








Composite Occupations

Labor Market Analysis: San Diego County

October 2022

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 <p>Do Not Proceed with New Program</p>	 	 	<ul style="list-style-type: none"> <input type="checkbox"/> Bachelor's Degree+ <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input checked="" type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship
SUPPORT FOR PROGRAM MODIFICATION?	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING	NUMBER OF ANNUAL JOB OPENINGS	
<p>The COE defers to the region</p>	<p>LOW</p> 	<p>LOW</p> 	

This brief provides labor market information about *Composite Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Composite Occupations* include “Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic,” “Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic,” “Layout Workers, Metal and Plastic,” and “Metal Workers and Plastic Workers, All Other.” According to available labor market information, *Composite Occupations* in San Diego County have a labor market demand of 76 annual job openings (while average demand for a single occupation in San Diego County is 245 annual job openings), and one institution supplies 21 awards for these occupations, suggesting that there is a supply gap in the labor market. On average, entry-level wages are below the living wage and median wages are above the living wage. This brief recommends that the colleges do not proceed with developing a new program for these occupations but defers to the region for a program modification because 1) on average, these occupations’ entry-level wages are below the living wage; and 2) a low number of annual job openings exist for these occupations. **Colleges should also note that employers typically require a high school diploma or equivalent as the educational requirement for these occupations.**

Introduction

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic** (SOC 51-4021): Set up, operate, or tend machines to extrude or draw thermoplastic or metal materials into tubes, rods, hoses, wire, bars, or structural shapes.
- **Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic** (SOC 51-4032): Set up, operate, or tend drilling machines to drill, bore, ream, mill, or countersink metal or plastic work pieces.
- **Layout Workers, Metal and Plastic** (SOC 51-4192): Lay out reference points and dimensions on metal or plastic stock or workpieces, such as sheets, plates, tubes, structural shapes, castings, or machine parts, for further processing. Includes shipfitters.
- **Metal Workers and Plastic Workers, All Other** (SOC 51-4199): All metal workers and plastic workers not listed separately.

For the purpose of this report, these occupations are referred to as *Composite Occupations*.

¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

Projected Occupational Demand

Between 2021 and 2026, *Composite Occupations* are projected to decrease by 24 net jobs or three percent (Exhibit 1a). Employers in San Diego County will need to hire 76 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1a: Number of Jobs for Composite Occupations (2011-2026)²

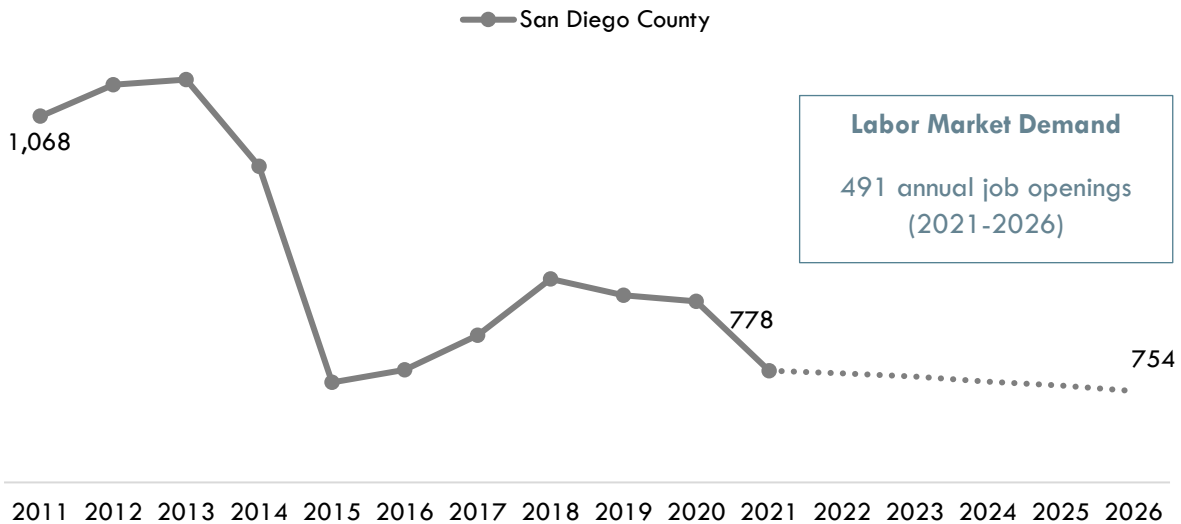


Exhibit 1b disaggregates the projected number of jobs change by occupation. “Metal Workers and Plastic Workers, All Other” are projected to have the most labor market demand between 2021 and 2026, with 33 annual job openings.

Exhibit 1b: Number of Jobs for Composite Occupations in San Diego County (2021-2026)³

Occupational Title	2021 Jobs	2026 Jobs	2021 - 2026 Net Jobs Change	2021-2026 % Net Jobs Change	Annual Job Openings (Demand)
Metal Workers and Plastic Workers, All Other	334	330	-4	-1%	33
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	225	223	-2	-1%	22
Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	117	108	-9	-7%	11
Layout Workers, Metal and Plastic	102	93	-9	-9%	10
Total	778	754	-24	-3%	76

² EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

³ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Earnings

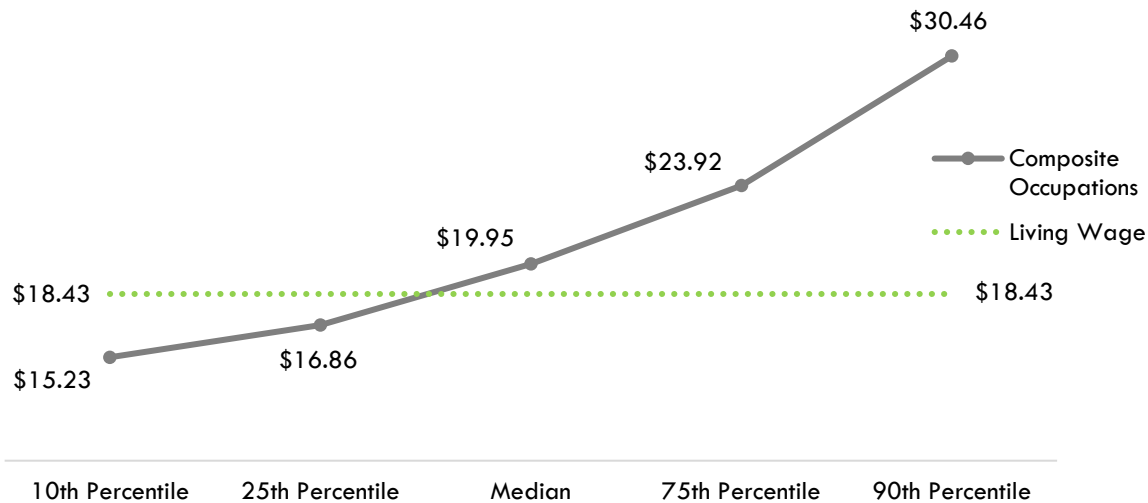
Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Composite Occupations* range from \$14.35 to \$20.31.

Exhibit 2a: Hourly Earnings for Composite Occupations in San Diego County⁴

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Layout Workers, Metal and Plastic	\$20.31	\$29.00	\$30.65
Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$17.81	\$18.55	\$24.85
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	\$14.98	\$17.87	\$22.22
Metal Workers and Plastic Workers, All Other	\$14.35	\$14.38	\$17.94

On average, the entry-level hourly earnings for *Composite Occupations* are \$16.86; this is more than the living wage for a single adult in San Diego County, which is \$18.43 per hour (Exhibit 2b).⁵

Exhibit 2b: Average Hourly Earnings⁶ for Composite Occupations in San Diego County⁷



⁴ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

⁵ "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. insightccd.org/family-needs-calculator/.

⁶ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

⁷ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁸ There is **one** TOP code and **one** CIP code related to *Composite Occupations* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for Composite Occupations⁹

TOP or CIP Code	TOP or CIP Program Title
TOP 0956.30	Machining and Machine Tools
CIP 48.0501	Machine Tool Technology/Machinist

According to TOP data, **one** community college supplies the region with awards for this occupation, **San Diego City College**. According to CIP data, **no** non-community-college institution supplies the region with awards (Exhibit 4).

Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2017-18 through Program Year 2020-21 Average)

TOP6 or CIP Code	TOP6 or CIP Program Title	3-Yr Annual Average CC Awards (PY18-19 to PY20-21)	Other Educational Institutions 3-Yr Annual Average Awards (PY17-18 to PY19-20)	3-Yr Total Average Supply (PY17-18 to PY20-21)
0956.30	Machining and Machine Tools	21	0	21
	<ul style="list-style-type: none"> San Diego City 	21	0	
48.0501	Machine Tool Technology/Machinist	0	0	0
			Total	21

⁸ 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).

⁹ This brief uses a conservative estimate of program supply and only calculates awards from the TOP codes in Exhibit 3.

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply¹⁰ suggests that there is a **supply gap** for these occupations in San Diego County, with **76** annual openings and **21** awards. Comparatively, there are **702** annual openings in California and **697** awards, suggesting that supply is met across the state¹¹ (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	Supply¹² (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	76	21	55
California	702	697	5

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

¹⁰ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

¹¹ "Supply and Demand," Centers of Excellence Student Outcomes, <https://coecc.net/our-resources/>.

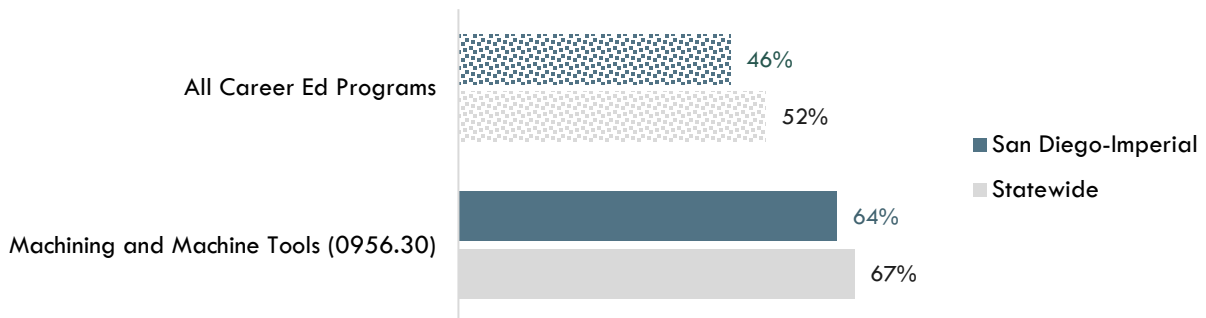
¹² Awards included: associate degree; award <1 year; award 1<2 years; and postsecondary awards

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 64 percent of students in the San Diego-Imperial region earned a living wage after completing a Machining and Machine Tools (TOP 0956.30) program, compared 67 percent statewide and 52 percent of students in Career Education programs in general across the state (Exhibit 6a).¹³

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program

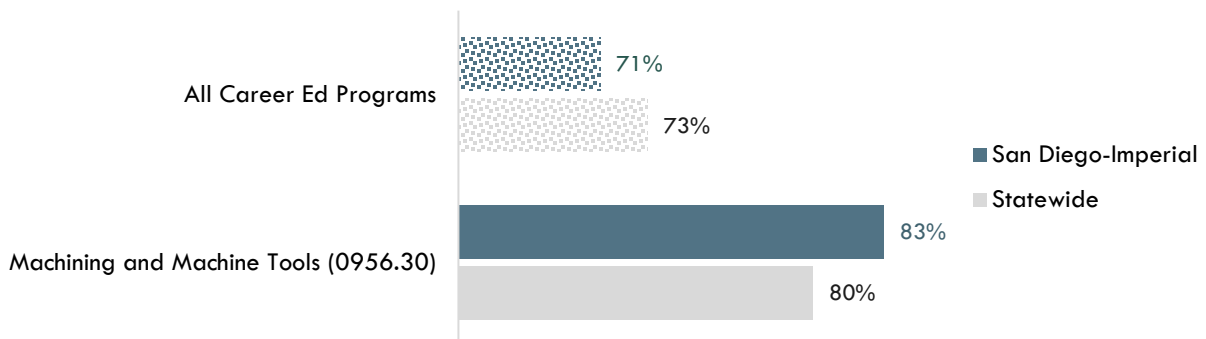
(Machining and Machine Tools, PY2019-20)¹⁴



According to the California Community Colleges LaunchBoard, 83 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Machining and Machine Tools (TOP 0956.30) program, compared to 80 percent statewide and 73 percent of students in Career Education programs in general across the state (Exhibit 6b).¹⁵

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program,

(Machining and Machine Tools, PY2018-19)¹⁶



¹³ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁴ Most recent year with available data is Program Year 2019-20. Among completers and skills builders who exited, the percentage of students who attained a living wage.

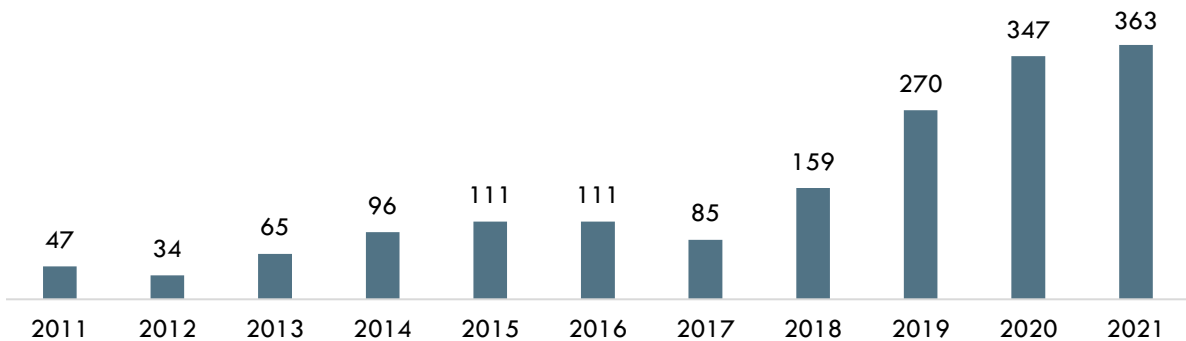
¹⁵ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁶ Most recent year with available data is Program Year 2018-19. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2011 and 2021, there was an average of 153 online job postings per year for *Composite Occupations* in San Diego County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1b). While this brief includes online jobs postings data to help with curriculum development, the community colleges should note that this type of data is impacted by several variables: employers may post a position multiple times to increase the pool of applicants; a job posting can remain posted after a business decides not to fill a position; or an employer may use one posting to fill multiple positions, for example.

**Exhibit 7: Number of Online Job Postings for Composite Occupations
in San Diego County (2011-2021)¹⁷**



¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2011-2021.

Top Employers

Between January 1, 2019 and December 31, 2021, the top five employers in San Diego County for *Composite Occupations* were Thermo Fisher Scientific, Epsilon Systems, General Dynamics, Ameri-Force, and Integrated Resources Incorporated based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for Composite Occupations in San Diego County¹⁸

Top Employers	
<ul style="list-style-type: none">• Thermo Fisher Scientific Inc.• Epsilon Systems Inc• General Dynamics• Ameri-Force• Integrated Resources Incorporated	<ul style="list-style-type: none">• Glanbia Incorporated• Delphinus Engineering• Gate Gourmet• Indotronix International Corporation• Craft And Technical Solutions, Llc.

Education, Skills, and Certifications

Composite Occupations have a national educational attainment of a high school diploma or equivalent (Exhibit 9a).

Exhibit 9a: National Educational Attainment for Composite Occupations¹⁹

Occupational Title	Typical Entry-Level Education
Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent
Layout Workers, Metal and Plastic	High school diploma or equivalent
Metal Workers and Plastic Workers, All Other	High school diploma or equivalent

¹⁸ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

¹⁹ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Based on online job postings between January 1, 2019 and December 31, 2021 in San Diego County, employers posted a **high school diploma or equivalent** as the educational requirement for *Composite Occupations* (Exhibit 9b).²⁰

Exhibit 9b: Educational Requirements for Composite Occupations in San Diego County²¹

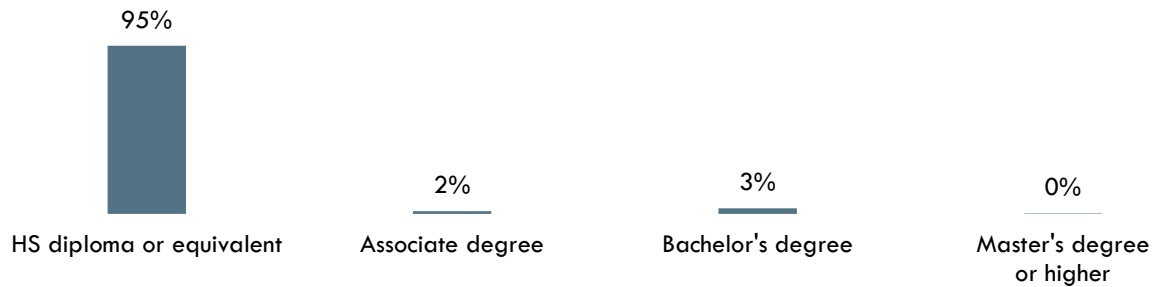


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2019 and December 31, 2021.

Exhibit 10: Top Skills for Composite Occupations in San Diego County²²

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Welding • Repair • Hand Tools • Machinery • Good Manufacturing Practices • Batch Records • Scheduling • Machine Operation • Packaging • Occupational Health and Safety • Power Tools • Grinders • Quality Assurance and Control • Cleaning • Inventory Control 	<ul style="list-style-type: none"> • Physical Abilities • Communication Skills • Written Communication • English • Detail-Oriented • Problem Solving • Planning • Organizational Skills • Troubleshooting • Computer Literacy • Listening • Writing • Work Area Maintenance • Teamwork / Collaboration • Time Management 	<ul style="list-style-type: none"> • Microsoft Excel • Microsoft Word • SAP • ISO 9000 • Microsoft PowerPoint • Facebook

²⁰ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

²¹ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified April 9, 2021. bls.gov/emp/tables/educational-attainment.htm.

²² Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

Exhibit 11 lists the top certification that appeared in online job postings between January 1, 2019 and December 31, 2021.

Exhibit 11: Top Certification for Composite Occupations in San Diego County²³

Top Certification in Online Job Postings

1. Occupational Safety and Health Administration Certification
 2. OSHA Safety 10 Hour
 3. Security Clearance
 4. Manufacturing Certification
 5. Biotechnology Certificate
 6. Certified Quality Inspector (CQI)
 7. Certified Quality Auditor (CQA)
 8. Welding Certification
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²³ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

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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. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), 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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.