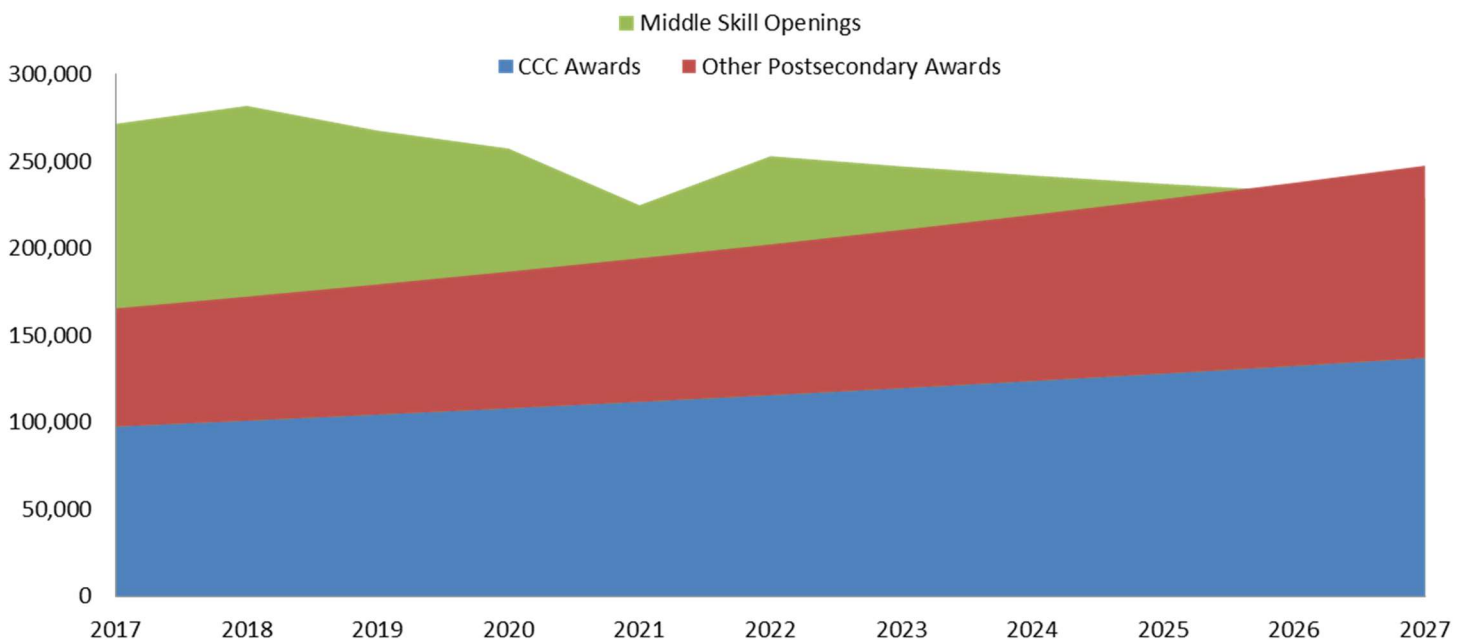
## Middle-Skill Education and Training Projections | 10-year Outlook

For the majority of occupations, there is usually more than one pathway to employment – education and/or training level, work experience and employer preferences are just three variables at work in the hiring process. As defined for this analysis, middle-skill occupations include three levels of traditional education in addition to a group of occupations more subjectively included – those where 3<sup>rd</sup>-party certification may be required and/or where on-the-job training may also be offered by postsecondary educational institutions. For the latter, a more loosely defined group, the education levels varied, including high school or equivalent, less than high school and, in a few cases, Bachelor’s degree as the minimum required.

To better understand if the number of awards conferred by community colleges compare to the projected demand for middle-skill workers, average annual award data (2013-14 forward) and recent year-over-year change served as the base ingredients for estimating future award totals. In past years, the community colleges have conferred approximately 100,000 awards annually – this includes all reported credit and noncredit awards.<sup>5</sup>

As shown in the chart below, if community colleges increase completions 20% by 2022, or at a rate of just more than 3% annually, annual awards conferred will total as many as 115,000; by 2027, at the same rate of change, annual awards will exceed 136,000. At the same time, other postsecondary institutions will also be preparing workers to enter middle-skill occupations. These are shown in the chart as well with a similar method used to estimate future awards.<sup>6</sup> Over the longer 10-year period, the number of awards conferred could potentially overtake the number of middle-skill openings available. *Caution should be used when using this comparison due to the variable nature of both sets of data – job projections because they adjust annually as new information is internalized and the educational award estimates as the relationship of award type to individual middle-skill job requirement as not incorporated in this initial analysis.*

**Projected Openings and Estimated Awards through 2027**



<sup>5</sup> For this analysis, due to time constraints as well as challenges linking awards to specific occupations, all levels of awards were included in the data; however, a more in-depth comparison of award to occupation is recommended when setting local and/or regional goals.

<sup>6</sup> Award data from IPEDS, includes private postsecondary as well as Bachelor’s of Science in Nursing degrees from four-year institutions.

## Demonstrating Labor Market Value | Student Employment Outcomes

In recent years, workforce and education partners have increasingly turned to student employment outcomes as a way to show the value of career education and training. Assessing whether career education awards from the community colleges lead to jobs in the field of study or living wages requires tracking students into their professional lives. Currently, the California community colleges have multiple data sets that can provide this insight – matching student records to the unemployment insurance wage file (UI) and the CTE outcomes survey of students.

For community colleges, wage outcomes can often best be expressed in an aggregate form – by program area, region or sector. The graphic to the right illustrates how wage outcomes for an associate degree in career technical programs compare to the living wage for a family of four.

### Median Annual Earnings and Increase in Earnings

In the table below, median annual earnings outcomes one year after instruction by sector and/or career cluster are detailed. Additionally, the percent increase in earnings by sector are included to show the how student income is elevated just one year post-instruction.

**\$54,850**

Living Wage for 2-parent family,  
2 children (1 working parent)



**\$66,000**

Associate Degree  
Career & Technical Education  
5-years after award

Sector	Median Annual (All Exiters)	Median Change in Earnings
Advanced Manufacturing	\$32,120	44%
Advanced Transportation & Renewable Energy	\$27,265	56%
Agriculture, Water and Environmental Technology	\$25,121	33%
Energy, Construction & Utilities	\$33,104	43%
Global Trade & Logistics	\$23,667	67%
Health	\$26,375	
ICT-Digital Media	\$21,968	35%
Life Sciences-Biotech	\$27,765	60%
Retail, Hospitality, & Tourism	\$21,050	43%
Small Business & Entrepreneurship	\$21,901	39%
Public Safety	\$44,347	25%

## In Summary

Middle-skill jobs are expected to be in high demand over the next 5 years. By 2022, the occupational outlook for middle-skill jobs could create as many as **half a million new jobs**. Additionally, about **800,000 replacement jobs** are projected for these occupations – a total of **1.3 million openings**.

The middle-skill occupations with the most significance for community college career technical education can be isolated in demand data by education level – some college up through an Associate degree. When combined, these groups are expected to account for **44% of the new jobs** created over the next 5 years and **39% of all openings** generated.

In looking across all middle-skill jobs, regardless of education level, a group of 25 most in-demand occupations stand out as having the highest community college relevance. They also account for close to **half of all middle-skill openings** in California.

As community colleges increase completions to meet the statewide goal of 20% more awards by 2022, or a rate of just more than 3% annually, annual awards conferred will total as many as 115,000. If the rate of growth in awards for community colleges, along with anticipated completions from other postsecondary institutions, it is possible the number of awards conferred could overtake the number of middle-skill openings available within the next 10 years. A more detailed analysis of specific awards to individual occupations is recommended before setting any regional or local completion goals.

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