










Composite Occupations

Labor Market Analysis: San Diego County

June 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 Proceed with Caution	 	 	<input type="checkbox"/> Bachelor's Degree <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate
SUPPORT FOR PROGRAM MODIFICATION?  	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING LOW 	NUMBER OF ANNUAL JOB OPENINGS LOW 	<input checked="" type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship

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 “Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic,” “Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic,” “Fiberglass Laminators and Fabricators,” “Layout Workers, Metal and Plastic,” and “Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic.” According to available labor market information, *Composite Occupations* in San Diego County have a labor market demand of 171 annual job openings (while average demand for a single occupation in San Diego County is 277 annual job openings), and no educational institutions in San Diego County supply awards for these occupations, suggesting that there is a supply gap in the labor market. Entry-level wages are below the living wage for these occupations except for “Fiberglass Laminators and Fabricators” and “Layout Workers, Metal and Plastic.” This brief recommends proceeding with caution when developing a new program, but supports a program modification because 1) these occupations’ entry-level earnings are below the living wage; 2) no institutions train for these occupations; and 3) a supply gap exists for these positions. Colleges should note that **only a high school diploma or equivalent is needed 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:

- **Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic** (SOC 51-4031): Set up, operate, or tend machines to saw, cut, shear, slit, punch, crimp, notch, bend, or straighten metal or plastic material.
- **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.
- **Fiberglass Laminators and Fabricators** (SOC 51-2051): Laminate layers of fiberglass on molds to form boat decks and hulls, bodies for golf carts, automobiles, or other products.
- **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.
- **Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic** (SOC 51-4072): Set up, operate, or tend metal or plastic molding, casting, or coremaking machines to mold or cast metal or thermoplastic parts or products.

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 2020 and 2025, *Composite Occupations* are projected to decrease by 46 net jobs or three percent (Exhibit 1a). Employers in San Diego County will need to hire 171 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

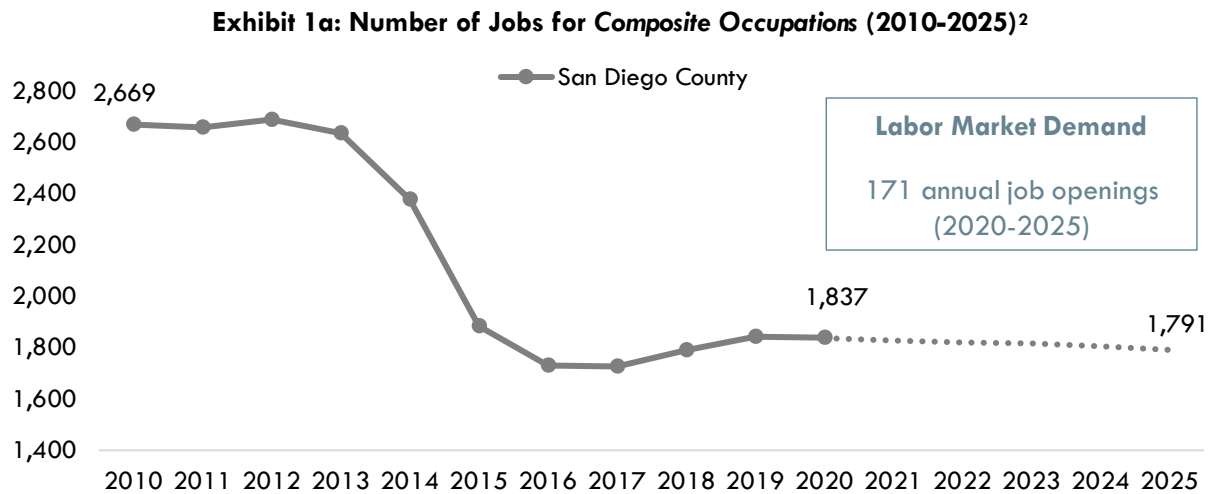


Exhibit 1b disaggregates the projected number of jobs change by occupation. “Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic” are projected to have the most labor market demand between 2020 and 2025, with 61 annual job openings.

Exhibit 1b: Number of Jobs for Composite Occupations in San Diego County (2020-2025)³

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020-2025 % Net Jobs Change	Annual Job Openings (Demand)
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	651	643	-8	-1%	61
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	570	550	-20	-4%	48
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	372	355	-17	-5%	38
Fiberglass Laminators and Fabricators	129	132	3	2%	14
Layout Workers, Metal and Plastic	115	111	-4	-3%	10
Total	1,837	1,791	-46	-3%	171

² EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

³ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

Earnings

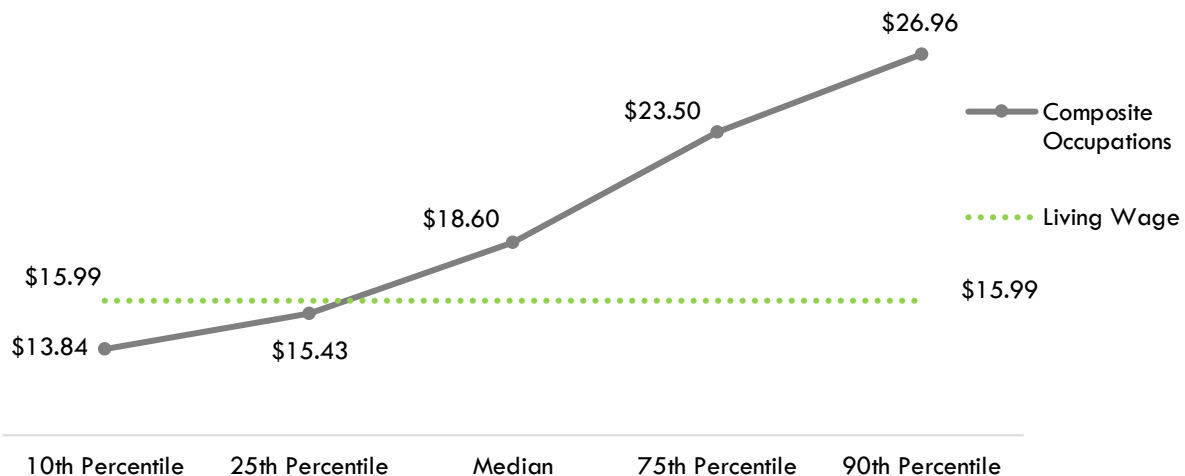
Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Composite Occupations* range from \$13.30 to \$17.92 (Exhibit 2a).

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)
Fiberglass Laminators and Fabricators	\$17.92	\$20.40	\$25.62
Layout Workers, Metal and Plastic	\$17.05	\$21.51	\$27.89
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	\$15.18	\$18.29	\$21.98
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	\$13.69	\$15.60	\$18.00
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	\$13.30	\$17.20	\$24.00

On average, the entry-level hourly earnings for *Composite Occupations* are \$15.43; this is below the living wage for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 2b).⁵

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



⁴ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

⁵ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightccd.org/2018-self-sufficiency-standard.

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 2021.1; 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 Occupations

TOP or CIP Code	TOP or CIP Program Title
TOP 0954.20	Plastics and Composites
CIP 15.0607	Plastics and Polymer Engineering Technology/Technician

According to TOP data, **no** community college supplies the region with awards for this occupation.

According to CIP data, **no** non-community-college institutions supply the region with awards (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Year 2017-18 through PY2019-20 Average)**

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0954.20	Plastics and Composites	0	0	0
	<ul style="list-style-type: none"> None 	0	0	
			Total	0

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).

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁹ suggests that there is a **supply gap** for this occupation in San Diego County, with **171** annual openings and **zero** awards. Comparatively, there are **2,523** annual openings in California and **three** awards, suggesting that there is also a supply gap across the state¹⁰ (Exhibit 5).

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

	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	171	0	171
California	2,523	3	2,520

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.

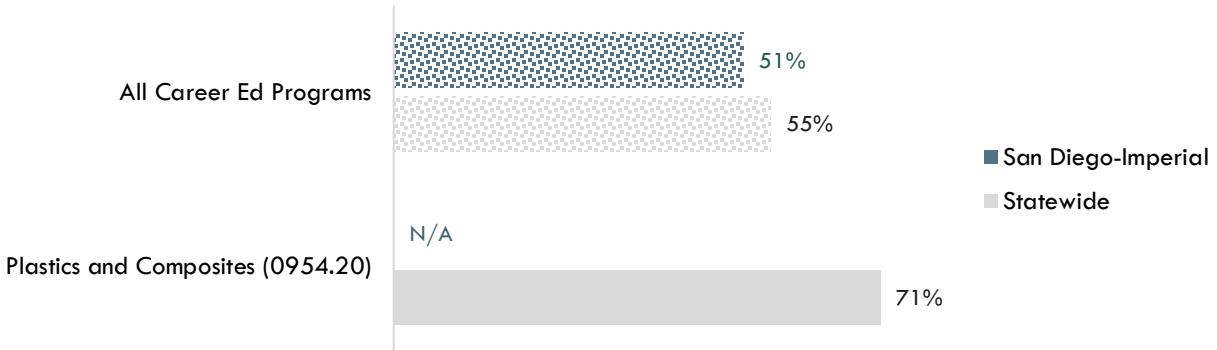
⁹ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

¹⁰ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

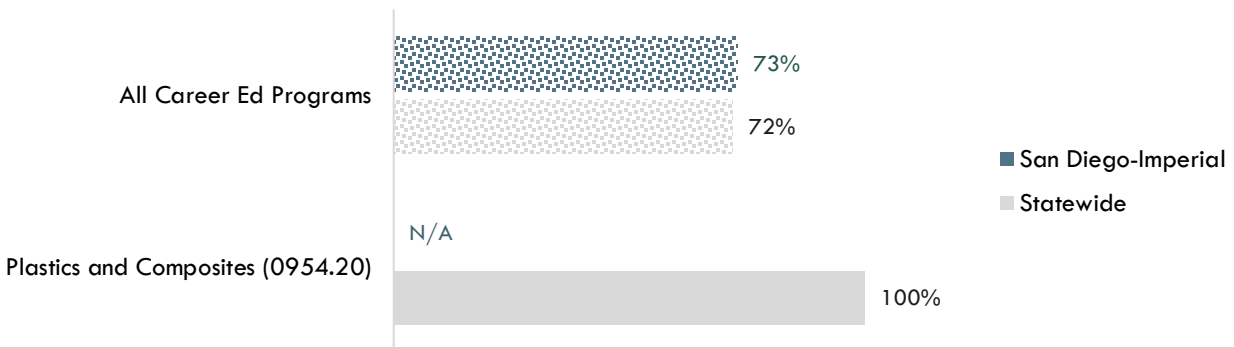
According to the California Community Colleges LaunchBoard, 71 percent of students statewide earned a living wage after completing a Plastics and Composites (0954.20) program, compared to 55 percent of students in Career Education programs in general across the state (Exhibit 6a).¹¹

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2017-18¹²



According to the California Community Colleges LaunchBoard, 100 percent of students statewide obtained a job closely related to their field of study after completing a Plastics and Composites (0954.20) program, compared 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹³

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2016-17¹⁴



¹¹ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹² Among completers and skills builders who exited, the proportion of students who attained a living wage.

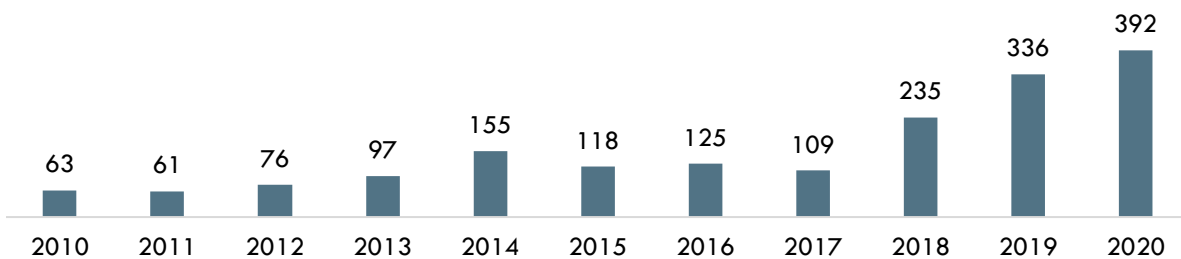
¹³ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁴ Most recent year with available data is Program Year 2016-17. 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 2010 and 2020, there was an average of 161 online job postings per year for *Composite Occupations*¹⁵ 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). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7: Number of Online Job Postings for Composite Occupations in San Diego County (2010-2020)¹⁶



Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for *Composite Occupations* were the [Epsilon Systems](#), [Thermo Fisher Scientific](#), [General Dynamics](#), [Ameri-Force](#), and [Serco](#) based on online job postings (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for Composite Occupations¹⁷

Top Employers	
<ul style="list-style-type: none">• Epsilon Systems Inc.• Thermo Fisher Scientific Inc.• General Dynamics• Ameri-Force• Serco	<ul style="list-style-type: none">• Delphinus Engineering• Toro Company• Teledyne Technologies• Glanbia Incorporated• Argen Corporation

¹⁶ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.

¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

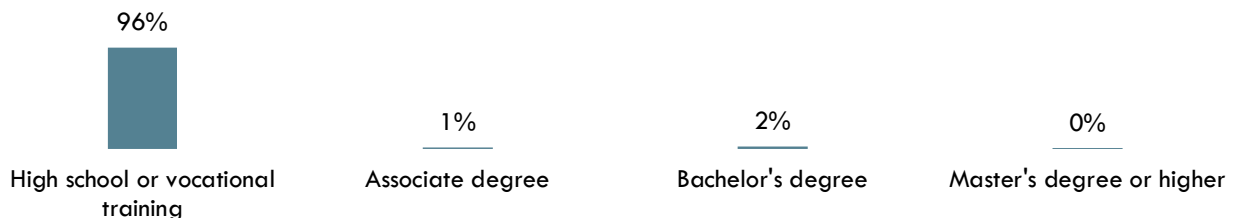
Composite Occupations have a national educational attainment of a [high school diploma or equivalent](#) (Exhibit 9a).¹⁸

Exhibit 9a: National Educational Attainment for *Composite Occupations*¹⁹

Occupational Title	Typical Entry-Level Education
Cutting, Punching, and Press Machine 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
Fiberglass Laminators and Fabricators	High school diploma or equivalent
Layout Workers, Metal and Plastic	High school diploma or equivalent
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent

Based on online job postings between January 1, 2018 and December 31, 2020 in San Diego County, the top listed educational requirement for *Composite Occupations* is [high school or vocational training](#) (Exhibit 9b).²⁰

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



*May not total 100 percent due to rounding

¹⁸ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

¹⁹ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

²⁰ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

²¹ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. bls.gov/emp/tables/educational-attainment.htm.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

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 • Machine Operation • Power Tools • Grinders • Occupational Health and Safety • Quality Assurance and Control • Packaging • Scheduling • Forklift Operation • Shielded Metal Arc Welding • Lifting Ability • Personal Protective Equipment 	<ul style="list-style-type: none"> • Physical Abilities • Communication Skills • English • Detail-Oriented • Computer Literacy • Written Communication • Problem Solving • Work Area Maintenance • Organizational Skills • Multi-Tasking • Troubleshooting • Listening • Planning • Writing • Teamwork / Collaboration 	<ul style="list-style-type: none"> • Microsoft Excel • Microsoft Word • Enterprise Resource Planning • SAP • Adobe Illustrator • Adobe Photoshop • Adobe Acrobat • Adobe Creative Suite • Adobe InDesign • Microsoft PowerPoint • Microsoft Access • AutoCAD • C++ • Facebook • Java

²² Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

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

Top Certifications in Online Job Postings

1. Occupational Safety and Health Administration Certification
2. OSHA Safety 10 Hour
3. Security Clearance
4. Manufacturing Certification
5. Certified Quality Inspector (CQI)
6. Certified Quality Auditor (CQA)
7. Biotechnology Certificate
8. Welding Certification
9. OSHA Forklift Certification
10. American Society for Quality (ASQ) Certification
11. CompTIA Security+
12. Certified Quality Improvement Associate (CQIA)
13. Certified Mechanical Inspector
14. CNC Machine Operator
15. American Board for Engineering and Technology (ABET) Accredited

²³ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

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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.