SAN DIEGO COMMUNITY COLLEGE DISTRICT

CITY COLLEGE • MESA COLLEGE • MIRAMAR COLLEGE • CONTINUING EDUCATION

Career Education Biennial Review

San Diego Continuing Education
Career Education Program Evidence

July 2020

Program Fact Sheets & Faculty Narratives

Each Program Fact Sheet provides information by TOP Code for the following areas designed specifically for noncredit program improvements:

➢ Projected Occupational Demand
➢ Online Job Postings
➢ Earnings
➢ Educational supply including number of awards conferred (completion)
➢ Demand vs. Supply
➢ Proportion of Students Who Earned a Living Wage
➢ Percentage of Students in a Job Closely Related to Field of Study
➢ Top Employers & Work Locations
➢ Skills, Education, and Certifications

For each TOP Code, one or more Career Education programs may be included.

Additionally, Faculty Narratives are provided for Program Fact Sheets that were identified by the faculty as needing additional context or information. The Faculty Narratives address five questions:

1. What is the demand for workers that your program trains for?
2. Over the past two years, what specific program updates have been made in response to changing industry needs?
3. How does your program provide a unique, complementary, or collaborative training opportunity in the region?
4. What is the supply gap or oversupply associated with your program?
5. What is your programs completion and employment outcomes? If the programs completion or employment outcomes are low, please explain why and what will be done about it.

The Following Program Fact Sheets and Faculty Narratives are included in this report:

Career & Technical Education Employment Outcomes Survey

Accounting

Labor Market Analysis for San Diego Continuing Education
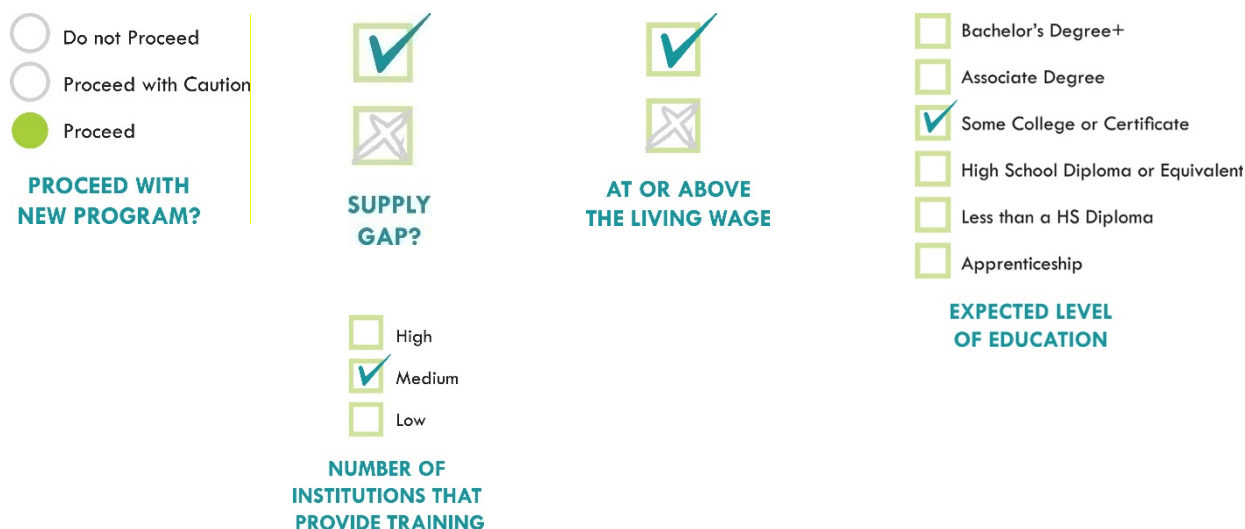
September 2019

Summary

Do not Proceed

Proceed with Caution

Proceed

**PROCEED WITH
NEW PROGRAM?**

☑ SUPPLY
GAP?

☑ **AT OR ABOVE
THE LIVING WAGE**

☐ Bachelor's Degree+

☐ Associate Degree

☑ Some College or Certificate

☐ High School Diploma or Equivalent

☐ Less than a HS Diploma

☐ Apprenticeship

**EXPECTED LEVEL
OF EDUCATION**

☐ High

☑ Medium

☐ Low

**NUMBER OF
INSTITUTIONS THAT
PROVIDE TRAINING**

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Accounting* program. The training provided by this program is likely to lead to employment as *Bookkeeping, Accounting, and Auditing Clerks*. According to available labor market information, the occupation has a labor market demand of 1,951 annual job openings, while the average demand for an occupation in San Diego County is 277 annual job openings. Six community colleges supply the region with 319 for-credit awards (132 associate degrees, 90 certificates with 6 to < 18 units, and other certificates with varying numbers of units): MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 15 awards over the past three program years. In short, the region supplies 334 for-credit and noncredit awards for 1,951 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The expected level of education is some college, no degree.

Introduction

This report provides labor market information (LMI) in San Diego County for occupation(s) related to the six-digit Taxonomy of Programs[1] (TOP) code, Accounting (TOP 050200). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Accounting*, which will be the focus of this report:

Bookkeeping, Accounting, and Auditing Clerks (SOC 43-3031): Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers. Sample reported job titles include:

- Accounts Receivable Clerk
- Accounts Payable Clerk
- Accounting Specialist
- Accounts Payable Specialist

- Accounting Technician
- Accounting Clerk
- Accounting Associate
- Accounting Assistant

Projected Occupational Demand

Between 2018 and 2023, *Bookkeeping, Accounting, and Auditing* are projected to increase by 74 net jobs or zero percent (Exhibit 1). Employers in San Diego County will need to hire 1,951 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

Exhibit 1: Number of Jobs for *Bookkeeping, Accounting, and Auditing Clerks* (2008-2023)[3]
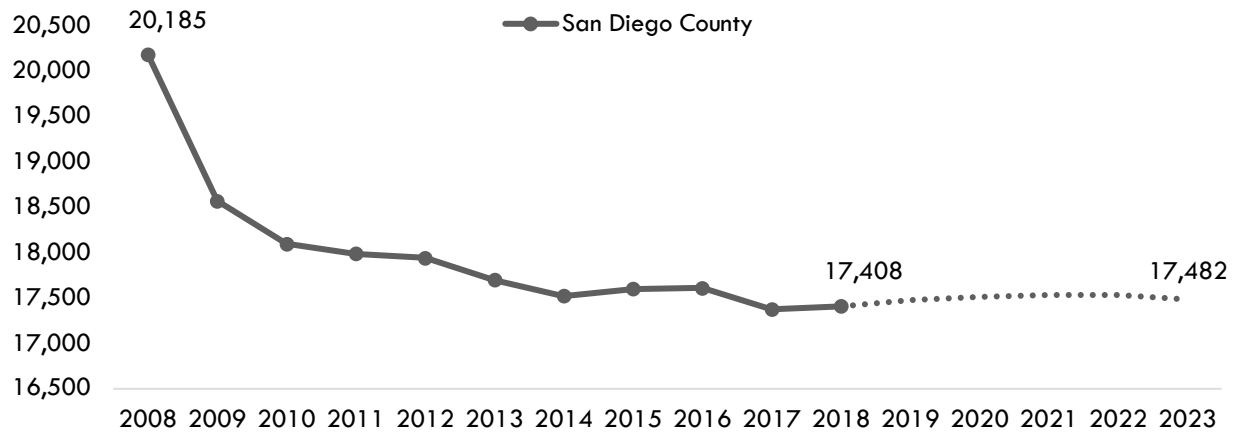
Online Job Postings

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 labor market demand that are not captured by historical data. Between 2010 and 2018, there was an average of 2,153 online job postings per year for *Bookkeeping, Accounting, and Auditing Clerks* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Bookkeeping, Accounting, and Auditing Clerks* in San Diego County (2010-2018)[4]
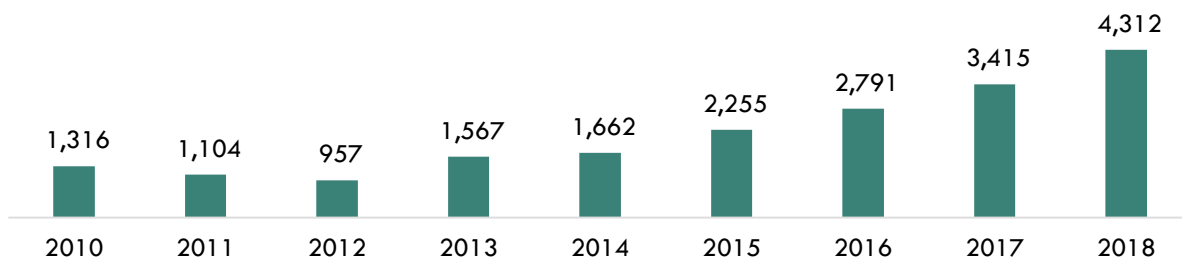
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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

Earnings

Bookkeeping, Accounting, and Auditing have median hourly earnings of $21.52; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Bookkeeping, Accounting, and Auditing Clerks* in San Diego County[7]

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, six community colle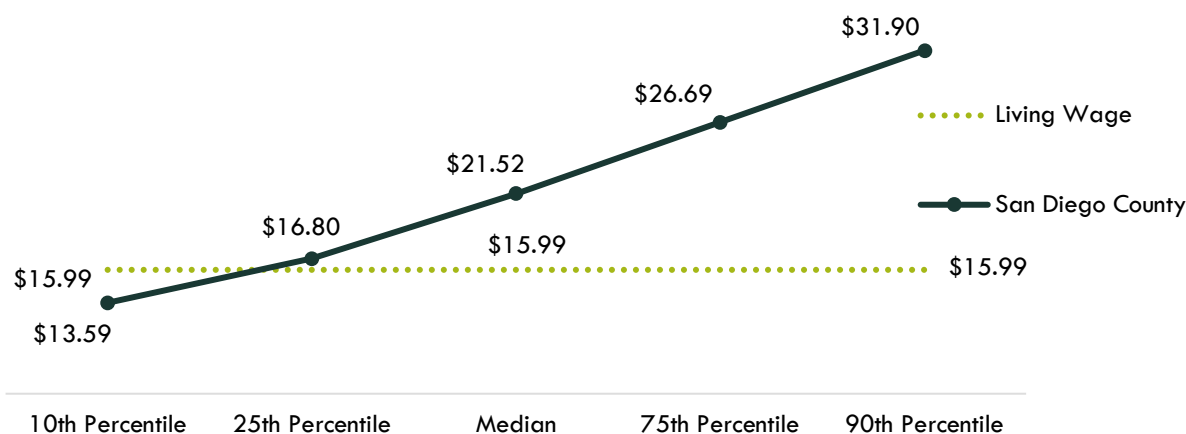ges supply the region with for-credit awards for Accounting (TOP 050200): MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College (Exhibit 4a).

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[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There are two CIP codes related to Accounting (TOP 050200): Accounting (CIP 520301) and Accounting Technology/Technician and Bookkeeping (CIP 520302).
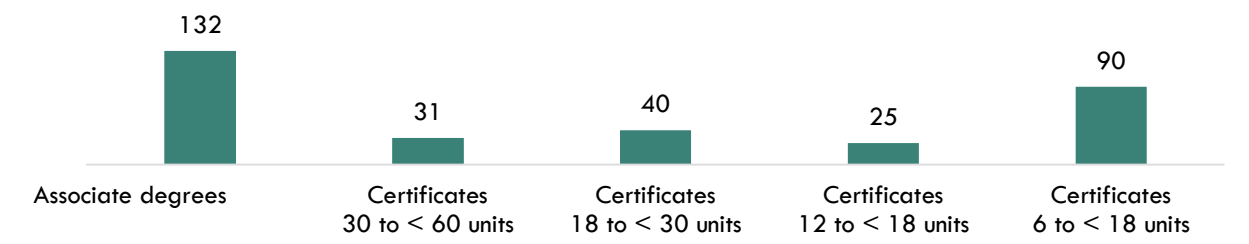
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Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
MiraCosta	Associate of Arts (A.A.) degree	33	21	28	27
	Certificate 18 to < 30 units	29	14	10	18
	Certificate 12 to < 18 units	32	13	29	25
	Certificate 6 to < 18 units	15	13	5	11
	Total	**109**	**61**	**72**	**81**
Palomar	Associate of Science (A.S.) degree	0	12	29	14
	Associate of Arts (A.A.) degree	30	0	1	10
	Certificate 30 to < 60 units	32	12	40	28
	Certificate 6 to < 18 units	51	45	26	41
	Total	**113**	**69**	**96**	**93**
San Diego City	Associate of Science (A.S.) degree	4	4	5	4
	Associate of Arts (A.A.) degree	0	1	0	0
	Certificate 6 to < 18 units	25	32	34	30
	Total	**29**	**37**	**39**	**35**
San Diego Mesa	Associate of Science (A.S.) degree	17	25	9	17
	Certificate 18 to < 30 units	15	15	9	13
	Certificate 6 to < 18 units	0	3	3	2
	Total	**32**	**43**	**21**	**32**
San Diego Miramar	Associate of Science (A.S.) degree	8	8	11	9
	Certificate 18 to < 30 units	10	5	12	9
	Certificate 6 to < 18 units	0	0	1	0
	Total	**18**	**13**	**24**	**18**
Southwestern	Associate of Science (A.S.) degree	12	8	6	9
	Associate of Arts (A.A.) degree	54	35	37	42
	Certificate 30 to < 60 units	5	2	3	3
	Certificate 6 to < 18 units	0	7	12	6
	Total	**71**	**52**	**58**	**60**
Total		**372**	**275**	**310**	**319**

Note: The numbers may not add up exactly due to rounding.

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Broken down by award type, the six colleges supplied the most awards in associate degrees (132), followed by certificates with 6 to < 18 units (90), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Accounting (TOP 050200)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

132	Associate degrees
31	Certificates 30 to < 60 units
40	Certificates 18 to < 30 units
25	Certificates 12 to < 18 units
90	Certificates 6 to < 18 units

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Accounting (TOP 050200), with an average of 15 noncredit awards (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Account Clerk Program	Program Award	11	17	16	15

Demand vs. Supply

In short, the region supplies 334 for-credit and noncredit awards for 1,951 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

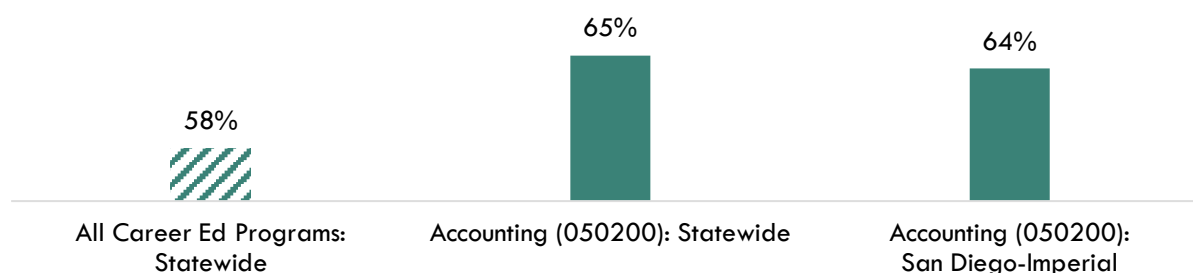| TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Accounting (TOP 050200)	1,951	15	319	**1,617**

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

6

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.

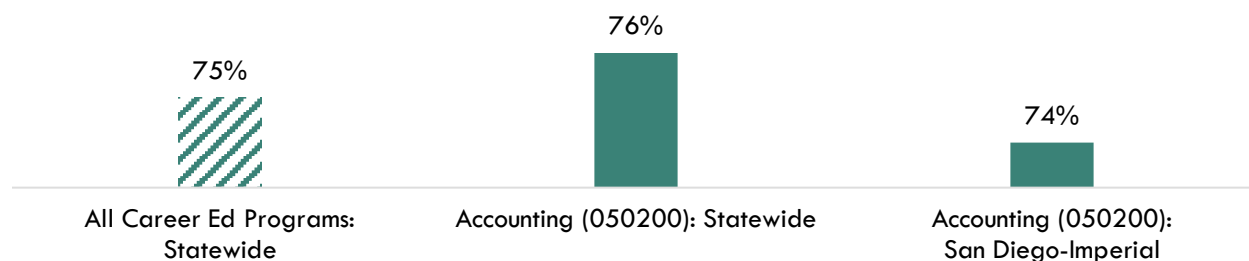## Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 64 percent of students in the San Diego-Imperial region earned a living wage after completing an Accounting (050200) program, compared to 65 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Accounting (050200): Statewide	Accounting (050200): San Diego-Imperial
58%	65%	64%

According to the California Community Colleges LaunchBoard, 74 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Accounting (050200) program, compared to 76 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Accounting (050200): Statewide	Accounting (050200): San Diego-Imperial
75%	76%	74%

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were General Atomics, Sprouts Farmers Markets, San Diego Community College District, Scripps Health, and University of California, San Diego (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Bookkeeping, Accounting, and Auditing Clerks*[12]

Top Employers	
• General Atomics	• Redline Resources
• Sprouts Farmers Markets	• U.S. Navy
• San Diego Community College District	• Suna Solutions
• Scripps Health	• Hilton Hotel Corporation
• University of California, San Diego	• Marriott International Incorporated

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is moderate-term on-the-job training. The typical entry-level education is some college, no degree.[13]

Exhibit 9a: National Educational Requirements for *Bookkeeping, Accounting, and Auditing Clerks*[14]

4% — Less than high school diploma
28% — HS diploma or equivalent
38% — Some college, no degree
11% — Associate degree
16% — Bachelor's degree
3% — Master's degree or higher

8

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Bookkeeping, Accounting, and Auditing Clerks* was a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Bookkeeping, Accounting, and Auditing Clerks* in San Diego County in Online Job Postings[16]

High school or vocational training	Associate degree	Bachelor's degree	Master's degree or higher
34%	15%	50%	0%
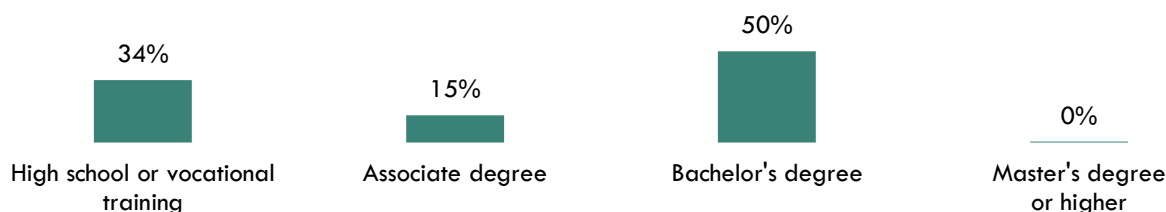
Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Bookkeeping, Accounting, and Auditing Clerks* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Accounting	• Detail-Oriented	• Microsoft Excel
• Accounts Payable / Accounts Receivable	• Communication Skills	• QuickBooks
• Bookkeeping	• Organizational Skills	• Enterprise Resource Planning
• Data Entry	• Research	• Microsoft Word
• Account Reconciliation	• Multi-Tasking	• Accounting Software

[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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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.

Business Management

Labor Market Analysis for San Diego Continuing Education
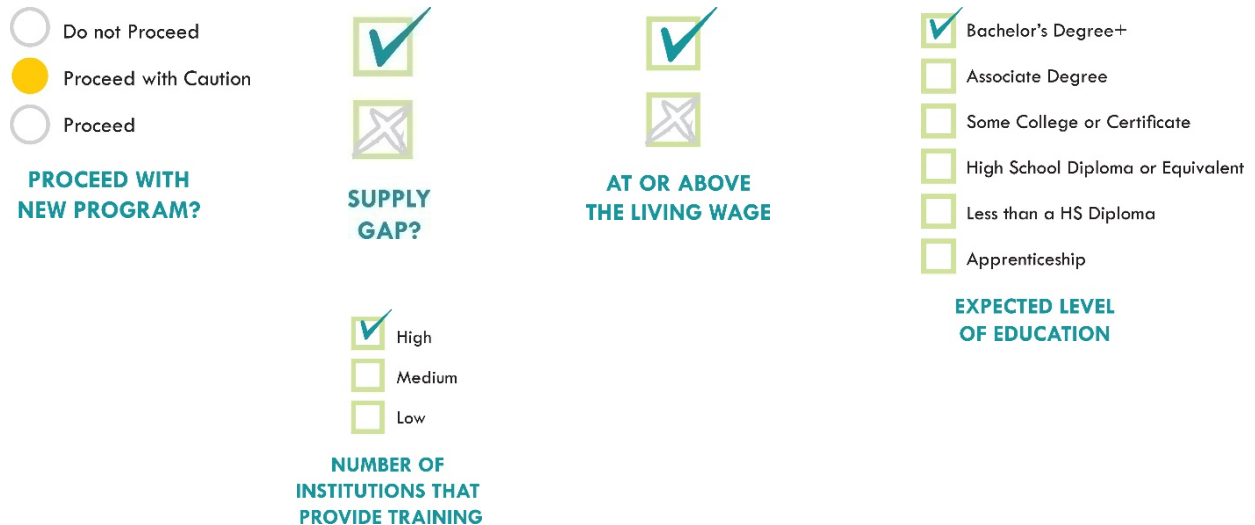
September 2019

Summary

PROCEED WITH NEW PROGRAM?

- ⚪ Do not Proceed
- 🟡 Proceed with Caution
- ⚪ Proceed

SUPPLY GAP? ✅ / ❌

AT OR ABOVE THE LIVING WAGE ✅ / ❌

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING
- ✅ High
- ☐ Medium
- ☐ Low

EXPECTED LEVEL OF EDUCATION
- ✅ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Business Management* program. The training provided by this program is likely to lead to employment as *Managers, All Other*. According to available labor market information, the occupation has a labor market demand of 1,162 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Eight community colleges supply the region with 140 for-credit awards (54 certificates with 6 to < 18 units, 44 associate degrees, and other certificates with varying numbers of units): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 230 awards over the last three program years. In short, the region supplies 370 for-credit and noncredit awards for 1,162 annual job openings, suggesting that there is a labor market supply gap. Entry-level and median wages for this occupation are above the living wage. However, the brief recommends to proceed with caution because there is a significant number of programs that train for this occupation in the region. Additionally, the expected level of education for this occupation is a bachelor's degree.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Business Management (Top 050600). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Business Management*, which will be the focus of this report:
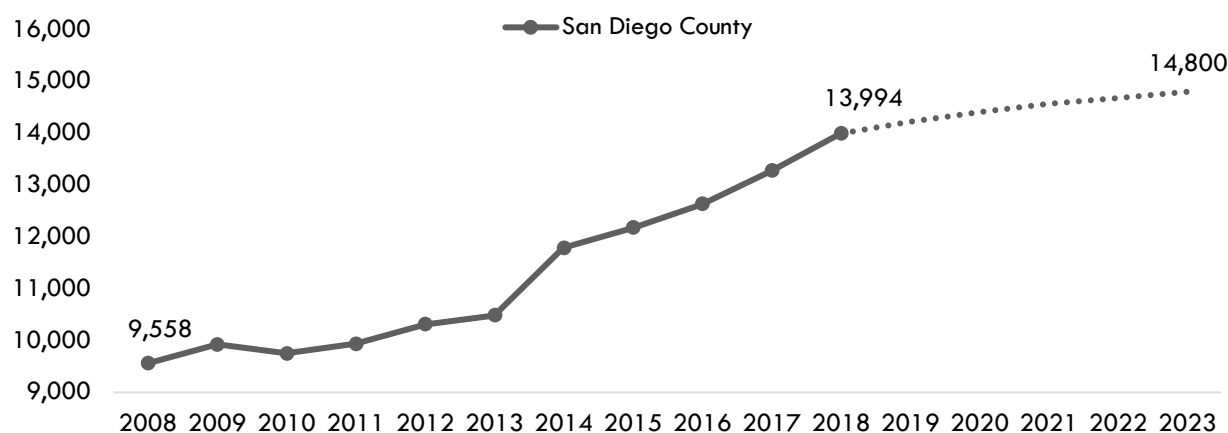
> **Managers, All Other** (SOC 11-9199): All managers, not listed separately. Sample reported job titles include:

- Regulatory Affairs Managers
- Compliance Managers
- Investment Fund Managers
- Supply Chain Managers
- Security Managers

- Loss Prevention Managers
- Wind Energy Operations Managers
- Wind Energy Project Managers
- Brownfield Redevelopment Specialists and Site Managers

Projected Occupational Demand

Between 2018 and 2023, *Managers, All Other* are projected to increase by 806 net jobs or 6 percent (Exhibit 1). Employers in San Diego County will need to hire 1,162 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Managers, All Other* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
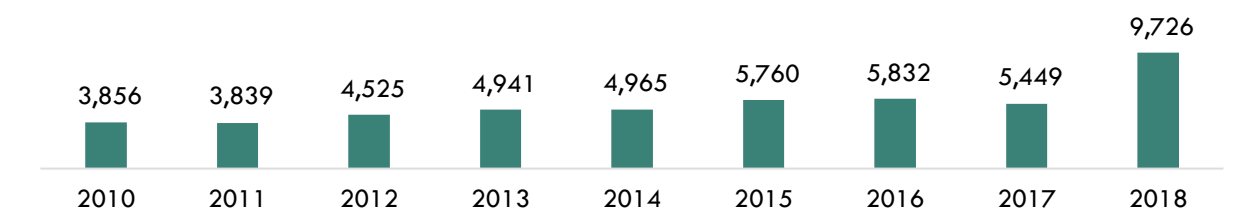[2] The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. bls.gov/soc.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 5,432 online job postings per year for *Managers, All Other* in San Diego County (Exhibit 2).
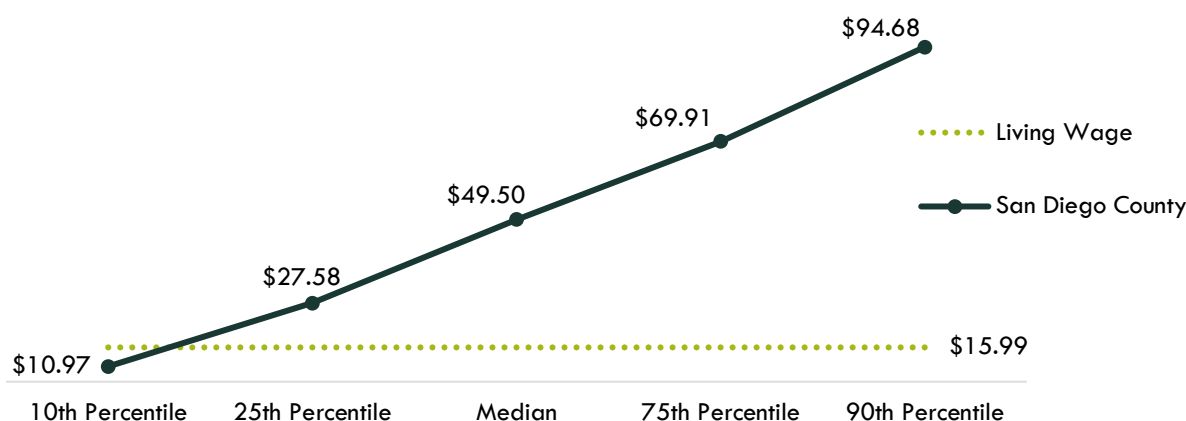
Exhibit 2: Number of Online Job Postings for *Managers, All Other* in San Diego County (2010-2018)[4]

2010	2011	2012	2013	2014	2015	2016	2017	2018
3,856	3,839	4,525	4,941	4,965	5,760	5,832	5,449	9,726

Earnings

Managers, All Other receive median hourly earnings of $49.50; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Managers, All Other* in San Diego County[7]

- - - - - Living Wage
——●—— San Diego County

10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile
$10.97	$27.58	$49.50	$69.91	$94.68

Living Wage: $15.99

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, eight community colleges supply the region with for-credit awards for Business Management (TOP 050600): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate of Science (A.S.) degree	2	5	1	3
	Certificate 30 to < 60 units	1	1	1	1
	Total	**3**	**6**	**2**	**4**
Grossmont	Associate of Science (A.S.) degree	6	12	13	10
	Certificate 30 to < 60 units	1	1	1	1
	Certificate 18 to < 30 units	4	14	11	10
	Total	**11**	**27**	**25**	**21**
MiraCosta	Associate of Arts (A.A.) degree	10	4	11	8
	Certificate 18 to < 30 units	19	7	16	14
	Certificate 6 to < 18 units	0	1	0	0
	Total	**29**	**12**	**27**	**23**
Palomar	Associate of Science (A.S.) degree	0	4	5	3
	Associate of Arts (A.A.) degree	8	0	0	3
	Certificate 18 to < 30 units	8	6	6	7
	Total	**16**	**10**	**11**	**12**
San Diego City	Certificate 6 to < 18 units	21	69	54	48
	Total	**21**	**69**	**54**	**48**
San Diego Mesa	Associate of Science (A.S.) degree	1	4	1	2
	Certificate 30 to < 60 units	2	4	4	3
	Total	**3**	**8**	**5**	**5**

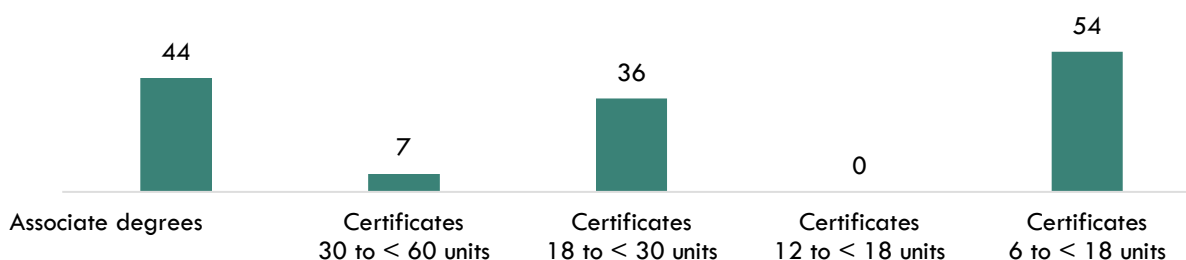[8] TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data)
[9] There are two CIP codes related to Business Management (Top 050600): Business Administration and Management, General (CIP 520201) and Human Resources Management/Personnel Administration, General (CIP 521001).

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College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego Miramar	Associate of Science (A.S.) degree	7	2	7	5
	Certificate 30 to < 60 units	3	1	1	2
	Total	**10**	**3**	**8**	**7**
Southwestern	Associate of Science (A.S.) degree	3	9	11	8
	Associate of Arts (A.A.) degree	2	1	2	2
	Certificate 30 to < 60 units	0	1	0	0
	Certificate 18 to < 30 units	2	6	6	5
	Certificate 6 to < 18 units	0	12	6	6
	Total	**7**	**29**	**25**	**20**
Total		100	164	157	140

Broken down by award type, the eight colleges supplied the most awards in certificates with 6 to < 18 units (54), followed by associate degrees (44), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Management (TOP 050600)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
44	7	36	0	54

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Business Management (TOP 050600), with an average of 230 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Project Management Program	Program Award	237	200	254	230

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Demand vs. Supply

In short, the region supplies 370 for-credit and noncredit awards for 1,162 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

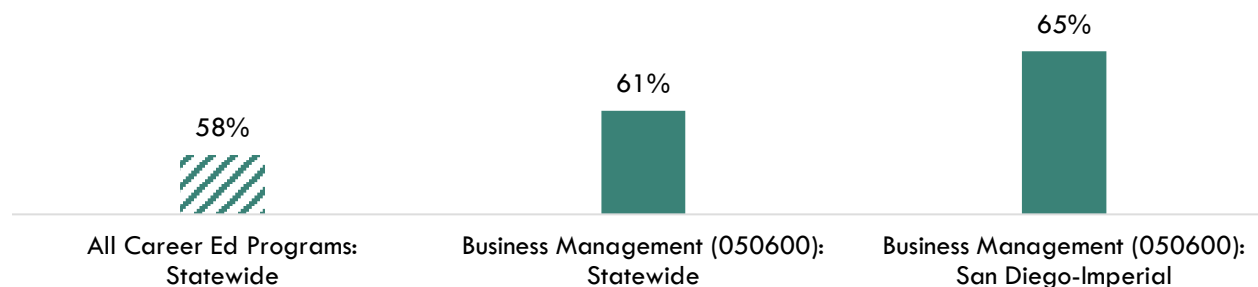**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Business Management (Top 050600)	1,162	230	140	**792**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 65 percent of students in the San Diego-Imperial region earned a living wage after completing a Business Management (050600) program, compared to 61 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Business Management (050600): Statewide	Business Management (050600): San Diego-Imperial
58%	61%	65%

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

6

According to the California Community Colleges LaunchBoard, 85 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Business Management (050600) program, compared to 82 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).
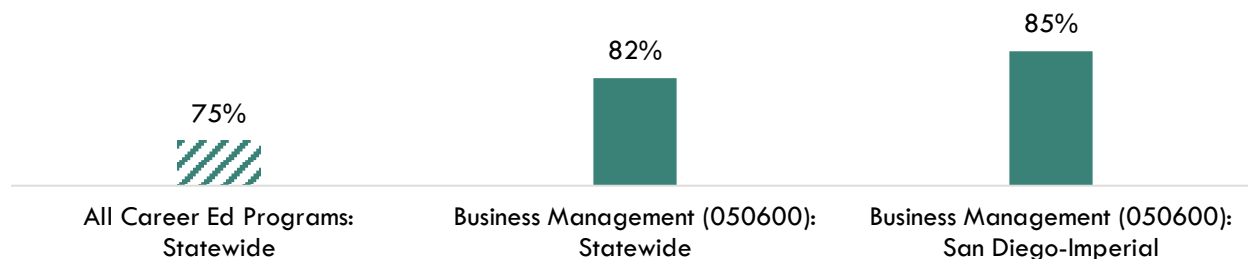
Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Business Management (050600): Statewide	Business Management (050600): San Diego-Imperial
75%	82%	85%

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were General Atomics, Northrop Grumman, Accenture, University of California San Diego, and Brockton Dickinson (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Managers, All Other*[12]

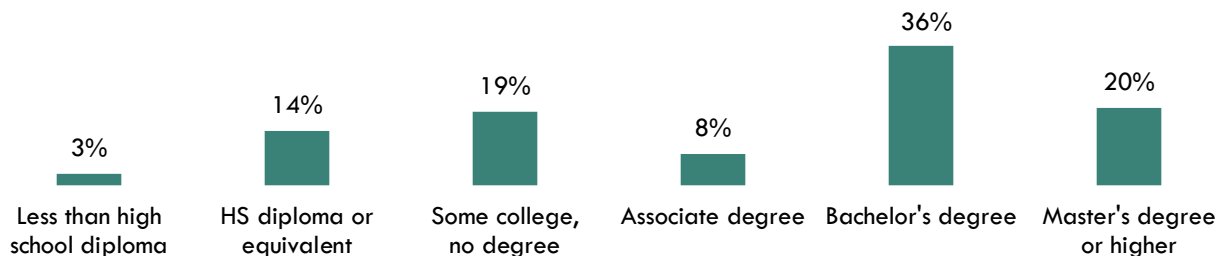| Top Employers	
• General Atomics	• Illumina Incorporated
• Northrop Grumman	• United Technologies Corporation
• Accenture	• US Navy
• University of California San Diego	• Qualcomm
• Brockton Dickinson	• Sharp Healthcare

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[11] Most recent year with available data is Program Year 2014-15. 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.
[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Career Education Biennial Review, July 2020, Page 17
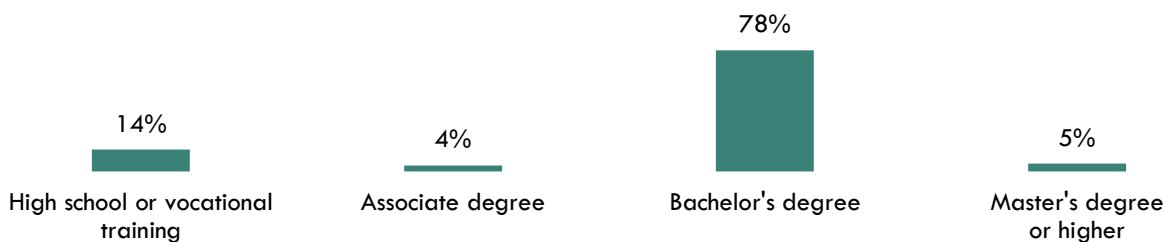
Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this profession. The typical entry-level education is a bachelor's degree.[13]

Exhibit 9a: National Educational Requirements for *Managers, All Other*[14]

3%	14%	19%	8%	36%	20%
Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Managers, All Other* was a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for Managers, All Other in San Diego County in Online Job Postings[16]

14%	4%	78%	5%
High school or vocational training	Associate degree	Bachelor's degree	Master's degree or higher

*May not add to 100% due to rounding

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[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. 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, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Managers, All Other* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Project Management • Budgeting • Scheduling • Staff Management • Project Planning and Development Skills	• Communication Skills • Planning • Teamwork/Collaboration • Problem Solving • Organizational Skills	• Microsoft Excel • Microsoft PowerPoint • Microsoft Project • Microsoft Visio • Microsoft SharePoint

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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.

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[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Small Business and Entrepreneurship

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

○ Do not Proceed

○ Proceed with Caution

● Proceed

**PROCEED WITH
NEW PROGRAM?**

☑

☒

**SUPPLY
GAP?**

☐ High

☑ Medium

☐ Low

**NUMBER OF
INSTITUTIONS THAT
PROVIDE TRAINING**

☑

☒

**AT OR ABOVE
THE LIVING WAGE**

☑ Bachelor's Degree+

☐ Associate Degree

☐ Some College or Certificate

☐ High School Diploma or Equivalent

☐ Less than a HS Diploma

☐ Apprenticeship

**EXPECTED LEVEL
OF EDUCATION**

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Small Business and Entrepreneurship* program. The training provided by this program is likely to lead to employment as *Business Operations Specialists, All Other*. According to available labor market information, this occupation has a labor market demand of 1,949 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Four community colleges supply the region with 27 for-credit awards (12 associate degrees, 10 certificates with 18 to < 30 units, and other certificates with varying numbers of units): Cuyamaca College, MiraCosta College, San Diego City College, and Southwestern College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 115 awards over the past three program years. In short, the region supplies 142 for-credit and noncredit awards for 1,949 annual job openings, suggesting that there is a labor market supply gap. However, this brief recommends proceeding with caution in developing a new program because this occupational title includes a variety of jobs (e.g., customs brokers, energy auditors) that might not be specific to *Small Business and Entrepreneurship*, which affects the accuracy of the labor market demand and supply analysis. Additionally, expected level of education for this occupation is a bachelor's degree.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Small Business and Entrepreneurship (TOP 050640). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Small Business and Entrepreneurship*, which will be the focus of this report:

Business Operations Specialists, All Other (SOC 13-1199): All business operations specialists not listed separately. "All Other" titles represent occupations with a wide range of characteristics which do not fit into one of the detailed O*NET-SOC occupations. (O*NET OnLine is an application developed by the U.S. Department of Labor to provide the general public access to labor market information.) O*NET data is not available for this type of title. For more detailed occupations under this title, see below:

- 13-1199.01   Energy Auditors
- 13-1199.02   Security Management Specialists
- 13-1199.03   Customs Brokers
- 13-1199.04   Business Continuity Planners
- 13-1199.05   Sustainability Specialists
- 13-1199.06   Online Merchants

Projected Occupational Demand

Between 2018 and 2023, *Business Operations Specialists, All Other* are projected to increase by 938 net jobs or five percent (Exhibit 1). Employers in San Diego County will need to hire 1,949 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

2

Exhibit 1: Number of Jobs for *Business Operations Specialists, All Other* (2008-2023)[3]
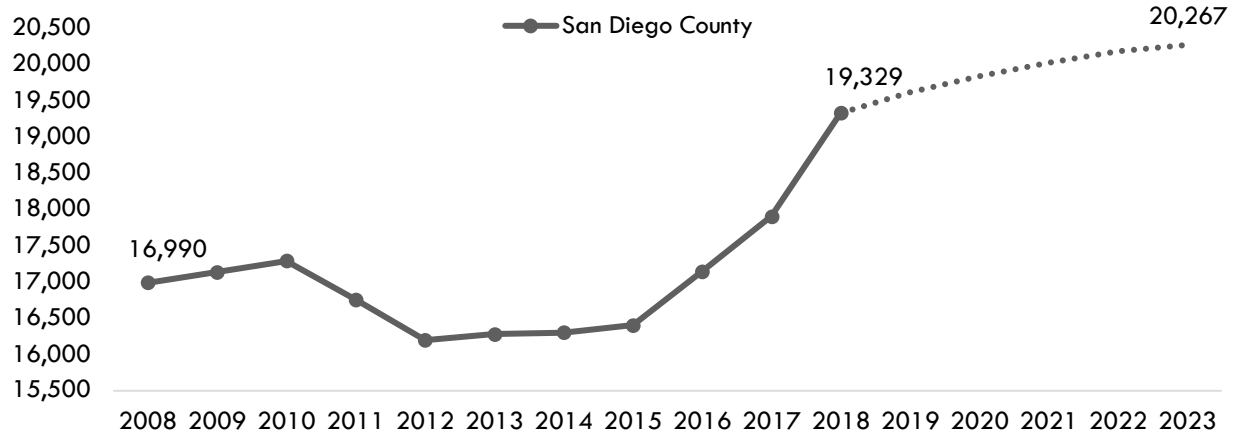
Online Job Postings

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 376 online job postings per year for *Business Operations Specialists, All Other* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Business Operations Specialists, All Other* in San Diego County (2010-2018)[4]
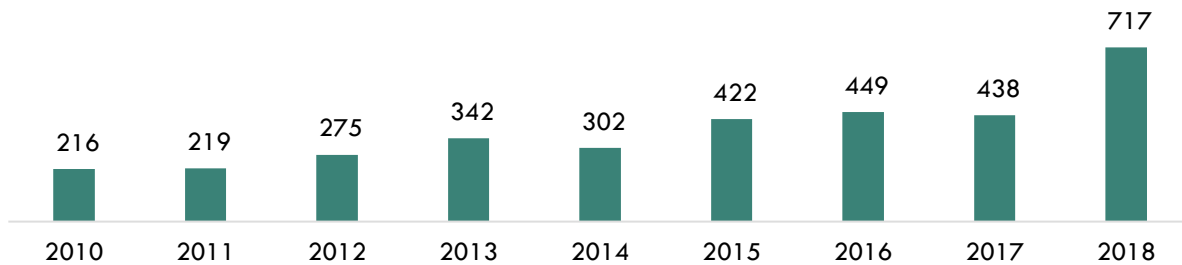

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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

3

Earnings

Business Operations Specialists, All Other receive median hourly earnings of $36.66; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Business Operations Specialists, All Other* in San Diego County[7]
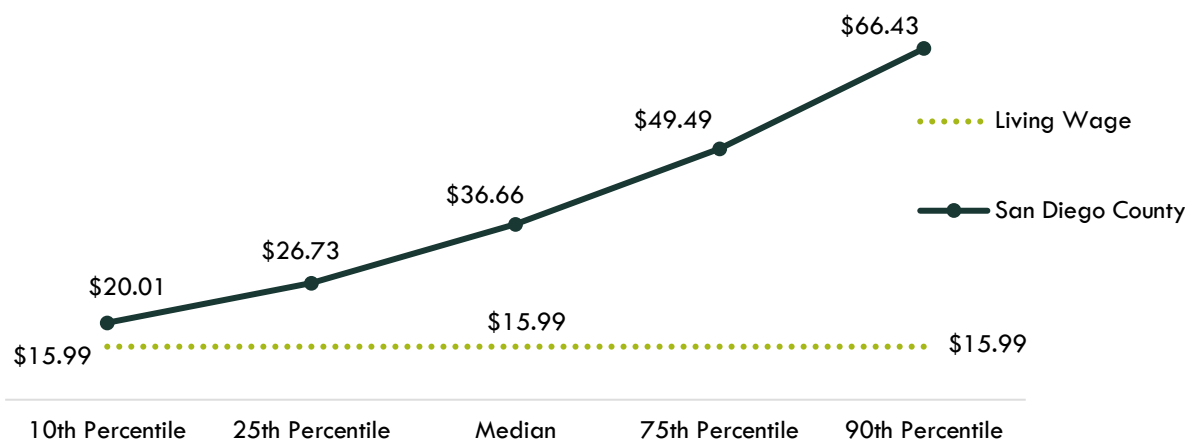
Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, four community colleges supply the region with for-credit awards for Small Business and Entrepreneurship (TOP 050640): Cuyamaca College, MiraCosta College, San Diego City College, and Southwestern College (Exhibit 4a).

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[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There are two CIP codes related to Small Business and Entrepreneurship (TOP 050640): Entrepreneurship/Entrepreneurial Studies (CIP 520701) and Small Business Administration/Management (CIP 520703).
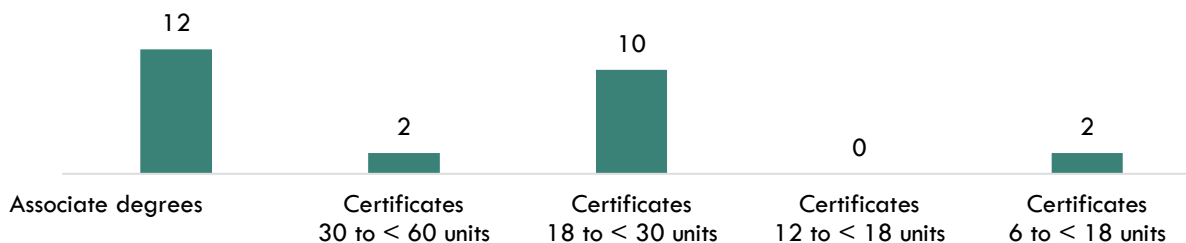
4

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate of Science (A.S.) degree	4	2	4	3
	Certificate 18 to < 30 units	1	0	1	1
	Total	**5**	**2**	**5**	**4**
MiraCosta	Associate of Arts (A.A.) degree	6	2	6	5
	Certificate 18 to < 30 units	11	7	10	9
	Certificate 6 to < 18 units	3	1	1	2
	Total	**20**	**10**	**17**	**16***
San Diego City	Associate of Science (A.S.) degree	5	5	1	4
	Certificate 30 to < 60 units	5	1	1	2
	Total	**10**	**6**	**2**	**6**
Southwestern	Associate of Science (A.S.) degree	0	1	0	0
	Certificate 30 to < 60 units	1	0	0	0
	Certificate 6 to < 18 units	0	0	1	0
	Total	**1**	**1**	**1**	**1***
Total		**36**	**19**	**25**	**27**

Note: The numbers may not add up exactly due to rounding.

Broken down by award type, the colleges supplied the most awards in associate degrees (12), followed by certificates with 18 to < 30 units (10), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Small Business and Entrepreneurship (TOP 050640)* San Diego County (Three-Year Average 2015-16 through 2017-18)

12	2	10	0	2
Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units

5

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Small Business and Entrepreneurship (TOP 050640), with an average of 115 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Small Business Growth; Small Business Planning	Program Award	60	112	172	115

Demand vs. Supply

In short, the region supplies 142 for-credit and noncredit awards for 1,949 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Small Business and Entrepreneurship (TOP 050640)	1,949	115	27	**1,807**

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.
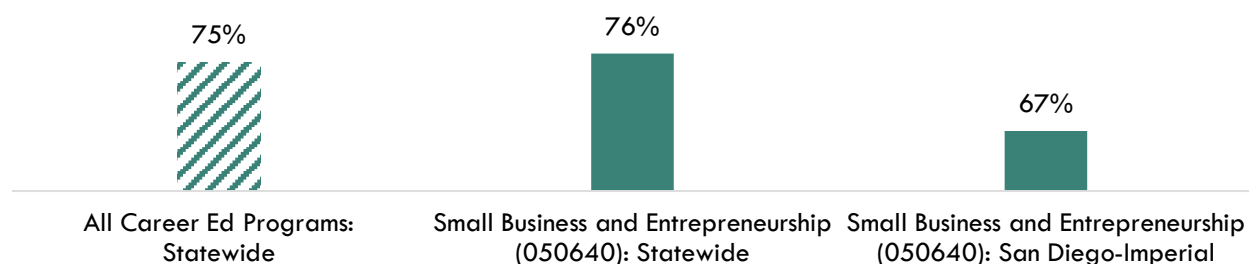
Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 56 percent of students in the San Diego-Imperial region earned a living wage after completing a Small Business and Entrepreneurship (050640) program, compared to 53 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58% — All Career Ed Programs: Statewide	
53% — Small Business and Entrepreneurship (050640): Statewide	
56% — Small Business and Entrepreneurship (050640): San Diego-Imperial	
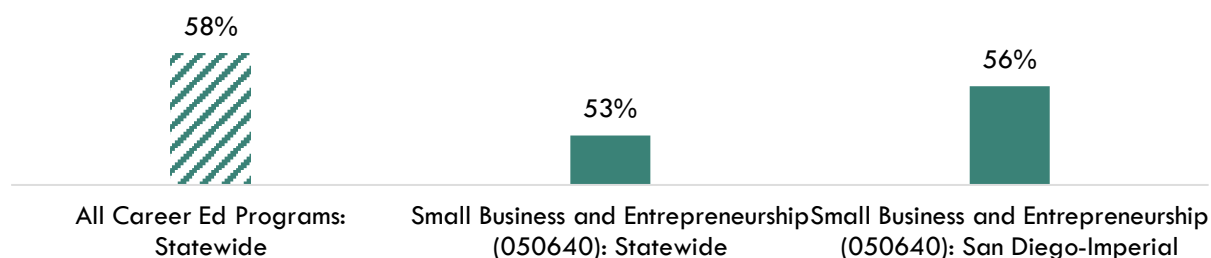
According to the California Community Colleges LaunchBoard, 67 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Small Business and Entrepreneurship (050640) program, compared to 76 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75% — All Career Ed Programs: Statewide	
76% — Small Business and Entrepreneurship (050640): Statewide	
67% — Small Business and Entrepreneurship (050640): San Diego-Imperial	

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

[11] Most recent year with available data is Program Year 2014-15. 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.

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were General Atomics, Sprouts Farmers Markets, San Diego Community College District, Scripps Health, and University of California, San Diego (Exhibit 8).
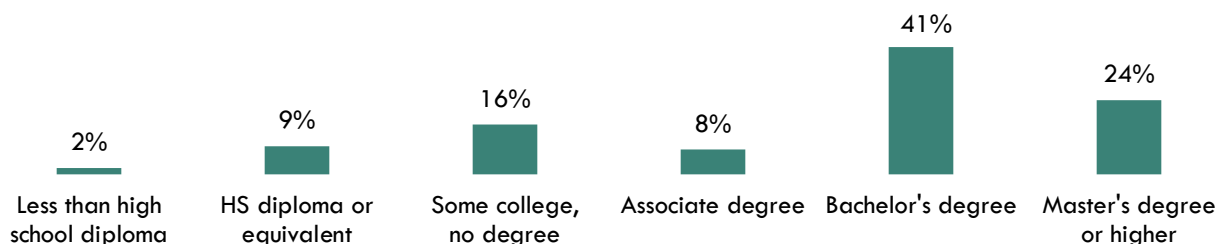
Exhibit 8: Top Employers in San Diego County for *Business Operations Specialists, All Other*[12]

Top Employers	
• General Atomics	• Redline Resources
• Sprouts Farmers Markets	• U.S. Navy
• San Diego Community College District	• Suna Solutions
• Scripps Health	• Hilton Hotel Corporation
• University of California, San Diego	• Marriott International Incorporated

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this occupation. The typical entry-level education is a bachelor's degree.[13]

Exhibit 9a: National Educational Requirements for *Business Operations Specialists, All Other*[14]

Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher
2%	9%	16%	8%	41%	24%

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

8

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Business Operations Specialists, All Other* is a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Business Operations Specialists, All Other* in San Diego County in Online Job Postings[16]
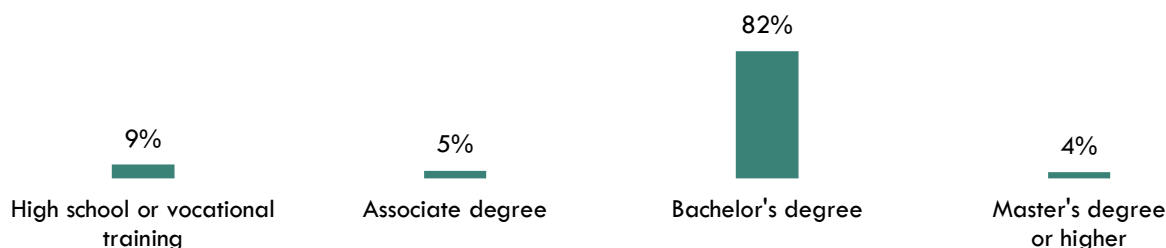

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Business Operations Specialists, All Other* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• E-Commerce	• Communication Skills	• Microsoft Excel
• Project Management	• Planning	• Microsoft PowerPoint
• Customer Service	• Writing	• Microsoft Word
• Scheduling	• Organizational Skills	• SAP
• Budgeting	• Teamwork / Collaboration	• Vulnerability Assessment

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

9

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Office Technology/Office Computer Applications

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ○ Do not Proceed
- ● Proceed with Caution
- ○ Proceed

PROCEED WITH NEW PROGRAM?

SUPPLY GAP?

☑ High
☐ Medium
☐ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Office Technology/Office Computer Applications* program. The training provided by this program is likely to lead to employment as *Secretaries and Administrative Assistants, Except Legal, Medical and Executive*. This occupation has a labor market demand of 2,442 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Eight community colleges supply the region with 80 for-credit awards (35 associate degrees, 30 certificates with 18 to < 30 units, and other certificates with varying numbers of units): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 58 awards over the past three program years. In short, the region supplies 138 for-credit and noncredit awards for 2,442 annual job openings, suggesting that there is a labor market supply gap. Entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. However, this brief recommends proceeding with caution in developing a new program because of the high number of institutions that exist in the region that provide training for the same occupation.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Office Technology/Office Computer Applications (TOP 051400). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Office Technology/Office Computer Applications*, which will be the focus of this report:

Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (SOC 43-6014): Perform routine clerical and administrative functions such as drafting correspondence, scheduling appointments, organizing and maintaining paper and electronic files, or providing information to collars. Sample reported job titles include:

- Secretary
- Administrative Assistant (Admin Assistant)
- Program Assistant
- Office Assistant
- Confidential Secretary

- School Secretary
- School Attendance Secretary
- Office Secretary
- Department Secretary
- Administrative Specialist (Admin Specialist)

Projected Occupational Demand

Between 2018 and 2023, *Secretaries and Administrative Assistants, Except Legal, Medical and Executive* are projected to decrease by 208 net jobs or one percent (Exhibit 1). Employers in San Diego County will need to hire 2,442 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

Exhibit 1: Number of Jobs for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive* (2008-2023)[3]
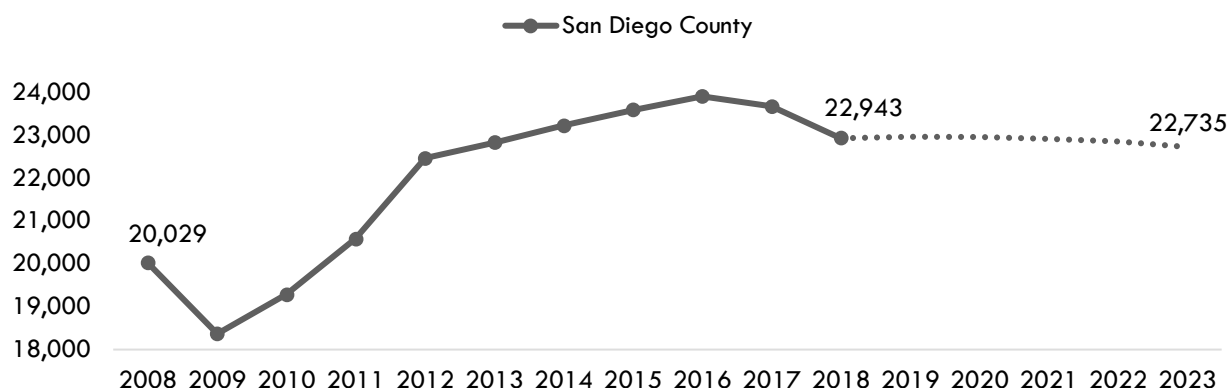
San Diego County

20,029 · 22,943 · 22,735

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 3,213 online job postings per year for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive in* San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive* in San Diego County (2010-2018)[4]
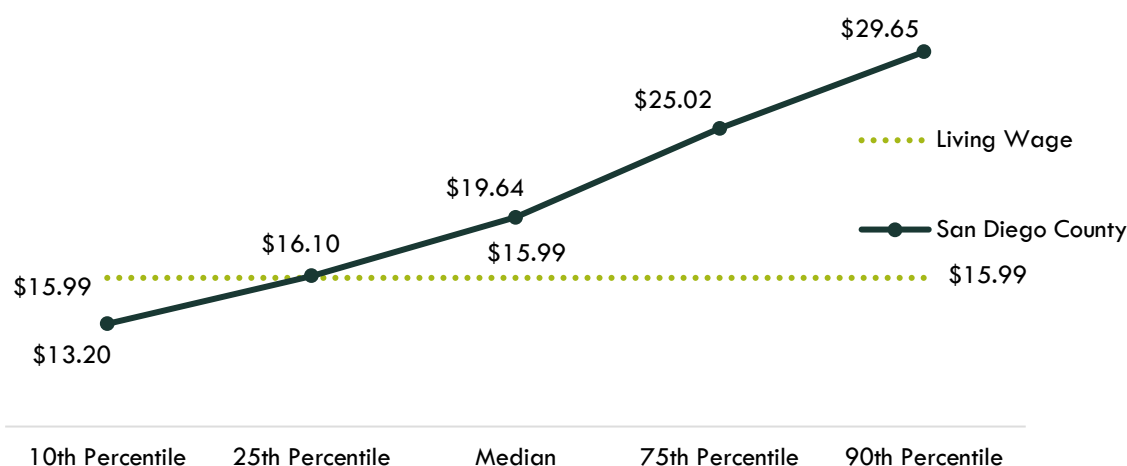

2,134 · 1,955 · 2,019 · 2,630 · 2,925 · 3,487 · 3,672 · 3,996 · 6,099

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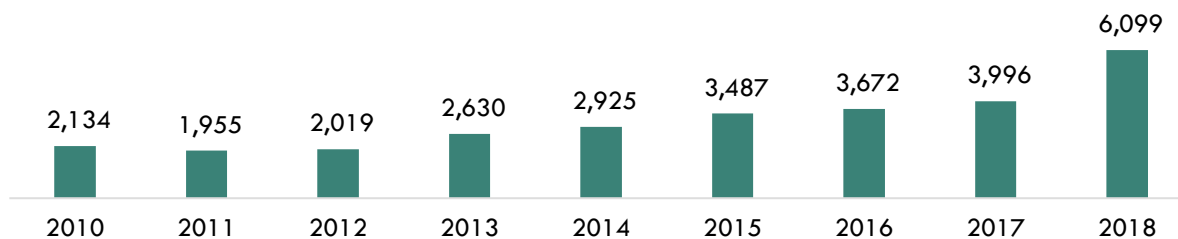
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

Earnings

Secretaries and Administrative Assistants, Except Legal, Medical and Executive have median hourly earnings of $19.64; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive in* San Diego County[7]

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, eight community colleges supply the region with for-credit awards for Office Technology/Office Computer Applications (TOP 051400): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College (Exhibit 4a).

4

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate of Science (A.S.) degree	3	11	6	7
	Certificate 18 to < 30 units	1	5	4	3
	Certificate 12 to < 18 units	0	0	1	0
	Certificate 6 to < 18 units	0	0	1	0
	Total	**4**	**16**	**12**	**11***
Grossmont	Associate of Science (A.S.) degree	8	7	10	8
	Certificate 30 to < 60 units	1	1	1	1
	Certificate 18 to < 30 units	8	6	10	8
	Total	**17**	**14**	**21**	**17**
MiraCosta	Associate of Arts (A.A.) degree	2	2	3	2
	Certificate 18 to < 30 units	8	5	5	6
	Certificate 6 to < 18 units	1	7	4	4
	Total	**11**	**14**	**12**	**12**
Palomar	Associate of Science (A.S.) degree	0	3	1	1
	Associate of Arts (A.A.) degree	0	1	1	1
	Certificate 30 to < 60 units	2	2	2	2
	Certificate 18 to < 30 units	0	2	0	1
	Certificate 6 to < 18 units	1	1	1	1
	Total	**3**	**9**	**5**	**6**
San Diego City	Associate of Science (A.S.) degree	4	8	2	5
	Certificate 18 to < 30 units	7	2	1	3
	Certificate 6 to < 18 units	3	5	1	3
	Total	**14**	**15**	**4**	**11**
San Diego Mesa	Associate of Science (A.S.) degree	4	4	3	4
	Certificate 18 to < 30 units	4	4	4	4
	Certificate 6 to < 18 units	0	2	2	1
	Total	**8**	**10**	**9**	**9**
San Diego Miramar	Associate of Science (A.S.) degree	6	1	4	4
	Certificate 30 to < 60 units	1	1	0	1
	Certificate 18 to < 30 units	6	1	2	3
	Total	**13**	**3**	**6**	**7***

5

Career Education Biennial Review, July 2020, Page 34

Southwestern	Associate of Science (A.S.) degree	2	4	2	3
	Certificate 30 to < 60 units	0	0	3	1
	Certificate 18 to < 30 units	2	1	2	2
	Certificate 6 to < 18 units	0	1	4	2
	Total	**4**	**6**	**11**	**7***
Total		**74**	**87**	**80**	**80**

Note: The numbers may not add up exactly due to rounding.

Broken down by award type, the colleges supplied the most awards in associate degrees (35), followed by certificates with 18 to < 30 units (30), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Office Technology/Office Computer Applications (TOP 051400)* in San Diego County (Three-Year Average 2015-16 through 2017-18)
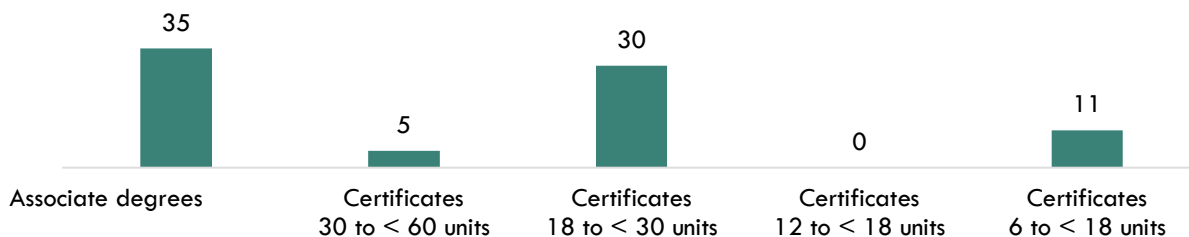
In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Office Technology/Office Computer Applications (TOP 051400), with an average of 58 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Multimedia Specialist; Web Specialist; Administrative Assistant, Business Information Worker 1; Business Information Worker 2; Business Information Worker 3; Front Desk/Office Assistant; Office Assistant 1; Office Assistant 2	Program Award	66	34	75	58

6

Demand vs. Supply

In short, the region supplies 138 for-credit and noncredit awards for 2,442 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

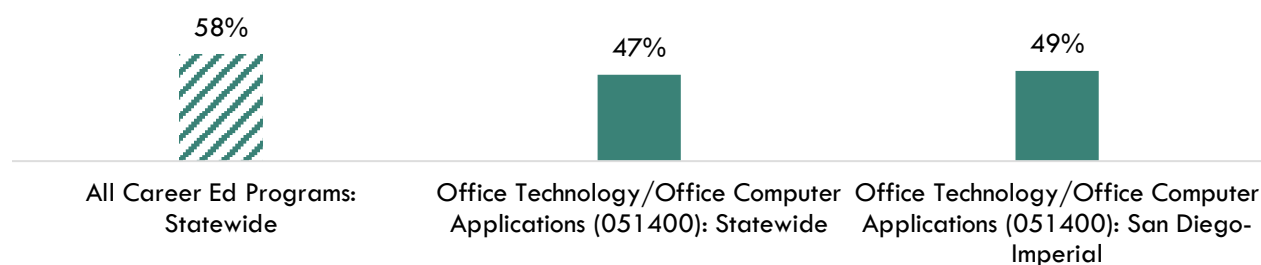**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Office Technology/Office Computer Applications (TOP 051400)	2,442	58	80	**2,304**

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.
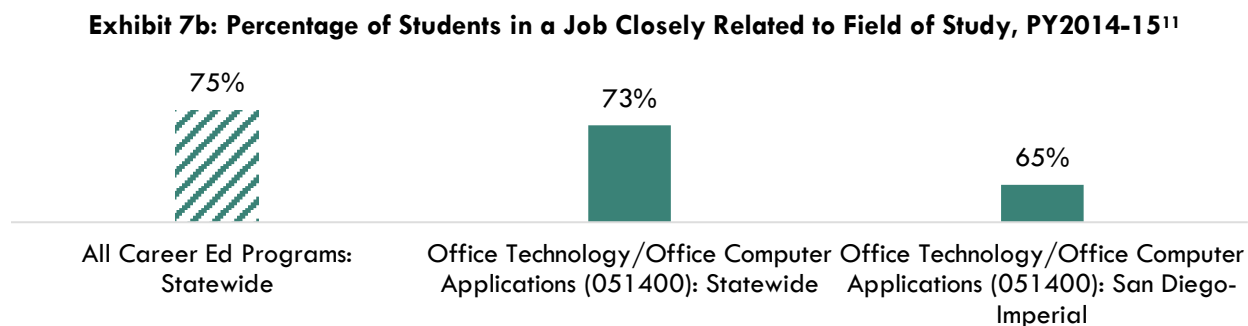
Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 49 percent of students in the San Diego-Imperial region earned a living wage after completing an Office Technology/Office Computer Applications (051400) program, compared to 47 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	47%	49%
All Career Ed Programs: Statewide	Office Technology/Office Computer Applications (051400): Statewide	Office Technology/Office Computer Applications (051400): San Diego-Imperial

---

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

According to the California Community Colleges LaunchBoard, 65 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Office Technology/Office Computer Applications (051400) program, compared to 73 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75% — All Career Ed Programs: Statewide

73% — Office Technology/Office Computer Applications (051400): Statewide

65% — Office Technology/Office Computer Applications (051400): San Diego-Imperial

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were University of California, San Diego; California State University; Ultimate; San Diego State University; and Scripps Health (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive* [12]

| Top Employers	
• University of California, San Diego	• Sharp Healthcare
• California State University	• U.S. Navy
• Ultimate	• Marriott International Incorporated
• San Diego State University	• Macy's
• Scripps Health	• San Diego Community College District

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[11] Most recent year with available data is Program Year 2014-15. 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.
[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
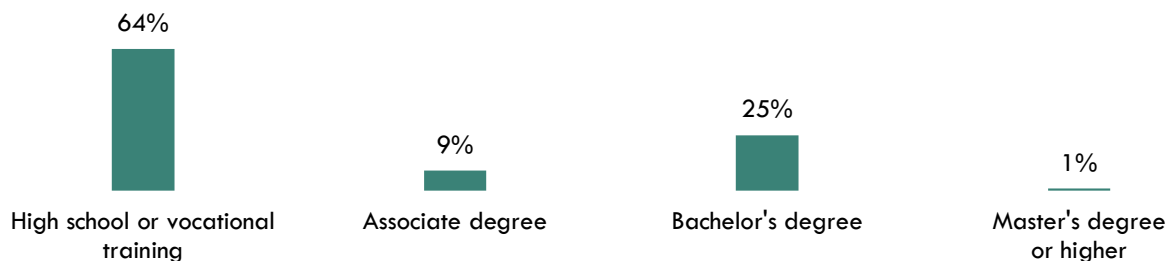
Skills, Education, and Certifications

The typical on-the-job training for this profession is short-term on-the-job training. Nationally, employers report that the typical entry-level education is high school diploma or equivalent. However, the educational attainment for the occupation found currently in the national labor force is some college, no degree.[13]

Exhibit 9a: National Educational Attainment for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive* [14]
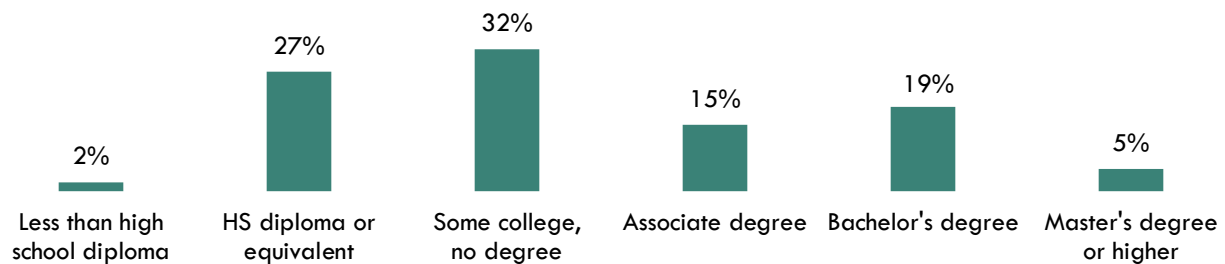
Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive* was a high school diploma or vocational training (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive* in San Diego County in Online Job Postings[16]

*May not add to 100% due to rounding

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[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. 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, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Secretaries and Administrative Assistants, Except Legal, Medical and Executive in San Diego County*[17]

Specialized Skills	Soft Skills	Software Skills
• Administrative Support	• Communication Skills	• Microsoft Excel
• Scheduling	• Organizational Skills	• Microsoft Word
• Customer Service	• Detail-Oriented	• Microsoft PowerPoint
• Data Entry	• Multi-Tasking	• Microsoft Processing
• Spreadsheets	• Computer Literacy	• Microsoft Outlook

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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.
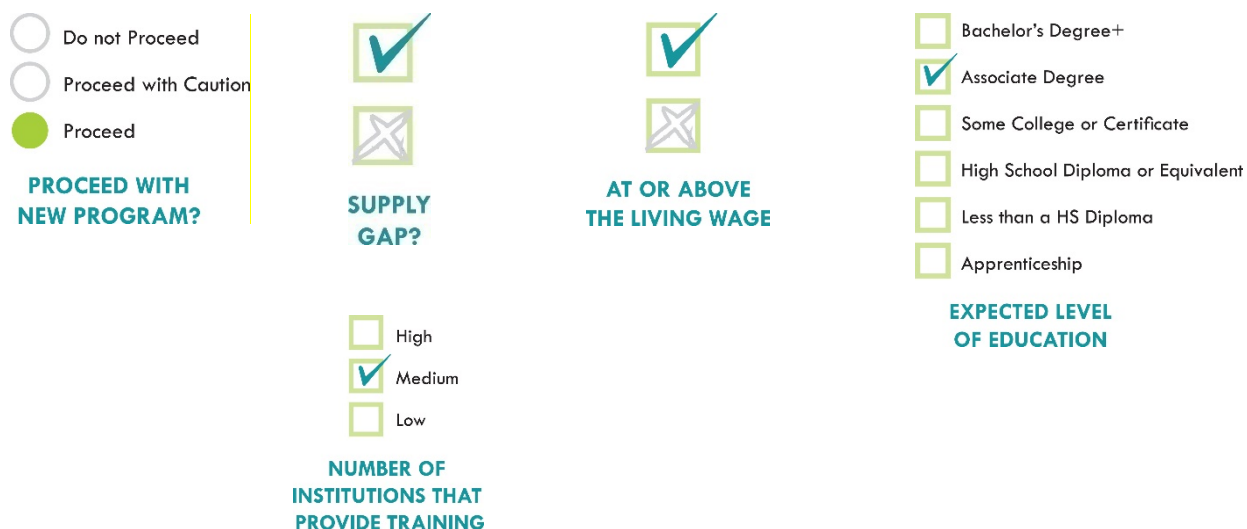
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[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Web Design and Development

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

○ Do not Proceed
○ Proceed with Caution
● Proceed

**PROCEED WITH
NEW PROGRAM?**

☑
☒

**SUPPLY
GAP?**

☐ High
☑ Medium
☐ Low

**NUMBER OF
INSTITUTIONS THAT
PROVIDE TRAINING**

☑
☒

**AT OR ABOVE
THE LIVING WAGE**

☐ Bachelor's Degree+
☑ Associate Degree
☐ Some College or Certificate
☐ High School Diploma or Equivalent
☐ Less than a HS Diploma
☐ Apprenticeship

**EXPECTED LEVEL
OF EDUCATION**

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Web Design and Development* program. The training provided by this program is likely to lead to employment as *Web Developers*. According to available labor market information, this occupation has a labor market demand of 214 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Five community colleges supply the region with 38 for-credit awards (15 associate degrees, 14 certificates with 18 to < 30 units, and other certificates with varying numbers of units): Cuyamaca College, MiraCosta College, Palomar College, San Diego Mesa College, and Southwestern College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 95 awards over the past three program years. In short, the region supplies 133 for-credit and noncredit awards for 214 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. Nationally, the highest expected level of education for this occupation is an associate degree, but in San Diego County, employers posted "bachelor's degree" as the typical educational requirement.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Web Design and Development (TOP 061430). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Web Design and Development*, which will be the focus of this report:

Web Developers (SOC 15-1134): Design, create, and modify Web Sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Sample reported job titles include:

- Web Designer
- Webmaster
- Web Development Instructor
- Web Design Specialist
- Designer

- Web Developer
- Web Architect
- Web Development Director
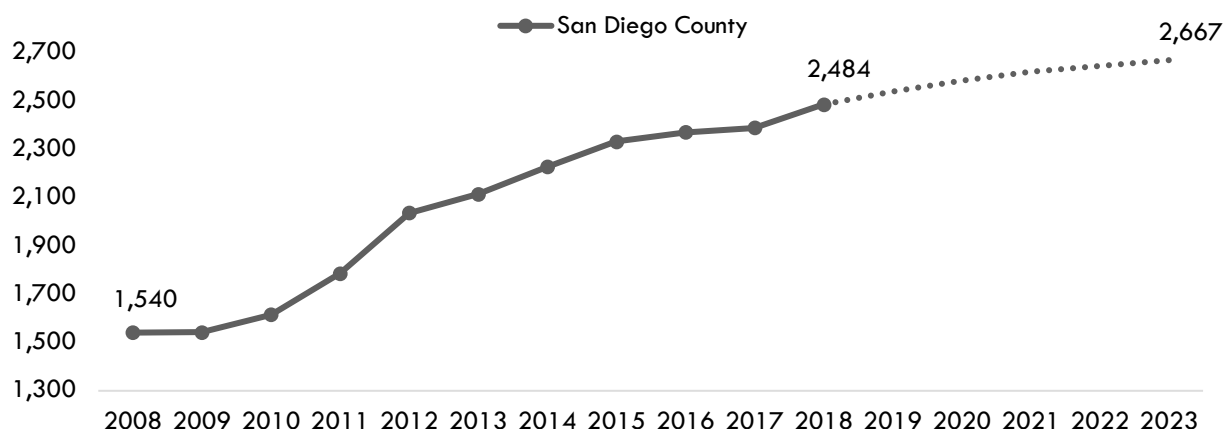- Technology Applications Engineer
- Web Content Developer

Projected Occupational Demand

Between 2018 and 2023, *Web Developers* are projected to increase by 183 net jobs or seven percent (Exhibit 1). Employers in San Diego County will need to hire 214 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
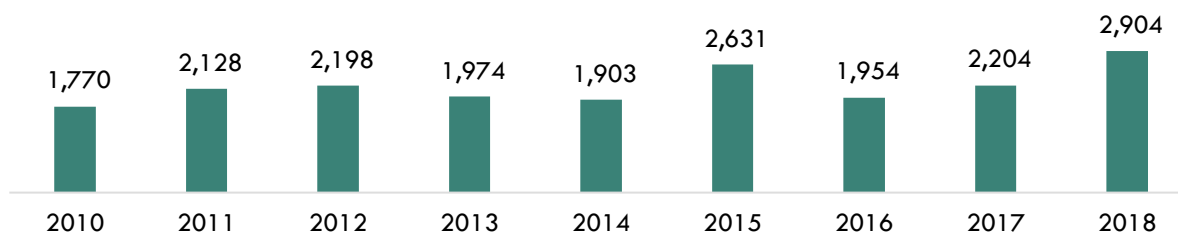
Exhibit 1: Number of Jobs for *Web Developers* (2008-2023)[3]

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 2,185 online job postings per year for *Web Developers* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Web Developers* in San Diego County (2010-2018)[4]
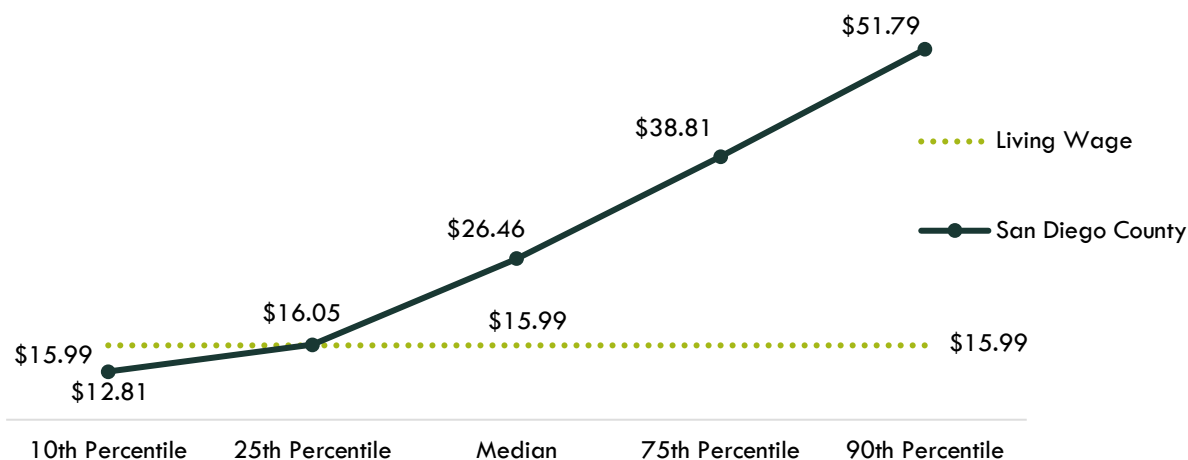

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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

3

Earnings

Web Developers receive median hourly earnings of $26.46; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Web Developers* in San Diego County[7]

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, five community colleges supply the region with for-credit awards for Web Design and Development (TOP 061430): Cuyamaca College, MiraCosta College, Palomar College, San Diego Mesa College, and Southwestern College (Exhibit 4a).

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[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There is one CIP code related to Web Design and Development (TOP 061430): Web Page, Digital/Multimedia and Information Resources Design (CIP 11080).
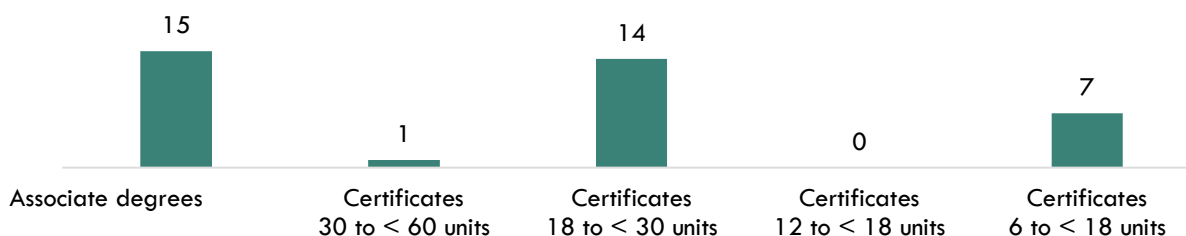
4

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate of Science (A.S.) degree	3	5	5	4
	Certificate 30 to < 60 units	1	0	0	0
	Total	**4**	**5**	**5**	**5***
MiraCosta	Certificate 6 to < 18 units	1	2	3	2
	Total	**1**	**2**	**3**	**2**
Palomar	Certificate 6 to < 18 units	1	0	0	0
	Total	**1**	**0**	**0**	**0**
San Diego Mesa	Associate of Science (A.S.) degree	5	11	9	8
	Certificate 18 to < 30 units	8	15	13	12
	Total	**13**	**26**	**22**	**20**
Southwestern	Associate of Science (A.S.) degree	3	1	4	3
	Certificate 30 to < 60 units	0	1	1	1
	Certificate 18 to < 30 units	6	0	1	2
	Certificate 6 to < 18 units	0	3	12	5
	Total	**9**	**5**	**18**	**11**
Total		**28**	**38**	**48**	**38**

Note: The numbers may not add up exactly due to rounding.

Broken down by award type, the colleges supplied the most awards in associate degrees (15), followed by certificates with 18 to < 30 units (14), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Web Developers* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
15	1	14	0	7

5

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Web Design and Development (TOP 061430), with an average of 95 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Front End Web Developer 1; Web Developer II	Program Award	105	82	98	95

Demand vs. Supply

In short, the region supplies 133 for-credit and noncredit awards for 214 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

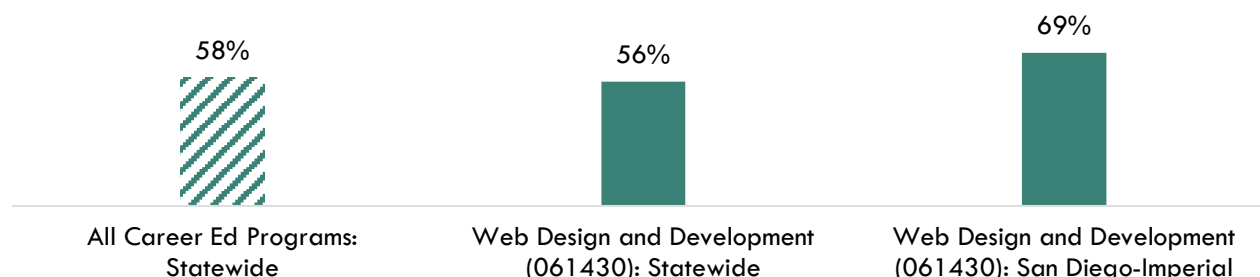**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Web Design and Development (TOP 061430)	214	95	38	**81**

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.
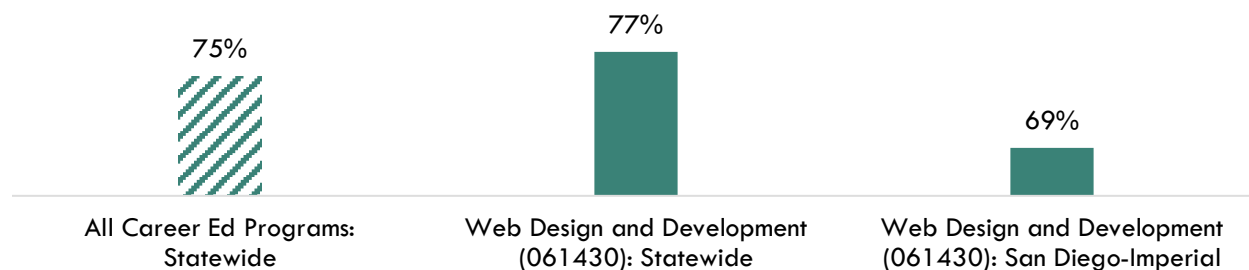
6

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 69 percent of students in the San Diego-Imperial region earned a living wage after completing a Web Design and Development (061430) program, compared to 56 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Web Design and Development (061430): Statewide	Web Design and Development (061430): San Diego-Imperial
58%	56%	69%

According to the California Community Colleges LaunchBoard, 69 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Web Design and Development (061430) program, compared to 77 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Web Design and Development (061430): Statewide	Web Design and Development (061430): San Diego-Imperial
75%	77%	69%

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

7

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Service Now, Thermo Fisher Scientific, Hewlett-Packard, Via Technical, and Sony Electronics Incorporated (Exhibit 8).

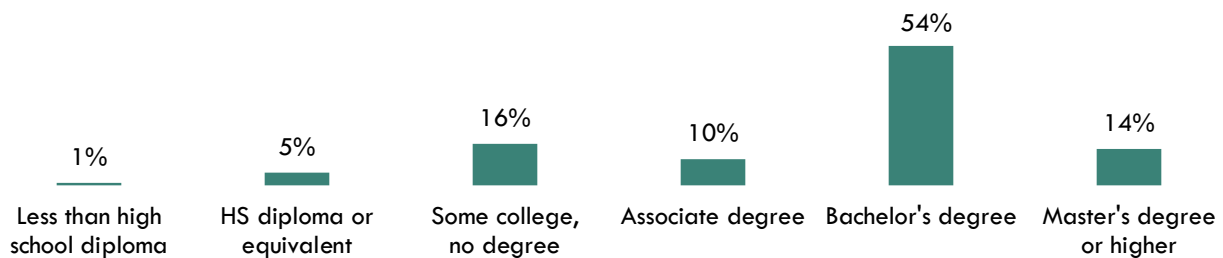**Exhibit 8: Top Employers in San Diego County for *Web Developers*[12]**

Top Employers	
• Service Now	• Qualcomm
• Thermo Fisher Scientific Inc.	• Illumina incorporated
• Hewlett-Packard	• Teradata Operations, Inc.
• Via Technical	• Sayva Solutions
• Sony Electronics Incorporated	• Accenture

Skills, Education, and Certifications

There is no typical on-the-job training for this occupation. Nationally, employers report that the required entry-level education for the occupation is an associate degree. However, the typical educational attainment for the occupation currently found in the national labor force is a bachelor's degree or higher.[13]

Exhibit 9a: National Educational Attainment for *Web Developers*[14]

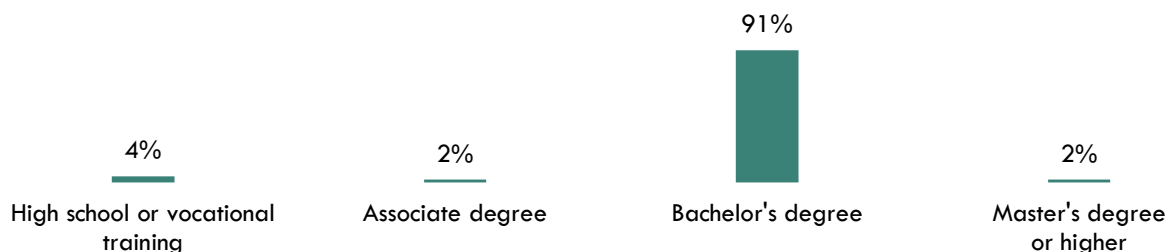| 1%	5%	16%	10%	54%	14%
Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Web Developers* in San Diego County was a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Web Developers* in San Diego County in Online Job Postings[16]

91%

4%
High school or vocational training

2%
Associate degree

Bachelor's degree

2%
Master's degree or higher

*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Web Developers* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Web Development	• Communication Skills	• JavaScript
• Web Application Development	• Teamwork/Collaboration	• jQuery
• Hypertext Preprocessor	• Creativity	• HTML5
• Software Development	• Problem Solving	• Angular JS
• Front-end Development	• Writing	• Git

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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SECTION B. LABOR MARKET INFORMATION (LMI) SUMMARY (REQUIRED FOR CTE PROGRAMS ONLY - *This includes Auto, Business, Fashion, Healthcare, IT, Parent Ed, Trades, etc.*)

LMIs are required for each program every two years, per Title V. If an LMI Summary was conducted last year at the individual certificate program level <u>and</u> aligns with the **<u>SDCE Program-Specific TOP-CIP-SOC Crosswalk</u>**, *it does not need to be repeated this year.* **List each program below and note that its review was conducted in 2017.**

*If an LMI Summary was not conducted for **each** CTE certificate program last year or if the LMI analysis combined certificate programs, an LMI review must be conducted this year. Use the new resource sheet,* **<u>SDCE Program-Specific TOP-CIP-SOC Crosswalk</u>**, *to help determine baseline program-to-occupation alignment.* **Complete an LMI Summary Statement using the <u>LMI Worksheet Instructions & Templates</u> resource for <u>each</u> CTE certificate program, then copy and paste the LMI statement(s) below.**

The Interactive Media Certificate Program (IMCP) will prepare students for entry-level employment opportunities in a cluster of occupations including Media and Communication Workers, All Other (SOC 27-3099), Multimedia Artists and Animators (SOC 27-1014), Graphic Designers (SOC 27-1024) Media and Communication Equipment Workers (SOC 27-4099) Desktop Publishers (SOC 43-9031) Office Administrative Support Workers (SOC 43-9199), Multimedia Artists and Animators (SOC 27-1014), and Designers, All Other (SOC 27-1029).

The following summarizes the aggregate LMI in San Diego County for the aforementioned occupations.

- The <u>2015-18 </u>job change is projected to be 1,615 jobs.   4.0% growth with the largest growth being in Media and Communication Workers, All Other, 5.7% growth and Designers, All Other, 6.1% growth.
  Overall annual openings are projected to be 562.

- The average entry-level wage for the occupational cluster is $12.93 with a median wage of $23.53.
  The largest median wage is for Media and Communication Workers, All Other at $23.53.

- There were a total of 497 regional completions in <u>2016-17 </u>within the following related programs: Digital Media and Other Media & Communication (TOP 61400 & 69900) located at San Diego Community College.
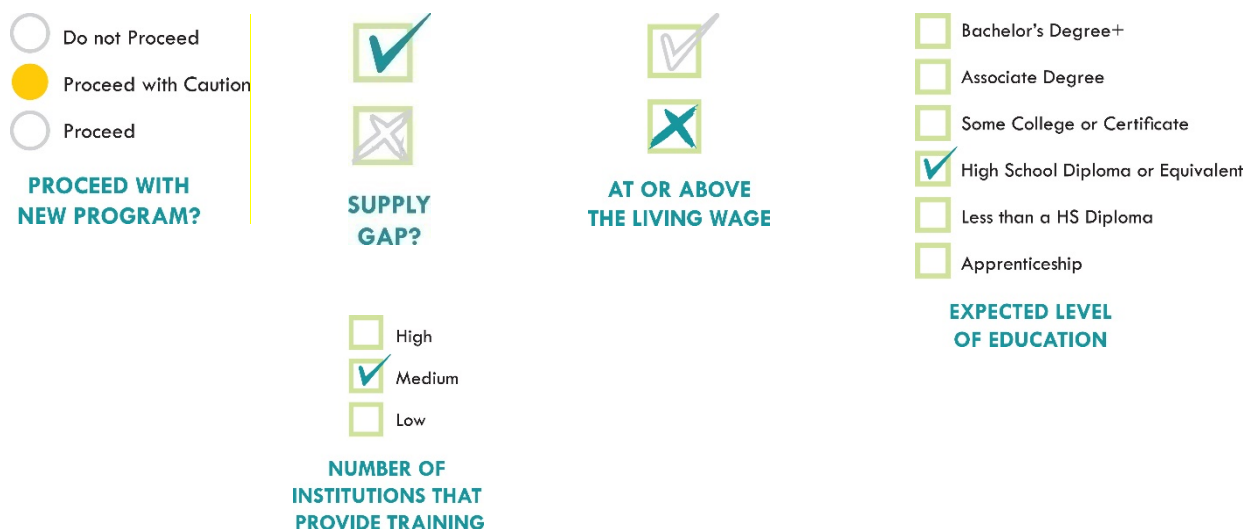
With 644 annual job openings and 497 related regional completions there is an annual net demand of 147 openings. This demand gap warrants the regional need for continuation of the current IMCP program and continued updates of the curriculum to remain current and on trend at SDCE.

Software Applications

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

PROCEED WITH NEW PROGRAM?
- ○ Do not Proceed
- ● Proceed with Caution
- ○ Proceed

SUPPLY GAP?
☑ ☒

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING
- ☐ High
- ☑ Medium
- ☐ Low

AT OR ABOVE THE LIVING WAGE
☑ ☒

EXPECTED LEVEL OF EDUCATION
- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Software Applications* program. The training provided by this program is likely to lead to employment as *Data Entry Keyers*. According to available labor market information, this occupation has a labor market demand of 217 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Five community colleges supply the region with 18 for-credit awards: Grossmont College, MiraCosta College, San Diego City College, San Diego Miramar College, and Southwestern College. While associate degrees are offered, the colleges supplied primarily certificates, with varying numbers of units. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 27 awards over the past three program years. In short, the region supplies 45 for-credit and noncredit awards for 217 annual job openings, suggesting that there is a labor market supply gap. However, this brief recommends proceeding with caution when developing a new program because both entry-level and median wages are below the living wage. Expected level of education for this occupation is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Software Applications (TOP 070210). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Software Applications*, which will be the focus of this report:

Data Entry Keyers (SOC 43-9021): Operate data entry device, such as a keyboard or photo composing perforator. Duties may include verifying data and preparing materials for printing. Sample reported job titles include:

- Data Entry Clerk
- Data Entry Specialist
- Typist
- Fiscal Assistant
- Data Entry Machine Operator
- Data Entry Operator
- Underwriting Support Specialist
- Records Clerk
- Data Transcriber
- Data Capture Specialist

Projected Occupational Demand

Between 2018 and 2023, *Data Entry Keyers* are projected to decrease by 119 net jobs or six percent (Exhibit 1). Employers in San Diego County will need to hire 217 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

Exhibit 1: Number of Jobs for *Data Entry Keyers* (2008-2023)[3]
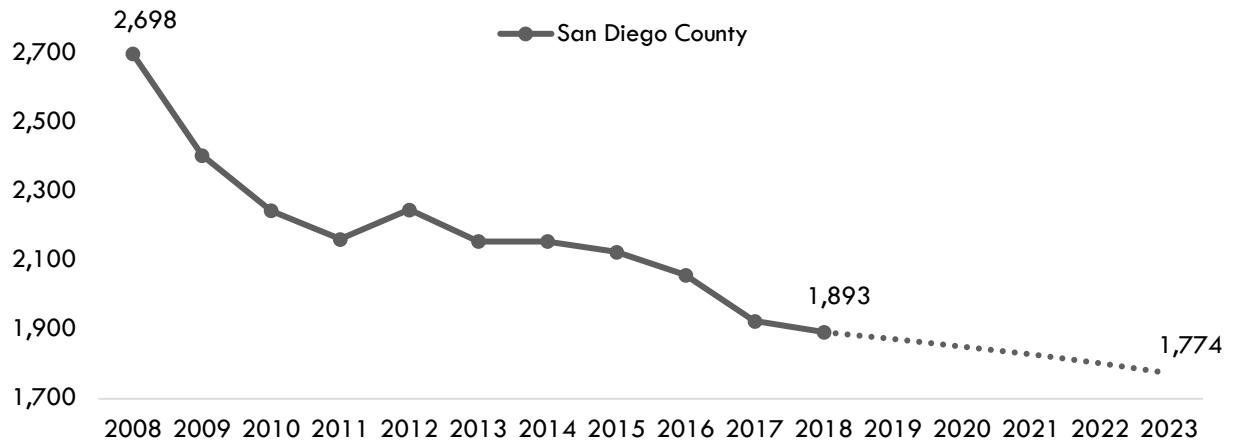
Online Job Postings

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 440 online job postings per year for *Data Entry Keyers* in San Diego County (Exhibit 2).

**Exhibit 2: Number of Online Job Postings for *Data Entry Keyers* in San Diego County (2010-2018)**[4]
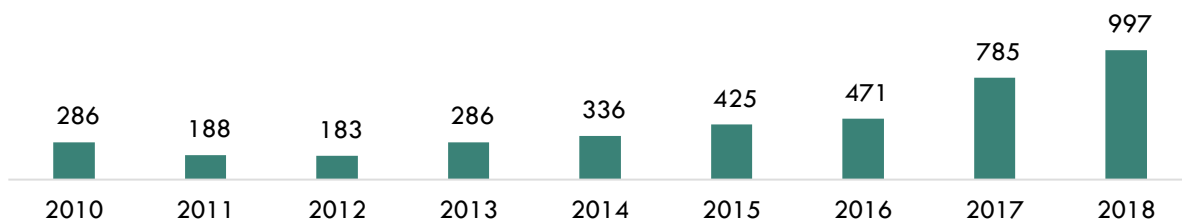
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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

Earnings

Data Entry Keyers receive median hourly earnings of $15.43; this is less than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Data Entry Keyers* in San Diego County[7]
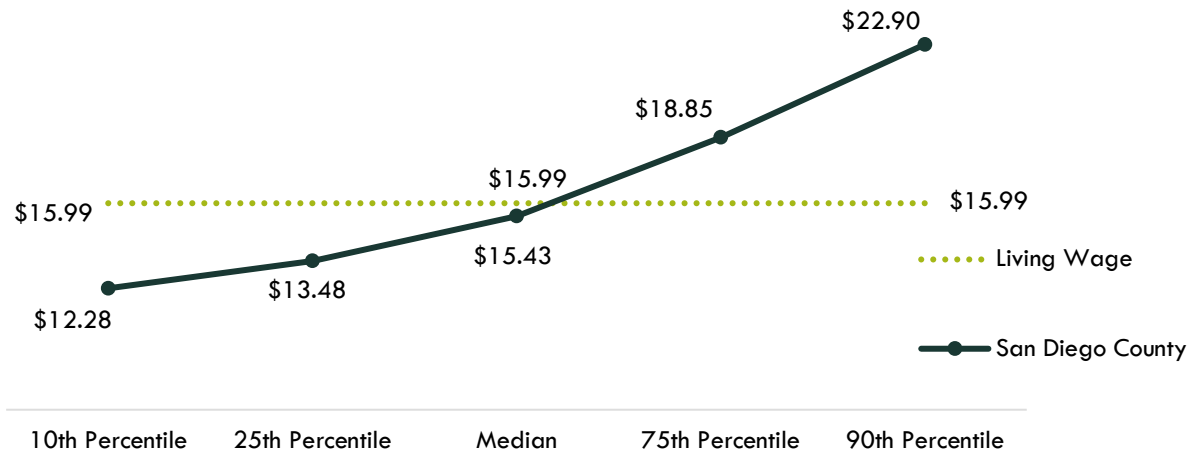
Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, five community colleges supply the region with for-credit awards for Software Applications (TOP 070210): Grossmont College, MiraCosta College, San Diego City College, San Diego Miramar College, and Southwestern College (Exhibit 4a).

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[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There are three CIP codes related to Software Applications (TOP 070210): Data Entry/Microcomputer Applications, General (CIP 110601), Word Processing (CIP 110602), and Computer Software and Media Applications, Other (CIP 110899).
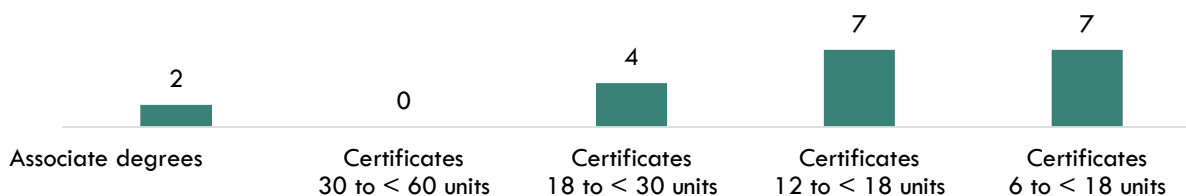
4

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Grossmont	Associate of Science (A.S.) degree	1	2	0	1
	Certificate 18 to < 30 units	1	1	0	1
	Total	**2**	**3**	**0**	**2**
MiraCosta	Associate of Arts (A.A.) degree	1	0	1	1
	Certificate 18 to < 30 units	1	2	2	2
	Certificate 12 to < 18 units	9	4	4	6
	Certificate 6 to < 18 units	2	2	1	2
	Total	**13**	**8**	**8**	**10***
San Diego City	Certificate 12 to < 18 units	1	0	2	1
	Certificate 6 to < 18 units	0	0	6	2
	Total	**1**	**0**	**8**	**3**
San Diego Miramar	Certificate 6 to < 18 units	0	2	7	3
	Total	**0**	**2**	**7**	**3**
Southwestern	Certificate 18 to < 30 units	1	1	0	1
	Certificate 12 to < 18 units	1	0	0	0
	Total	**2**	**1**	**0**	**1**
Total		**18**	**14**	**23**	**18***

Note: The numbers may not add up exactly due to rounding.

Broken down by award type, the colleges awarded certificates with 6 to < 18 units (7), certificates with 12 to < 18 units (7), etc. (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Software Applications (TOP 070210)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
2	0	4	7	7

5

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Software Applications (TOP 070210), with an average of 27 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Mobile Application Development	Program Award	0	18	63	27

Demand vs. Supply

In short, the region supplies 45 for-credit and noncredit awards for 217 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)
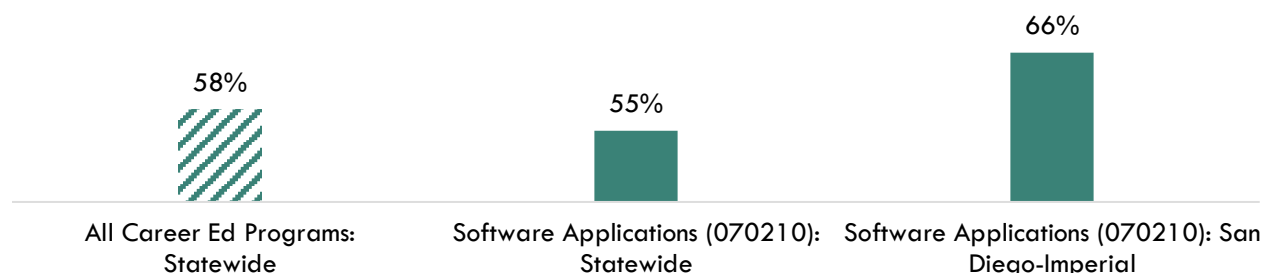
TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Software Applications (TOP 070210)	217	27	18	**172**

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.

6

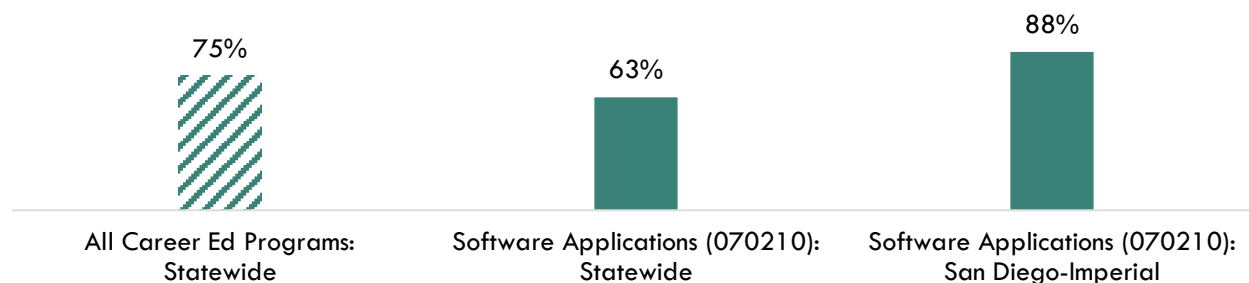## Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 66 percent of students in the San Diego-Imperial region earned a living wage after completing a Software Applications (070210) program, compared to 55 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	55%	66%
All Career Ed Programs: Statewide	Software Applications (070210): Statewide	Software Applications (070210): San Diego-Imperial

According to the California Community Colleges LaunchBoard, 88 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Software Applications (070210) program, compared to 63 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	63%	88%
All Career Ed Programs: Statewide	Software Applications (070210): Statewide	Software Applications (070210): San Diego-Imperial

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

7

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Laboratory Corporation of America, Medical Professionals, Ultimate, Crossmark, and Advantage Sales & Marketing (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Data Entry Keyers*[12]

Top Employers	
• Laboratory Corporation of America	• Morris Cerullo World Evangelism
• Medical Professionals	• Mike Roberts
• Ultimate	• General Atomics
• Crossmark	• ATK
• Advantage Sales & Marketing	• Mjol Company Profile

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is short-term on-the-job training. The typical entry-level education is a high school diploma or equivalent.[13]

Exhibit 9a: National Educational Requirements for *Data Entry Keyers*[14]
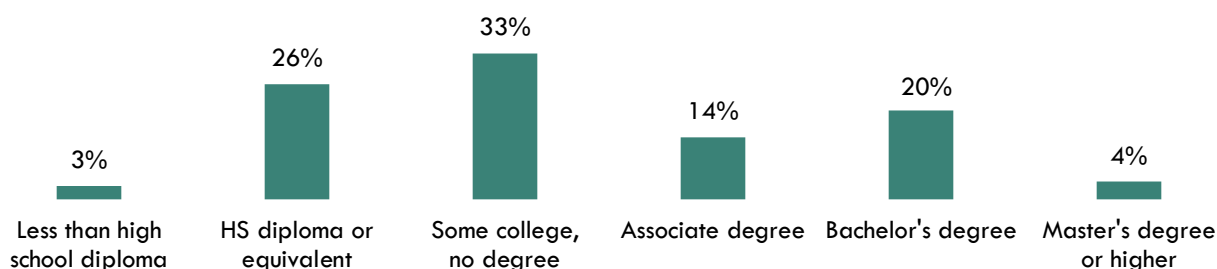
*May not add to 100% due to rounding

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Data Entry Keyers* was a high school diploma or vocational training (Exhibit 9b).[15]

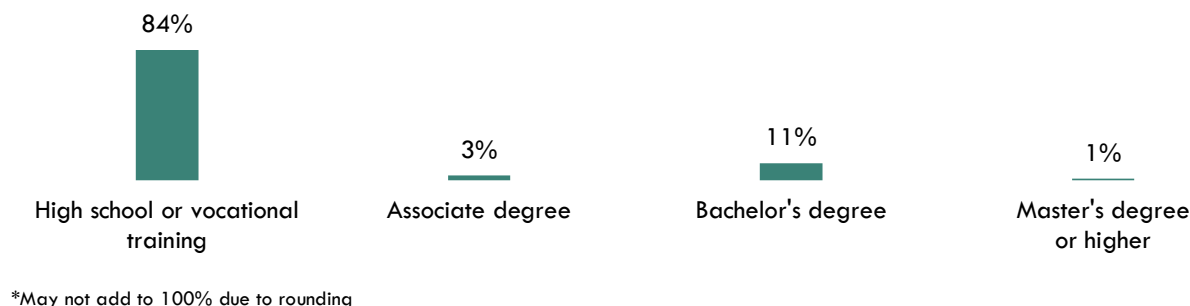**Exhibit 9b: Educational Requirements for *Data Entry Keyers* in San Diego County in Online Job Postings[16]**

84%
3%
11%
1%

High school or vocational training   Associate degree   Bachelor's degree   Master's degree or higher

*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Data Entry Keyers* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Data Entry	• Detail-Oriented	• Microsoft Excel
• Spreadsheets	• Typing	• Microsoft Word
• Customer Service	• Communication Skills	• Microsoft Processing
• Accounting	• Organizational Skills	• Microsoft Outlook
• Sorting	• Computer Literacy	• Salesforce

[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

9

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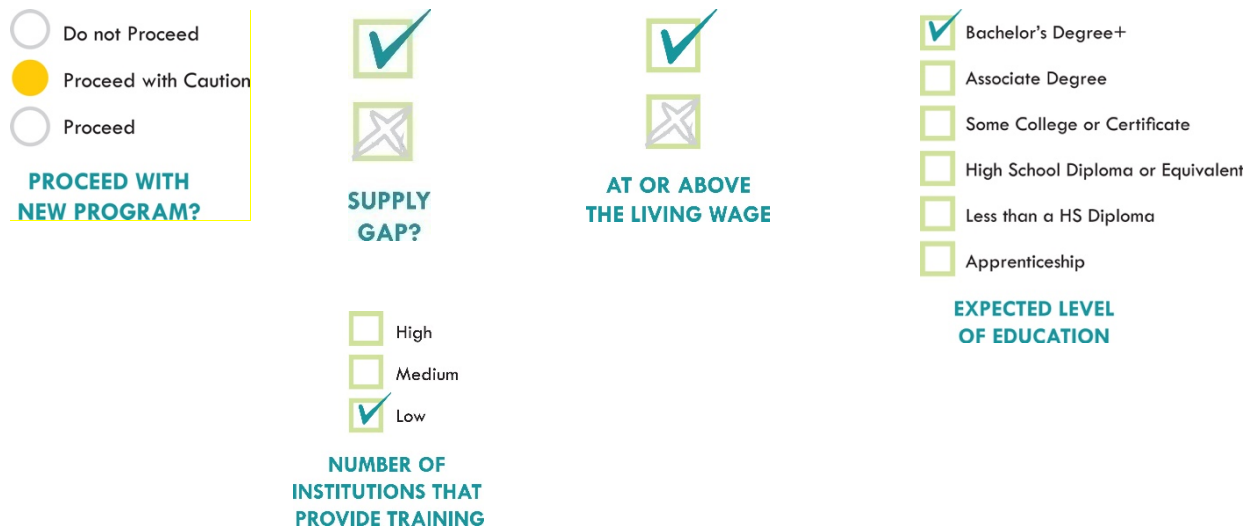jedwards@miracosta.edu

Important Disclaimers

10

Computer Infrastructure and Support

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Computer Infrastructure and Support* program. The training provided by this program is likely to lead to employment as *Computer Network Support Specialists*. According to available labor market information, the occupation has a labor market demand of 129 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with 19 for-credit awards (nine associate degrees, six certificates with 18 to < 30 units, and 5 certificates with 6 to < 18 units): San Diego City College. Only San Diego Continuing Education supplied noncredit awards for this occupation, which averaged three awards over the last three program years. In short, the region supplies 22 for-credit and noncredit awards for 129 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. However, this brief recommends to proceed with caution because the expected level of education for this occupation is a bachelor's degree.
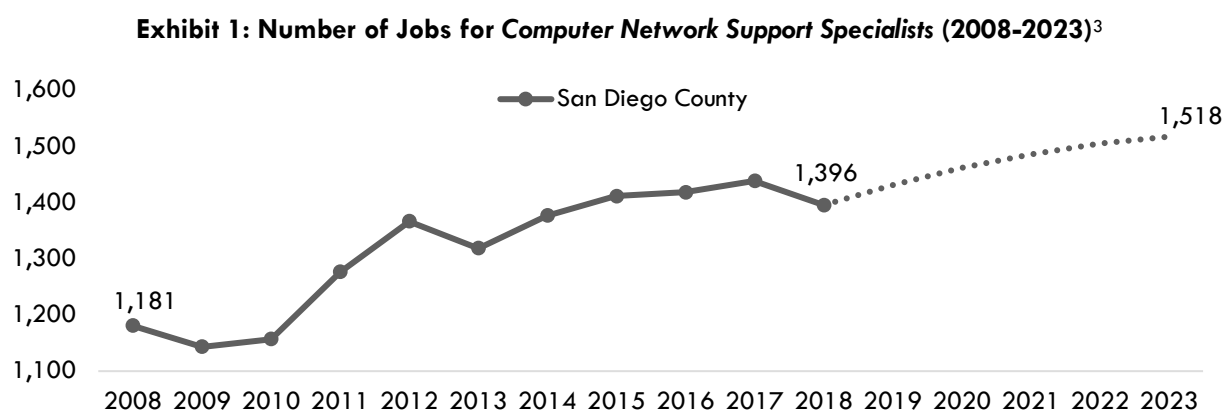
Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Computer Infrastructure and Support (TOP 070800). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Computer Infrastructure and Support*, which will be the focus of this report:

> **Computer Network Support Specialists** (SOC 15-1152): Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Perform network maintenance to ensure networks operate correctly with minimal interruption. Sample reported job titles include:

- Network Specialist
- Technical Support Specialist
- Systems Analyst
- Network Engineer
- IT Specialist (Information Technology Specialist)

- Network Technician
- Systems Support Specialist
- Network Support Specialist
- Network Analyst
- Systems Specialist

Projected Occupational Demand

Between 2018 and 2023, *Computer Network Support Specialists* are projected to increase by 122 net jobs or nine percent (Exhibit 1). Employers in San Diego County will need to hire 129 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Computer Network Support Specialists* (2008-2023)[3]

---

[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 183 online job postings per year for *Computer Network Support Specialists* in San Diego County (Exhibit 2).
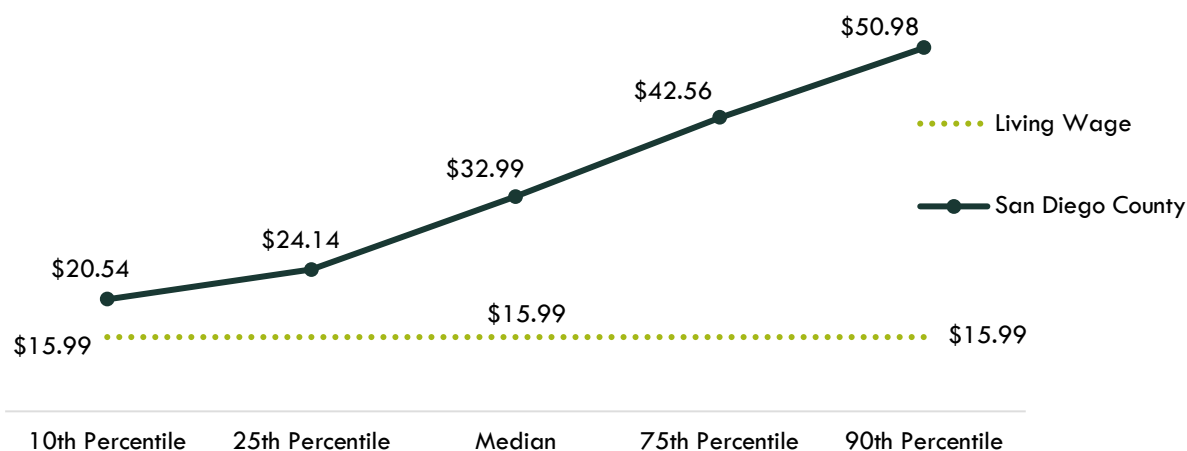
Exhibit 2: Number of Online Job Postings for *Computer Network Support Specialists* in San Diego County (2010-2018)[4]
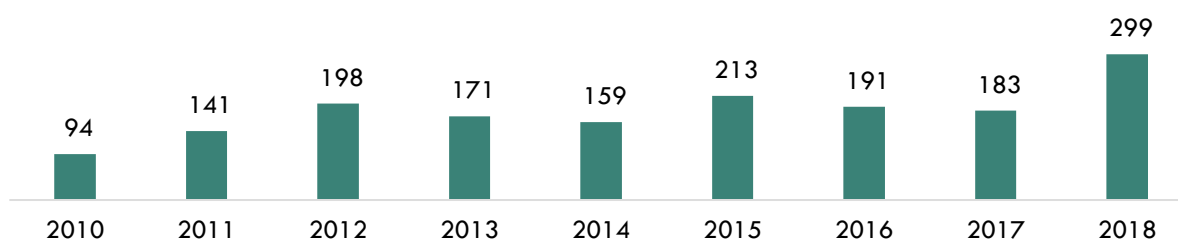
Earnings

Computer Network Support Specialists have median hourly earnings of $32.99; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Computer Network Support Specialists* in San Diego County[7]

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.
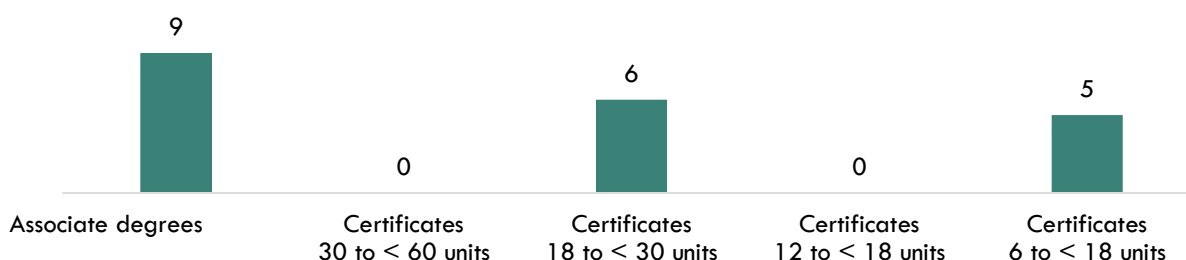
Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Computer Infrastructure and Support (TOP 070800): San Diego City College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego City	Associate of Science (A.S.) degree	5	9	13	9
	Certificate 18 to < 30 units	2	8	7	6
	Certificate 6 to < 18 units	0	0	14	5
	Total	**7**	**17**	**34**	**19**

More specifically, "Certificates 18 to < 30 units" have the largest number of awards over a three-year average (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Computer Infrastructure and Support (TOP 070800)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
9	0	6	0	5

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[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] There are two CIP codes related to Computer Infrastructure and Support (TOP 070800): Network and System Administration/Administrator (CIP 111001) and Computer and Information Systems Security/Information Assurance (CIP 111003).

4

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Computer Infrastructure and Support (TOP 070800), with an average of three noncredit awards over the past three program years (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cyber Threat and Response; Cybersecurity Analyst; Security Essentials	Program Award	0	5	5	3

Demand vs. Supply

In short, the region supplies 22 for-credit and noncredit awards for 129 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

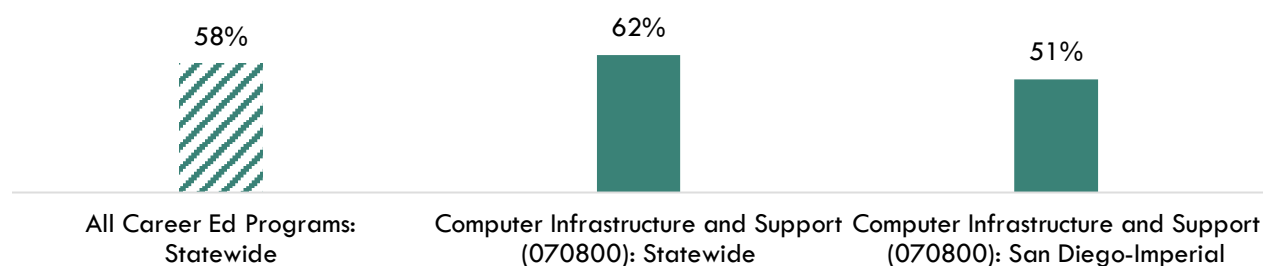**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Computer Infrastructure and Support (TOP 070800)	129	3	19	**107**

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.
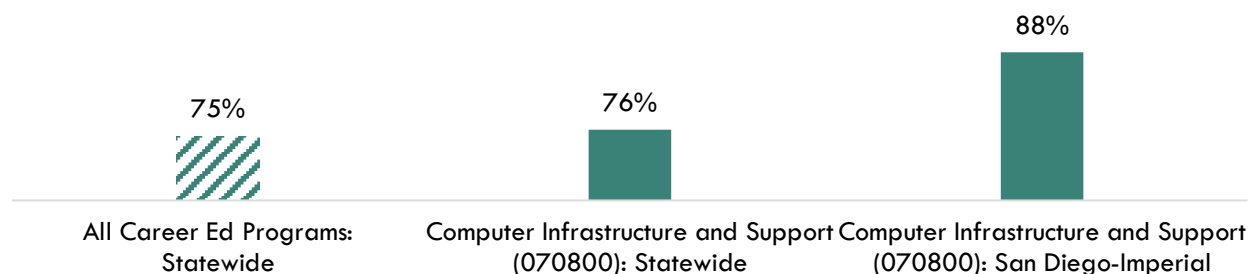
5

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 51 percent of students in the San Diego-Imperial region earned a living wage after completing a Computer Infrastructure and Support (070800) program, compared to 62 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Computer Infrastructure and Support (070800): Statewide	Computer Infrastructure and Support (070800): San Diego-Imperial
58%	62%	51%

According to the California Community Colleges LaunchBoard, 88 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Computer Infrastructure and Support (070800) program, compared to 76 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Computer Infrastructure and Support (070800): Statewide	Computer Infrastructure and Support (070800): San Diego-Imperial
75%	76%	88%

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were General Dynamics, Northrop Grumman, NRC Corporation, Tactical Engineering & Analysis, and Anthem Blue Cross (Exhibit 8).

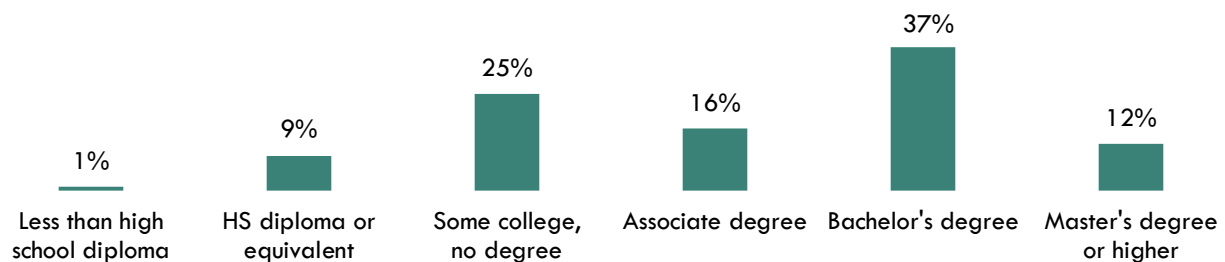**Exhibit 8: Top Employers in San Diego County for *Computer Network Support Specialists*[12]**

Top Employers	
• General Dynamics	• U.S. Navy
• Northrop Grumman	• ViaSat
• NRC Corporation	• SAIC
• Tactical Engineering & Analysis Inc.	• United Technologies Corporation
• Anthem Blue Cross	• First Tek

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this occupation. The typical entry-level education is a bachelor's degree. However, 51 percent of the occupation's national workforce have an associate or lower.[13]

Exhibit 9a: National Educational Requirements for *Computer Network Support Specialists*[14]

Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher
1%	9%	25%	16%	37%	12%

7

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Computer Network Support Specialists* was a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Computer Network Support Specialists* in San Diego County in Online Job Postings[16]

23% — High school or vocational training
22% — Associate degree
53% — Bachelor's degree
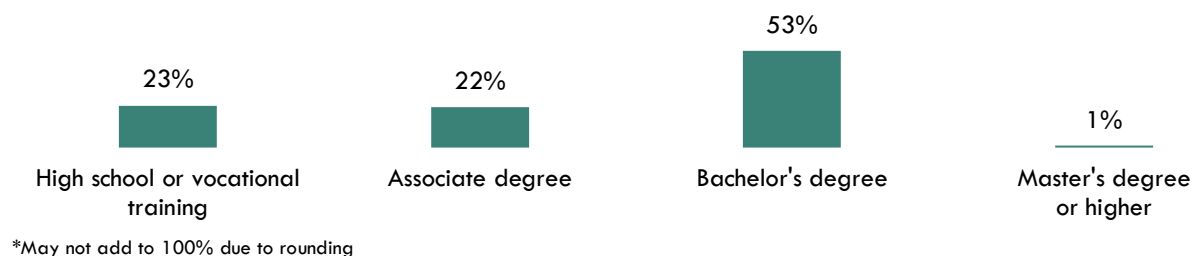1% — Master's degree or higher

*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Computer Network Support Specialists* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Technical Support	• Troubleshooting	• Microsoft Office
• Repair	• Communication Skills	• Linux
• Network Support	• Computer Literacy	• Microsoft Windows
• System Administration	• Problem Solving	• Microsoft Excel
• Hardware and Software Installation	• Detail-Oriented	• VM Ware

[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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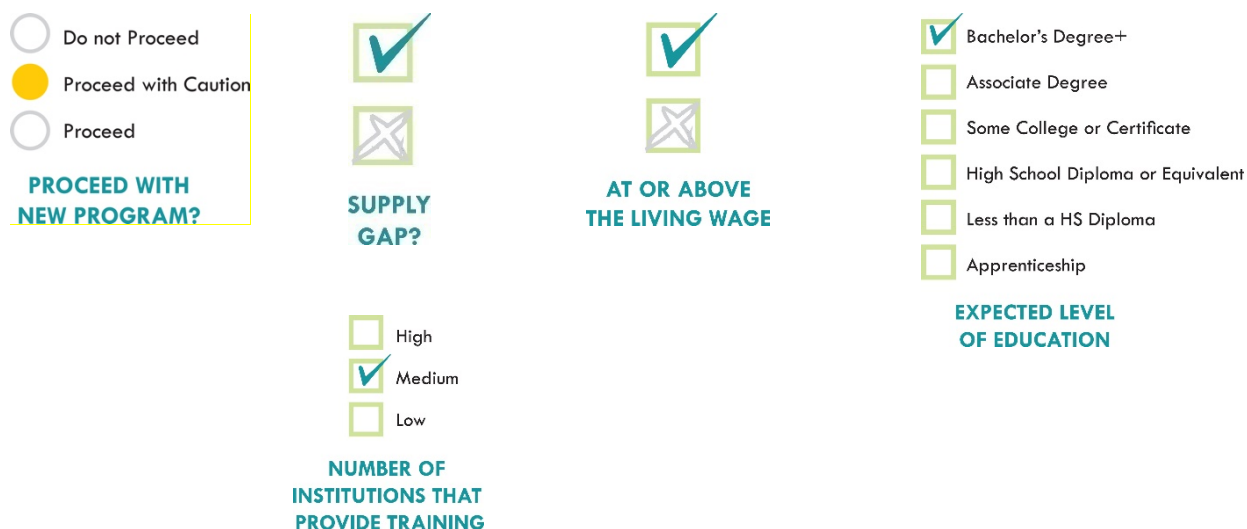
Important Disclaimers

9

Computer Networking

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

○ Do not Proceed
● Proceed with Caution
○ Proceed

**PROCEED WITH
NEW PROGRAM?**

☑ (checked)
☒ (crossed)

**SUPPLY
GAP?**

☑ (checked)
☒ (crossed)

**AT OR ABOVE
THE LIVING WAGE**

☑ Bachelor's Degree+
☐ Associate Degree
☐ Some College or Certificate
☐ High School Diploma or Equivalent
☐ Less than a HS Diploma
☐ Apprenticeship

**EXPECTED LEVEL
OF EDUCATION**

☐ High
☑ Medium
☐ Low

**NUMBER OF
INSTITUTIONS THAT
PROVIDE TRAINING**

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Computer Networking* program. The training provided by this program is likely to lead to employment as *Computer Network Architects*. According to available labor market information, the occupation has a labor market demand of 121 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Six community colleges supply the region with 85 for-credit awards (31 associate degrees, 29 certificates with 30 to < 60 units, and other certificates with varying numbers of units): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, and Southwestern College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged seven awards over the last three program years. In short, the region supplies 92 for-credit and noncredit awards for 121 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. However, this brief recommends to proceed with caution because the expected level of education for this occupation is a bachelor's degree.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Computer Networking (TOP 070810). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Computer Networking*, which will be the focus of this report:
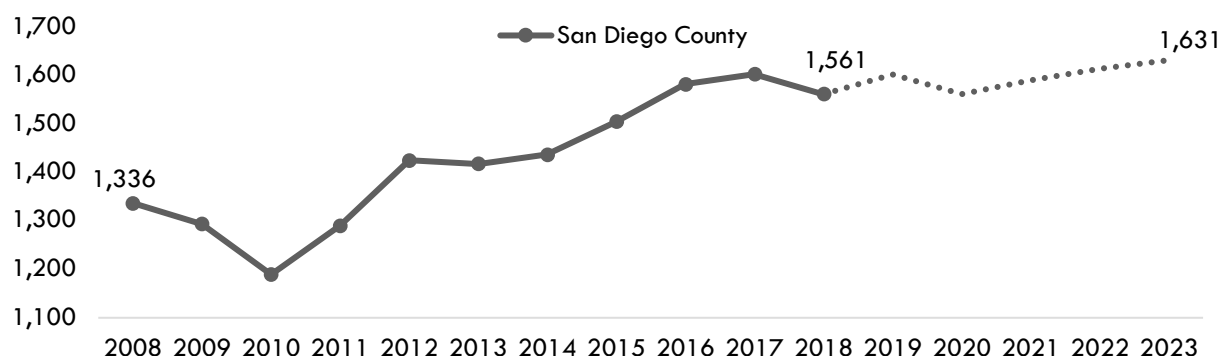
Computer Network Architects (SOC 15-1143): Design and implement computer and information networks, such as local area networks (LAN), wide area networks (WAN), intranets, extranets, and other data communications networks. Perform network modeling, analysis, and planning. May also design network and computer security measures. May research and recommend network and data communications hardware and software. Sample reported job titles include:

- Network Analyst
- Network Consultant
- Solutions Architect
- Telecommunications Consultant
- Telecom Network Manager (Telecommunication Network Manager)

- Network Engineer
- Telecommunications Analyst
- Telecommunication Engineer
- Telecommunication Systems Designer
- Senior Telecommunications Consultant

Projected Occupational Demand

Between 2018 and 2023, *Computer Network Architects* are projected to increase by 70 net jobs or four percent (Exhibit 1). Employers in San Diego County will need to hire 121 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Computer Network Architects* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 981 online job postings per year for *Computer Network Architects* in San Diego County (Exhibit 2).
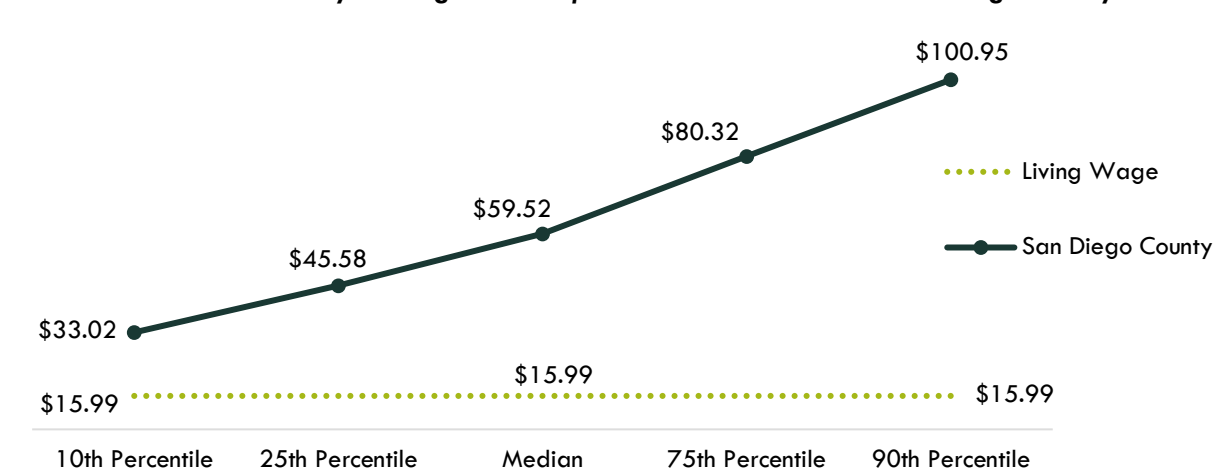
Exhibit 2: Number of Online Job Postings for *Computer Network Architects* in San Diego County (2010-2018)[4]

2010	2011	2012	2013	2014	2015	2016	2017	2018
773	865	1,054	1,016	724	1,080	946	1,051	1,324
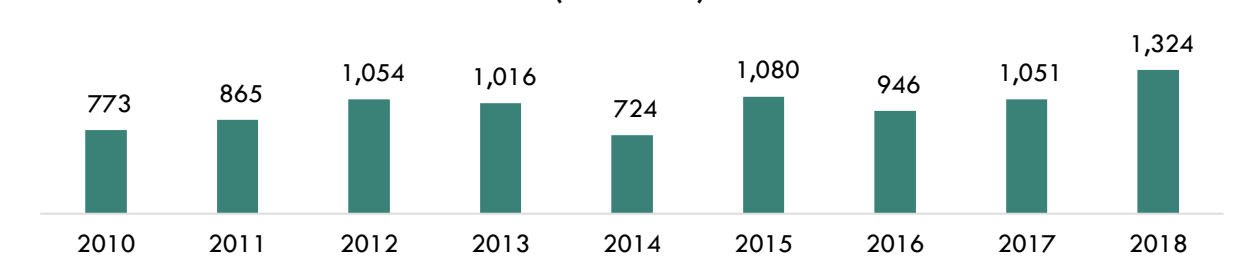
Earnings

Computer Network Architects have median hourly earnings of $59.52; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Computer Network Architects* in San Diego County[7]

	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile
San Diego County	$33.02	$45.58	$59.52	$80.32	$100.95
Living Wage	$15.99		$15.99		$15.99

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, six community colleges supply the region with for-credit awards for Computer Networking (TOP 070810): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, and Southwestern College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate of Science (A.S.) degree	9	10	5	8
	Certificate 30 to < 60 units	1	5	3	3
	Total	**10**	**15**	**8**	**11**
Grossmont	Associate of Science (A.S.) degree	3	2	5	3
	Certificate 30 to < 60 units	3	3	4	3
	Total	**6**	**5**	**9**	**6**
MiraCosta	Associate of Arts (A.A.) degree	0	6	10	5
	Certificate 18 to < 30 units	16	10	13	13
	Certificate 12 to < 18 units	0	0	1	0
	Total	**16**	**16**	**24**	**18**
Palomar	Associate of Science (A.S.) degree	0	18	15	11
	Associate of Arts (A.A.) degree	10	0	0	3
	Certificate 30 to < 60 units	15	27	23	22
	Certificate 6 to < 18 units	0	1	0	0
	Total	**25**	**46**	**38**	**36**
San Diego City	Certificate 6 to < 18 units	8	23	0	10
	Total	**8**	**23**	**0**	**10**
Southwestern	Associate of Science (A.S.) degree	3	0	1	1
	Certificate 30 to < 60 units	2	0	0	1
	Total	**5**	**0**	**1**	**2**
Total		**70**	**105**	**80**	**85**

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[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] There are five CIP codes related to Computer Networking (TOP 070810): Computer Systems Networking and Telecommunications (CIP 110901), Network and System Administration/Administrator (CIP 111001), System, Networking, and LAN/WAN Management/Manager (CIP 111002), Computer and Information Systems Security/Information Assurance (CIP 111003), and Information Technology Project Management (CIP 111005).

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Broken down by award type, the six colleges supplied the most awards in associate degrees (31), followed by certificates with 30 to < 60 units (29), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Computer Networking (TOP 070810)* in San Diego County (Three-Year Average 2015-16 through 2017-18)
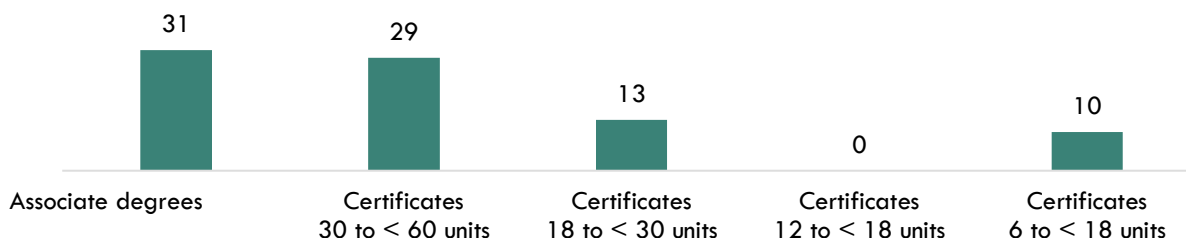
In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Computer Networking (TOP 070810), with an average of seven noncredit awards (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Virtual Datacenter	Program Award	0	0	20	7

Demand vs. Supply

In short, the region supplies 92 for-credit and noncredit awards for 121 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

| TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Computer Networking (TOP 070810)	121	7	85	**29**

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

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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.

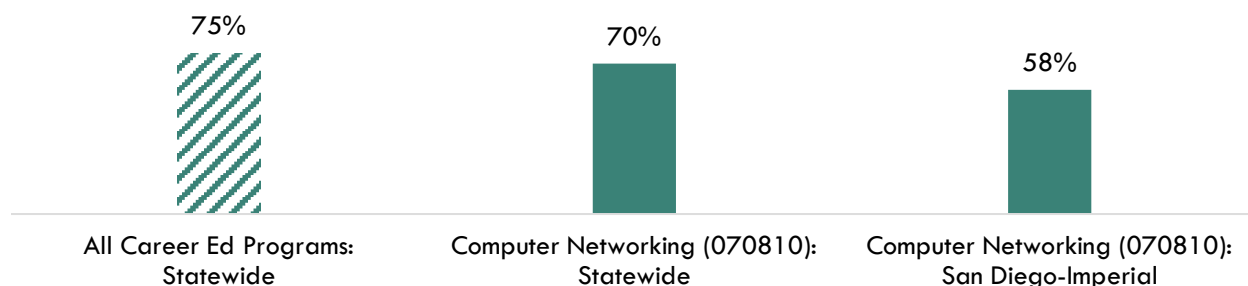## Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 72 percent of students in the San Diego-Imperial region earned a living wage after completing a Computer Networking (070810) program, compared to 70 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	70%	72%
All Career Ed Programs: Statewide	Computer Networking (070810): Statewide	Computer Networking (070810): San Diego-Imperial
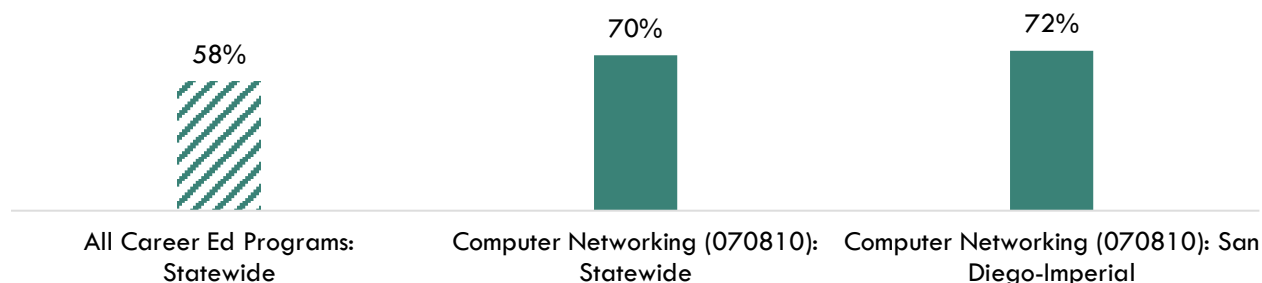
According to the California Community Colleges LaunchBoard, 58 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Computer Networking (070810) program, compared to 70 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	70%	58%
All Career Ed Programs: Statewide	Computer Networking (070810): Statewide	Computer Networking (070810): San Diego-Imperial

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Booz Allen Hamilton, SAIC, ViaSat, Northrop Grumman, and Qualcomm (Exhibit 8).
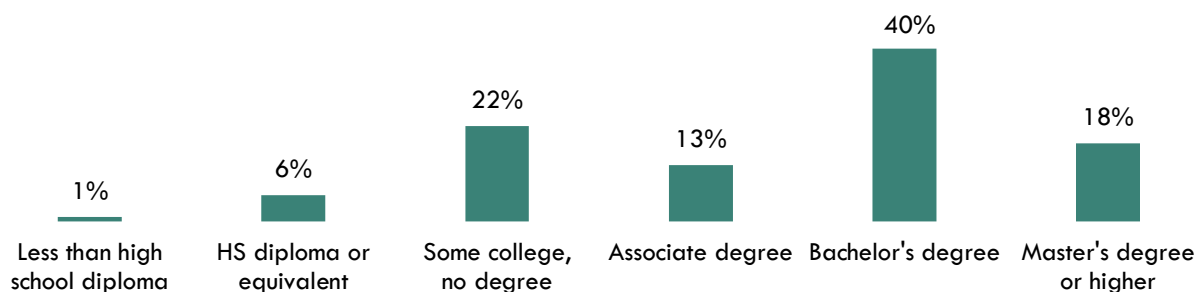
Exhibit 8: Top Employers in San Diego County for *Computer Network Architects*[12]

Top Employers	
• Booz Allen Hamilton Inc.	• Teradata Operations, Inc.
• SAIC	• Solute
• ViaSat	• General Atomics
• Northrop Grumman	• Accenture
• Qualcomm	• AT&T

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this occupation. Employers report that the typical entry-level education is a bachelors' degree.[13]

Exhibit 9a: National Educational Requirements for *Computer Network Architects*[14]

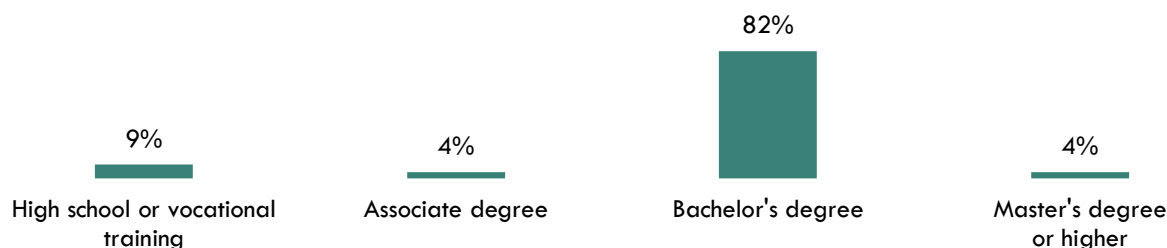| Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher
1%	6%	22%	13%	40%	18%

[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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Similarly, based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Computer Network Architects* was a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Computer Network Architects* in San Diego County in Online Job Postings[16]

| High school or vocational training | Associate degree | Bachelor's degree | Master's degree or higher |
| 9% | 4% | 82% | 4% |

*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Computer Network Architects* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Network Engineering • Cisco • Routers • Wide Area Network (WAN) • System Network Configuration	• Troubleshooting • Communication Skills • Planning • Teamwork / Collaboration • Problem Solving	• Linux • Border Gateway Protocol • Cisco Switching • Virtual Private Network • VMware

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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Computer Support

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- Do not Proceed
- Proceed with Caution
- ● Proceed

PROCEED WITH NEW PROGRAM?

☑ / ☒ **SUPPLY GAP?**

☑ / ☒ **AT OR ABOVE THE LIVING WAGE**

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☑ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Computer Support* program. The training provided by this program is likely to lead to employment as *Computer User Support Specialists*. According to available labor market information, the occupation has a labor market demand of 530 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Two community colleges supply the region with four for-credit awards: Palomar College and Southwestern College. While the two colleges offer certificates for *Computer Support*, they only awarded associate degrees in the past three program years. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 53 awards in the same period. In short, the region supplies 57 for-credit and noncredit awards for 530 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The expected level of education for this occupation is some college, no degree.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Computer Support (TOP 070820). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Computer Support*, which will be the focus of this report:

> **Computer User Support Specialists** (SOC 15-1151): Provide technical assistance to computer users. Answer questions or resolve computer problems for client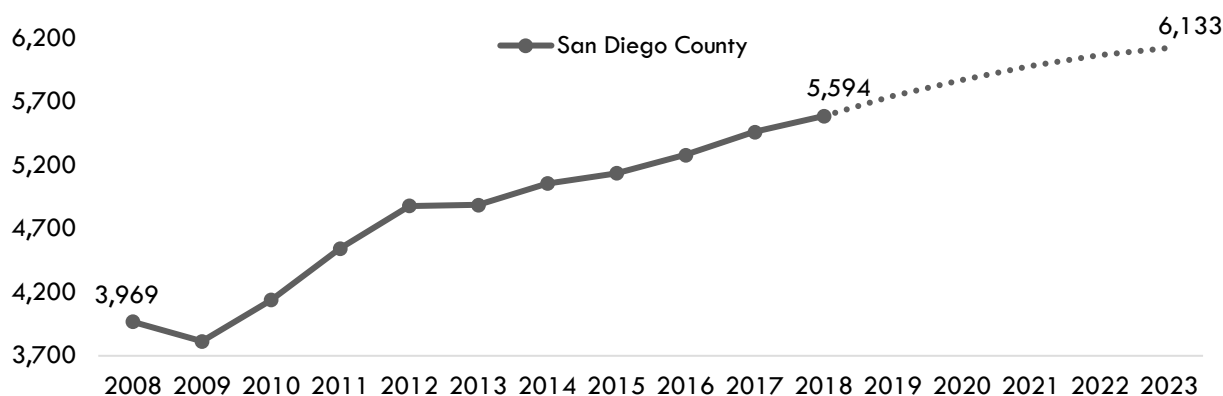s in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. Sample reported job titles include:

- Help Desk Technician
- Technical Support Specialist
- Computer Specialist
- Information Technology (IT) Specialist
- PC Technician (Personal Computer Technician)
- Desktop Support Specialist
- Technical Support Representative
- Information (IT) Technology Technician
- Help Desk Analyst
- PC Tech (Personal Computer Technician)

Projected Occupational Demand

Between 2018 and 2023, *Computer User Support Specialists* are projected to increase by 539 net jobs or 10 percent (Exhibit 1). Employers in San Diego County will need to hire 530 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Computer User Support Specialists* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
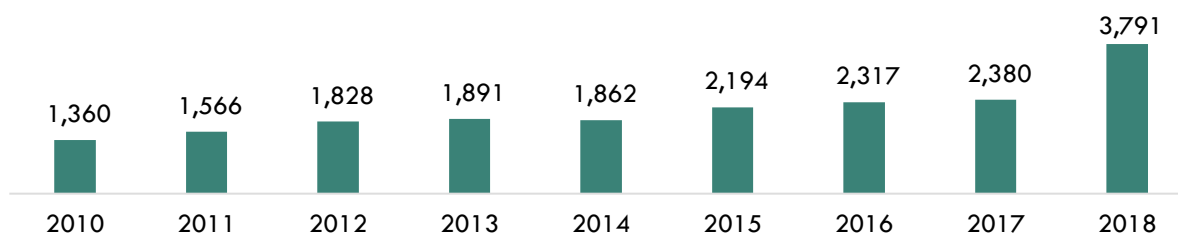[2] The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. bls.gov/soc.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 2,132 online job postings per year for *Computer User Support Specialists* in San Diego County (Exhibit 2).
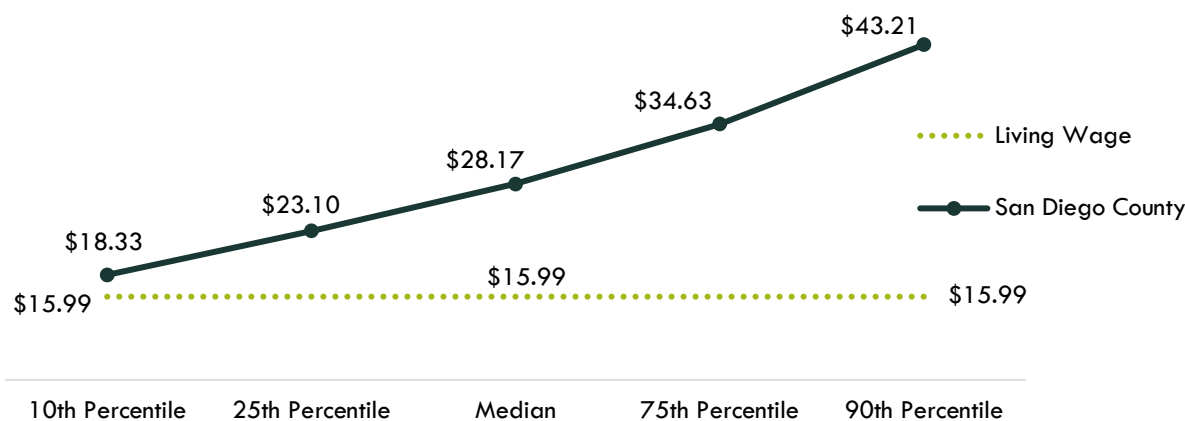
**Exhibit 2: Number of Online Job Postings for *Computer User Support Specialists*
in San Diego County (2010-2018)[4]**

Year	Postings
2010	1,360
2011	1,566
2012	1,828
2013	1,891
2014	1,862
2015	2,194
2016	2,317
2017	2,380
2018	3,791

Earnings

Computer User Support Specialists receive median hourly earnings of $28.17; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Computer User Support Specialists* in San Diego County[7]

Percentile	San Diego County
10th Percentile	$18.33
25th Percentile	$23.10
Median	$28.17
75th Percentile	$34.63
90th Percentile	$43.21

Living Wage: $15.99

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, two community colleges supply the region with for-credit awards for Computer Support (TOP 070820): Palomar College and Southwestern College (Exhibit 4a).
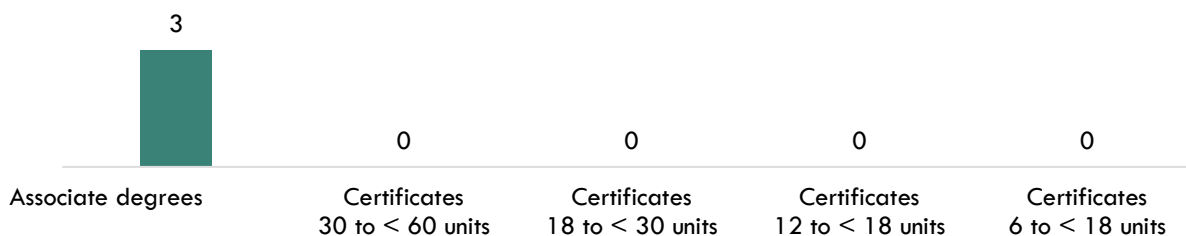
Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Palomar	Certificate 6 to < 18 units	0	1	0	0
	Total	**0**	**1**	**0**	**0**
Southwestern	Associate of Science (A.S.) degree	4	3	3	3
	Certificate 30 to < 60 units	1	0	0	0
	Total	**5**	**3**	**3**	**3**
Total		5	4	3	4*

Note: The numbers may not add up exactly due to rounding.

While the two colleges offer certificates for Computer Support (T0P 070820), they only awarded associate degrees in the past three program years (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Computer Support (TOP 070820)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
3	0	0	0	0

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[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] There are two CIP codes related to Computer Support (TOP 070820): Computer and Information Systems Security/Information Assurance (CIP 111003) and Computer Support Specialist (CIP 111006).

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In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Computer Support (TOP 070820), with an average of 53 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Computer Repair Technician; Desktop Operating Systems; Desktop Technician; Linux Server Administration; Network Technician; Server Essentials; Web Server Technologies and Applications; Windows System Administration	Program Award	6	53	100	53

Demand vs. Supply

In short, the region supplies 57 for-credit and noncredit awards for 530 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)
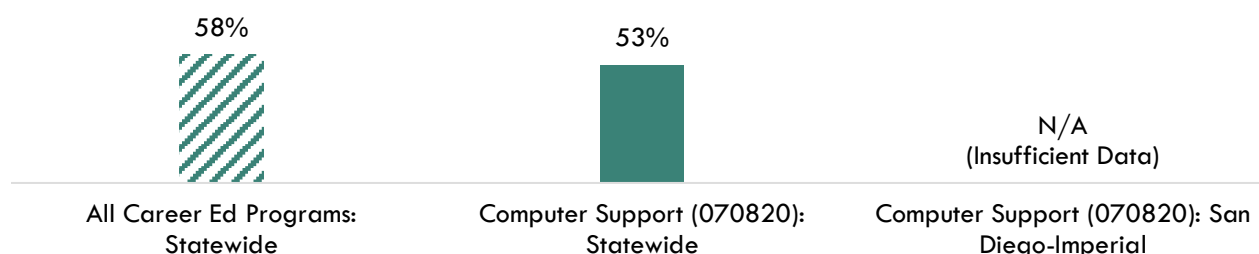
TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Computer Support (TOP 070820)	530	53	4	**473**

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.
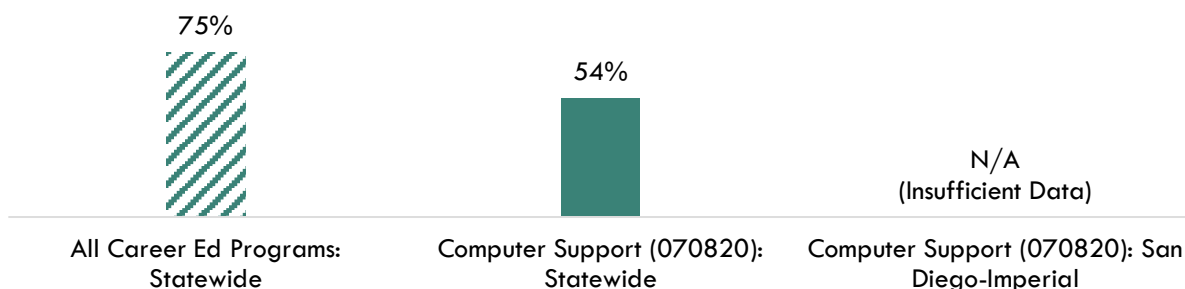
Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region earned a living wage after completing a Computer Support (070820) program, compared to 53 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	53%	N/A (Insufficient Data)
All Career Ed Programs: Statewide	Computer Support (070820): Statewide	Computer Support (070820): San Diego-Imperial

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Computer Support (070820) program, compared to 54 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	54%	N/A (Insufficient Data)
All Career Ed Programs: Statewide	Computer Support (070820): Statewide	Computer Support (070820): San Diego-Imperial

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

6

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Best Buy, Scripps Health, U.S. Navy, General Atomics, and General Dynamics (Exhibit 8).

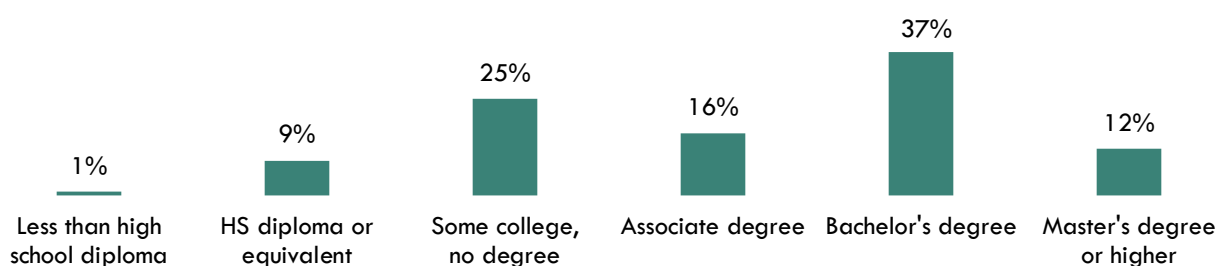**Exhibit 8: Top Employers in San Diego County for *Computer User Support Specialists*[12]**

Top Employers	
• Best Buy	• Jack Henry & Associates
• Scripps Health	• SAIC
• U.S. Navy	• Mitchell International Incorporated
• General Atomics	• University of California, San Diego
• General Dynamics	• ServiceNow

Skills, Education, and Certifications

There is no typical on-the-job training for this occupation. Nationally, employers reported that the typical entry-level education is some college, no degree. However, the educational attainment for the occupation typically found currently in the national labor force is a bachelor's degree (Exhibit 9a).[13]

Exhibit 9a: National Educational Attainment for *Computer User Support Specialists*[14]

1%	9%	25%	16%	37%	12%
Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

7

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Computer User Support Specialists* in San Diego County was a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Computer User Support Specialists* in San Diego County in Online Job Postings[16]

33% — High school or vocational training
17% — Associate degree
48% — Bachelor's degree
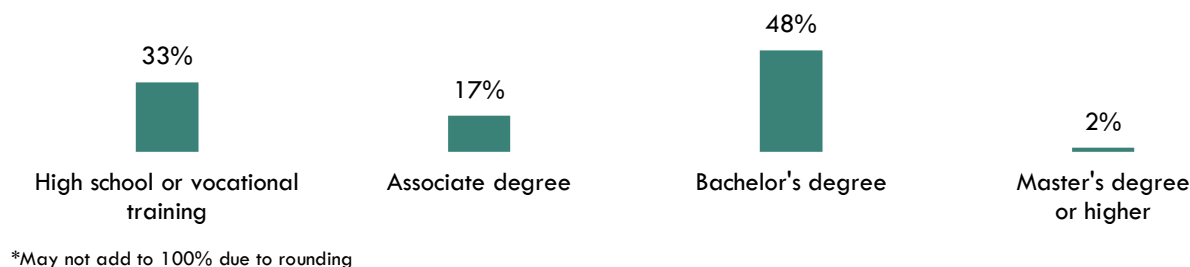2% — Master's degree or higher

*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Computer User Support Specialists* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Technical Support	• Troubleshooting	• Microsoft Windows
• Help Desk Support	• Communication Skills	• Microsoft Excel
• Repair	• Problem Solving	• Microsoft Operating System
• Printers	• Detail-Oriented	• SQL
• Microsoft Active Directory	• Research	• Linux

8

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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.

9

World Wide Web Administration

Labor Market Analysis for San Diego Continuing Education
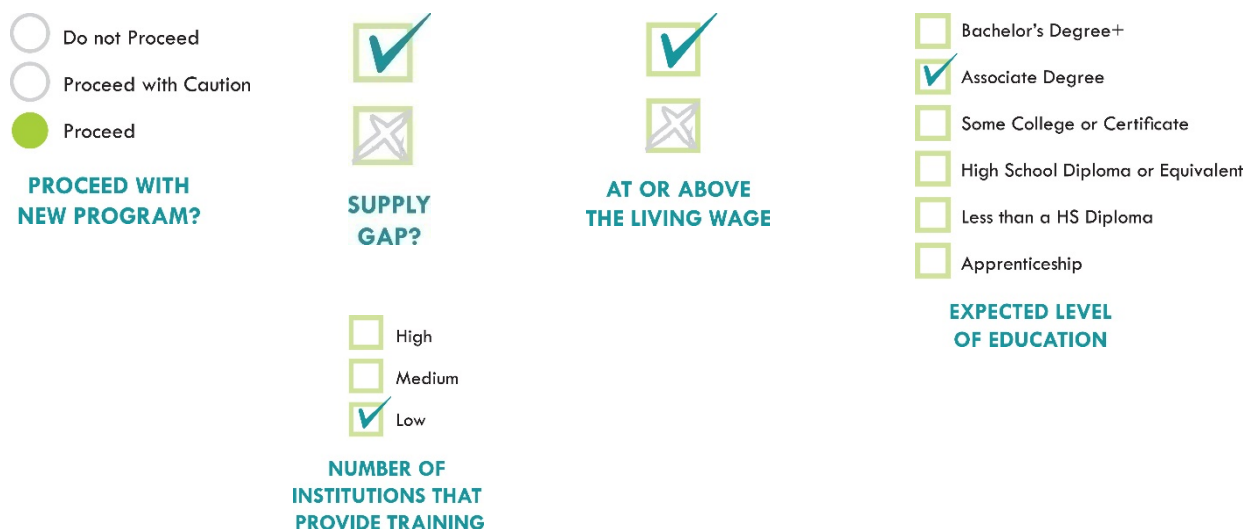
September 2019

Summary

- ◯ Do not Proceed
- ◯ Proceed with Caution
- 🟢 Proceed

PROCEED WITH NEW PROGRAM?

✅

SUPPLY GAP?

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

✅

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☑ Associate Degree
- ☐ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *World Wide Web Administration* program. The training provided by this program is likely to lead to employment as *Web Developers*. According to available labor market information, this occupation has a labor market demand of 214 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Two community colleges supply the region with 13 for-credit awards (primarily certificates with 6 to < 18 units): Grossmont College and Palomar College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 16 awards over the past three program years. In short, the region supplies 29 for-credit and noncredit awards for 214 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. Expected level of education for this occupation is an associate degree.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, World Wide Web Administration (TOP 070900). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *World Wide Web Administration*, which will be the focus of this report:

> **Web Developers** (SOC 15-1134): Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Sample reported job titles include:

- Web Designer
- Webmaster
- Web Development Instructor
- Web Design Specialist
- Designer

- Web Architect
- Web Development Director
- Technology Applications Engineer
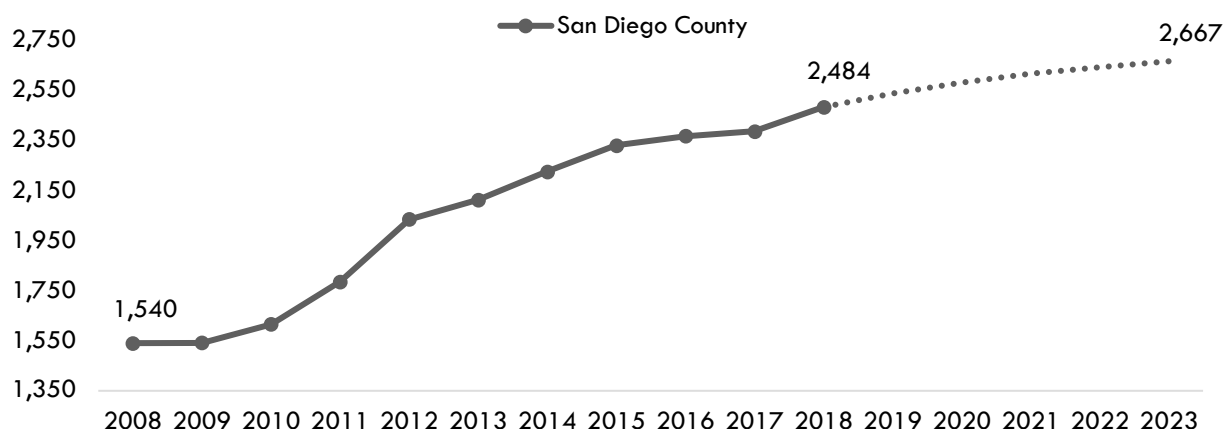- Web Content Developer

Projected Occupational Demand

Between 2018 and 2023, *Web Developers* are projected to increase by 183 net jobs or seven percent (Exhibit 1). Employers in San Diego County will need to hire 214 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

---

[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

2

Exhibit 1: Number of Jobs for *Web Developers* (2008-2023)[3]

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 2,185 online job postings per year for *Web Developers* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Web Developers* in San Diego County (2010-2018)[4]

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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

Earnings

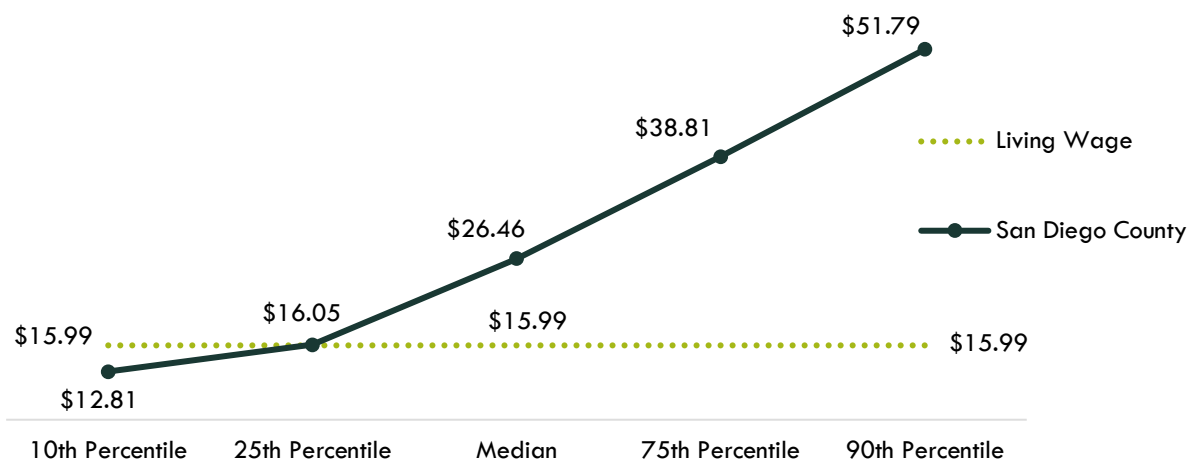*Web Developers* receive median hourly earnings of $26.46; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Web Developers* in San Diego County[7]

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, two community colleges supply the region with for-credit awards for World Wide Web Administration (TOP 070900): Grossmont College, and Palomar College (Exhibit 4a).

---

[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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)
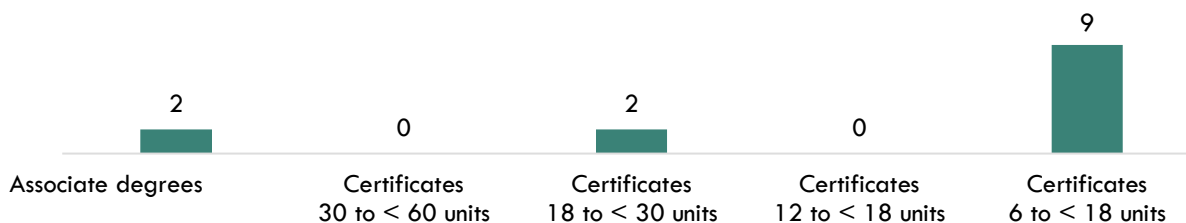
[9] There are two CIP codes related to World Wide Web Administration (TOP 070900): Computer and Information Systems Security/Information Assurance (CIP 111003) and Web/Multimedia Management and Webmaster (CIP 111004).

4

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Grossmont	Associate of Science (A.S.) degree	2	1	2	2
	Certificate 30 to < 60 units	1	0	0	0
	Certificate 18 to < 30 units	1	2	4	2
	Total	**4**	**3**	**6**	**4**
Palomar	Certificate 6 to < 18 units	9	8	9	9
	Total	**9**	**8**	**9**	**9**
Total		**13**	**11**	**15**	**13**

Broken down by award type, the colleges supplied the most awards in certificates with 6 to < 18 units (9), followed by associate degrees (2), and certificates with 18 to < 30 units (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *World Wide Web Administration (TOP 070900)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
2	0	2	0	9

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for World Wide Web Administration (TOP 070900), with an average of 16 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Web Server Maintenance and Security	Program Award	44	5	0	16

5

Demand vs. Supply

In short, the region supplies 29 for-credit and noncredit awards for 214 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)
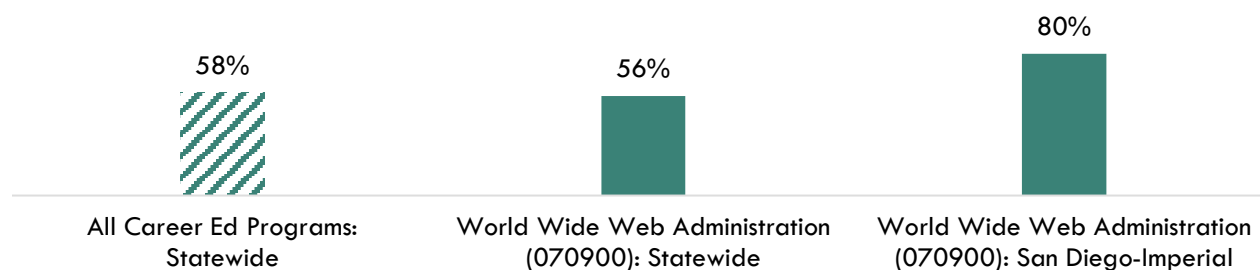
TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
World Wide Web Administration (TOP 070900)	214	16	13	**185**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 80 percent of students in the San Diego-Imperial region earned a living wage after completing a World Wide Web Administration (070900) program, compared to 56 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58% All Career Ed Programs: Statewide	56% World Wide Web Administration (070900): Statewide	80% World Wide Web Administration (070900): San Diego-Imperial

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

6

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing a World Wide Web Administration (070900) program, compared to 62 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).
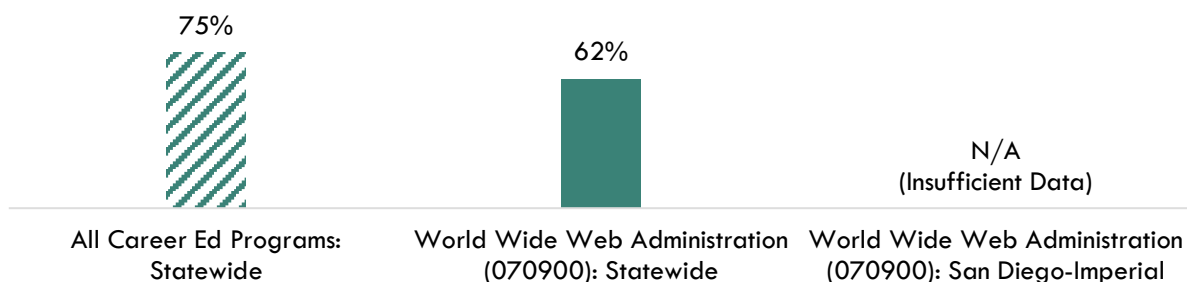
Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75% — All Career Ed Programs: Statewide

62% — World Wide Web Administration (070900): Statewide

N/A (Insufficient Data) — World Wide Web Administration (070900): San Diego-Imperial

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Service Now, Thermo Fisher Scientific, Hewlett-Packard, Via Technical, and Sony Electronics Incorporated (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Web Developers*[12]

| Top Employers	
• Service Now	• Qualcomm
• Thermo Fisher Scientific Inc.	• Illumina incorporated
• Hewlett-Packard	• Teradata Operations, Inc.
• Via Technical	• Sayva Solutions
• Sony Electronics incorporated	• Accenture

---

[11] Most recent year with available data is Program Year 2014-15. 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.
[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
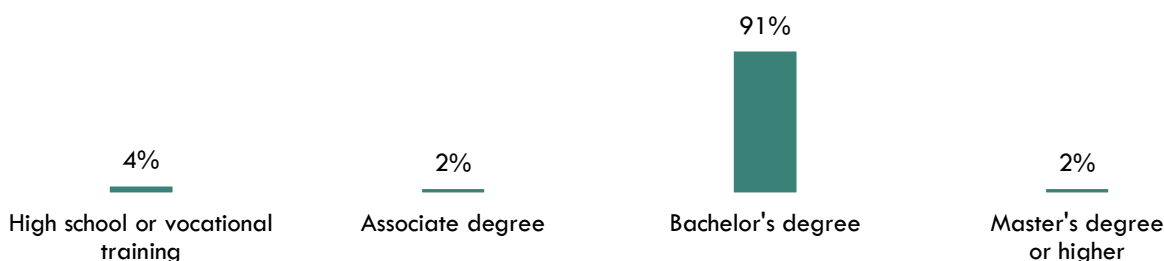
Skills, Education, and Certifications

There is no typical on-the-job training for this occupation. Nationally, employers reported that the required entry-level education is an associate degree. However, the educational attainment typically found in the national labor force for the occupation is a bachelor's degree.[13]

Exhibit 9a: National Educational Attainment for *Web Developers*[14]
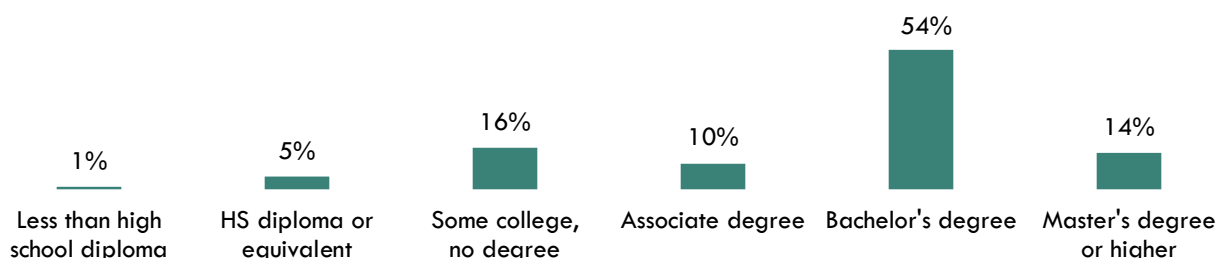
Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Web Developers* was a bachelor's degree (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Web Developers* in San Diego County in Online Job Postings[16]

*May not add to 100% due to rounding

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13 Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
14 Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
15 Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
16 "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. 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, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Web Developers* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Web Development	• Communication Skills	• JavaScript
• Web Application Development	• Teamwork/Collaboration	• jQuery
• Hypertext Preprocessor	• Creativity	• HTML5
• Software Development	• Problem Solving	• Angular JS
• Front-end Development	• Writing	• Git

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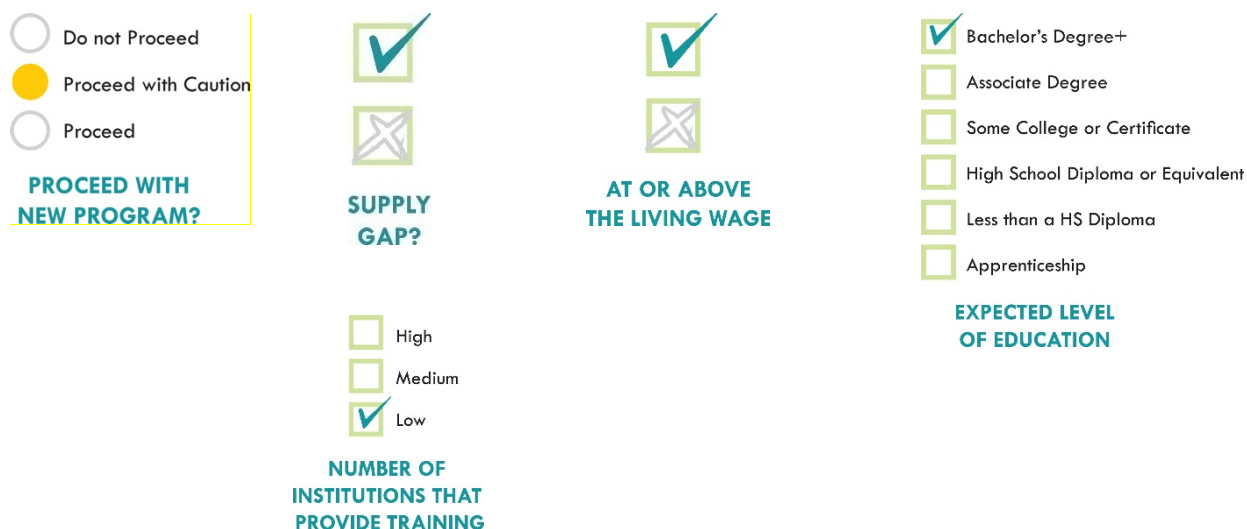
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[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH

Other Information Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- Do not Proceed
- Proceed with Caution
- Proceed

PROCEED WITH NEW PROGRAM?

SUPPLY GAP?

AT OR ABOVE THE LIVING WAGE

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

- ☑ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its Other Information Technology (TOP[1] 079900) program. The training provided by this program is likely to lead to employment as *Computer Occupations, All Other*. According to available labor market information, this occupation has a labor market demand of 680 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. San Diego Continuing Education supplies 10 noncredit awards, but no community college reported supplying for-credit awards for Other Information Technology (TOP 079900). However, there are a variety of programs in the region that train for *Computer Occupations, All Other*; this occupational title consists of various occupations such as business intelligence analysts, database architects, videogame designers, etc. While there appears to be a supply gap (10 noncredit awards vs. 680 annual job openings), this brief recommends proceeding with caution in developing a new program because this TOP code may be used by institutions to provide a variety of programs that train for different occupations, which affects the accuracy of the labor market demand and supply analysis.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[2] (TOP) code, Other Information Technology (TOP 079900). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[3] system for *Other Information Technology*, which will be the focus of this report:

> **Computer Occupations, All Other (SOC 15-1199):** All computer occupations not listed separately. "All Other" titles represent occupations with a wide range of characteristics which do not fit into one of the detailed O*NET-SOC occupations. (O*NET OnLine is an application developed by the U.S. Department of Labor to provide the general public access to labor market information.) O*NET data is not available for this type of title. For more detailed occupations under this title, see below:

- 15-1199.01   Software Quality Assurance Engineers and Testers
- 15-1199.02   Computer Systems Engineers/Architects
- 15-1199.03   Web Administrators
- 15-1199.04   Geospatial Information Scientists and Technologists
- 15-1199.05   Geographic Information Systems Technicians
- 15-1199.06   Database Architects
- 15-1199.07   Data Warehousing Specialists
- 15-1199.08   Business Intelligence Analysts
- 15-1199.09   Information Technology Project Managers
- 15-1199.10   Search Marketing Strategists
- 15-1199.11   Video Game Designers
- 15-1199.12   Document Management Specialists

[2] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[3] 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.

Projected Occupational Demand

Between 2018 and 2023, *Computer Occupations, All Other* are projected to increase by 417 net jobs or five percent (Exhibit 1). Employers in San Diego County will need to hire 680 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Computer Occupations, All Other* (2008-2023)[4]
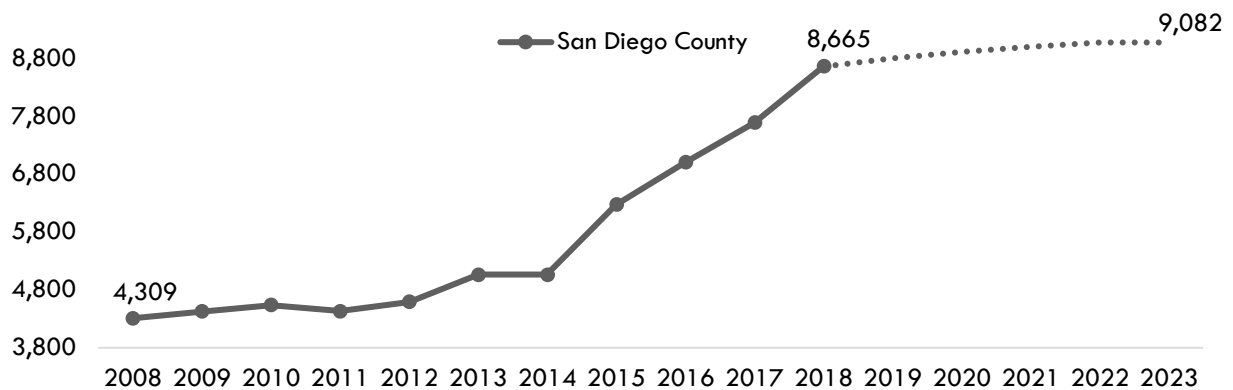
Online Job Postings

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 8,032 online job postings per year for *Computer Occupations, All Other* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Computer Occupations, All Other* in San Diego County (2010-2018)[5]

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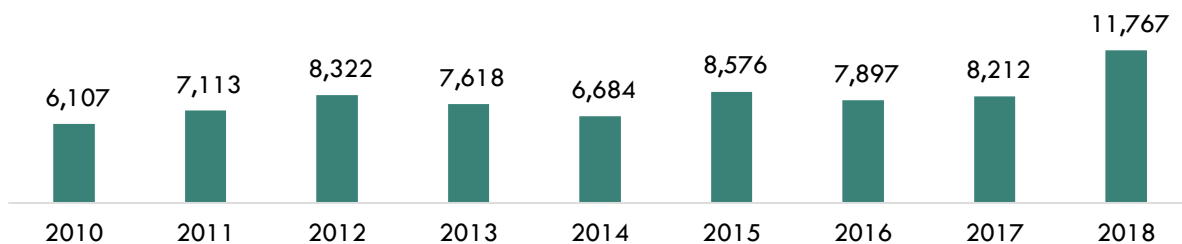
[4] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[5] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

3

Earnings

Computer Occupations, All Other receive median hourly earnings of $42.90; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[6]
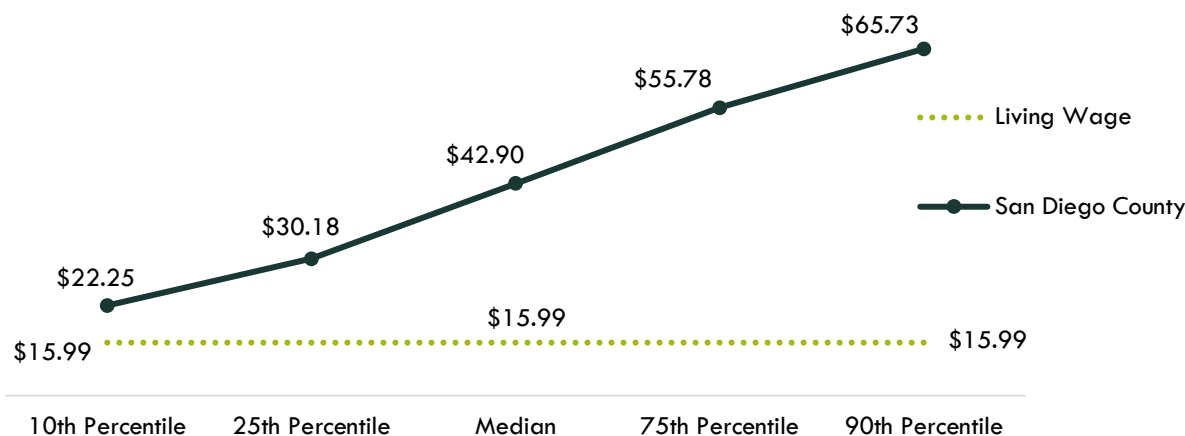
Exhibit 3: Hourly Earnings[7] for *Computer Occupations, All Other* in San Diego County[8]

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[9] According to TOP and CIP[10] data, no community college reported supplying the region with for-credit awards for Other Information Technology (TOP 079900). However, San Diego Continuing Education provides noncredit awards for Other Information Technology (TOP 079900), with an average of 10 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 4).

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[6] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-family-needs-calculator.

[7] 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.

[8] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

[9] 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)

[10] There are three CIP codes related to Other Information Technology (TOP 079900): Computer Software and Media Applications, Other (CIP 110899), Computer/Information Technology Services Administration and Management, Other (CIP 111099), and Computer and Information Sciences and Support Services, Other (CIP 119999).

Exhibit 4: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cisco Certified Network Associate (CCNA); Computer Repair and Service Technician; Network Security Specialist Certificate; Network Systems Specialist; Web Server	Program Award	29	0	0	10

Demand vs. Supply

In short, the region supplies 10 for-credit and noncredit awards for 680 annual job openings, suggesting that there is a labor market supply gap (Exhibit 5).

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

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Other Information Technology (TOP 079900)	680	10	0	670

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 68 percent of students in the San Diego-Imperial region earned a living wage after completing an Other Information Technology (079900) program, compared to 64 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 6a).

5

Exhibit 6a: Proportion of Students Who Earned a Living Wage, PY2015-16[11]

58% — All Career Ed Programs: Statewide
64% — Other Information Technology (079900): Statewide
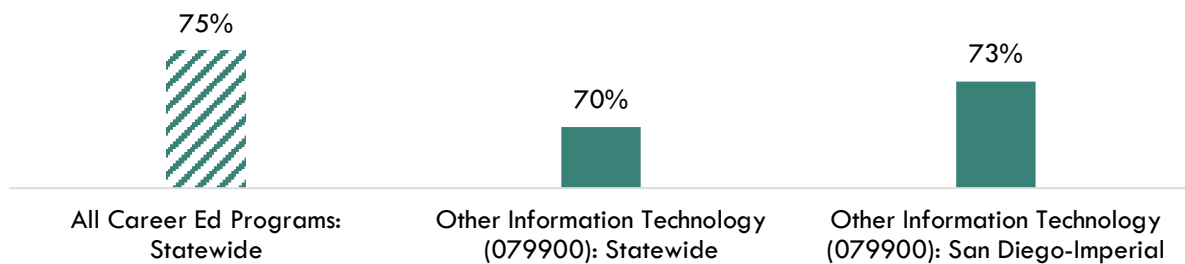68% — Other Information Technology (079900): San Diego-Imperial

According to the California Community Colleges LaunchBoard, 73 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Other Information Technology (079900) program, compared to 70 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 6b).

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[12]

75% — All Career Ed Programs: Statewide
70% — Other Information Technology (079900): Statewide
73% — Other Information Technology (079900): San Diego-Imperial

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Qualcomm, General Atomics, Booz Allen Hamilton, Northrop Grumman, and Accenture (Exhibit 7).

Exhibit 7: Top Employers in San Diego County for *Computer Occupations, All Other*[13]

Top Employers	
• Qualcomm	• Terada Operations, Inc.
• General Atomics	• ViaSat
• Booz Allen Hamilton Inc.	• Deloitte
• Northrop Grumman	• BAE Systems
• Accenture	• Becton Dickinson

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[11] Among completers and skills builders who exited, the proportion of students who attained a living wage.
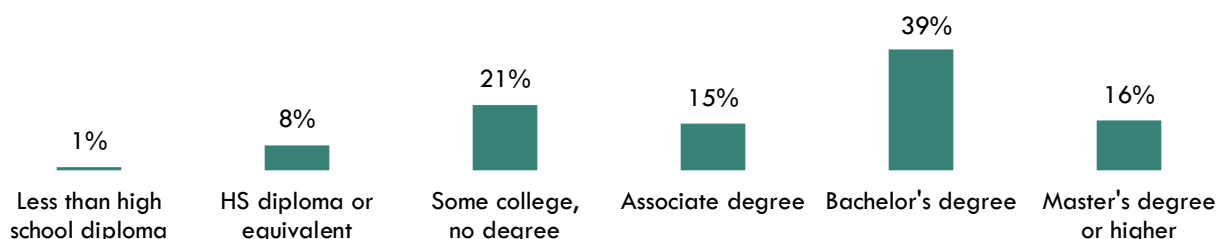[12] Most recent year with available data is Program Year 2014-15. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.
[13] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
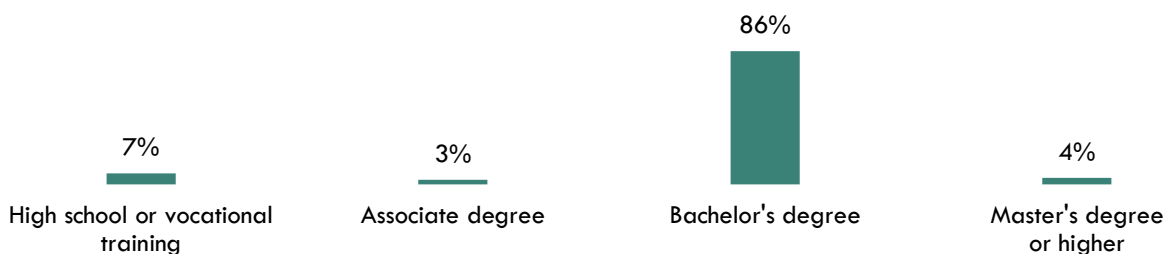
Skills, Education, and Certifications

Exhibit 8a indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this occupation. The typical entry-level education is a bachelor's degree.[14]

Exhibit 8a: National Educational Requirements for *Computer Occupations, All Other*[15]

Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher
1%	8%	21%	15%	39%	16%

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Computer Occupations, All Other* was also a bachelor's degree (Exhibit 8b).[16]

Exhibit 8b: Educational Requirements for *Computer Occupations, All Other* in San Diego County in Online Job Postings[17]

High school or vocational training	Associate degree	Bachelor's degree	Master's degree or higher
7%	3%	86%	4%

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[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[15] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[17] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. 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, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Computer Occupations, All Other* in San Diego County[18]

Specialized Skills	Soft Skills	Software Skills
• Project Management	• Communication Skills	• Software Development
• Systems Engineering	• Planning	• SQL
• Quality Assurance and Control	• Teamwork / Collaboration	• Microsoft Excel
• Scheduling	• Problem Solving	• Linux
• Budgeting	• Troubleshooting	• Java

Prepared by:

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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.
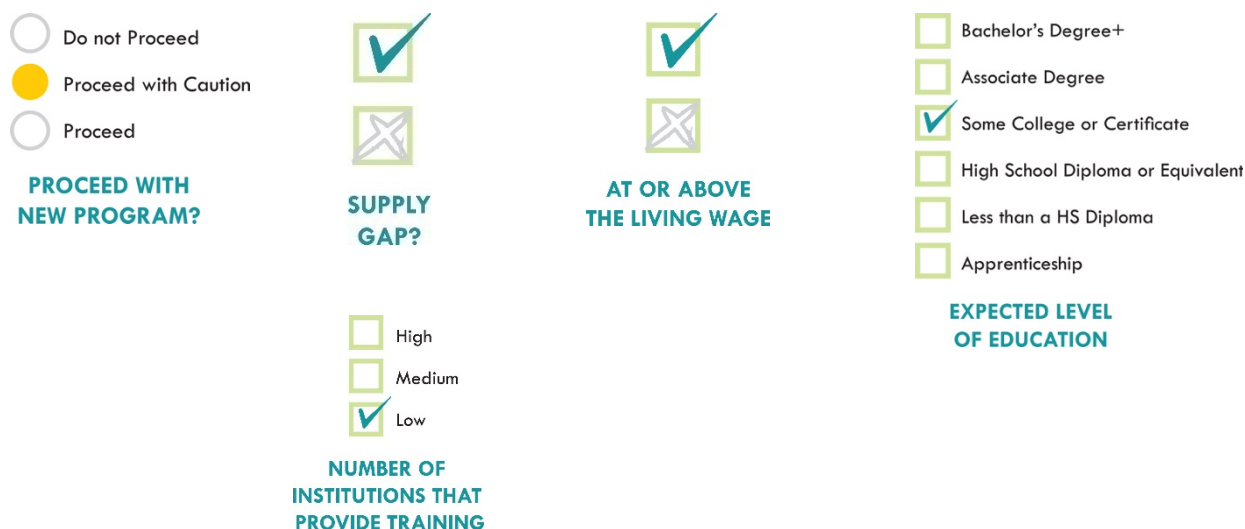
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[18] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Electronics and Electric Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ○ Do not Proceed
- ● Proceed with Caution
- ○ Proceed

PROCEED WITH NEW PROGRAM?

☑

SUPPLY GAP?

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

☑

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☑ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Electronics and Electric Technology* program. The training provided by this program is likely to lead to employment as *Electric Motor, Power Tool, and Related Repairers* and *Electrical and Electronics Repairers, Commercial and Industrial Equipment*. According to available labor market information, these occupations have a labor market demand of 102 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with four for-credit awards, primarily in certificates and no associate degrees: San Diego City College. Only San Diego Continuing Education supplies noncredit awards, which averaged 35 awards in the same period. In short, the region supplies 39 for-credit and noncredit awards for 102 annual job openings, suggesting that there is a labor market supply gap. Additionally, these occupations' entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The highest expected level of education for these occupations is a postsecondary nondegree award. However, this brief recommends to proceed with caution when developing a new program because of the small labor market demand and very few employers posted online job postings for these occupations in the past 10 years.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Electronics and Electric Technology (TOP 093400). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified four occupations from the Standard Occupational Classification (SOC)[2] system for *Electronics and Electric Technology*, which will be the focus of this report:
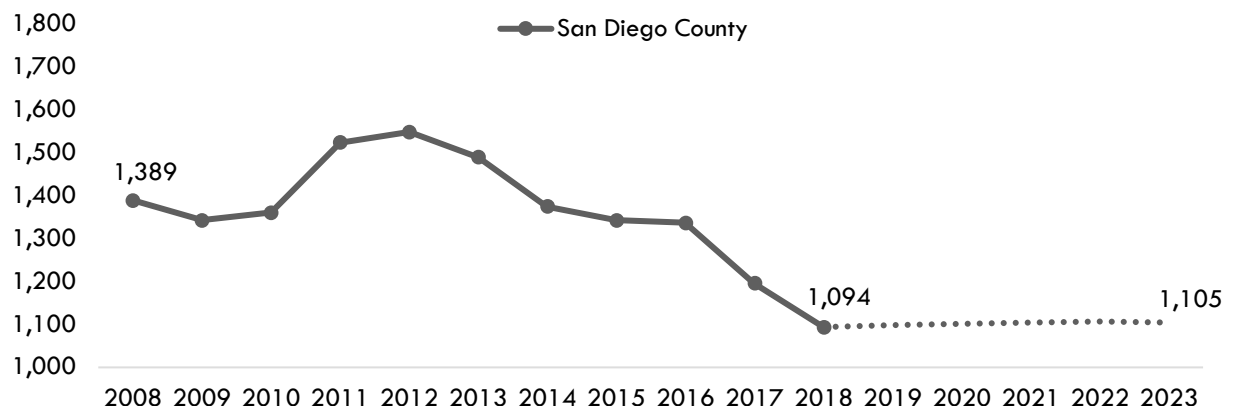
- **Electric Motor, Power Tool, and Related Repairers** (SOC 49-2092): Repair, maintain, or install electric motors, wiring, or switches.
- **Electrical and Electronics Repairers, Commercial and Industrial Equipment** (SOC 49-2094): Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas.

For the purpose of this report, these occupations are collectively referred to as *Electronics and Electric Technology Occupations*.

Projected Occupational Demand

Between 2018 and 2023, *Electronics and Electric Technology Occupations* are projected to increase by 11 net jobs or one percent (Exhibit 1a). Employers in San Diego County will need to hire 102 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 *Electronics and Electric Technology Occupations* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

2

Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, *Electrical and Electronics Repairers, Commercial and Industrial Equipment* has the largest labor market demand, with 71 job openings projected to be available annually between 2018 and 2023.

Exhibit 1b: Number of Jobs for *Electronics and Electric Technology Occupations* in San Diego County (2018-2023)

Occupational Title	2018 Net Jobs	2023 Net Jobs	2018 - 2023 Net Change	2018-2023 % Net Change	Annual Job Openings (Demand)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	758	774	16	2%	71
Electric Motor, Power Tool, and Related Repairers	336	332	(4)	(1%)	31
Total	1,094	1,106	12	1%	102

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of less than one online job postings per year for *Electronics and Electric Technology Occupations* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Electronics and Electric Technology Occupations* in San Diego County (2010-2018)[4]
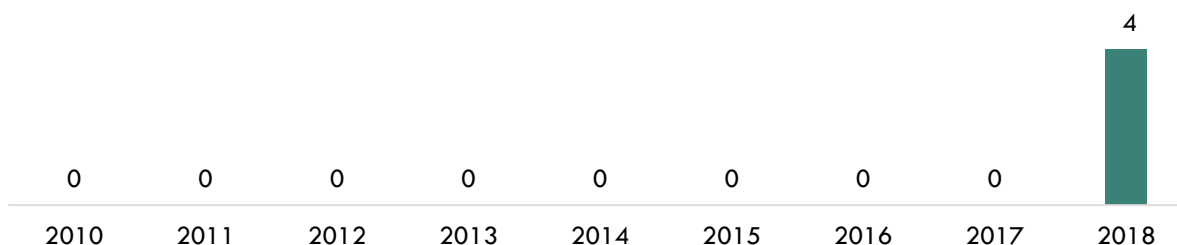
2010	2011	2012	2013	2014	2015	2016	2017	2018
0	0	0	0	0	0	0	0	4

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
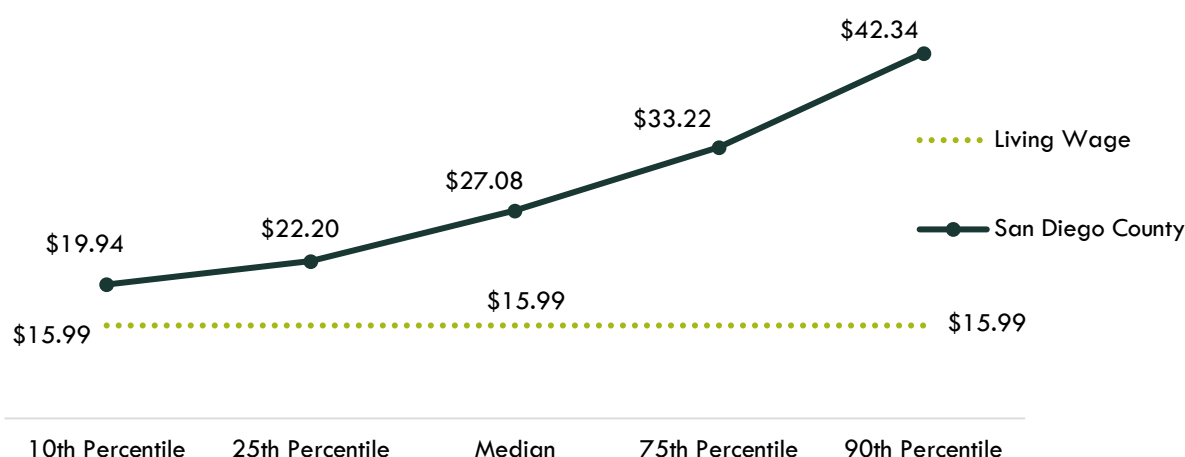
Earnings

The median hourly earnings of *Electronics and Electric Technology Occupations* range from $23.25 to $30.90 (Exhibit 3a).

Exhibit 3a: Hourly Earnings for *Electronics and Electric Technology Occupations* in San Diego County

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	$26.80	$30.90	$37.17
Electric Motor, Power Tool, and Related Repairers	$17.59	$23.25	$29.26

On average, the median hourly earnings for *Electronics and Electric Technology Occupations* is $27.08; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3b).[5]

Exhibit 3b: Average Hourly Earnings[6] for *Electronics and Electric Technology Occupations* in San Diego County[7]

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[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

4

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Electronics and Electric Technology (TOP 093400): San Diego City College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego City	Certificate 18 to < 30 units	1	1	3	2
	Certificate 6 to < 18 units	0	0	7	2
Total		**1**	**1**	**10**	**4**

No associate degrees are offered for *Electronics and Electric Technology Occupations*, only certificates. More specifically, "Certificates 18 to < 30 units" and "Certificates 6 to < 18 units," were offered and awarded in equal numbers over a three-year average (program years 2015-16 through 2017-18) (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Electronics and Electric Technology Occupations* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
0	0	2	0	2

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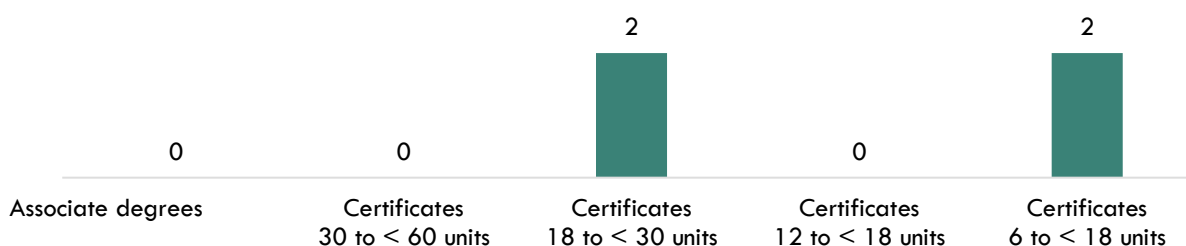
[8] TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data)

[9] There are five CIP codes related to Electronics and Electric Technology (TOP 093400) : Electrical, Electronic and Communications Engineering Technology/Technician (CIP 150303), Electrical and Electronic Engineering Technologies/Technicians, Other (CIP 150399) Automation Engineer Technology/Technician (CIP 150406), Electrical/Electronics Equipment Installation and Repair, General (CIP 470101), and Electrical/Electronics Maintenance and Repair Technology, Other (CIP 470199).

5

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Electronics and Electric Technology (TOP 093400), with an average of 35 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Electronic and Soldering Technology; Electronic Technician	Program Award	24	39	41	35

Demand vs. Supply

In short, the region supplies 39 for-credit and noncredit awards for 102 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Electronics and Electric Technology (TOP 093400)	102	35	4	**63**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 65 percent of students in the San Diego-Imperial region earned a living wage after completing an Electronics and Electric Technology (093400) program, compared to 59 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).
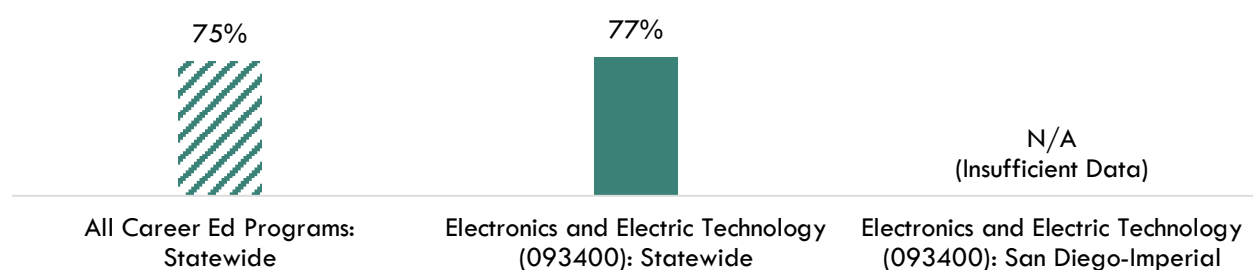
Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Electronics and Electric Technology (093400): Statewide	Electronics and Electric Technology (093400): San Diego-Imperial
58%	59%	65%

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Electronics and Electric Technology (093400) program, compared to 77 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Electronics and Electric Technology (093400): Statewide	Electronics and Electric Technology (093400): San Diego-Imperial
75%	77%	N/A (Insufficient Data)

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

7

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top employers in San Diego County for these occupations were Vivint Solar, Iconic Communications, and Anderson Plumbing & Air (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Electronics and Electric Technology Occupations*[12]

Top Employers
• Vivint Solar
• Iconic Communications
• Anderson Plumbing Heating & Air

Skills, Education, and Certifications

Electronics and Electric Technology Occupations have educational requirements ranging from a high school diploma or equivalent to a postsecondary nondegree award (Exhibit 9). Similarly, based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Electronics and Electric Technology Occupations* was a high school diploma or vocational training.[13]

Exhibit 9: National Educational Requirements for *Electronics and Electric Technology Occupations*[14]

Occupational Title	Typical Entry-Level Education
Electrical and Electronics Repairers, Commercial and Industrial Equipment	Postsecondary nondegree award
Electric Motor, Power Tool, and Related Repairers	High school diploma or equivalent

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Electronics and Electric Technology Occupations* **in San Diego County**[15]

Specialized Skills	Soft Skills	Software Skills
• Repair • Lifting Ability • Scheduling • Residential Electric Work • Photovoltaic (PV) Equipment	• Troubleshooting • Problem Solving	• Microsoft Office

Prepared by:

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C·O·E

CENTERS OF EXCELLENCE
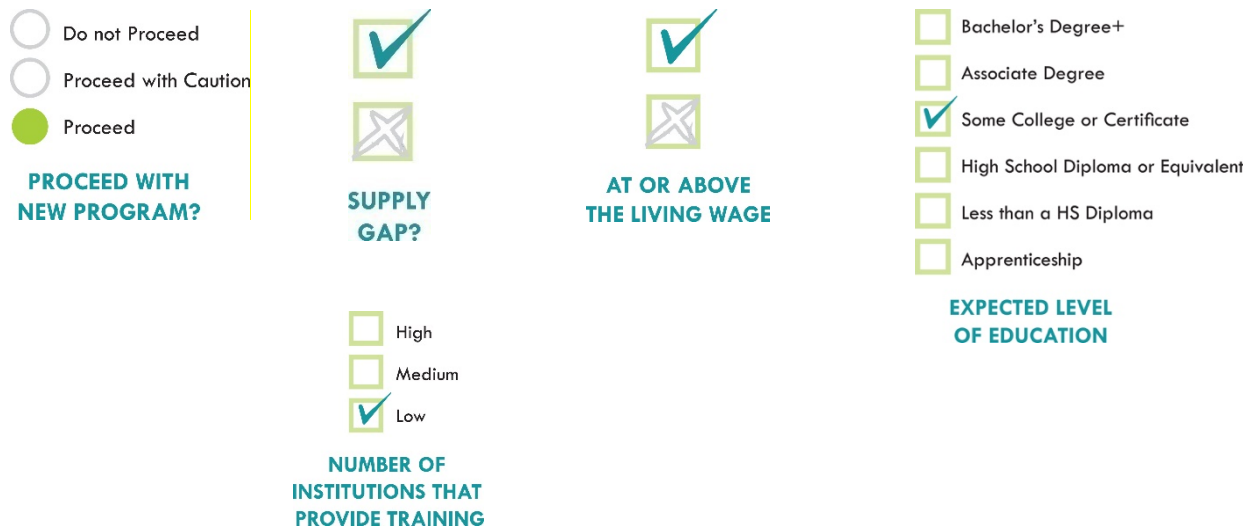FOR LABOR MARKET RESEARCH

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

9

Environmental Control Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Environmental Control Technology* program. The training provided by this program is likely to lead to employment as *Heating, Air Conditioning, and Refrigeration Mechanics and Installers*. According to available labor market information, the occupation has a labor market demand of 327 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with 69 for-credit awards: San Diego City College. This institution awards more certificates than associate degrees. More specifically, "Certificates 6 to < 18 units" has the largest number of awards in the past three years. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 61 awards in the same period. In short, the region supplies 130 for-credit and noncredit awards for 327 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. Expected level of education for this occupation is a postsecondary nondegree award.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Environmental Control Technology (TOP 094600). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for the program, which will be the focus of this report:

Heating, Air Conditioning, and Refrigeration Mechanics and Installers (SOC 49-9021): Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves. Sample reported job titles include:

- Refrigeration Mechanic
- Mechanic
- HVAC Installer (Heating, Ventilation, and Air Conditioning Installer)
- Transportation Refrigeration Technician
- Service Technician (Service Tech)

- HVAC Technician
- Refrigeration Technician (Refrigeration Tech)
- VRT Mechanic (Variable Retention Time Mechanic)
- Technician

Projected Occupational Demand

Between 2018 and 2023, *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* are projected to increase by 361 net jobs or 14 percent (Exhibit 1). Employers in San Diego County will need to hire 327 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 376 online job postings per year for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* in San Diego County (2010-2018)[4]

2010	2011	2012	2013	2014	2015	2016	2017	2018
266	198	230	317	364	373	453	491	692
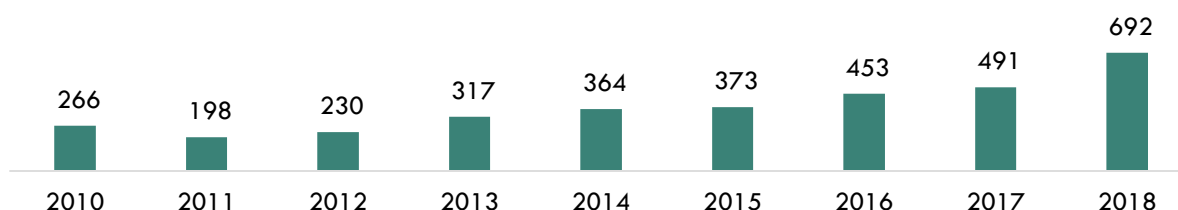
Earnings

Heating, Air Conditioning, and Refrigeration Mechanics and Installers receive median hourly earnings of $27.38; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* in San Diego County[7]

	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile
San Diego County	$16.39	$21.07	$27.38	$32.77	$39.63
Living Wage	$15.99		$15.99		$15.99

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Environmental Control Technology (TOP 094600): San Diego City College (Exhibit 4a).

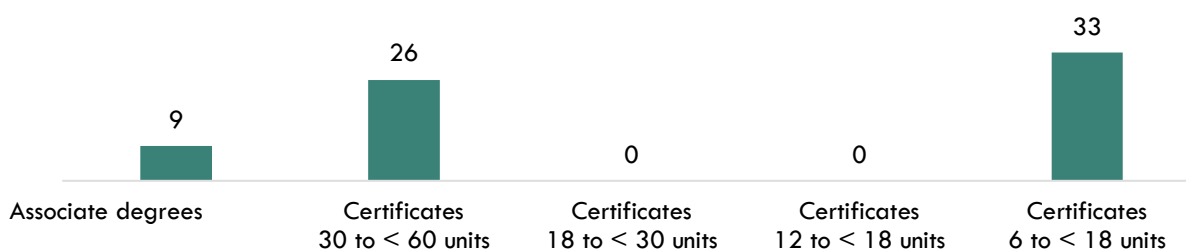**Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)**

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego City	Associate of Science (A.S.) degree	10	9	9	9
	Certificate 30 to < 60 units	40	27	12	26
	Certificate 18 to < 30 units	0	0	1	0
	Certificate 6 to < 18 units	19	19	62	33
Total		**69**	**55**	**84**	**69***

Note: The numbers may not add up exactly due to rounding.

While associate degrees are offered for Environmental Control Technology (TOP 094600), this institution awards more certificates than associate degrees. More specifically, "Certificates 6 to < 18 units" has the largest number of awards over the past three program years (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Environmental Control Technology (TOP 094600)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
9	26	0	0	33

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[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] There are three CIP codes related to Environmental Control Technology (TOP 094600): Automation Engineer Technology/Technician (CIP 150406), Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/Technician (CIP 150501), and Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician (CIP 470201).

4

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Environmental Control Technology (TOP 094600), with an average of 61 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Air Conditioning/Heating	Program Award	24	100	58	61

Demand vs. Supply

In short, the region supplies 130 for-credit and noncredit awards for 327 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Environmental Control Technology (TOP 094600)	327	61	69	**197**

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.

5

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 76 percent of students in the San Diego-Imperial region earned a living wage after completing an Environmental Control Technology (094600) program, compared to 72 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	72%	76%
All Career Ed Programs: Statewide	Environmental Control Technology (094600): Statewide	Environmental Control Technology (094600): San Diego-Imperial
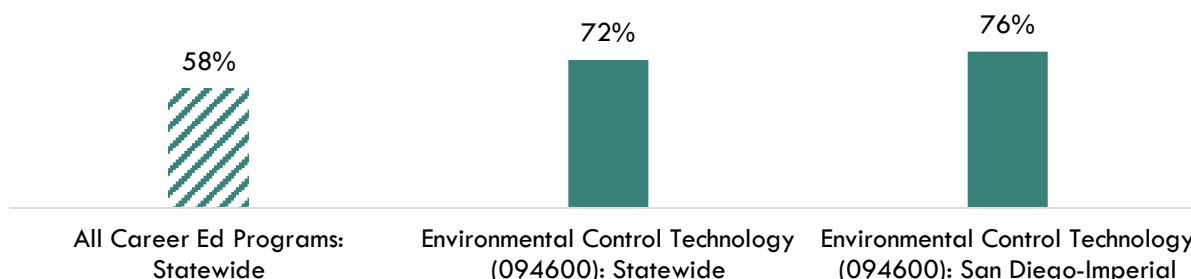
According to the California Community Colleges LaunchBoard, 75 percent of students in the San Diego-Imperial region obtained a job closely related to their field 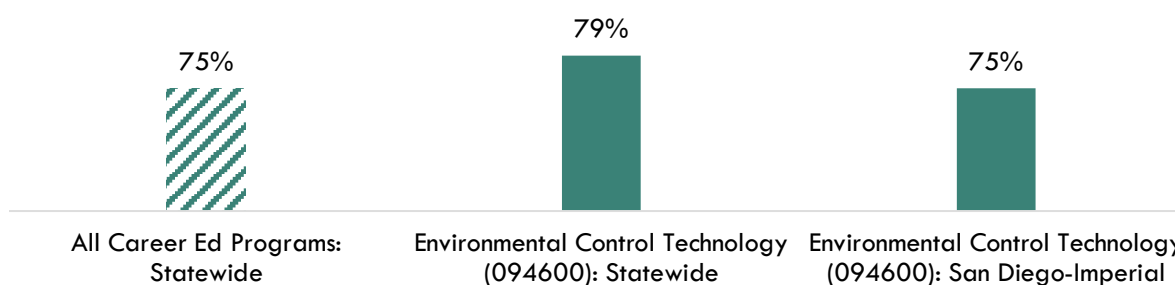of study after completing an Environmental Control Technology (094600) program, compared to 79 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	79%	75%
All Career Ed Programs: Statewide	Environmental Control Technology (094600): Statewide	Environmental Control Technology (094600): San Diego-Imperial

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

6

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Sears, Lincoln Military Housing, John Stevenson Plumbing & Mechanical, Johnson Controls Incorporated, and BAE Systems (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers*[12]

Top Employers	
• Sears	• Countrywide Mechanical Systems
• Lincoln Military Housing	• General Atomics
• John Stevenson Plumbing & Mechanical, Inc.	• American Mechanical Systems
• Johnson Controls	• Lincoln Property Company
• BAE Systems	• Irvine Company

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is long-term on-the-job training. The typical entry-level education is postsecondary nondegree award.[13]

Exhibit 9a: National Educational Requirements for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers*[14]
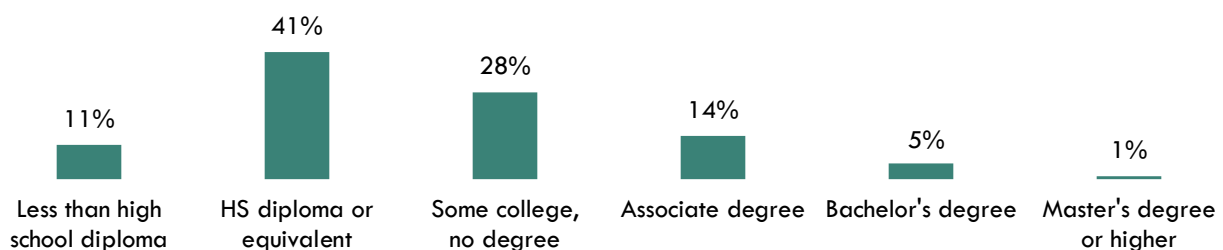
Bar chart:
- Less than high school diploma: 11%
- HS diploma or equivalent: 41%
- Some college, no degree: 28%
- Associate degree: 14%
- Bachelor's degree: 5%
- Master's degree or higher: 1%

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* was a high school diploma or vocational training (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* in San Diego County in Online Job Postings[16]

98%

High school or vocational training	2% Associate degree

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• HVAC • Repair • Plumbing • Predictive / Preventative Maintenance • Ventilation	• Preventative Maintenance • Troubleshooting • Communication Skills • Physical Abilities • Organizational Skills • Computer Literacy	• Microsoft Excel • Microsoft Project • Microsoft Word • Vimeo • Microsoft PowerPoint

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

8

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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.

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Automotive Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

PROCEED WITH NEW PROGRAM?

- Do not Proceed
- Proceed with Caution
- ● Proceed

SUPPLY GAP?

☑

☒

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

- ☐ High
- ☑ Medium
- ☐ Low

AT OR ABOVE THE LIVING WAGE

☑

☒

EXPECTED LEVEL OF EDUCATION

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☑ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

This report provides labor market information for four occupations selected by San Diego Continuing Education for its *Automotive Technology* program. According to available labor market information, these occupations have a labor market demand of 862 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Five community colleges supply the region with 295 for-credit awards for *Automotive Technology*: Cuyamaca College, MiraCosta College, Palomar College, San Diego Miramar College, and Southwestern College. While associate degrees are offered for *Automotive Technology Occupations*, each institution (with the exception of Cuyamaca College) awards more certificates than associate degrees. More specifically, "Certificates 18 to < 30 units" has the largest number of awards over a three-year average. In terms of noncredit awards, only San Diego Continuing Education supplies awards—91 noncredit awards—for these occupations. In short, the region supplies 386 for-credit and noncredit awards for 862 annual job openings, suggesting that there is a labor market supply gap. Additionally, three out of four *Automotive Technology Occupations*' entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The highest expected level of education for these occupations is a postsecondary nondegree award.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Automotive Technology (TOP 094800). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified four occupations from the Standard Occupational Classification (SOC)[2] system for *Automotive Technology*, which will be the focus of this report:

- **Electrical and Electronics Installers and Repairers, Transportation Equipment** (SOC 49-2093): Install, adjust, or maintain mobile electronics communication equipment, including sound, sonar, security, navigation, and surveillance systems on trains, watercraft, or other mobile equipment.

- **Electrical and Electronics Repairers, Commercial and Industrial Equipment** (SOC 49-2094): Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas.

- **Automotive Service Technicians and Mechanics** (SOC 49-3023): Diagnose, adjust, repair, or overhaul automotive vehicles.

- **Transportation Inspectors** (SOC 53-6051): Inspect equipment or goods in connection with the safe transport of cargo or people. Includes rail transportation inspectors, such as freight inspectors; rail inspectors; and other inspectors of transportation vehicles, not elsewhere classified.

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

Projected Occupational Demand

Between 2018 and 2023, *Automotive Technology Occupations* are projected to increase by 141 net jobs or two percent (Exhibit 1a). Employers in San Diego County will need to hire 862 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

Exhibit 1a: Number of Jobs for *Automotive Technology Occupations* (2008-2023)[3]

Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, *Automotive Service Technicians and Mechanics* has the largest labor market demand, with 745 job openings projected to be available annually between 2018 and 2023.

Exhibit 1b: Number of Jobs for *Automotive Technology Occupations* in San Diego County (2018-2023)

Occupational Title	2018 Net Jobs	2023 Net Jobs	2018 - 2023 Net Change	2018-2023 % Net Change	Annual Job Openings (Demand)
Automotive Service Technicians and Mechanics	7,787	7,893	106	1%	745
Electrical and Electronics Repairers, Commercial and Industrial Equipment	758	774	16	2%	71
Transportation Inspectors	313	335	22	7%	35
Electrical and Electronics Installers and Repairers, Transportation Equipment	129	126	(3)	(2%)	11
Total	8,987	9,128	141	2%	862

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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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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 labor market demand that are not captured by historical data. Between 2010 and 2018, there was an average of 767 online job postings per year for *Automotive Technology Occupations* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Automotive Technology Occupations* in San Diego County (2010-2018)[4]
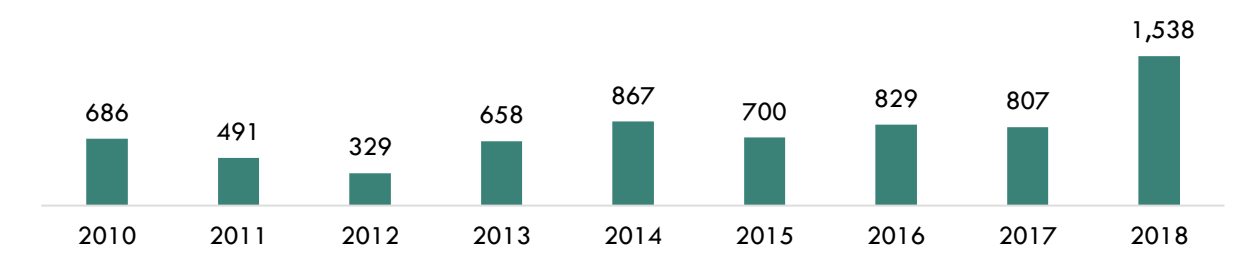
Earnings

The median hourly earnings of *Automotive Technology Occupations* range from $20.74 to $30.90 (Exhibit 3a). On average, the median hourly earnings for *Automotive Technology Occupations* is $27.98; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3b).[5]

Exhibit 3a: Hourly Earnings for *Automotive Technology Occupations* in San Diego County

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	$26.80	$30.90	$37.17
Transportation Inspectors	$26.54	$32.77	$52.73
Electrical and Electronics Installers and Repairers, Transportation Equipment	$24.68	$27.50	$30.69
Automotive Service Technicians and Mechanics	$14.69	$20.74	$27.69

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-family-needs-calculator.

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Exhibit 3b: Average Hourly Earnings[6] for *Automotive Technology Occupations* in San Diego County[7]
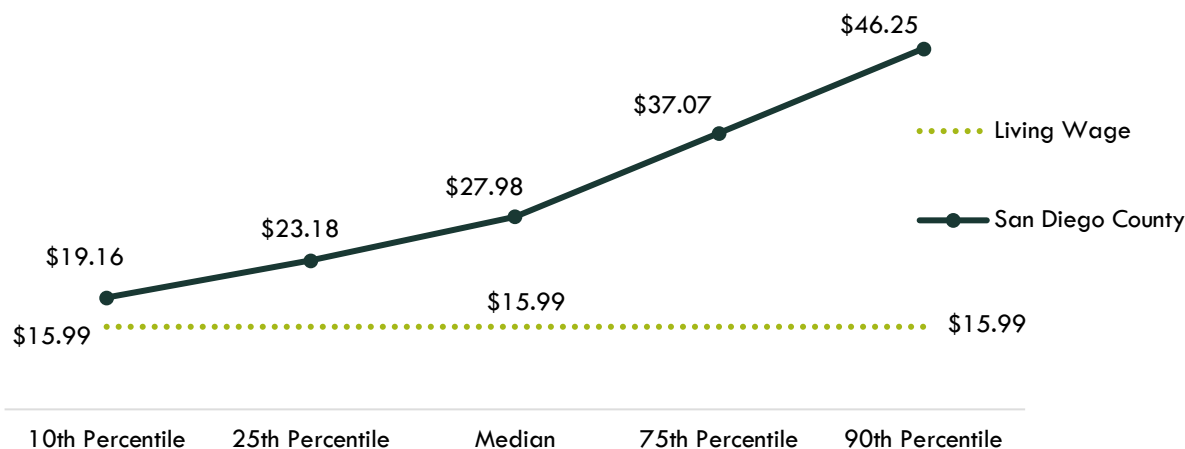
Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, five community colleges supply the region with for-credit awards for Automotive Technology (TOP 094800): Cuyamaca College, MiraCosta College, Palomar College, San Diego Miramar College, and Southwestern College. While associate degrees are offered for *Automotive Technology Occupations*, each institution (with the exception of Cuyamaca College) awards more certificates than associate degrees (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate of Science (A.S.) degree	9	20	10	13
	Certificate 30 to < 60 units	5	4	2	4
	Certificate 18 to < 30 units	6	9	3	6
	Total	**20**	**33**	**15**	**23**

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[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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There are two CIP codes related to Automotive Technology (TOP 094800): Automobile/Automotive Mechanics Technology/Technician (CIP 470604) and Vehicle Emissions Inspection and Maintenance Technology/Technician (CIP 470612).

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College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
MiraCosta	Associate of Arts (A.A.) degree	11	6	5	7
	Certificate 30 to < 60 units	1	0	3	1
	Certificate 18 to < 30 units	30	10	15	18
	Certificate 12 to < 18 units	2	0	3	2
	Certificate 6 to < 18 units	49	17	43	36
	Total	**93**	**33**	**69**	**65**
Palomar	Associate of Science (A.S.) degree	0	10	7	6
	Associate of Arts (A.A.) degree	15	0	0	5
	Certificate 30 to < 60 units	10	14	9	11
	Certificate 18 to < 30 units	10	4	6	7
	Total	**35**	**28**	**22**	**28**
San Diego Miramar	Associate of Science (A.S.) degree	14	12	11	12
	Certificate 30 to < 60 units	1	0	0	0
	Certificate 18 to < 30 units	85	57	69	70
	Certificate 6 to < 18 units	62	53	72	62
	Total	**162**	**122**	**152**	**145**
Southwestern	Associate of Science (A.S.) degree	12	7	4	8
	Certificate 30 to < 60 units	17	2	6	8
	Certificate 18 to < 30 units	23	10	7	13
	Certificate 6 to < 18 units	0	4	9	4
	Total	**52**	**23**	**26**	**34**
Total		**362**	**239**	**284**	**295**

More specifically, "Certificates 18 to < 30 units" has the largest number of awards over a three-year average (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Automotive Technology (TOP 094800)* in San Diego County (Three-Year Average 2015-16 through 2017-18)
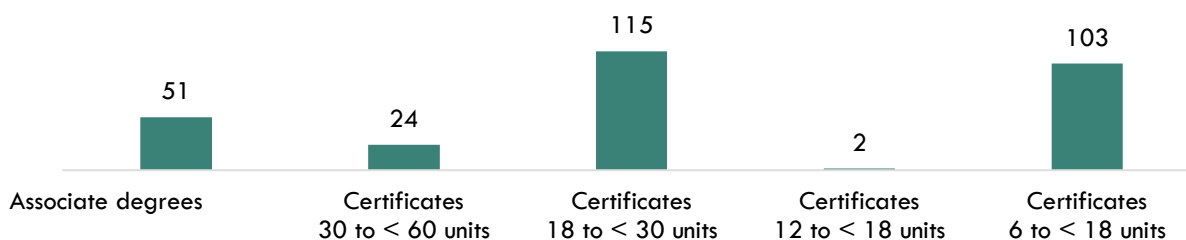
Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
51	24	115	2	103

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In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Automotive Technology (TOP 094800), with an average of 91 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards Conferred by SDCE
(Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Automotive Technician	Program Award	52	37	16	35
Brake/Suspension & Light Service Technician	Program Award	9	2	0	4
Inspection & Vehicle Preparation Program	Program Award	63	41	44	49
Service Advisor	Program Award	0	0	9	3
Total		**124**	**80**	**69**	**91**

Demand vs. Supply

In short, the region supplies 386 for-credit and noncredit awards for 862 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

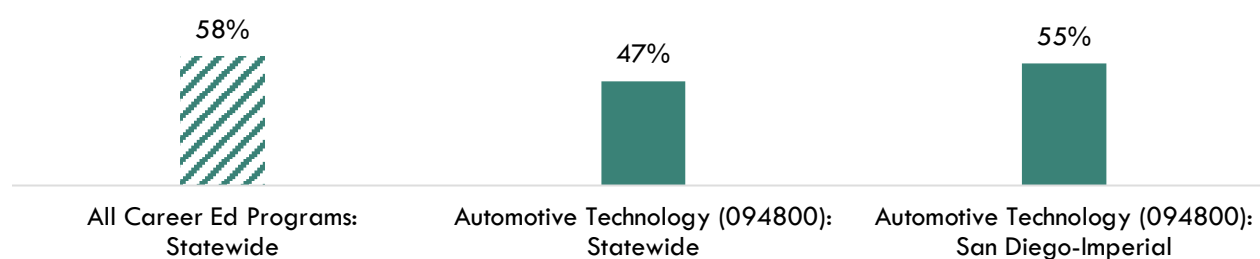**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Automotive Technology (TOP 094800)	862	91	295	**476**

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.
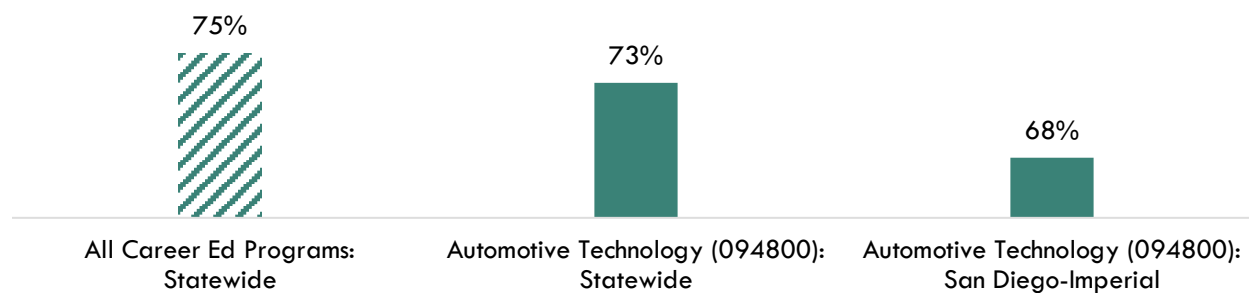
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Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 55 percent of students in the San Diego-Imperial region earned a living wage after completing an Automotive Technology (094800) program, compared to 47 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

- All Career Ed Programs: Statewide — 58%
- Automotive Technology (094800): Statewide — 47%
- Automotive Technology (094800): San Diego-Imperial — 55%

According to the California Community Colleges LaunchBoard, 68 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Automotive Technology (094800) program, compared to 73 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

- All Career Ed Programs: Statewide — 75%
- Automotive Technology (094800): Statewide — 73%
- Automotive Technology (094800): San Diego-Imperial — 68%

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

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Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for these occupations were Pep Boys, Bridgestone/Firestone, Group 1 Automotive, Nissan North America Incorporated, and Jiffy Lube (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Automotive Technology Occupations*[12]

Top Employers	
• Pep Boys	• Penske Automotive Group
• Bridgestone/Firestone	• Valvoline
• Group 1 Automotive	• Toyota Motors
• Nissan North America Incorporated	• Sears
• Jiffy Lube	• Autonation

Skills, Education, and Certifications

Automotive Technology Occupations have educational requirements ranging from a high school diploma or equivalent to a postsecondary nondegree award (Exhibit 9a).

Exhibit 9a: National Educational Requirements for *Automotive Technology Occupations*[13]

Occupational Title	Typical Entry-Level Education
Automotive Service Technicians and Mechanics	Postsecondary nondegree award
Electrical and Electronics Repairers, Commercial and Industrial Equipment	Postsecondary nondegree award
Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary nondegree award
Transportation Inspectors	High school diploma or equivalent

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Automotive Technology Occupations* was a high school diploma or vocational training (Exhibit 9b).[14]

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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Exhibit 9b: Educational Requirements for Automotive *Technology Occupations* in San Diego County in Online Job Postings[15]

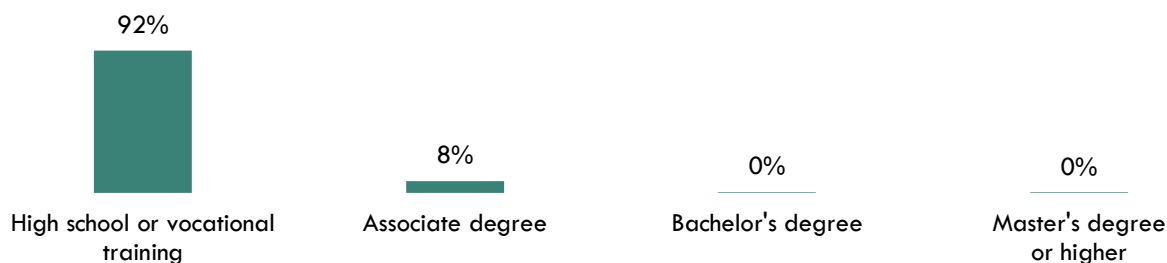|			
92%	8%	0%	0%
High school or vocational training	Associate degree	Bachelor's degree	Master's degree or higher

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Automotive Technology Occupations* in San Diego County[16]

Specialized Skills	Soft Skills	Software Skills
• Repair • Auto Repair • Automotive Services Industry Knowledge • Customer Service • Customer Contact	• Communication Skills • Organizational Skills • Physical Abilities • Troubleshooting • Teamwork/Collaboration	• Microsoft Excel • Microsoft Word • Microsoft PowerPoint • Systems Analysis • SAP

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[15] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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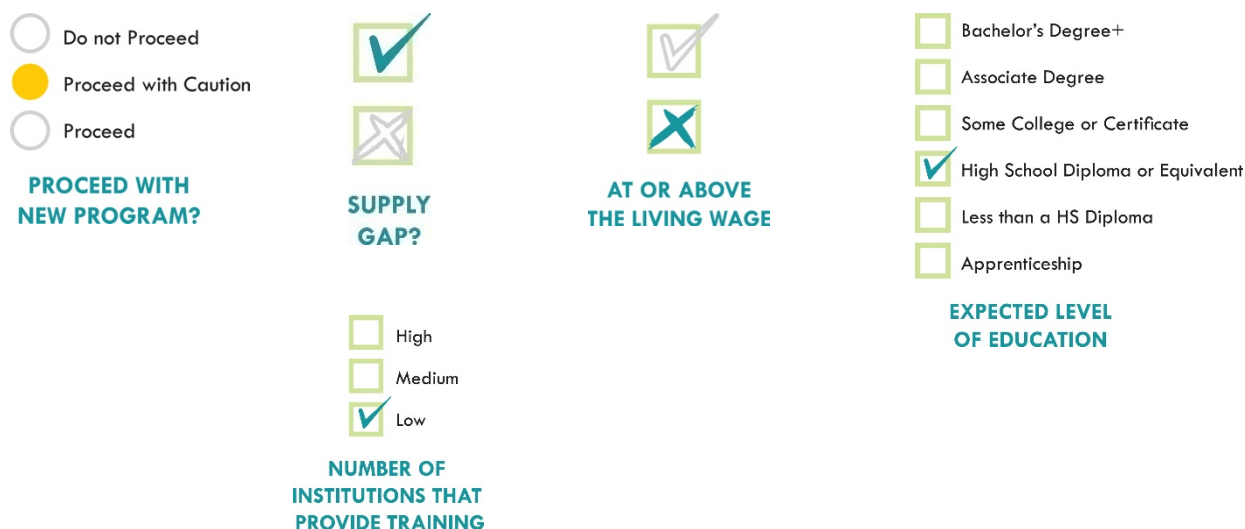jedwards@miracosta.edu

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Automotive Collision Repair

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ◯ Do not Proceed
- 🟡 Proceed with Caution
- ◯ Proceed

PROCEED WITH NEW PROGRAM?

☑ ☒

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- ☐ High
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NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

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AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupations selected by San Diego Continuing Education for its *Automotive Collision Repair* program. The training provided by this program is likely to lead to employment as *Automotive Body and Related Repairers*; *Automotive Glass Installers and Repairers*; and *Painters, Transportation Equipment*. According to available labor market information, these three occupations have a labor market demand of 244 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with six for-credit awards for *Automotive Collision Repair*: Palomar College. While associate degrees are offered for *Automotive Collision Repair*, Palomar College awards more certificates than associate degrees. More specifically, "Certificates 18 to < 30 units" have the largest number of awards over a three-year average. In terms of noncredit awards, only San Diego Continuing Education supplies awards—18 noncredit awards—for *Automotive Collision Repair*. In short, the region supplies 24 for-credit and noncredit awards for 244 annual job openings, suggesting that there is a supply gap. However, the brief recommends to proceed with caution because out of the three occupations, only *Painters, Transportation Equipment* provide entry-level earnings above the living wage. Additionally, The highest expected level of education for these occupations is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Automotive Collision Repair (TOP 094900). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified three occupations from the Standard Occupational Classification (SOC)[2] system for *Automotive Collision Repair*, which will be the focus of this report:

- **Automotive Body and Related Repairers** (SOC 49-3021): Repair and refinish automotive vehicle bodies and straighten vehicle frames.
- **Automotive Glass Installers and Repairers** (SOC 49-3022): Replace or repair broken windshields and window glass in motor vehicles.
- **Painters, Transportation Equipment** (SOC 51-9122): Operate or tend painting machines to paint surfaces of transportation equipment, such as automobiles, buses, trucks, trains, boats, and airplanes. Includes painters in auto body repair facilities.

For the purpose of this report, these occupations are collectively referred to as *Automotive Collision Repair Occupations*.

Projected Occupational Demand

Between 2018 and 2023, *Automotive Collision Repair Occupations* are projected to increase by 101 net jobs or five percent (Exhibit 1a). Employers in San Diego County will need to hire 244 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

Exhibit 1a: Number of Jobs for *Automotive Collision Repair Occupations* (2008-2023)[3]
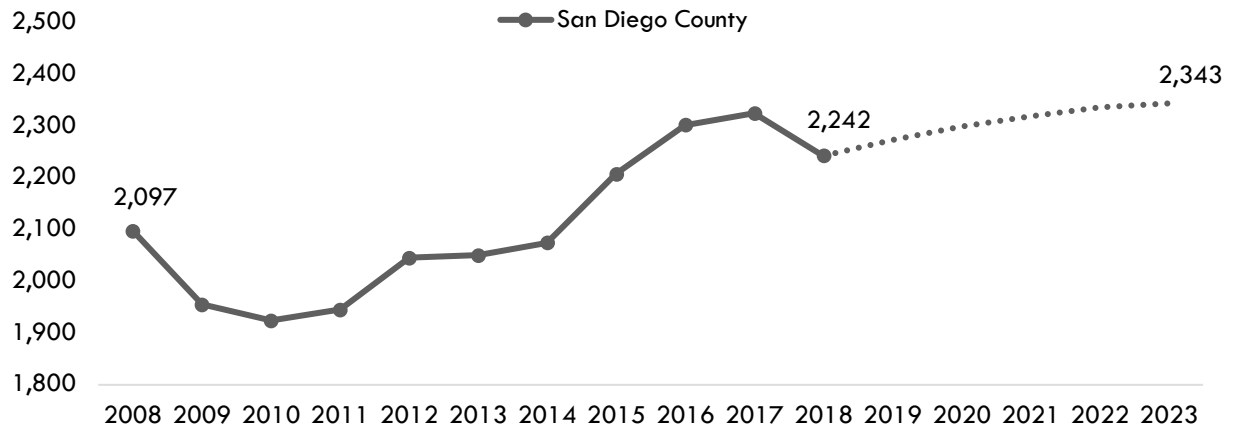

Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, *Automotive Body and Related Repairers* has the largest labor market demand, with 149 job openings projected to be available annually between 2018 and 2023.

Exhibit 1b: Number of Jobs for *Automotive Collision Repair Occupations* in San Diego County (2018-2023)

Occupational Title	2018 Net Jobs	2023 Net Jobs	2018 - 2023 Net Change	2018-2023 % Net Change	Annual Job Openings (Demand)
Automotive Body and Related Repairers	1,422	1,478	56	4%	149
Painters, Transportation Equipment	762	800	38	5%	88
Automotive Glass Installers and Repairers	58	65	7	12%	7
Total	2,242	2,343	101	5%	244

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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 labor market demand that are not captured by historical data. Between 2010 and 2018, there was an average of 96 online job postings per year for *Automotive Collision Repair Occupations* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Automotive Collision Repair Occupations* in San Diego County (2010-2018)[4]

Year	Postings
2010	89
2011	37
2012	64
2013	87
2014	126
2015	69
2016	88
2017	114
2018	191
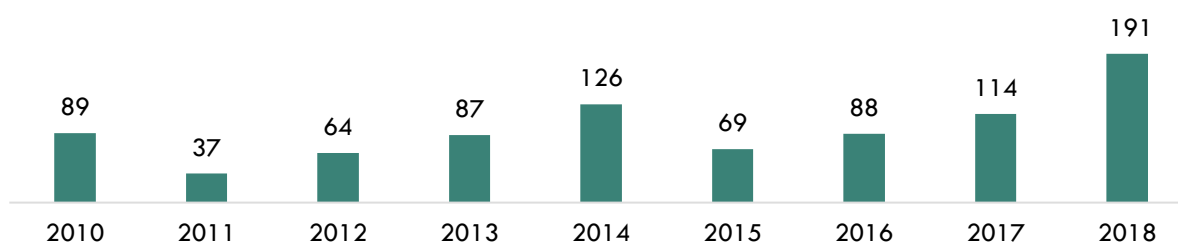
Earnings

Out of the three occupations, only Painters, Transportation Equipment provide entry-level earnings above the living wage (Exhibit 3a). As seen in Exhibit 3a, the median hourly earnings of *Automotive Collision Repair Occupations* range from $14.44 to $20.47. On average, the median hourly earnings for *Automotive Collision Repair Occupations* collectively is $17.60; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3b).[5]

Exhibit 3a: Hourly Earnings for *Automotive Collision Repair Occupations* in San Diego County

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Painters, Transportation Equipment	$15.89	$20.47	$28.07
Automotive Body and Related Repairers	$11.77	$17.88	$29.29
Automotive Glass Installers and Repairers	$11.24	$14.44	$21.87

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-family-needs-calculator.

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Exhibit 3b: Average Hourly Earnings[6] for *Automotive Collision Repair Occupations* in San Diego County[7]
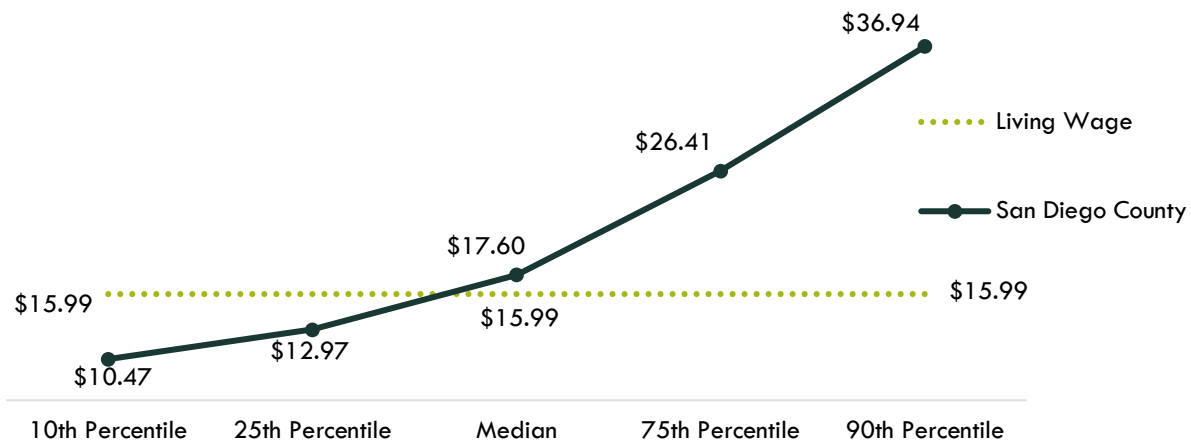
Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Automotive Collision Repair (TOP 094900): Palomar College. While associate degrees are offered for *Automotive Collision Repair Occupations*, this institution awards more certificates than associate degrees (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Palomar	Associate of Science (A.S.) degree	0	3	1	1
	Associate of Arts (A.A.) degree	2	0	0	1
	Certificate 18 to < 30 units	3	5	4	4
	Total	**5**	**8**	**5**	**6**

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[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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There is one CIP code related to Automotive Collision Repair (TOP 094900): Autobody/Collision and Repair Technology/Technician (CIP 470603).

5

More specifically, "Certificates 18 to < 30 units" have the largest number of awards over a three-year average (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Automotive Collision Repair (TOP 094900)* in San Diego County (Three-Year Average 2015-16 through 2017-18)
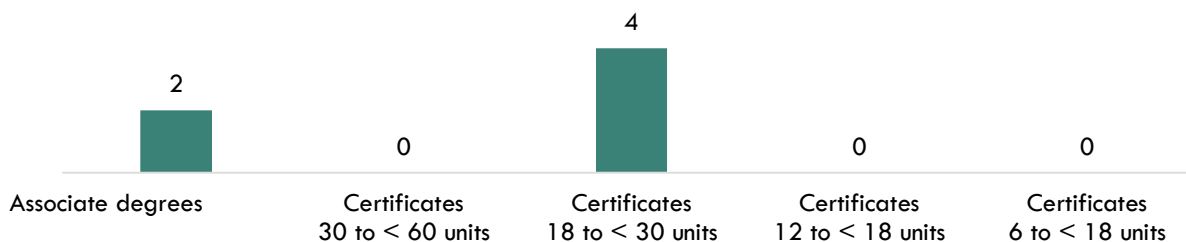
In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Automotive Collision Repair (TOP 094900), with an average of 18 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

**Exhibit 5: Number of Noncredit Awards Conferred by SDCE
(Program Years 2015-16 through 2017-18)**

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Auto Body and Paint Technician	Program Award	5	14	35	18

Demand vs. Supply

In short, the region supplies 24 for-credit and noncredit awards for 244 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)
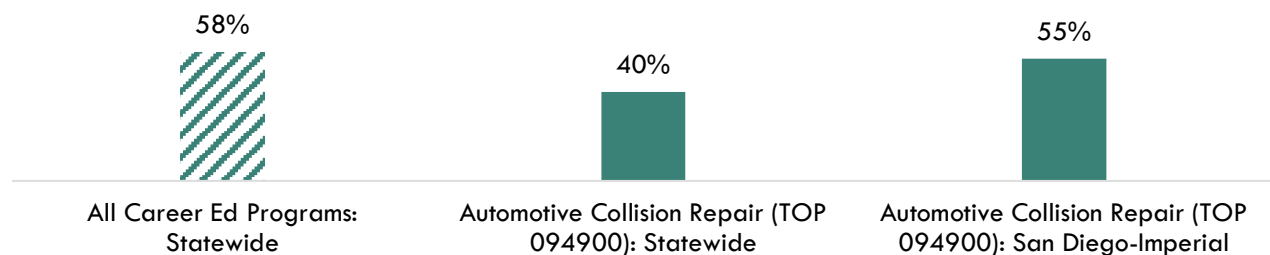
TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Automotive Collision Repair (094900)	244	18	6	**220**

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.
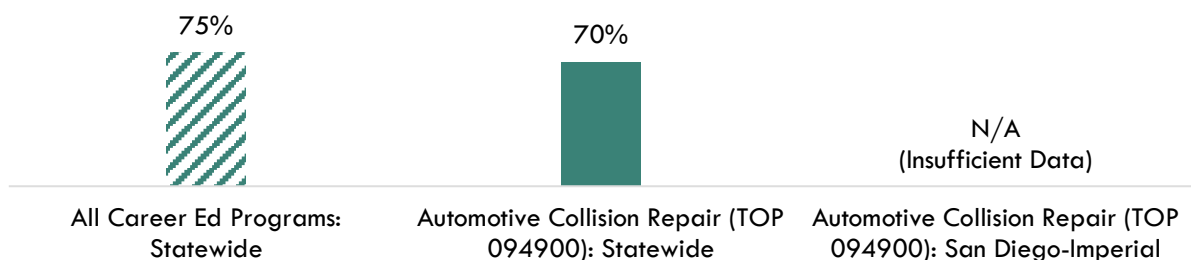
Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 55 percent of students in the San Diego-Imperial region earned a living wage after completing an Automotive Collision Repair (TOP 094900) program, compared to 40 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Automotive Collision Repair (TOP 094900): Statewide	Automotive Collision Repair (TOP 094900): San Diego-Imperial
58%	40%	55%

According to the California Community Colleges LaunchBoard, 0 percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Automotive Collision Repair (TOP 094900) program, compared to 70 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Automotive Collision Repair (TOP 094900): Statewide	Automotive Collision Repair (TOP 094900): San Diego-Imperial
75%	70%	N/A (Insufficient Data)

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

7

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for these occupations were Nissan North America Incorporated, Caliber Collision, Penske Automotive Group, Enterprise Rent-A-Car, and Chevrolet (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Automotive Collision Repair Occupations*[12]

Top Employers	
• Nissan North American Incorporated	• AutoNation
• Caliber Collision	• U.S. Navy
• Penske Automotive Group	• Naval Air Systems Command
• Enterprise Rent-A-Car	• Group 1 Automotive
• Chevrolet	• Toyota Automotive

Skills, Education, and Certifications

Automotive Collision Repair Occupations have educational requirements of a high school diploma or equivalent (Exhibit 9). This is similar to what is seen in online job postings. Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Automotive Collision Repair Occupations* was also a high school or vocational training.[13]

Exhibit 9: National Educational Requirements for *Automotive Collision Repair Occupations*[14]

Occupational Title	Typical Entry-Level Education
Automotive Glass Installers and Repairers	High school diploma or equivalent
Automotive Body and Related Repairers	High school diploma or equivalent
Painters, Transportation Equipment	High school diploma or equivalent

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

8

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Automotive Collision Repair Occupations* in San Diego County[15]

Specialized Skills	Soft Skills	Software Skills
• Repair	• Organizational Skills	• Paint Shop Pro
• Auto Repair	• Physical Abilities	• Active Server Pages
• Painting	• Computer Literacy	• Microsoft Excel
• Welding	• English	• Microsoft Word
• Customer Contact	• Writing	• Microsoft PowerPoint

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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.

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

9

Upholstery Repair - Automotive

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ○ Do not Proceed
- ● Proceed with Caution
- ○ Proceed

PROCEED WITH NEW PROGRAM?

☑ / ☒

SUPPLY GAP?

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

☑ / ☒

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Upholstery Repair - Automotive* program. The training provided by this program is likely to lead to employment as *Upholsterers*. According to available labor market information, this occupation has a labor market demand of 28 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. No community college reporting supplying for-credit awards and only San Diego Continuing Education supplies (seven) noncredit awards for this occupation. In short, the region supplies seven for-credit and noncredit awards for 28 annual job openings, suggesting that there is a small labor market supply gap. Additionally, median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The highest expected level of education for this occupation is a high school diploma or equivalent. However, this brief recommends to proceed with caution when developing a new program because of the small labor market demand (annual job openings).

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Upholstery Repair - Automotive (TOP 094910). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Upholstery Repair - Automotive*, which will be the focus of this report:

Upholsterers (SOC 51-6093): Make, repair, or replace upholstery for household furniture or transportation vehicles. Sample reported job titles include:

- Furniture Upholsterer
- Upholstery Cutter
- Trimmer
- Upholstered Goods Crafter
- Sofa Back Upholsterer

- Upholstery Trimmer
- Upholsterer
- Inside Upholsterer
- Stapler
- Box Spring Upholsterer

Projected Occupational Demand

Between 2018 and 2023, *Upholsterers* are projected to decrease by four net jobs or one percent (Exhibit 1). Employers in San Diego County will need to hire 28 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

Exhibit 1: Number of Jobs for *Upholsterers* (2008-2023)[3]
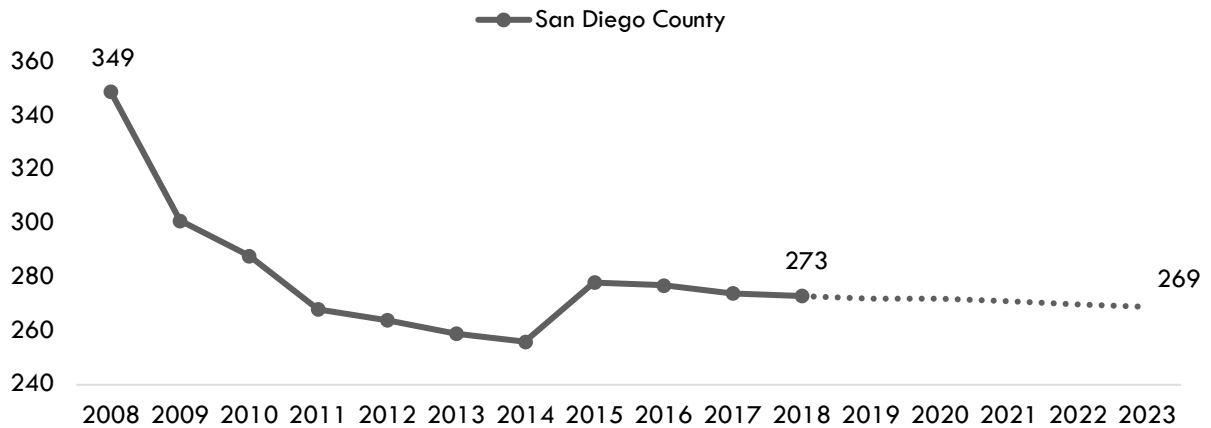
Exhibit 1 chart
- San Diego County
- 2008: 349
- 2018: 273
- 2023: 269

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of seven online job postings per year for *Upholsterers* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Upholsterers* in San Diego County (2010-2018)[4]
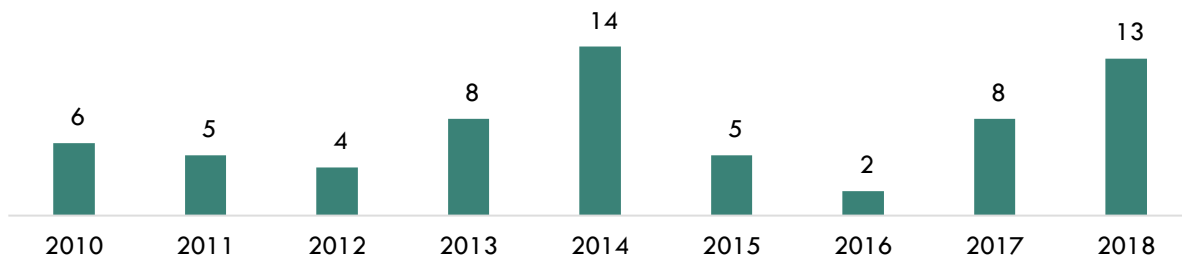
2010	2011	2012	2013	2014	2015	2016	2017	2018
6	5	4	8	14	5	2	8	13

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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

3

Earnings

Upholsterers receive median hourly earnings of $20.41; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Upholsterers* in San Diego County[7]
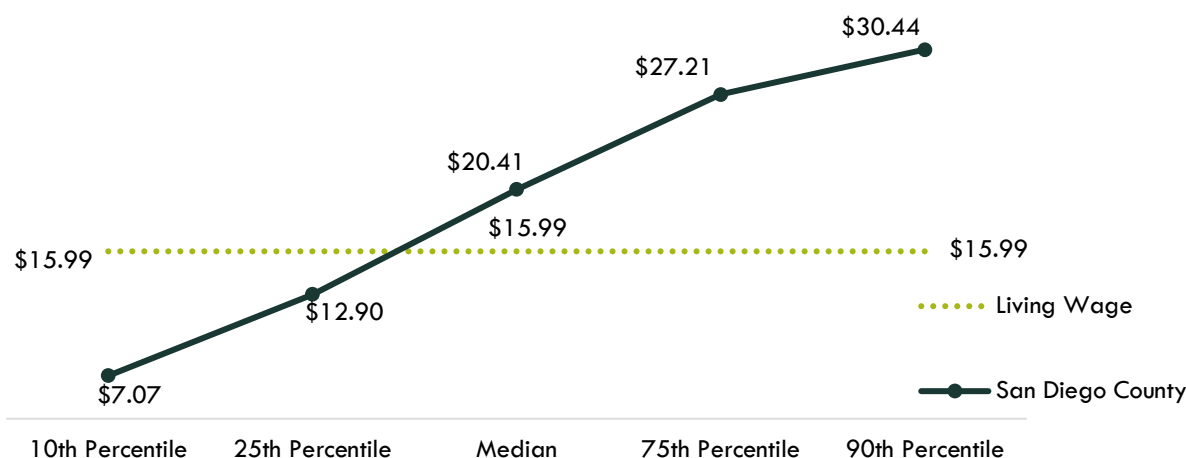
Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, no community college supplies the region with for-credit awards for Upholstery Repair - Automotive (TOP 094910). However, San Diego Continuing Education provides noncredit awards for Upholstery Repair - Automotive (TOP 094910), with an average of seven noncredit awards between program years 2015-16 and 2017-18 (Exhibit 4).

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[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There is one CIP code related to Upholstery Repair - Automotive (TOP 094910): Upholstery/Upholsterer (CIP 480303).

4

**Exhibit 4: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE
(Program Years 2015-16 through 2017-18)**

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Combined Upholstery Trades	Program Award	7	1	14	7

Demand vs. Supply

In short, the region supplies seven for-credit and noncredit awards for 28 annual job openings, suggesting that there is a labor market supply gap (Exhibit 5).

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

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Upholstery Repair - Automotive (TOP 094910)	28	7	0	**21**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, there was insufficient data to calculate the "Percentage of Students Employed in a Job Closely Related to Field of Study" and "Proportion of Students Who Earned a Living Wage" in the San Diego-Imperial region and statewide for Upholstery Repair - Automotive (094910).

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Touch Up Home, U.S. Navy, Sycuan Casino, Naval Air Systems Command, and Caesar's Entertainment (Exhibit 6).

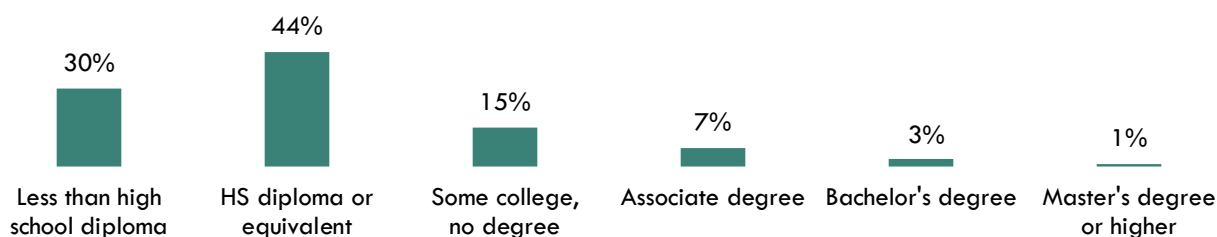**Exhibit 6: Top Employers in San Diego County for *Upholsterers*[10]**

Top Employers	
• Touch Up Home	• San Diego Humane Society
• U.S. Navy	• Mille Fleurs
• Sycuan Casino	• Jerome's Furniture
• Naval Air Systems Command	• Inn decor
• Caesar's Entertainment	• Garcia Furniture

Skills, Education, and Certifications

Exhibit 7 indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is moderate-term on-the-job training. The typical entry-level education is a high school diploma or equivalent.[11] Similarly, between January 1, 2016 and December 31, 2018, 100 percent of online job postings listed a high school diploma or vocational training as the educational requirement for *Upholsterers*.[12]

Exhibit 7: National Educational Requirements for *Upholsterers*[13]

- Less than high school diploma: 30%
- HS diploma or equivalent: 44%
- Some college, no degree: 15%
- Associate degree: 7%
- Bachelor's degree: 3%
- Master's degree or higher: 1%

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[10] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[11] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

6

Exhibit 8 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 8: Top Skills for *Upholsterers* in San Diego County[14]

Specialized Skills	Soft Skills	Software Skills
• Sewing	• English	• Active Server Pages (ASP)
• Repair	• Organization Skills	• Microsoft Office
• Personnel Management	• Work Area Maintenance	
• Insulation	• Teamwork / Collaboration	
• Appointment Setting	• Research	

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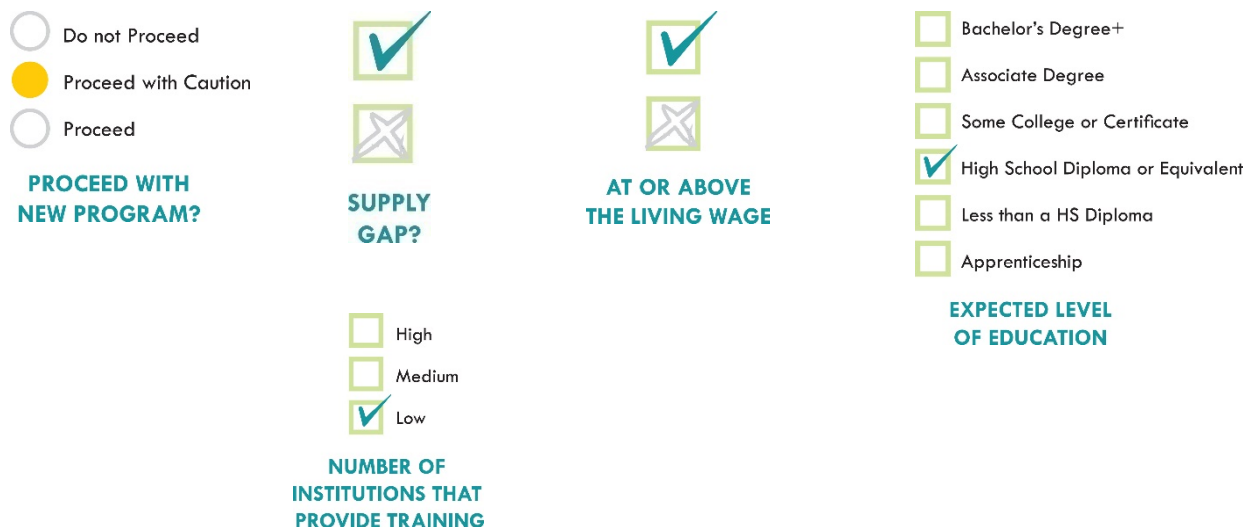jedwards@miracosta.edu

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[14] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

7

Plumbing, Pipefitting and Steamfitting

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ○ Do not Proceed
- ● Proceed with Caution
- ○ Proceed

PROCEED WITH NEW PROGRAM?

☑ ☒

SUPPLY GAP?

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

☑ ☒

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Plumbing, Pipefitting and Steamfitting* program. The training provided by this program is likely to lead to employment as *Septic Tank Servicers and Sewer Pipe Cleaners*. According to available labor market information, this occupation has a labor market demand of 51 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with 13 for-credit awards (1 associate degree and 12 certificates with 18 to < 30 units): San Diego City College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 26 awards over the past three program years. This brief recommends proceeding with caution for a new program because there are few annual job openings and there is a very small supply gap (39 for-credit and noncredit awards vs. 51 annual job openings). However, median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. Expected level of education for this occupation is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Plumbing, Pipefitting and Steamfitting (TOP 095230). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Plumbing, Pipefitting and Steamfitting*, which will be the focus of this report:

Septic Tank Servicers and Sewer Pipe Cleaners (SOC 47-4071): Clean and repair septic tanks, sewer liners, or drains. May patch walls and partitions of tank, replace damaged drain tile, or repair breaks in underground piping. Sample reported job titles include:

- Drain Technician
- Public Works Technician
- Service Technician
- Septic Cleaner
- Laborer

- Septic Pump Truck Driver
- Sewer Bricklayer
- Septic Tank Service Technician
- Maintenance Worker
- Drain Cleaner

Projected Occupational Demand

Between 2018 and 2023, *Septic Tank Servicers and Sewer Pipe Cleaners* are projected to increase by 30 net jobs or nine percent (Exhibit 1). Employers in San Diego County will need to hire 51 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Septic Tank Servicers and Sewer Pipe Cleaners* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of one online job postings per year for *Septic Tank Servicers and Sewer Pipe Cleaners* in San Diego County (Exhibit 2).
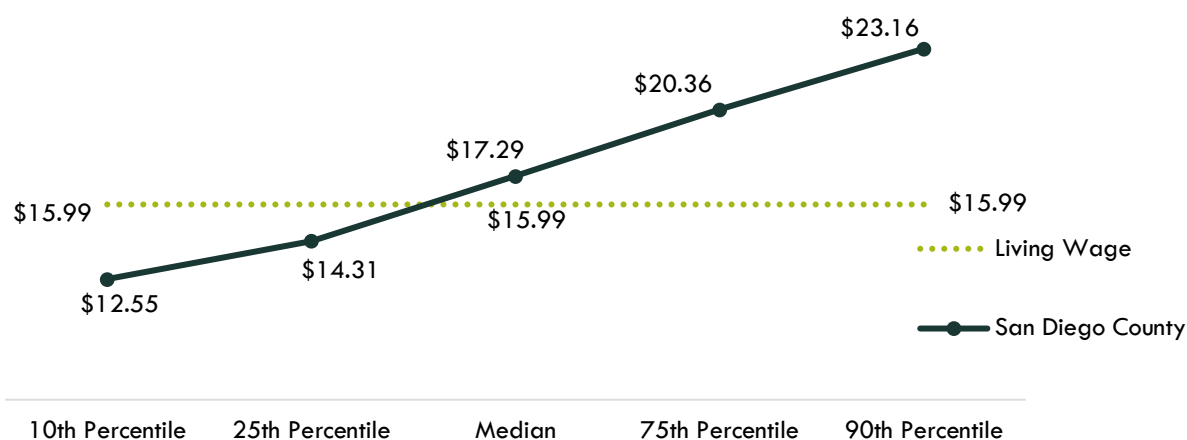
Exhibit 2: Number of Online Job Postings for *Septic Tank Servicers and Sewer Pipe Cleaners* in San Diego County (2010-2018)[4]

2010	2011	2012	2013	2014	2015	2016	2017	2018
0	1	0	1	0	3	2	1	3

Earnings

Septic Tank Servicers and Sewer Pipe Cleaners receive median hourly earnings of $17.29; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Septic Tank Servicers and Sewer Pipe Cleaners* in San Diego County[7]

$23.16

$20.36

$17.29

$15.99 .... $15.99

$15.99

$14.31

$12.55

······ Living Wage

San Diego County

| 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile |

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Plumbing, Pipefitting and Steamfitting (TOP 095230): San Diego City College. While associate degrees are offered, San Diego City College supplied primarily certificates with 18 to < 30 units (Exhibit 4b) in the past three program years (Exhibit 4).

Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego City	Associate of Science (A.S.) degree	1	2	0	1
	Certificate 18 to < 30 units	22	13	0	12
Total		**23**	**15**	**0**	**13**

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Plumbing, Pipefitting and Steamfitting (TOP 095230), with an average of 26 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Plumbing	Program Award	36	19	23	26

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[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] There are two CIP codes related to Plumbing, Pipefitting and Steamfitting (TOP 095230): Pipefitting/Pipefitter and Sprinkler Fitter (CIP 460502) and Plumbing Technology/Plumber (CIP 460503).

4

Demand vs. Supply

In short, the region supplies 39 for-credit and noncredit awards for 51 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).
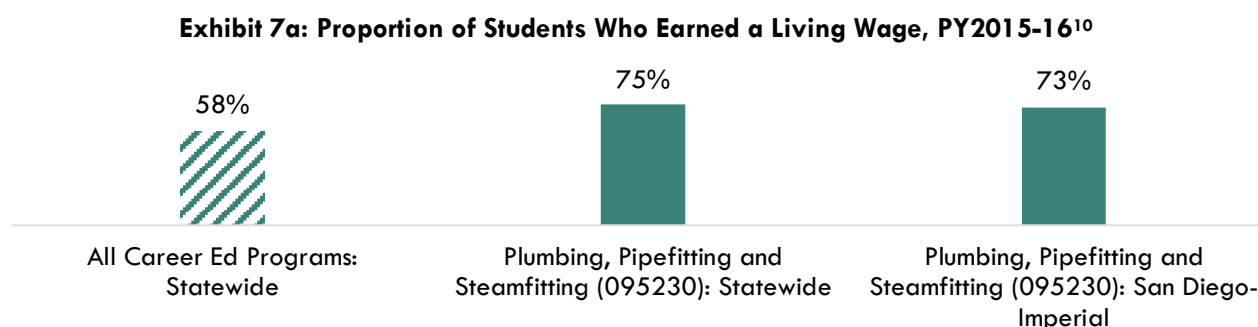
Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Plumbing, Pipefitting and Steamfitting (TOP 095230)	51	26	13	**12**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 73 percent of students in the San Diego-Imperial region earned a living wage after completing a Plumbing, Pipefitting and Steamfitting (095230) program, compared to 75 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Plumbing, Pipefitting and Steamfitting (095230): Statewide	Plumbing, Pipefitting and Steamfitting (095230): San Diego-Imperial
58%	75%	73%

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

5

According to the California Community Colleges LaunchBoard, 100 percent of seven students who responded to the Career Technical Education Outcomes Survey (CTEOS)[11] in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Plumbing, Pipefitting and Steamfitting (095230), compared to 93 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[12]

Bar chart values: All Career Ed Programs: Statewide — 75%; Plumbing, Pipefitting and Steamfitting (095230): Statewide — 93%; Plumbing, Pipefitting and Steamfitting (095230): San Diego-Imperial — 100%
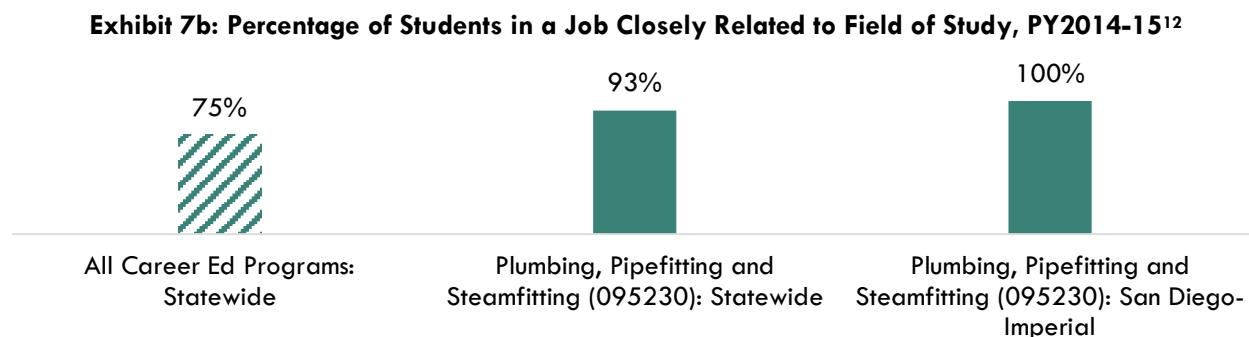
Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top employers in San Diego County for this occupation were Sewer Pros, Lineage Logistics, and Drain Medic Rx Plumbing Incorporated (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Septic Tank Servicers and Sewer Pipe Cleaners*[13]

Top Employers
• Sewer Pros • Lineage Logistics • Drain Medic Rx Plumbing Incorporated

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[11] cteos.santarosa.edu
[12] Most recent year with available data is Program Year 2014-15. 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.
[13] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

6

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is moderate-term on-the-job training. The typical entry-level education is a high school diploma or equivalent.[14] Similarly, between January 1, 2016 and December 31, 2018, 100 percent of online job postings in San Diego County listed high school diploma or vocational training as the required educational attainment.[15]

Exhibit 9a: National Educational Requirements for *Septic Tank Servicers and Sewer Pipe Cleaners*[16]
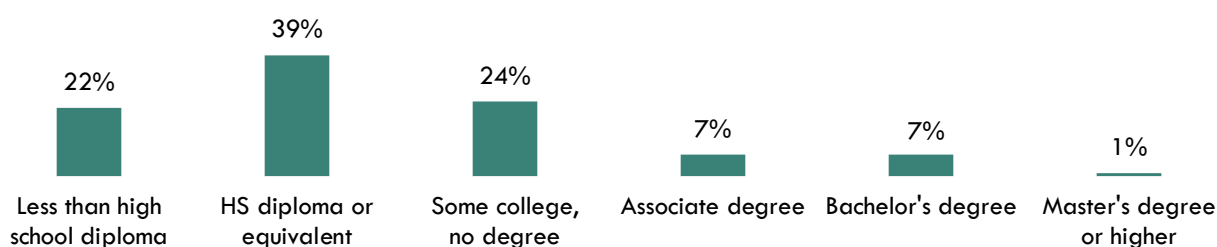
Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher
22%	39%	24%	7%	7%	1%

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Septic Tank Servicers and Sewer Pipe Cleaners* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Cleaning • Repair • Plumbing • Logistics • Forklift Operation	• Teamwork / Collaboration • Problem Solving • Leadership • Initiative	• N/A

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[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

7

Prepared by:

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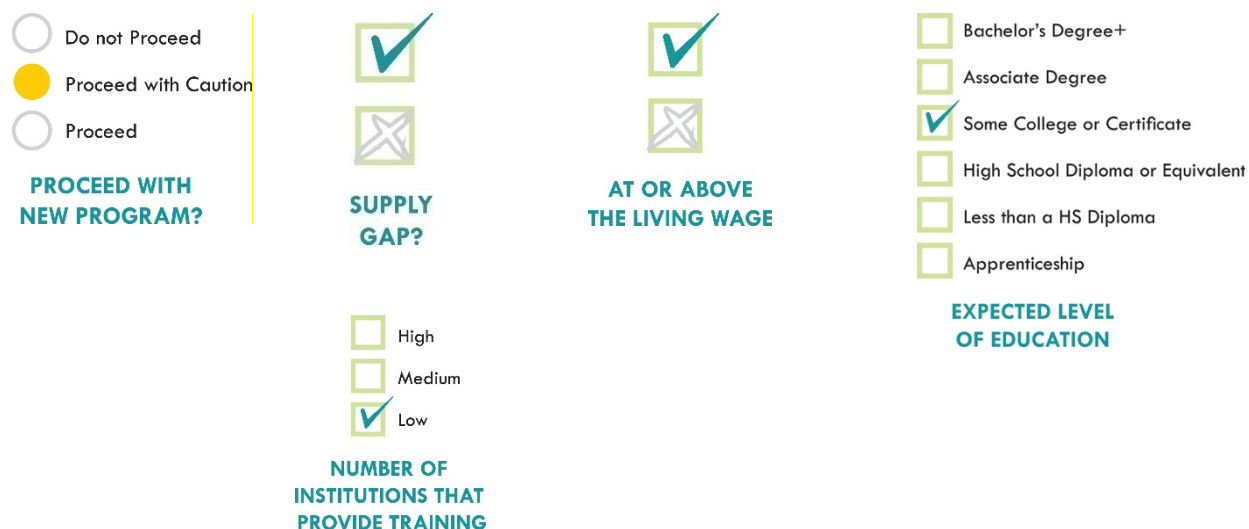
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Important Disclaimers

Manufacturing and Industrial Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

Do not Proceed

Proceed with Caution

Proceed

PROCEED WITH NEW PROGRAM?

✓

☒

SUPPLY GAP?

✓

☒

AT OR ABOVE THE LIVING WAGE

☐ Bachelor's Degree+

☐ Associate Degree

✓ Some College or Certificate

☐ High School Diploma or Equivalent

☐ Less than a HS Diploma

☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

☐ High

☐ Medium

✓ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Manufacturing and Industrial Technology* program. The training provided by this program is likely to lead to employment as *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic*. According to available labor market information, the occupation has a labor market demand of 28 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with 16 for-credit awards: San Diego City College. San Diego City College awarded 13 certificates with 6 to < 18 units, two associate degrees, and one certificate with units 30 to < 60 units. Only San Diego Continuing Education supplies noncredit awards; however, the institution has not conferred any awards during the past three years. This brief recommends to proceed with caution because 1) there is a very small number of annual job openings, and 2) the region supplies 16 for-credit and noncredit awards for 28 annual job openings, suggesting that there is a small supply gap. However, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. Expected level of education for this occupation is a postsecondary nondegree award.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Manufacturing and Industrial Technology (TOP 095600). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Manufacturing and Industrial Technology*, which will be the focus of this report:

Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic (SOC 51-4012): Develop programs to control machining or processing of metal or plastic parts by automatic machine tools, equipment, or systems. Sample reported job titles include:

- Computer Numerical Control Programmer
- Computer Numerical Control Machinist
- Process Engineer
- Machine Shop Lead Man
- Computer Numerical Control Machining Center Operator

- Computer Numerical Control Operator
- Programmer
- Machining Manager
- Machine Operator
- Computer Numerical Control Machine Operator

Projected Occupational Demand

Between 2018 and 2023, *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* are projected to increase by 26 net jobs or 12 percent (Exhibit 1). Employers in San Diego County will need to hire 28 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* (2008-2023)[3]

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 47 online job postings per year for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* in San Diego County (Exhibit 2).
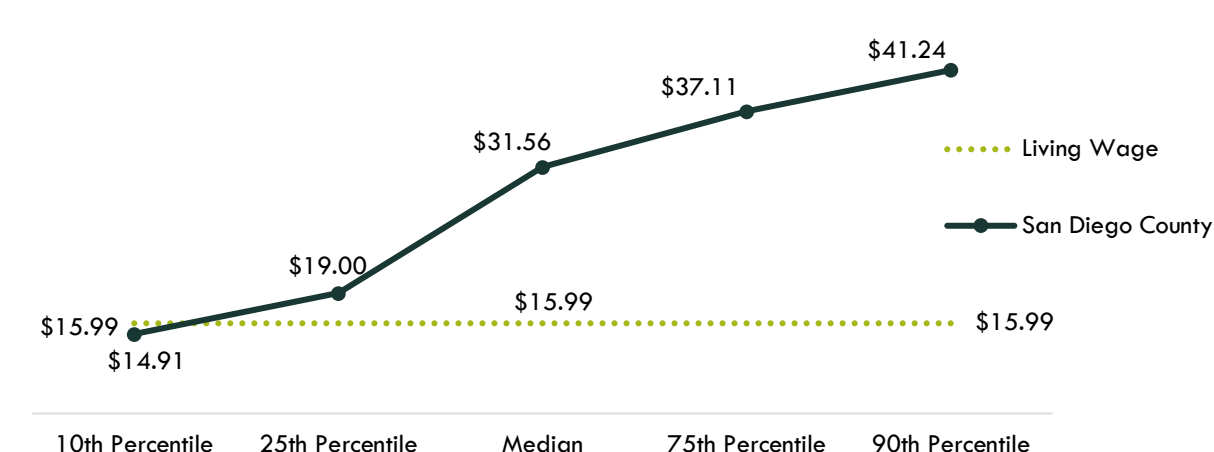
Exhibit 2: Number of Online Job Postings for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* in San Diego County (2010-2018)[4]

Year	Postings
2010	59
2011	43
2012	62
2013	91
2014	44
2015	20
2016	31
2017	33
2018	42
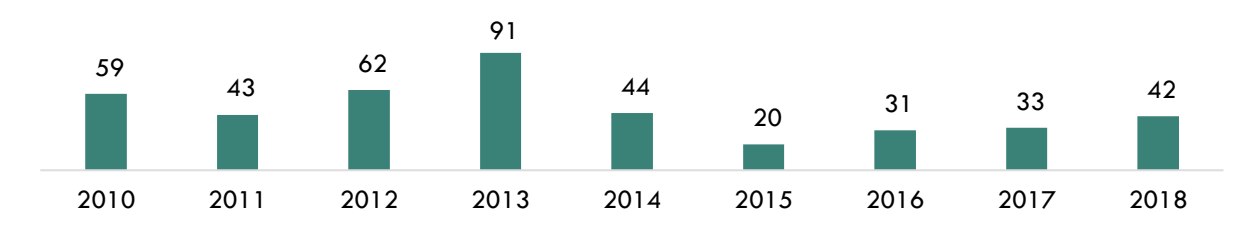
Earnings

Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic receive median hourly earnings of $31.56; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* in San Diego County[7]

Percentile	San Diego County	Living Wage
10th Percentile	$14.91	$15.99
25th Percentile	$19.00	$15.99
Median	$31.56	$15.99
75th Percentile	$37.11	$15.99
90th Percentile	$41.24	$15.99

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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.
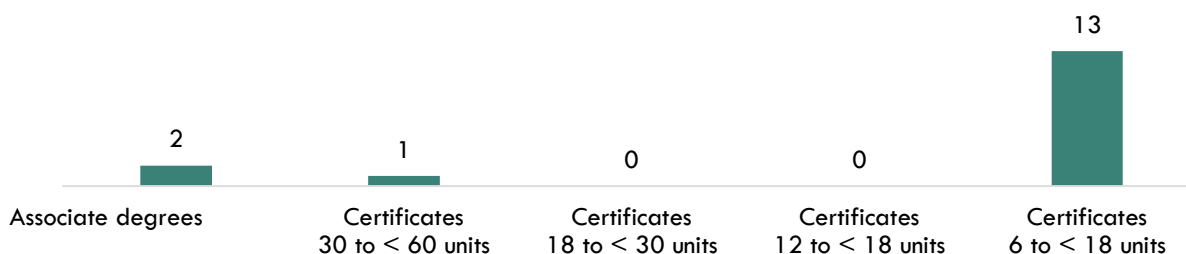[7] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Manufacturing and Industrial Technology (TOP 095600): San Diego City College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego City	Associate of Science (A.S.) degree	0	1	4	2
	Certificate 30 to < 60 units	1	0	2	1
	Certificate 6 to < 18 units	12	5	23	13
Total		**13**	**6**	**29**	**16**

While San Diego City College offers associate degrees for Manufacturing and Industrial Technology (TOP 095600), certificates with 6 to < 18 units have the greatest number of awards in the past three program years with 13 awards (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Manufacturing and Industrial Technology TOP 095600* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
2	1	0	0	13

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[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] There are seven CIP codes related to Manufacturing and Industrial Technology (TOP 095600): Robotics Technology/Technician (CIP 150405), Automation Engineer Technology/Technician (CIP 150406), Metallurgical Technology/Technician (CIP 150611), Manufacturing Engineering Technology/Technician (CIP 150613), Automotive Engineering Technology/Technician (CIP 150803), Mechanical Engineering/Mechanical Technology/Technician (CIP 150805), and Industrial and Product Design (CIP 500404).

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In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Manufacturing and Industrial Technology (TOP 095600), with an average of zero noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Pipe Welding/Pipefitting	Program Award	0	1	0	0

Demand vs. Supply

In short, the region supplies 16 for-credit and noncredit awards for 28 annual job openings, suggesting that there is a small labor market supply gap (Exhibit 6).

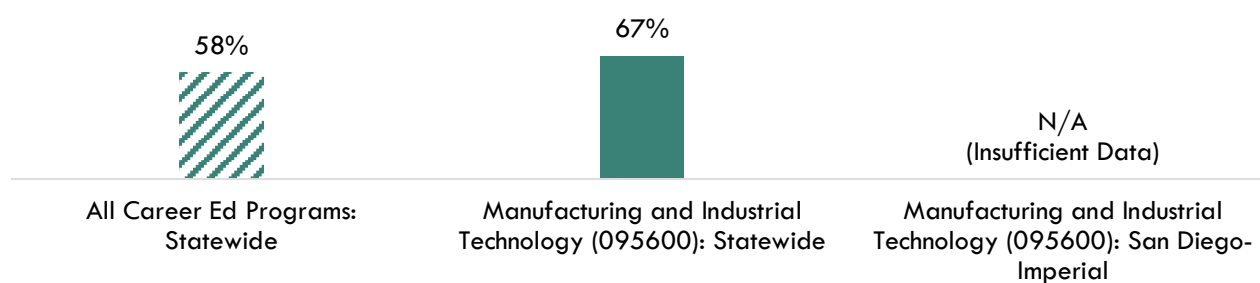**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Manufacturing and Industrial Technology (TOP 095600)	28	0	16	**12**

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.
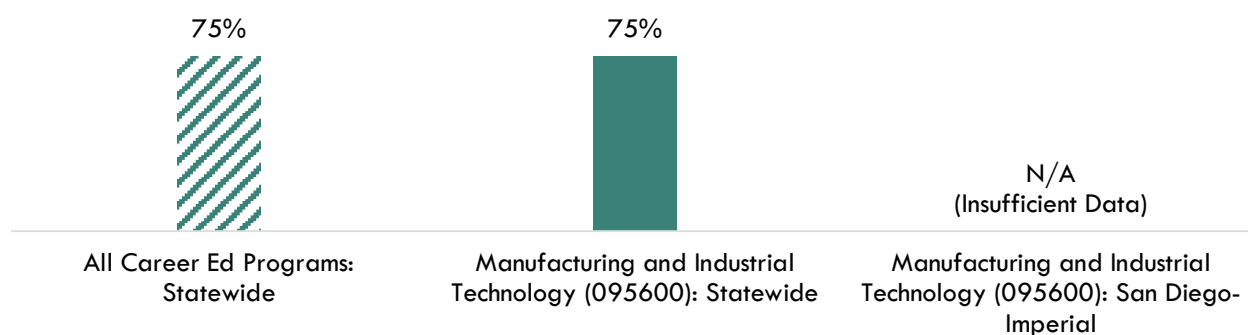
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Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region earned a living wage after completing a Manufacturing and Industrial Technology (095600) program, compared to 67 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Manufacturing and Industrial Technology (095600): Statewide	Manufacturing and Industrial Technology (095600): San Diego-Imperial
58%	67%	N/A (Insufficient Data)

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Manufacturing and Industrial Technology (095600) program, compared to 75 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Manufacturing and Industrial Technology (095600): Statewide	Manufacturing and Industrial Technology (095600): San Diego-Imperial
75%	75%	N/A (Insufficient Data)

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

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Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were General Atomics, GKN, Epsilon Systems Solutions Incorporated, TE Connectivity, and Synergy Top (Exhibit 8).
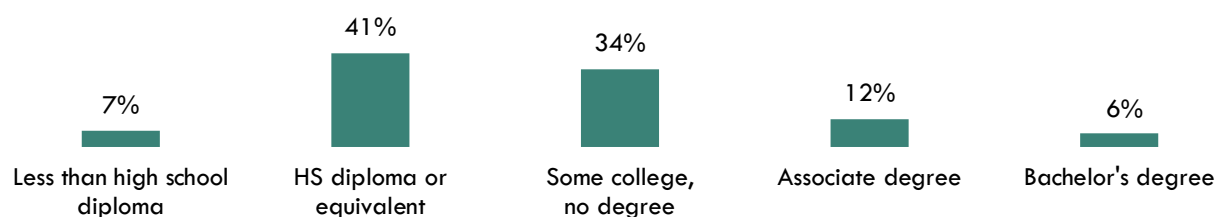
Exhibit 8: Top Employers in San Diego County for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic*[12]

Top Employers	
• General Atomics	• Nuvasive Incorporated
• GKN	• LMI Aerospace Incorporated
• Epsilon Systems Solutions Incorporated	• Johnson Matthey Incorporated
• TE Connectivity	• Vantage Associated Incorporated
• Synergy Top	• Triumph Group Incorporated

Skills, Education, and Certifications

The typical on-the-job training for this profession is moderate-term on-the-job training. Nationally, employers report that typical entry-level education is postsecondary nondegree award. However, the educational attainment for the occupation typically found currently in the national labor force is a high school diploma or equivalent (Exhibit 9a).[13]

Exhibit 9a: National Educational Attainment for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic*[14]

Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree
7%	41%	34%	12%	6%

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* in San Diego County was a high school diploma or vocational training (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements *for Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* **in San Diego County in Online Job Postings**[16]
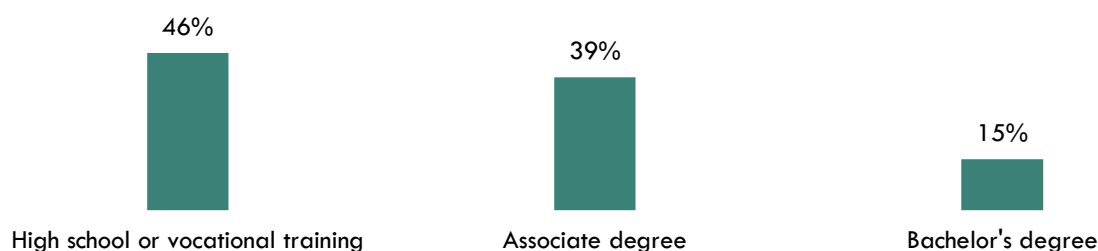

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic* **in San Diego County**[17]

Specialized Skills	Soft Skills	Software Skills
• Computer Numerical Control • Machining • Lathes • Mastercam • Engineering Drawings	• Communication Skills • Computer Literacy • Written Communication • Troubleshooting • Editing	• SolidWorks • Computer Aided Manufacturing • CATIA • Unigraphics • Computer Aided Drafting/ Design

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

8

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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.

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![Centers of Excellence for Labor Market Research logo](C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH)

Sheet Metal and Structural Metal

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

PROCEED WITH NEW PROGRAM?
- ◯ Do not Proceed
- ◯ Proceed with Caution
- 🟢 Proceed

SUPPLY GAP?
- ☑
- ☒

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING
- ☐ High
- ☐ Medium
- ☑ Low

AT OR ABOVE THE LIVING WAGE
- ☑
- ☒

EXPECTED LEVEL OF EDUCATION
- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Sheet Metal and Structural Metal* program. The training provided by this program is likely to lead to employment as *Sheet Metal Workers*. According to available labor market information, the occupation has a labor market demand of 152 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Two community colleges supply the region with 29 for-credit awards: Palomar College and San Diego City College. Both institutions primarily awarded certificates with 30 to < 60 units in the past three program years. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged two awards in the same period. In short, the region supplies 31 for-credit and noncredit awards for 152 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. Expected level of education for this occupation is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Sheet Metal and Structural Metal (TOP 095640). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Sheet Metal and Structural Metal*, which will be the focus of this report:

> **Sheet Metal Workers** (SOC 47-2211): Fabricate, assemble, install, and repair sheet metal products and equipment, such as ducts, control boxes, drainpipes, and furnace casings. Work may involve any of the following: setting up and operating fabricating machines to cut, bend, and straighten sheet metal; shaping metal over anvils, blocks, or forms using hammer; operating soldering and welding equipment to join sheet metal parts; or inspecting, assembling, and smoothing seams and joints of burred surfaces. Includes sheet metal duct installers who install prefabricated sheet metal ducts used for heating, air conditioning, or other purposes. Sample reported job titles include:

- Sheet Metal Installer
- Fabricator
- Sheet Metal Layout Mechanic
- HVAC Sheet Metal Installer (Heating, Ventilation, and Air Conditioning Sheet Metal Installer)

- Sheet Metal Mechanic
- Sheet Metal Fabricator
- Welder
- Sheet Metal Journeyman
- Sheet Metal Foreman

Projected Occupational Demand

Between 2018 and 2023, *Sheet Metal Workers* are projected to increase by 112 net jobs or nine percent (Exhibit 1). Employers in San Diego County will need to hire 152 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.

Exhibit 1: Number of Jobs for *Sheet Metal Workers* (2008-2023)[3]
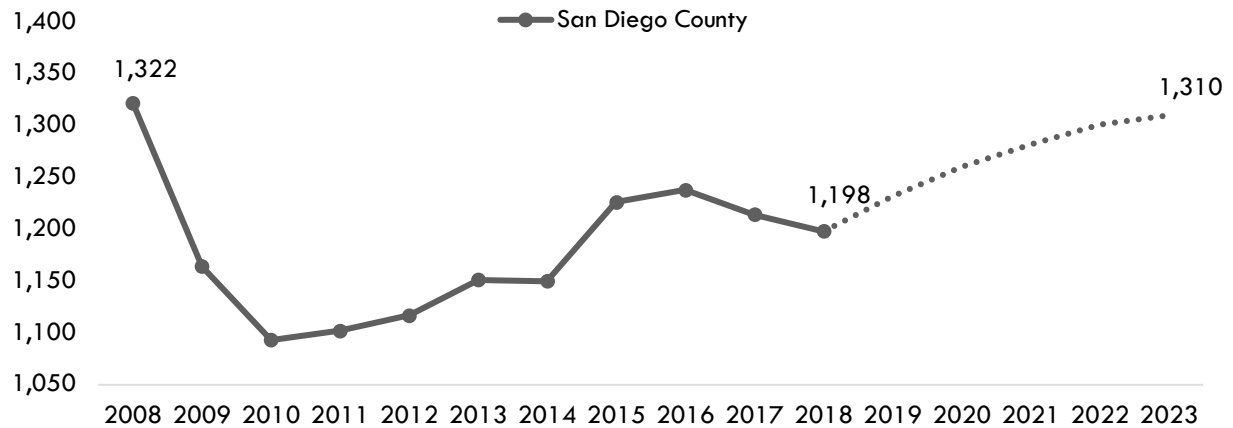
Online Job Postings

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 78 online job postings per year for *Sheet Metal Workers* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Sheet Metal Workers* in San Diego County (2010-2018)[4]
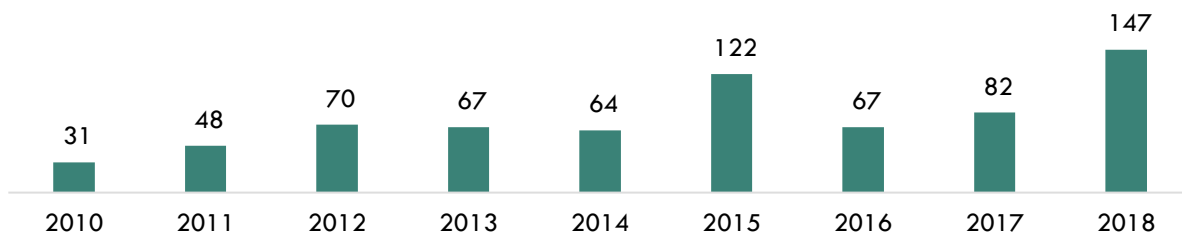
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[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

3

Earnings

Sheet Metal Workers receive median hourly earnings of $29.61; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Sheet Metal Workers* in San Diego County[7]
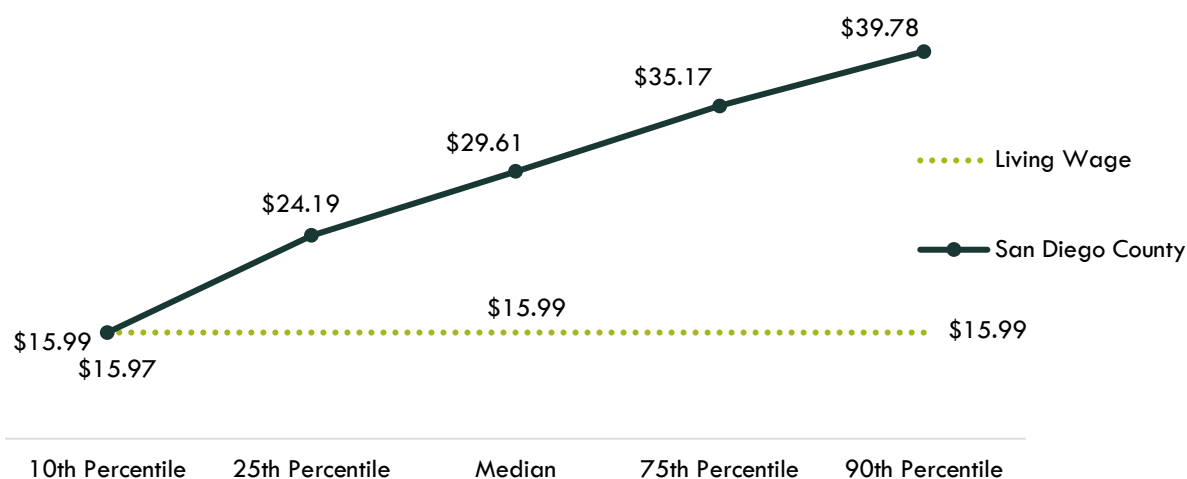
Living Wage

San Diego County

$39.78
$35.17
$29.61
$24.19
$15.99
$15.97
$15.99 $15.99

10th Percentile   25th Percentile   Median   75th Percentile   90th Percentile

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, two community colleges supply the region with for-credit awards for Sheet Metal and Structural Metal (TOP 095640): Palomar College and San Diego City College (Exhibit 4a).

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[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

[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] There is one CIP code related to Sheet Metal and Structural Metal (TOP 095640): Sheet Metal Technology/Sheet working (CIP 480506).
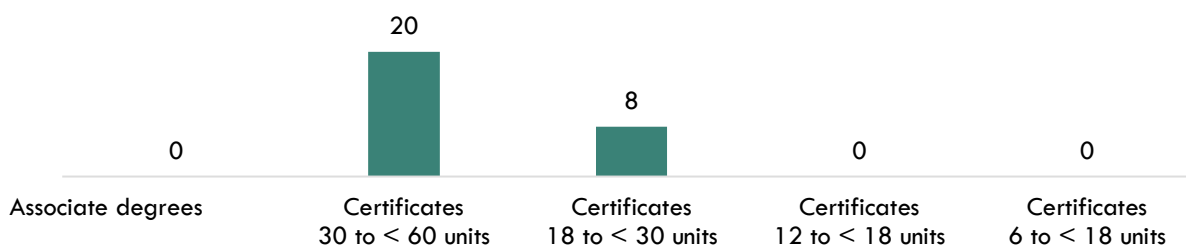
4

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Palomar	Associate of Science (A.S.) degree	0	0	1	0
	Certificate 30 to < 60 units	24	23	13	20
	Total	**24**	**23**	**14**	**20**
San Diego City	Certificate 18 to < 30 units	11	14	0	8
	Total	**11**	**14**	**0**	**8**
Total		**35**	**37**	**14**	**29***

Note: The numbers may not add up exactly due to rounding.

Broken down by award type, the colleges supplied the most awards in certificates with 30 to < 60 units (20), followed by certificates with 18 to < 30 units (8) (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Sheet Metal and Structural Metal (TOP 095640)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Sheet Metal and Structural Metal (TOP 095640), with an average of two noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Metal Fabrication	Program Award	3	2	1	2

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Demand vs. Supply

In short, the region supplies 31 for-credit and noncredit awards for 152 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

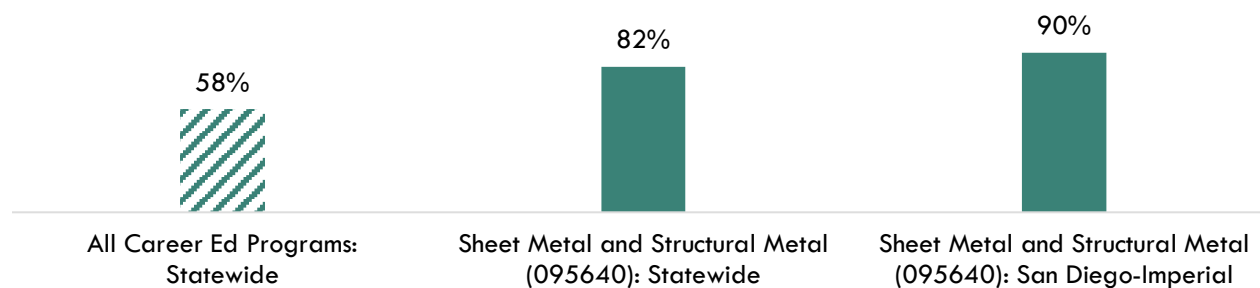**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Sheet Metal and Structural Metal (TOP 095640)	152	2	29	**121**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 90 percent of students in the San Diego-Imperial region earned a living wage after completing a Sheet Metal and Structural Metal (095640) program, compared to 82 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58% — All Career Ed Programs: Statewide
82% — Sheet Metal and Structural Metal (095640): Statewide
90% — Sheet Metal and Structural Metal (095640): San Diego-Imperial

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

6

According to the California Community Colleges LaunchBoard, 86 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Sheet Metal and Structural Metal (095640) program, compared to 88 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide — 75%
Sheet Metal and Structural Metal (095640): Statewide — 88%
Sheet Metal and Structural Metal (095640): San Diego-Imperial — 86%
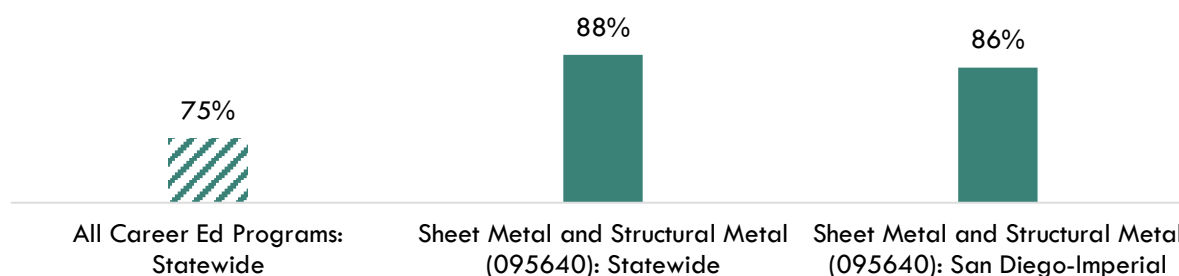
Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were U.S. Navy, Countrywide Mechanical Systems, Triumph Group Incorporated, Naval Air Systems Command, and Zenetex (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Sheet Metal Workers*[12]

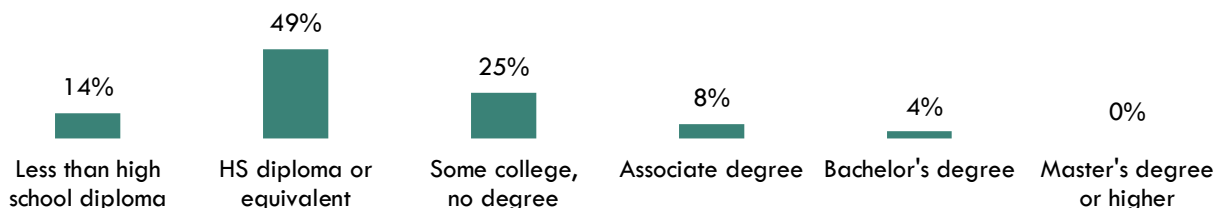| Top Employers	
• U.S. Navy	• Tyonek Native Corporation
• Countrywide Mechanical Systems	• Navair
• Triumph Group Incorporated	• General Atomics
• Naval Air Systems Command	• CSRA
• Zenetex	• Weldmac Manufacturing Company

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[11] Most recent year with available data is Program Year 2014-15. 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.
[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is an apprenticeship. The typical entry-level education is a high school diploma or equivalent.[13]

Exhibit 9a: National Educational Requirements for *Sheet Metal Workers*[14]

Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher
14%	49%	25%	8%	4%	0%

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Sheet Metal Workers* was a high school diploma or vocational training (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Sheet Metal Workers* in San Diego County in Online Job Postings[16]

High school or vocational training	Associate degree
96%	4%

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[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. 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, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Sheet Metal Workers* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Repair	• Physical Abilities	• Activity Server Pages (ASP)
• Welding	• Planning	• Design (CAD)
• Hand tools	• Work Area Maintenance	• Computer Aided Manufacturing (CAM)
• Power Tools	• Computer Literacy	• Adobe Photoshop
• Sheet Metal Fabrication	• Writing	• Adobe InDesign

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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.
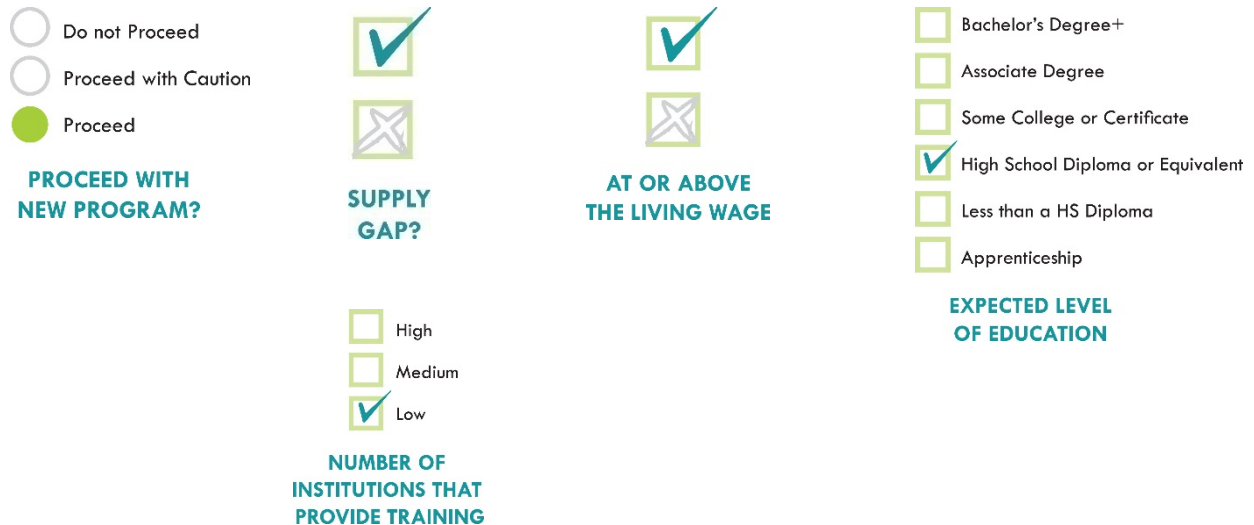
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[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Welding Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ◯ Do not Proceed
- ◯ Proceed with Caution
- ● Proceed

PROCEED WITH NEW PROGRAM?

☑ / ☒

SUPPLY GAP?

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

☑ / ☒

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Welding* program. The training provided by this program is likely to lead to employment as *Welders, Cutters, Solderers, and Brazers* and *Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders*. According to available labor market information, these occupations have a labor market demand of 445 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with 51 for-credit awards (primarily certificates with 6 to < 18 units): Palomar College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 43 awards over the past three program years. In short, the region supplies 94 for-credit and noncredit awards for 445 annual job openings, suggesting that there is a labor market supply gap. Additionally, these occupations' entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The highest expected level of education for these occupations is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Welding Technology (TOP 095650). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified two occupations from the Standard Occupational Classification (SOC)[2] system for *Welding Technology*, which will be the focus of this report:

- **Welders, Cutters, Solderers, and Brazers** (SOC 51-4121): Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.
- **Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders** (SOC 51-4122): Set up, operate, or tend welding, soldering, or brazing machines or robots that weld, braze, solder, or heat treat metal products, components, or assemblies. Includes workers who operate laser cutters or laser-beam machines.

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

Projected Occupational Demand

Between 2018 and 2023, *Welding Technology Occupations* are projected to increase by 52 net jobs or one percent (Exhibit 1a). Employers in San Diego County will need to hire 445 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 *Welding Technology Occupations* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, *Welders, Cutters, Solderers, and Brazers* has the largest labor market demand, with 427 job openings projected to be available annually between 2018 and 2023.

Exhibit 1b: Number of Jobs for *Welding Technology Occupations* in San Diego County (2018-2023)

Occupational Title	2018 Net Jobs	2023 Net Jobs	2018 - 2023 Net Change	2018-2023 % Net Change	Annual Job Openings (Demand)
Welders, Cutters, Solderers, and Brazers	3,883	3,942	59	2%	427
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	176	171	(5)	(3%)	18
Total	4,059	4,113	54	1%	445

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 230 online job postings per year for *Welding Technology Occupations* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Welding Technology Occupations* in San Diego County (2010-2018)[4]
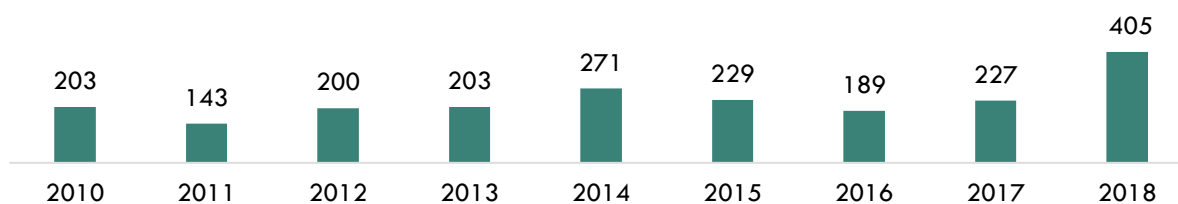
2010	2011	2012	2013	2014	2015	2016	2017	2018
203	143	200	203	271	229	189	227	405

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
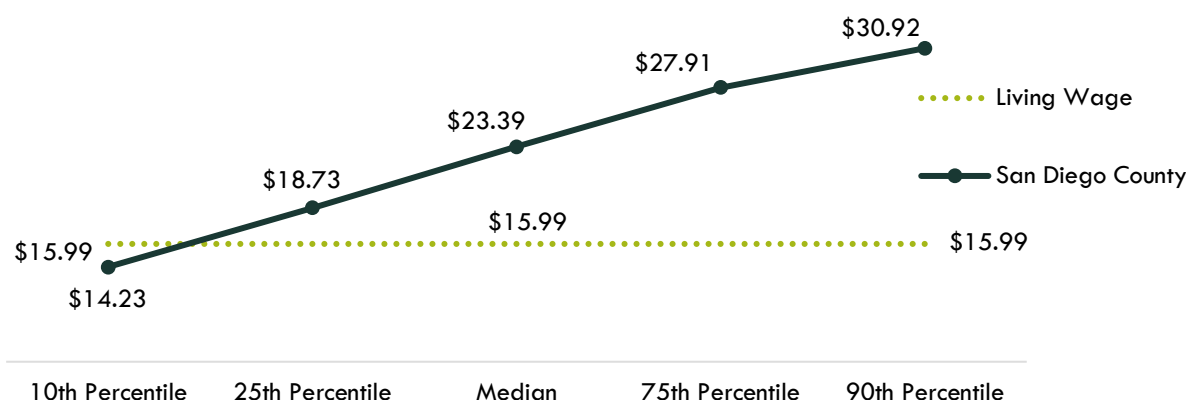
Earnings

The median hourly earnings of *Welding Technology Occupations* range from $23.22 to $23.55 (Exhibit 3a).

Exhibit 3a: Hourly Earnings for *Welding Technology Occupations* in San Diego County

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	$19.44	$23.55	$27.70
Welders, Cutters, Solderers, and Brazers	$18.02	$23.22	$28.12

On average, the median hourly earnings for *Welding Technology Occupations* is $23.39; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3b).[5]

Exhibit 3b: Average Hourly Earnings[6] for *Welding Technology Occupations* in San Diego County[7]

[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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.
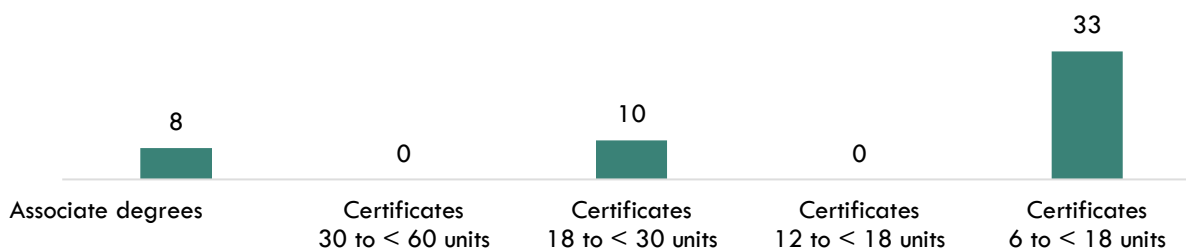[7] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

4

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Welding Technology (TOP 095650): Palomar College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Palomar	Associate of Science (A.S.) degree	0	7	10	6
	Associate of Arts (A.A.) degree	6	0	0	2
	Certificate 18 to < 30 units	10	10	10	10
	Certificate 6 to < 18 units	23	39	37	33
Total		**39**	**56**	**57**	**51**

Broken down by award type, the colleges supplied the most awards in certificates with 6 to < 18 units (33), followed by certificates with 18 to < 30 units (10), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Welding Technology (TOP 095650)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
8	0	10	0	33

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[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] There are three CIP codes related to Welding Technology (TOP 095650): Welding Engineering Technology/Technician (CIP 150614), Welding Technology/Welder (CIP 480508), and Metal Fabricator (CIP 480511).

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Welding Technology (TOP 095650), with an average of 43 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Gas Metal and Flux Cored Arc Welding; Gas Tungsten Arc Welding; Pipe Welding; Shielded Metal Arc Welding; Structural Welding	Program Award	36	41	53	43

Demand vs. Supply

In short, the region supplies 94 for-credit and noncredit awards for 445 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Welding Technology (TOP 095650)	445	43	51	351

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.

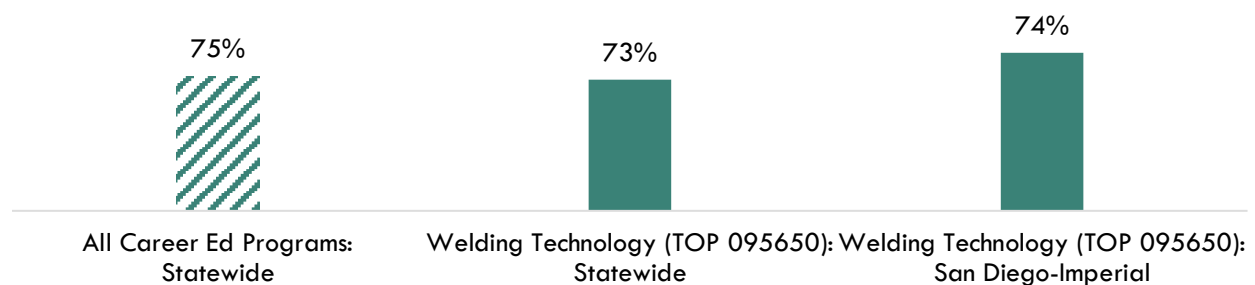## Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 49 percent of students in the San Diego-Imperial region earned a living wage after completing a Welding Technology (TOP 095650) program, compared to 54 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	All Career Ed Programs: Statewide
54%	Welding Technology (TOP 095650): Statewide
49%	Welding Technology (TOP 095650): San Diego-Imperial
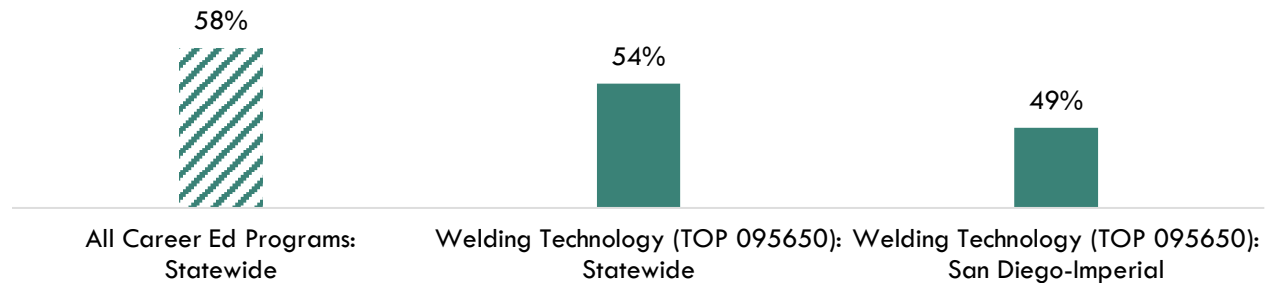
According to the California Community Colleges LaunchBoard, 74 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Welding Technology (TOP 095650), compared to 73 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	All Career Ed Programs: Statewide
73%	Welding Technology (TOP 095650): Statewide
74%	Welding Technology (TOP 095650): San Diego-Imperial

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

7

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for these occupations were General Dynamics, Epsilon Systems Solutions Incorporated, BAE Systems, Propulsion Controls Engineering, and GKN (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Welding Technology Occupations*[12]

Top Employers	
• General Dynamics	• U.S. Navy
• Epsilon Systems Solutions Incorporated	• Weldmac Maritime San Diego
• BAE Systems	• Bombardier
• Propulsion Controls Engineering	• Praxiar
• GKN	• Mobile Mini Incorporated

Skills, Education, and Certifications

Welding Technology Occupations has an educational requirement of a high school diploma or equivalent (Exhibit 9a).

Exhibit 9a: National Educational Requirements for *Welding Technology Occupations*[13]

Occupational Title	Typical Entry-Level Education
Automotive Service Technicians and Mechanics	High school diploma or equivalent
Electrical and Electronics Repairers, Commercial and Industrial Equipment	High school diploma or equivalent

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

8

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Welding Technology Occupations* was a high school or vocational training (Exhibit 9b).[14]

Exhibit 9b: Educational Requirements for *Welding Technology Occupations* in San Diego County in Online Job Postings[15]

97%	1%	2%
High school or vocational training	Associate degree	Bachelor's degree
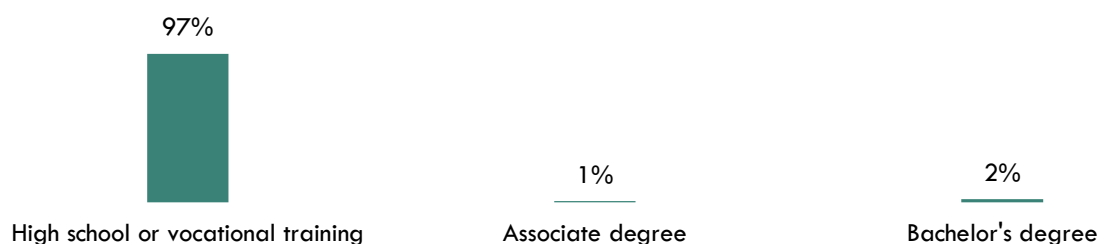
Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Welding Technology Occupations* in San Diego County[16]

Specialized Skills	Soft Skills	Software Skills
• Welding	• Physical Abilities	• Active Server Pages (ASP)
• Repair	• Communication Skills	• Microsoft Excel
• Mig and Tig Welding	• English	• Microsoft Operating Systems
• Shielded Metal Arc Welding	• Organizational Skills	• Word Processing
• Gas-metal Arc Welding	• Writing	• SAP

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[14] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[15] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

9

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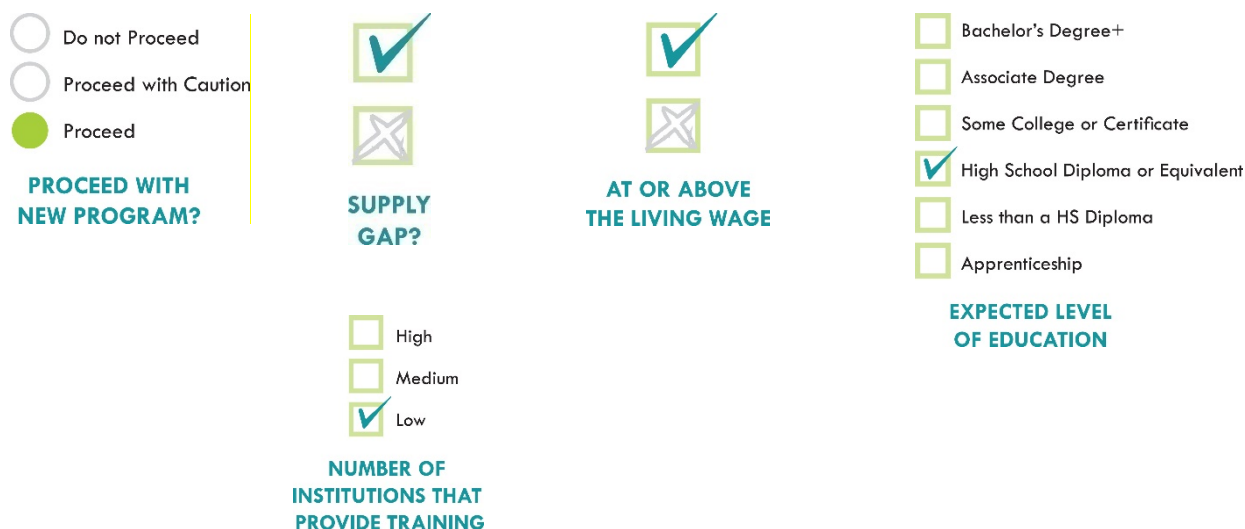
Important Disclaimers

Administrative Medical Assisting

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ◯ Do not Proceed
- ◯ Proceed with Caution
- 🟢 Proceed

PROCEED WITH NEW PROGRAM?

☑ / ☒

SUPPLY GAP?

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

☑ / ☒

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Medical Assisting* program. The training provided by this program is likely to lead to employment as *Medical Secretaries*. According to available labor market information, the occupation has a labor market demand of 1,176 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Two community colleges supply the region with 55 for-credit awards (24 certificates with 18 to <30 units, 23 associate degrees, and other certificates with varying numbers of units): MiraCosta College and Southwestern College. In terms of noncredit awards, only San Diego Continuing Education has a program, but no awards have been issued. In short, the region supplies 55 for-credit and noncredit awards for 1,176 annual job openings, suggesting that there is a labor market supply gap. Additionally, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The expected level of education is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Administrative Medical Assisting (TOP 120820). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Administrative Medical Assisting*, which will be the focus of this report:

Medical Secretaries (SOC 43-6013): Perform secretarial duties using specific knowledge of medical terminology and hospital, clinic, or laboratory procedures. Duties may include scheduling appointments, billing patients, and compiling and recording medical charts, reports, and correspondence. Sample reported job titles include:

- Medical Office Specialist
- Unit Clerk
- Receptionist
- Medical Receptionist
- Administrative Assistant

- Unit Secretary
- Scheduler
- Medical Secretary
- Front Office Coordinator
- Ward Clerk

Projected Occupational Demand

Between 2018 and 2023, *Medical Secretaries* are projected to increase by 1,064 net jobs or 12 percent (Exhibit 1). Employers in San Diego County will need to hire 1,176 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Medical Secretaries* (2008-2023)[3]

Chart shows San Diego County employment rising from 5,813 in 2008 to 8,594 in 2018, with a projected dotted-line increase to 9,658 in 2023. Y-axis ranges from 5,600 to 9,600; X-axis shows years 2008 through 2023.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
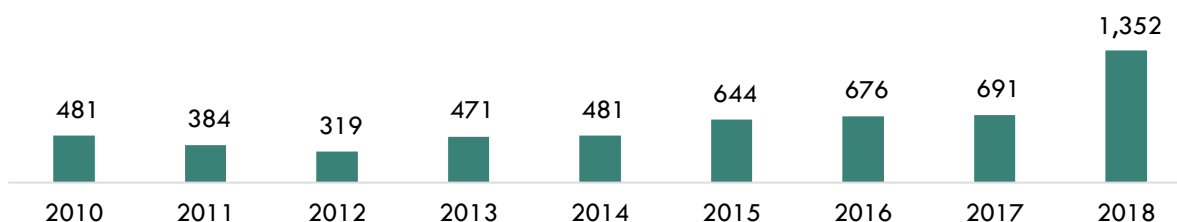[2] The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. bls.gov/soc.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

2

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 611 online job postings per year for *Medical Secretaries* in San Diego County (Exhibit 2).
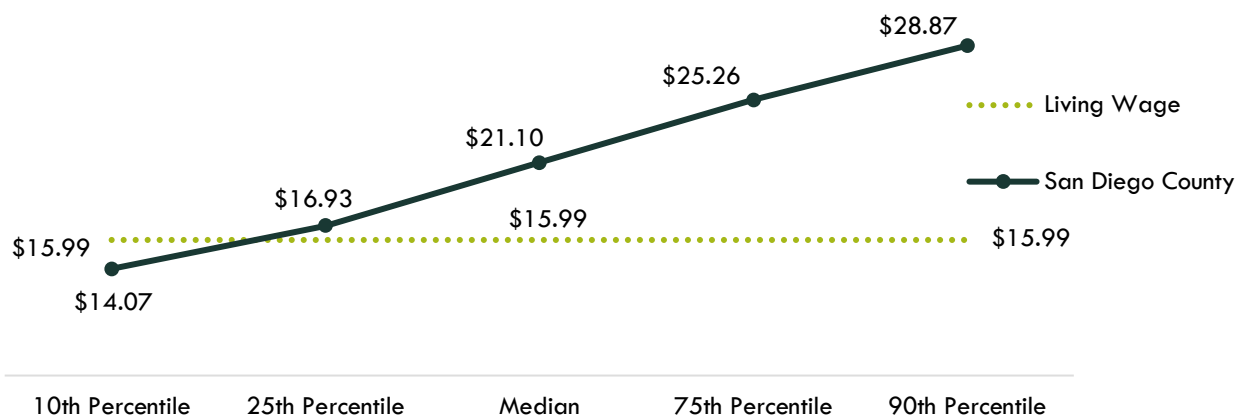
Exhibit 2: Number of Online Job Postings for *Medical Secretaries* in San Diego County (2010-2018)[4]

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Postings	481	384	319	471	481	644	676	691	1,352

Earnings

Medical Secretaries receive median hourly earnings of $21.10; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Medical Secretaries* in San Diego County[7]

	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile
San Diego County	$14.07	$16.93	$21.10	$25.26	$28.87
Living Wage	$15.99		$15.99		$15.99

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

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Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, two community colleges supply the region with for-credit awards for Administrative Medical Assisting (TOP 120820): MiraCosta College and Southwestern College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
MiraCosta	Associate of Arts (A.A.) degree	11	12	12	12
	Certificate 18 to < 30 units	21	17	29	22
	Certificate 6 to < 18 units	1	2	12	5
	Total	**33**	**31**	**53**	**39**
Southwestern	Associate of Science (A.S.) degree	5	9	18	11
	Certificate 30 to < 60 units	0	7	4	4
	Certificate 18 to < 30 units	3	3	0	2
	Total	**8**	**19**	**22**	**16**
Total		**41**	**50**	**75**	**55**

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[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] There are five CIP codes related to Administrative Medical Assisting (TOP 120820): Medical Office Management/Administration (CIP 510705), Medical Office Assistant/Specialist (CIP 510710), Medical Reception/Receptionist (CIP 510712), Medical Insurance Specialist/Medical Biller (CIP 510714), and Medical Administrative/Executive Assistant and Medical Secretary (CIP 510716).

4

Broken down by award type, the colleges supplied the most awards in certificates with 18 to < 30 units (24), followed by associate degrees (23), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Administrative Medical Assisting (TOP 120820)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
23	4	24	0	5
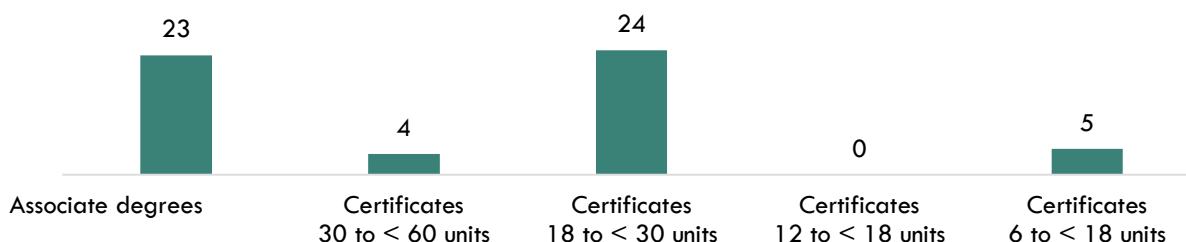
In terms of noncredit awards, only San Diego Continuing Education provides a noncredit program for Administrative Medical Assisting (TOP 120820), with an average of zero noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Health Unit Coordinator	Program Award	0	0	0	0

Demand vs. Supply

In short, the region supplies 55 for-credit and noncredit awards for 1,176 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Administrative Medical Assisting (TOP 120820)	1,176	0	55	**1,121**

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.
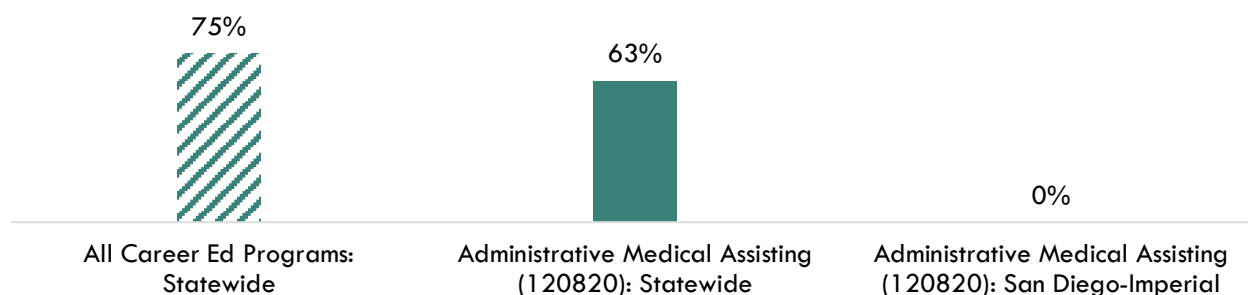
5

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 36 percent of students in the San Diego-Imperial region earned a living wage after completing an Administrative Medical Assisting (120820) program, compared to 41 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	41%	36%
All Career Ed Programs: Statewide	Administrative Medical Assisting (120820): Statewide	Administrative Medical Assisting (120820): San Diego-Imperial
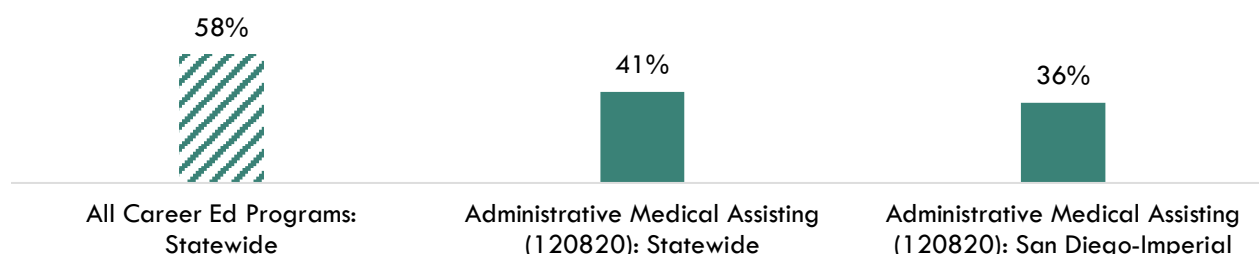
According to the California Community Colleges LaunchBoard, 0 percent (possibly due to insufficient data) of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Administrative Medical Assisting (120820) program, compared to 63 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	63%	0%
All Career Ed Programs: Statewide	Administrative Medical Assisting (120820): Statewide	Administrative Medical Assisting (120820): San Diego-Imperial

---

[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

6

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Scripps Health, Providence Health & Services, Pacific Dental Services Incorporated, Sharp Healthcare, and G6 Hospitality (Exhibit 8).

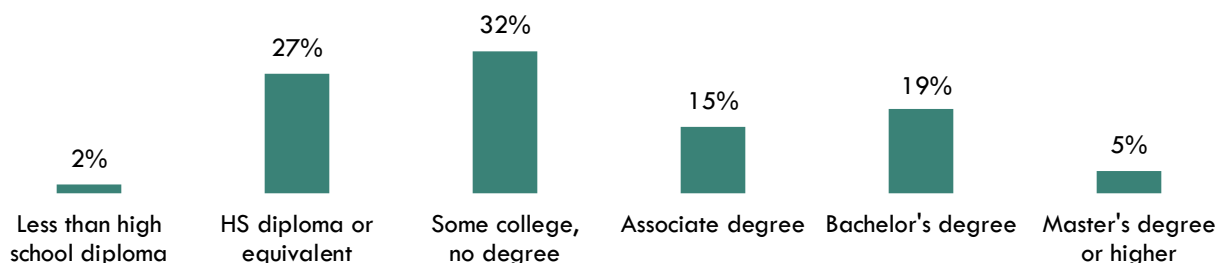**Exhibit 8: Top Employers in San Diego County for *Medical Secretaries*[12]**

Top Employers	
• Scripps Health	• UC San Diego Health System
• Providence Health & Services	• Graybill Medical Group
• Pacific Dental Services Incorporated	• University of San Diego
• Sharp Healthcare	• Rady Children's Hospital
• G6 Hospitality	• Medical Professionals

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is moderate-term on-the-job training. The typical entry-level education is high school diploma or equivalent.[13]

Exhibit 9a: National Educational Requirements for *Medical Secretaries*[14]

- Less than high school diploma: 2%
- HS diploma or equivalent: 27%
- Some college, no degree: 32%
- Associate degree: 15%
- Bachelor's degree: 19%
- Master's degree or higher: 5%

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

7

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Medical Secretaries* was a high school diploma or vocational training (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Medical Secretaries* in San Diego County in Online Job Postings[16]

79%	4%	14%	2%
High school or vocational training	Associate degree	Bachelor's degree	Master's degree or higher

*May not add to 100% due to rounding
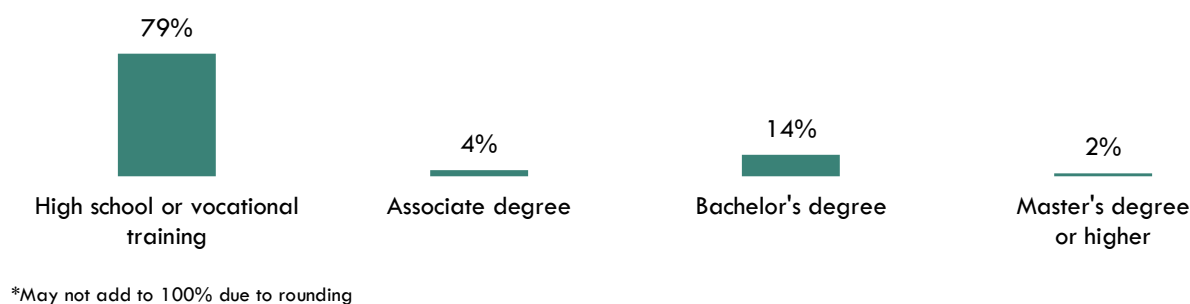
Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Medical Secretaries* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Administrative Support	• Communication Skills	• Microsoft Excel
• Scheduling	• Telephone Skills	• Microsoft Word
• Customer Service	• Computer Literacy	• Microsoft PowerPoint
• Appointment Setting	• Multi-Tasking	• Dentrix
• Front Office	• Spanish	• Word Processing

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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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.

9

Certified Nurse Assistant

Labor Market Analysis for San Diego Continuing Education
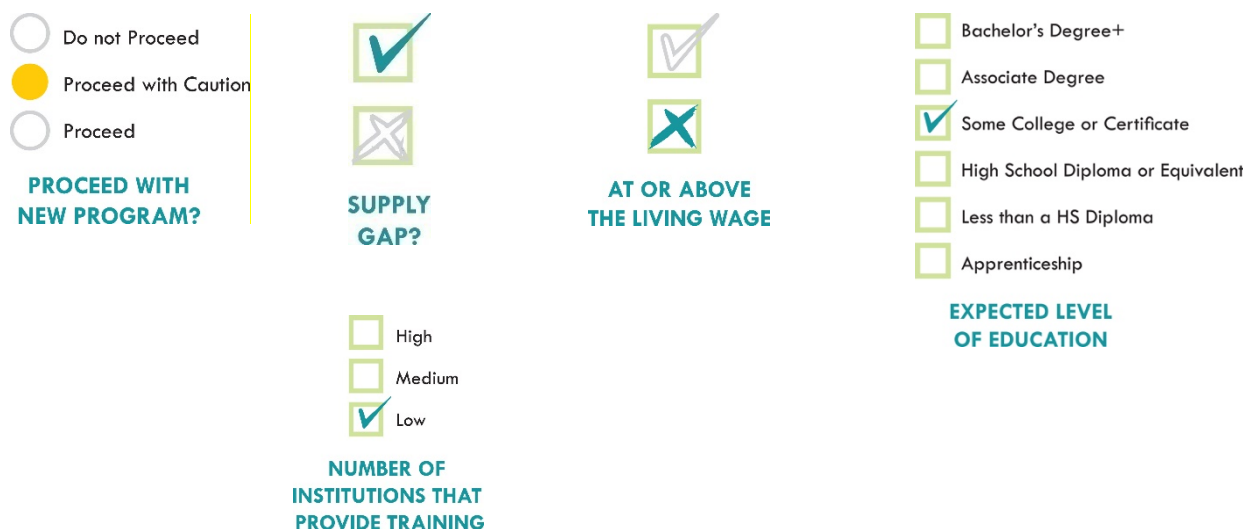
September 2019

Summary

- ○ Do not Proceed
- ● Proceed with Caution
- ○ Proceed

PROCEED WITH NEW PROGRAM?

☑ / ☒

SUPPLY GAP?

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

☑ / ☒

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☑ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Certified Nurse Assistant* program. The training provided by this program is likely to lead to employment as *Nursing Assistants*. According to available labor market information, the occupation has a labor market demand of 1,422 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Two community colleges supply the region with 91 for-credit awards: MiraCosta College and Southwestern College. (These institutions only awarded certificates with 6 to < 18 units.) San Diego Continuing Education is the only noncredit provider that reported supplying awards for this occupation—78 awards over the last three program years. In short, the region supplies 169 for-credit and noncredit awards for 1,422 annual job openings, suggesting that there is a labor market supply gap. However, the brief recommends to proceed with caution because entry-level and median earnings for this occupation are below the living wage. The expected level of education for this occupation is a postsecondary nondegree award.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Certified Nurse Assistant (TOP 123030). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Certified Nurse Assistant*, which will be the focus of this report:

Nursing Assistants (SOC 31-1014): Provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, or move patients, or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides, and nursing attendants. Sample reported job titles include:

- Nursing Assistant
- Patient Care Technician (PCT)
- Nursing Aide
- State Tested Nursing Assistant (STNA)
- Geriatric Nursing Assistant (GNA)

- Certified Nursing Assistant (CNA)
- Patient Care Assistant (PCA)
- Nurses' Aide
- Licensed Nursing Assistant (LNA)
- Certified Nurse Aide (CNA)

Projected Occupational Demand

Between 2018 and 2023, *Nursing Assistants* are projected to increase by 1,342 net jobs or 14 percent (Exhibit 1). Employers in San Diego County will need to hire 1,422 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Nursing Assistants* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

2

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 797 online job postings per year for *Nursing Assistants* in San Diego County (Exhibit 2).
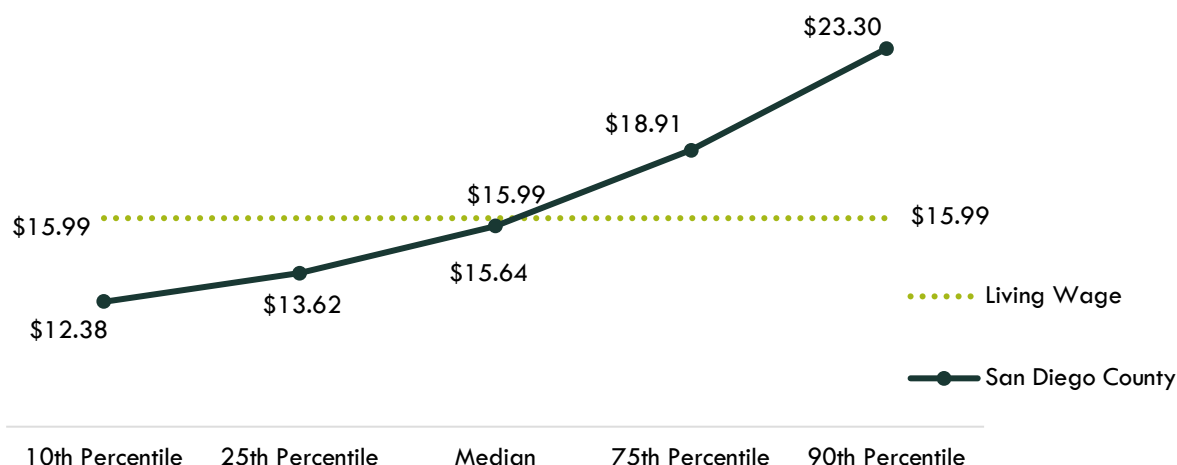
Exhibit 2: Number of Online Job Postings for *Nursing Assistants* in San Diego County (2010-2018)[4]

Year	Postings
2010	358
2011	378
2012	280
2013	696
2014	915
2015	877
2016	987
2017	1,225
2018	1,465
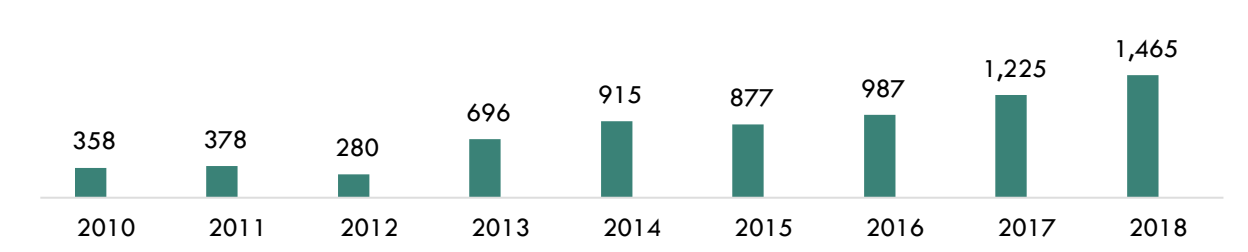
Earnings

Nursing Assistants have median hourly earnings of $15.64; this is less than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Nursing Assistants* in San Diego County[7]

Percentile	San Diego County
10th Percentile	$12.38
25th Percentile	$13.62
Median	$15.64
75th Percentile	$18.91
90th Percentile	$23.30

Living Wage: $15.99

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, two community colleges supply the region with for-credit awards for Certified Nurse Assistant (TOP 123030): MiraCosta College and Southwestern College (Exhibit 4). The only award type was "Certificates 6 to < 18 units."

Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
MiraCosta	Certificate 6 to < 18 units	81	0	0	27
Southwestern	Certificate 6 to < 18 units	0	64	128	64
	Total	**81**	**64**	**128**	**91**

Note: The numbers may not add up exactly due to rounding.

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Certified Nurse Assistant (TOP 123030), with an average of 78 noncredit awards (Exhibit 5).

Exhibit 5: Number of Noncredit Awards Conferred for by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Nursing Assistant Training; Nurse Assistant Acute Care; Nurse Assistant Rehabilitative	Program Award	100	59	76	78

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[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] There is one CIP code related to Certified Nurse Assistant (TOP 123030): Nurse/Nursing Assistant/Aide and Patient Care Assistant/Aide (CIP 513902).

4

Demand vs. Supply

In short, the region supplies 169 for-credit and noncredit awards for 1,422 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)
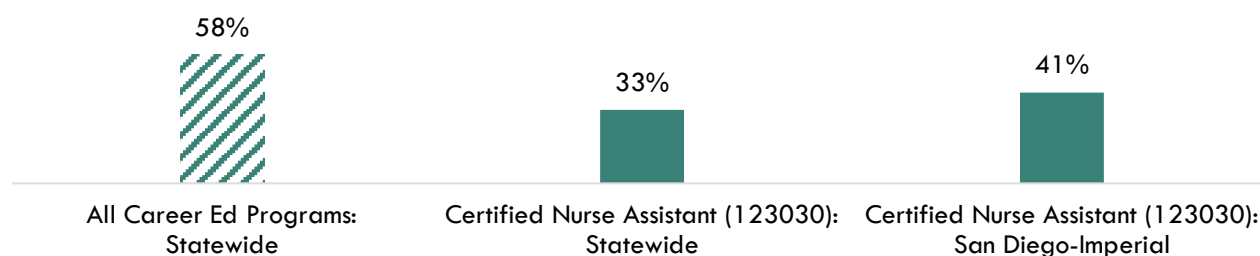
TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Certified Nurse Assistant (TOP 123030)	1,422	78	91	**1,253**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 41 percent of students in the San Diego-Imperial region earned a living wage after completing a Certified Nurse Assistant (123030) program, compared to 33 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Certified Nurse Assistant (123030): Statewide	Certified Nurse Assistant (123030): San Diego-Imperial
58%	33%	41%

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

According to the California Community Colleges LaunchBoard, 0 percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Certified Nurse Assistant (123030) program, compared to 69 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	69%	N/A (Insufficient Data)
All Career Ed Programs: Statewide	Certified Nurse Assistant (123030): Statewide	Certified Nurse Assistant (123030): San Diego-Imperial

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Scripps Health, Providence Health & Services, Sharp Healthcare, Sunrise Senior Living, and Fresenius (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Nursing Assistants*[12]

Top Employers	
• Scripps Health	• Ensign Services Incorporated
• Providence Health & Services	• Palomar Health
• Sharp Healthcare	• Prime Healthcare Services
• Sunrise Senior Living, Inc.	• Rady Children's Hospital
• Fresenius	• Elmcroft Senior Living

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[11] Most recent year with available data is Program Year 2014-15. 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.
[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Skills, Education, and Certifications

Exhibit 9 indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this occupation. The typical entry-level education is a postsecondary nondegree award.[13] Similarly, 100 percent of the online job postings between January 1, 2016 and December 31, 2018 listed high school diploma or vocational training as the educational requirement. [14]

Exhibit 9: National Educational Requirements for *Nursing Assistants*[15]
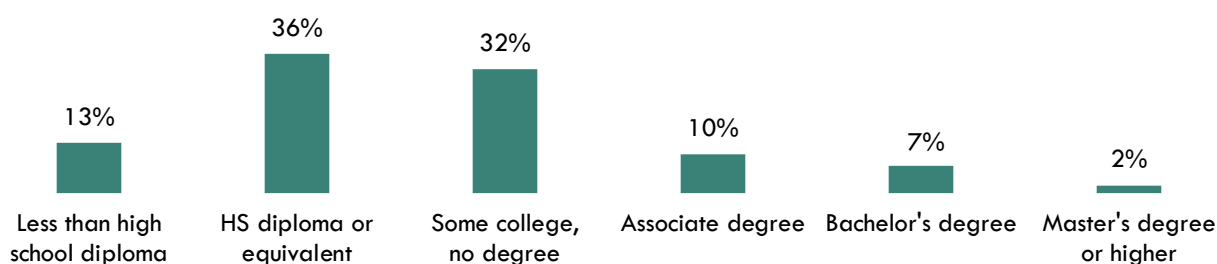
Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Nursing Assistants* in San Diego County[16]

Specialized Skills	Soft Skills	Software Skills
• Patient Care	• English	• Microsoft Excel
• Acute Care	• Communication Skills	• Microsoft PowerPoint
• Patient Assistance	• Computer Literacy	• Microsoft Access
• Cardiopulmonary Resuscitation (CPR)	• Spanish	• Microsoft Windows
• Activities of Daily Living (ADL)	• Bilingual	• Microsoft Word

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[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[15] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

7

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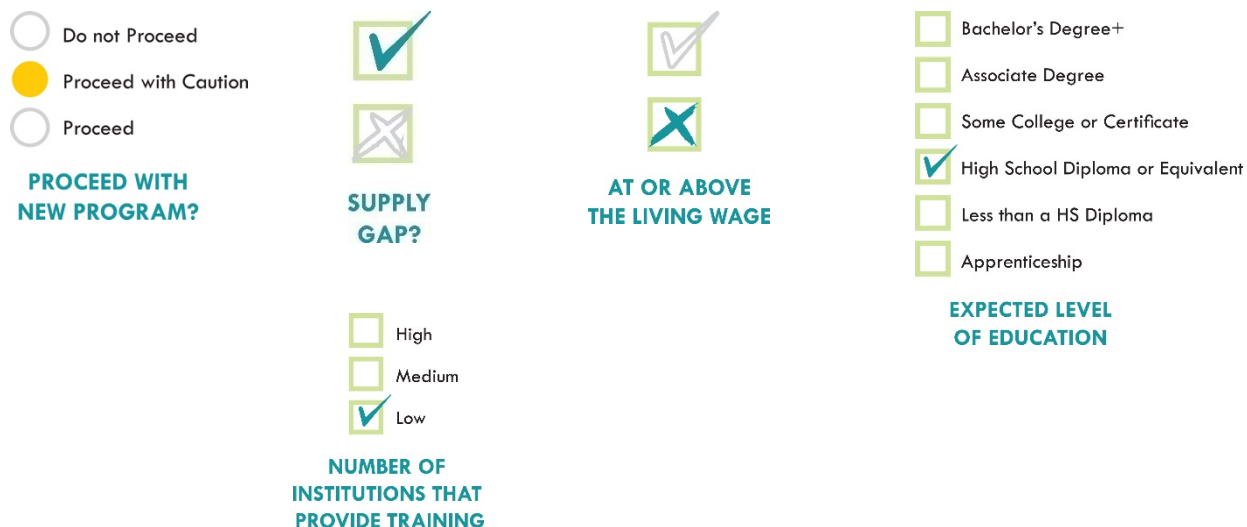jedwards@miracosta.edu

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8

Home Health Aide

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- ○ Do not Proceed
- ● Proceed with Caution
- ○ Proceed

PROCEED WITH NEW PROGRAM?

☑ ☒

SUPPLY GAP?

☑ ☒

AT OR ABOVE THE LIVING WAGE

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Home Health Aide* program. The training provided by this program is likely to lead to employment as *Home Health Aides*. According to available labor market information, the occupation has a labor market demand of 613 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college, MiraCosta College, supplies the region with a for-credit certificate; however no awards have been reported in the past three years. In terms of noncredit awards, only San Diego Continuing Education supplies awards—29 noncredit awards—for this occupation. In short, the region supplies 29 for-credit and noncredit awards for 613 annual job openings, suggesting that there is a labor market gap. However, this brief recommends to proceed with caution because both of the occupation's entry-level and median wages are below the living wage. Additionally, the highest expected level of education for this occupation is a high school diploma or equivalent, so postsecondary education does not appear to be a requirement for the occupation. If the community colleges were to proceed with a program for this occupation, this brief suggests that the program leads to a career pathway after *Home Health Aides*.

Career Education Biennial Review, July 2020, Page 203
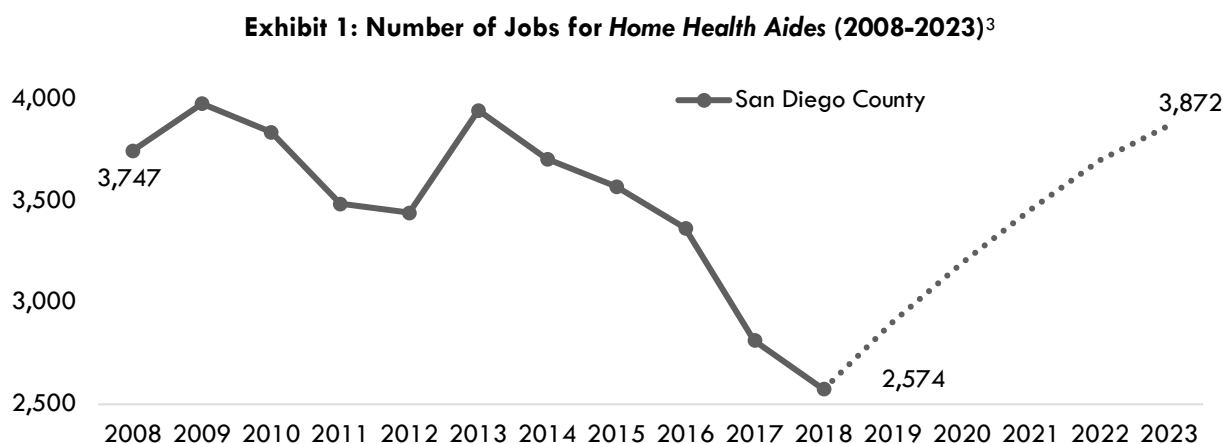
Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Home Health Aide (TOP 123080). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Home Health Aide*, which will be the focus of this report:

Home Health Aides (SOC 31-1011): Provide routine individualized healthcare such as changing bandages and dressing wounds, and applying topical medications to the elderly, convalescents, or persons with disabilities at the patient's home or in a care facility. Monitor or report changes in health status. May also provide personal care such as bathing, dressing, and grooming of patient. Sample reported job titles include:

- Home Attendant
- Direct Support Professional (DSP)
- Home Care Aide
- Certified Nurse Assistant (CNA)
- Caregiver

- Home Health Aide (HHA)
- Licensed Nursing Assistant (LNA)
- Direct Care Professional
- Certified Home Health Aide (CHHA)
- Residential Counselor

Projected Occupational Demand

Between 2018 and 2023, *Home Health Aides* are projected to increase by 1,298 net jobs or 50 percent (Exhibit 1). Employers in San Diego County will need to hire 613 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Home Health Aides* (2008-2023)[3]

2

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 271 online job postings per year for *Home Health Aides* in San Diego County (Exhibit 2).
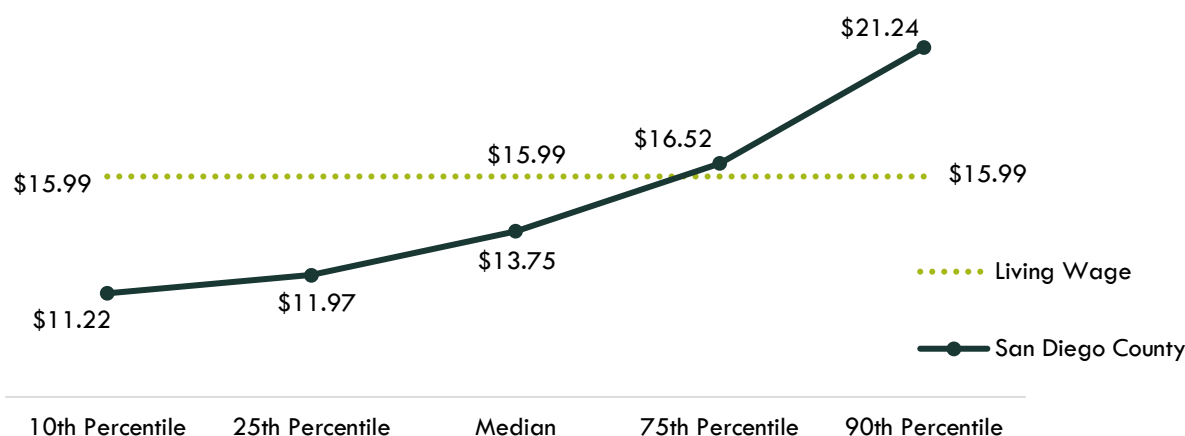
Exhibit 2: Number of Online Job Postings for *Home Health Aides* in San Diego County (2010-2018)[4]
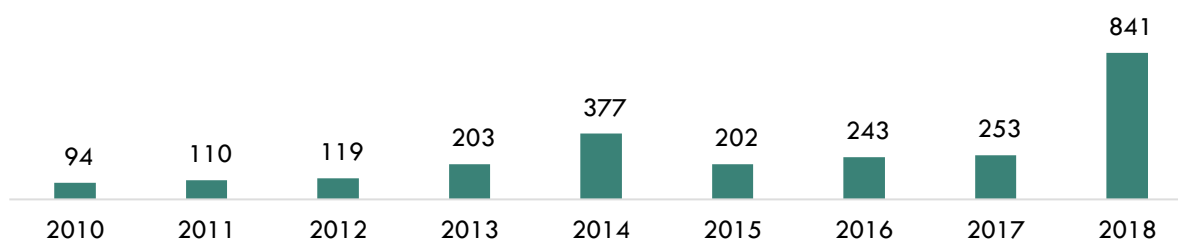
Earnings

Home Health Aides receive median hourly earnings of $13.75; this is less than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Home Health Aides* in San Diego County[7]

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Home Health Aide (TOP 123080): MiraCosta College. However, no awards have been reported in the past three years (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Years 2015-16 through 2017-18)**

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
MiraCosta	Certificate 6 to < 18 units	0	1	0	0
Total		**0**	**1**	**0**	**0**

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Home Health Aide (TOP 123080), with an average of 29 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

**Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE
(Program Years 2015-16 through 2017-18)**

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Personal Care Assistant/Caregiver Program	Program Award	28	29	29	29

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[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] There are two CIP codes related to Home Health Aide (TOP 123080): Health Aide (CIP 512601) and Home Health Aide/Home Attendant (CIP 512602).

4

Demand vs. Supply

In short, the region supplies 29 for-credit and noncredit awards for 613 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

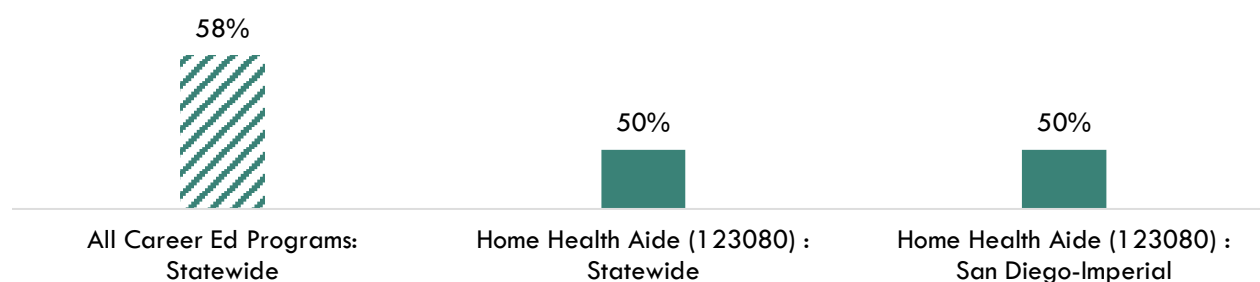**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Home Health Aide (TOP 123080)	613	29	0	**584**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 50 percent of students in the San Diego-Imperial region earned a living wage after completing an Home Health Aide (123080) program, compared to 50 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).
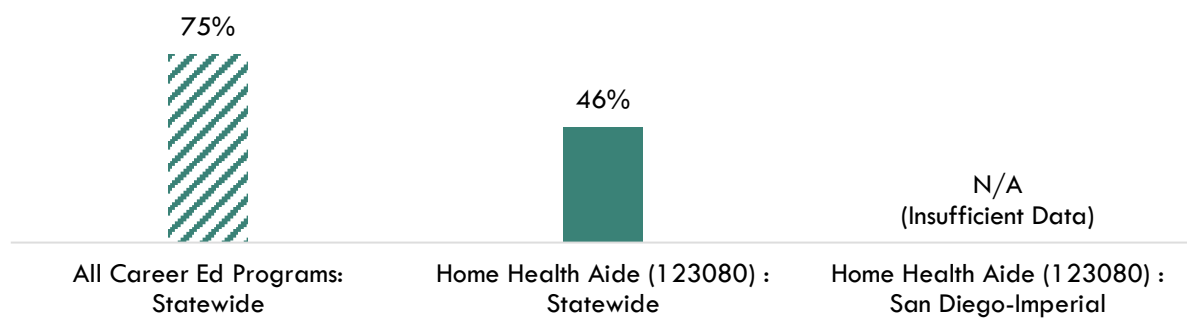
Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	50%	50%
All Career Ed Programs: Statewide	Home Health Aide (123080) : Statewide	Home Health Aide (123080) : San Diego-Imperial

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

5

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Home Health Aide (123080) program, compared to 46 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Kindly Care, Brookdale Senior Living, Interim Healthcare, Sharp Healthcare, and Elmcroft Senior Living (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Home Health Aides*[12]

Top Employers	
• Kindly Care	• Accredited Home Care incorporated
• Brookdale Senior Living	• Accent Care
• Interim Healthcare	• Scripps Health
• Sharp Healthcare	• Vitas Healthcare Corporation
• Elmcroft Senior Living	• Tri City Medical Center

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[11] Most recent year with available data is Program Year 2014-15. 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.
[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

6

Skills, Education, and Certifications

Exhibit 9 indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is short-term on-the-job training. The typical entry-level education is high school diploma or equivalent.[13] Similarly, between January 1, 2016 and December 31, 2018, high school diploma or vocational training was listed as the educational requirement for *Home Health Aides* for 100 percent of the online postings.[14]

Exhibit 9: National Educational Requirements for *Home Health Aides*[15]

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Home Health Aides* in San Diego County[16]

Specialized Skills	Soft Skills	Software Skills
• Home Health	• Communication Skills	• Microsoft Excel
• Caregiving	• English	• ICD-10
• Home Care	• Companionship	• ICD-9-CM Coding
• Bathing	• Positive Disposition	• Word Processing
• Toileting	• Physical Abilities	• Microsoft PowerPoint

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[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[15] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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8

Fashion

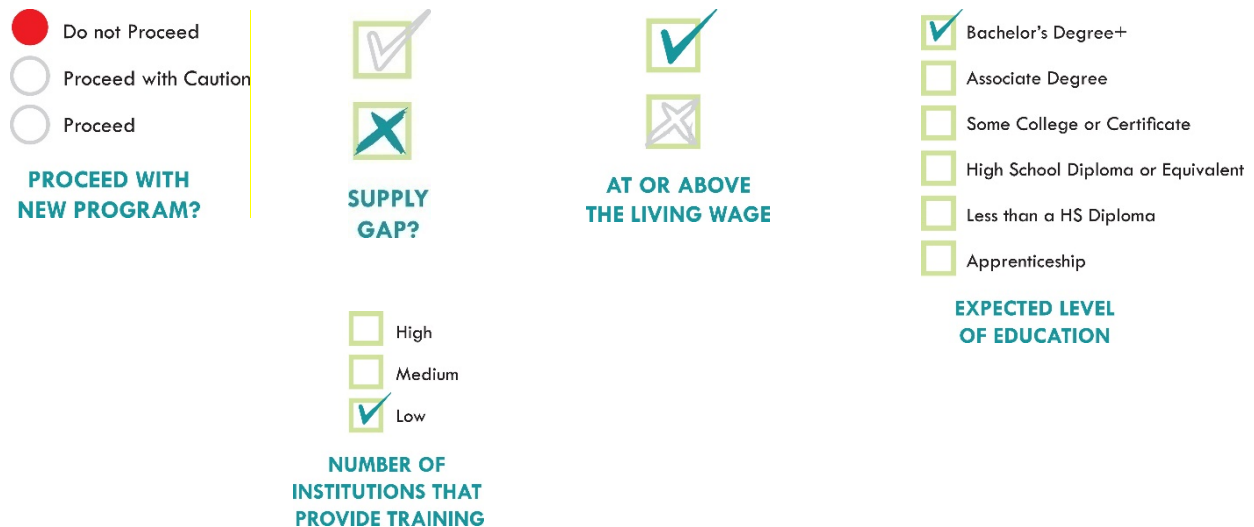## Labor Market Analysis for San Diego Continuing Education
September 2019

Summary

PROCEED WITH
NEW PROGRAM?

- 🔴 Do not Proceed
- ⚪ Proceed with Caution
- ⚪ Proceed

SUPPLY
GAP?

AT OR ABOVE
THE LIVING WAGE

EXPECTED LEVEL
OF EDUCATION

- ☑ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☐ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

NUMBER OF
INSTITUTIONS THAT
PROVIDE TRAINING

- ☐ High
- ☐ Medium
- ☑ Low

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its Fashion (TOP[1] 130300) program. The training provided by this program is likely to lead to employment as *Fashion Designers*. According to available labor market information, the occupation has a labor market demand of 25 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. No community college reported supplying for-credit awards for Fashion (TOP 130300); however, San Diego Mesa College, and Palomar College offer Fashion Design (TOP 130310) programs that train for the same occupation. In terms of noncredit awards, only San Diego Continuing Education supplies awards—37 noncredit awards—for this occupation. This brief recommends to not proceed with a new program because: 1) There are few annual openings for the occupation; 2) the region supplies 37 noncredit awards for 25 annual job openings, suggesting that there is a labor market oversupply; and 3) the expected level of education for this occupation is a bachelor's degree. However, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage.

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[2] (TOP) code, Fashion (TOP 130300). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[3] system for *Fashion*, which will be the focus of this report:

Fashion Designers (SOC 27-1022): Design Clothing and accessories. Create original designs or adapt fashion trends. Sample reported job titles include:

- Fashion Designer
- Sweater Designer
- Designer
- Clothing Designer
- Pattern Designer
- Costume Designer
- Shoe Designer
- Dance Costume Designer
- Product Developer
- Merchandising Director

Projected Occupational Demand

Between 2018 and 2023, *Fashion Designers* are projected to increase by nine net jobs or four percent (Exhibit 1). Employers in San Diego County will need to hire 25 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Fashion Designers* (2008-2023)[4]
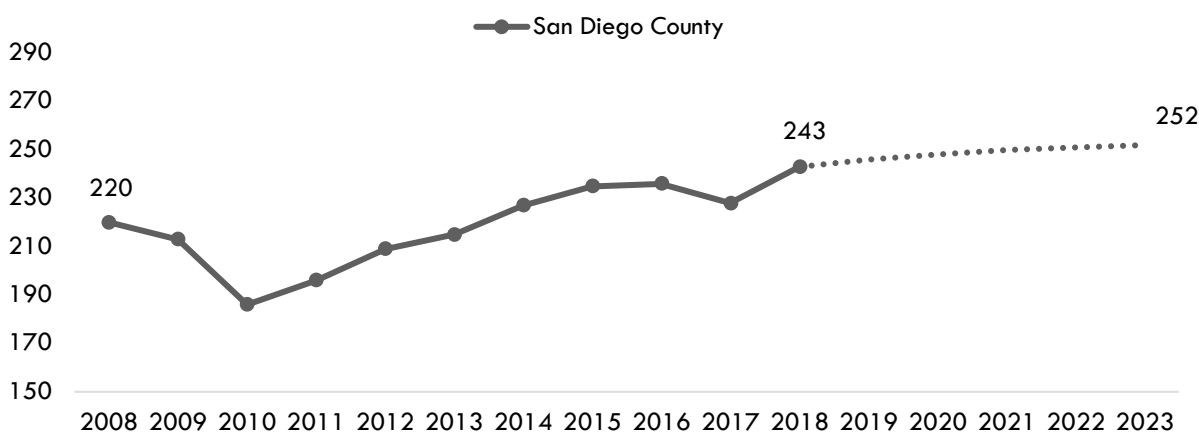
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[2] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[3] The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. bls.gov/soc.
[4] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 36 online job postings per year for *Fashion Designers* in San Diego County (Exhibit 2).
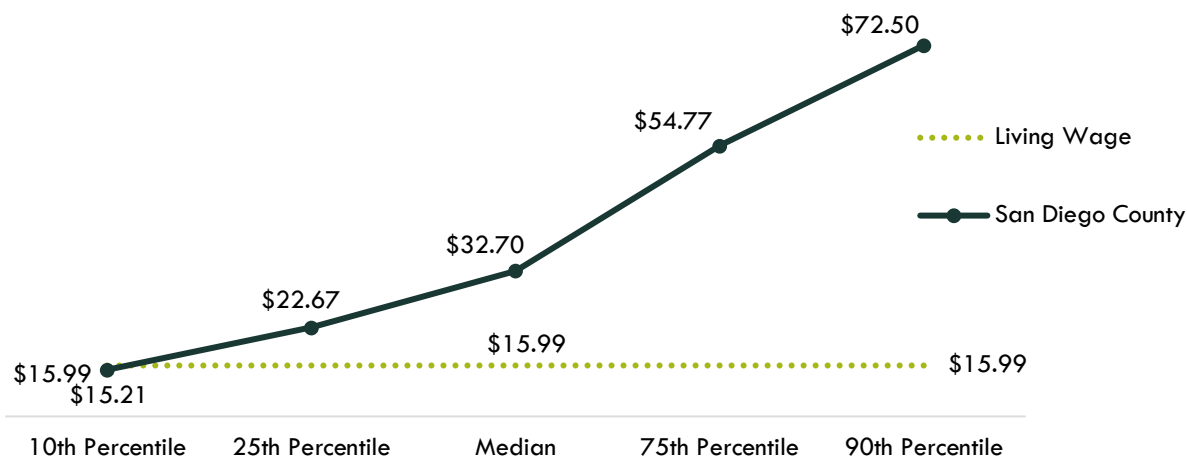
Exhibit 2: Number of Online Job Postings for *Fashion Designers* in San Diego County (2010-2018)[5]

Year	Postings
2010	42
2011	28
2012	28
2013	68
2014	25
2015	26
2016	25
2017	18
2018	67
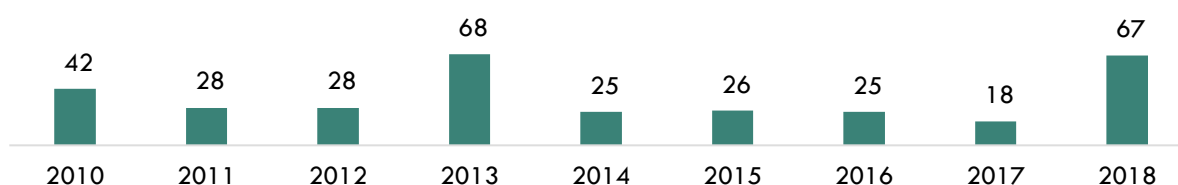
Earnings

Fashion Designers receive median hourly earnings of $32.70; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[6]

Exhibit 3: Hourly Earnings[7] for *Fashion Designers* in San Diego County[8]

Percentile	San Diego County	Living Wage
10th Percentile	$15.21	$15.99
25th Percentile	$22.67	
Median	$32.70	$15.99
75th Percentile	$54.77	
90th Percentile	$72.50	$15.99

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[5] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[6] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-family-needs-calculator.
[7] 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.
[8] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[9] According to TOP and CIP[10] data, no community college reported supplying the region with for-credit awards for Fashion (TOP130300); however, San Diego Mesa College, and Palomar College offer Fashion Design (TOP 130310) programs that train for the same occupation. In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Fashion (TOP 130300), with an average of 37 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 4).

Exhibit 4: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Clothing Construction Program; Sewn Product Business Program	Program Award	33	23	54	37

Demand vs. Supply

In short, the region supplies 37 for-credit and noncredit awards for 25 annual job openings, suggesting that there is a labor market oversupply (Exhibit 5).

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

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Fashion (TOP 130300)	25	37	0	12

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.
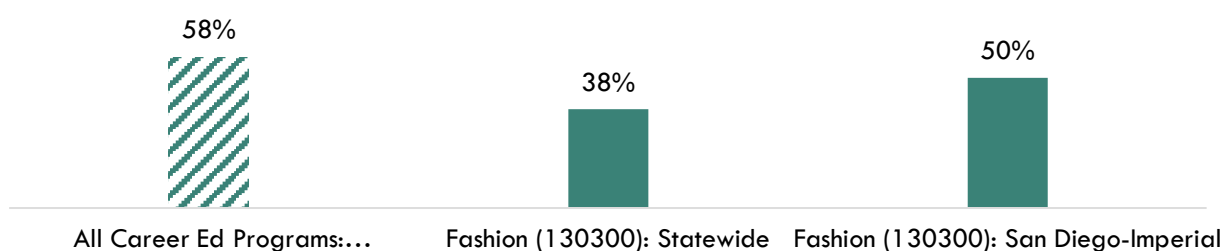
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[9] TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data)
[10] There are three CIP codes related to Fashion (TOP 130300): Apparel and Textiles, General (CIP 190901), Fashion and Fabric Consultant (CIP 190906), and Costume Design (CIP 500510).
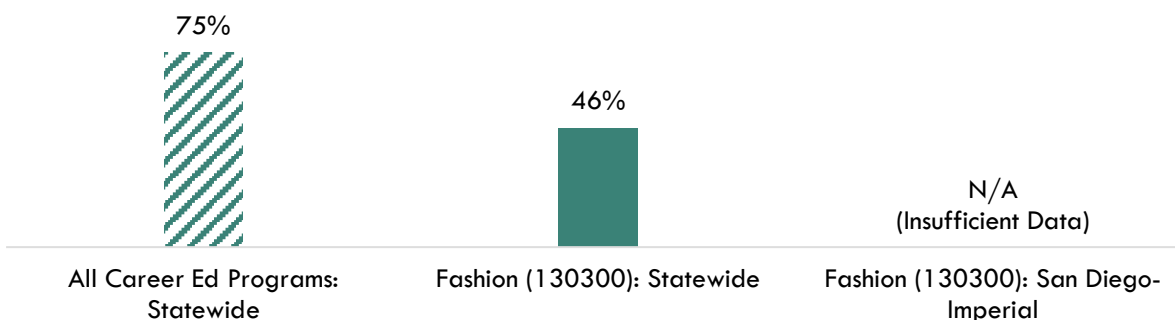
4

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 50 percent of students in the San Diego-Imperial region earned a living wage after completing a Fashion (130300) program, compared to 38 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 6a).

Exhibit 6a: Proportion of Students Who Earned a Living Wage, PY2015-16[11]

All Career Ed Programs:…	Fashion (130300): Statewide	Fashion (130300): San Diego-Imperial
58%	38%	50%

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Fashion (130300) program, compared to 46 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 6b).

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[12]

All Career Ed Programs: Statewide	Fashion (130300): Statewide	Fashion (130300): San Diego-Imperial
75%	46%	N/A (Insufficient Data)

[11] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[12] Most recent year with available data is Program Year 2014-15. 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.

5

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Justice, Bloomingdales, Ascena Retail Group, Prana, and Tween Brands (Exhibit 7).
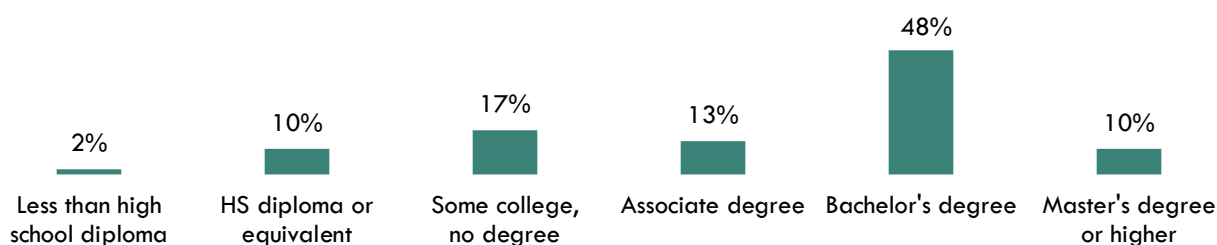
Exhibit 7: Top Employers in San Diego County for *Fashion Designers*[13]

Top Employers	
• Justice	• Macy's
• Bloomingdales	• Petco
• Ascena Retail Group	• Luxe Kurves Magazine
• Prana	• Gemological Institute America
• Tween Brands	• Callaway Golf Company

Skills, Education, and Certifications

Exhibit 8a indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this occupation. The typical entry-level education is bachelor's degree.[14]

Exhibit 8a: National Educational Requirements for *Fashion Designers*[15]

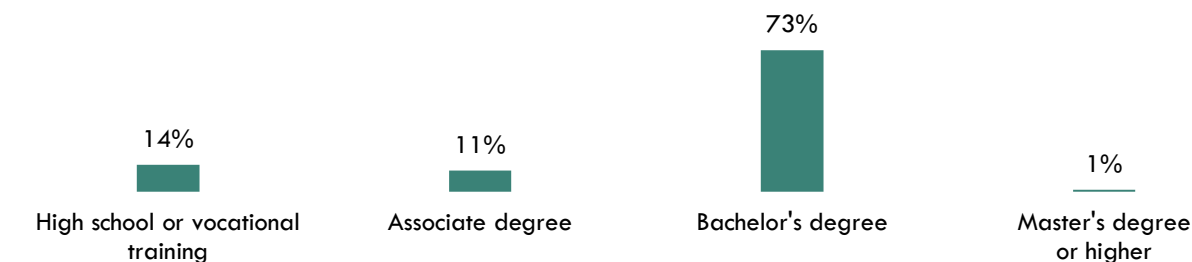|					
2%	10%	17%	13%	48%	10%
Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher

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[13] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[15] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

6

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Fashion Designers* was also a bachelor's degree (Exhibit 8b).[16]

Exhibit 8b: Educational Requirements for *Fashion Designers* in San Diego County in Online Job Postings[17]

73%

14%

11%

1%

High school or vocational training

Associate degree

Bachelor's degree

Master's degree or higher

*May not add to 100% due to rounding

Exhibit 9 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 9: Top Skills for *Fashion Designers* in San Diego County[18]

Specialized Skills	Soft Skills	Software Skills
• Sales	• Creativity	• Adobe Illustrator
• Customer Contact	• Communication Skills	• Microsoft Excel
• Cash Register Operation	• Teamwork / Collaboration	• Adobe Photoshop
• Retail Industry Knowledge	• Building Effective Relationships	• Adobe InDesign
• Merchandising	• Research	• Microsoft PowerPoint

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[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[17] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[18] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

7

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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.

Faculty Narrative

Top Code: 130300
Top Code Description: Fashion
Degrees and Certificates offered: Clothing Construction Program Sewn Product Business Program

Step 1: Utilize the individual COE Program Fact Sheet to inform responses.

Step 2: Submit your 2019-2020 Advisory Committee Membership List with your completed Faculty Narrative.   Advisory Committee Membership List template is available for use (optional).

The questions below align directly to the requirements outlined within Education Code 78016.

Demonstrated Labor Market Demand 1. Please describe the demand for workers that your program trains for in the region. *(Recommendation: refer to Section I and II of the Program Fact Sheet)*

The LMI analysis supplied for this years Annual Instructional Program Review reflects a labor market oversupply of Fashion TOP 130300 for San Diego County.

Concerns have been raised by new program leadership regarding the reporting of SDCE's Clothing and Textile Arts (Formerly known as Fashion) under the Fashion TOP 130300 and 130310 (Fashion Design). The Taxonomy of Programs provides the following descriptions under TOP 13 - Family and Consumer Sciences.

TOP 13 – Family and Consumer Sciences

- 1303.00 – Fashion Fashion and its influence on individuals and society, including fashion's principles and concepts as related to design, construction, merchandising and selection; and the study of textiles involving the design, production, finishing, characteristics, selection, use, and care of fibers and fabrics.
- 1303.10 – Fashion Design: Design and construction of garments.
- 1303.20 – Fashion Merchandising: Merchandising of fashion and related articles in retail and wholesale establishments.
- 1303.30 – Fashion Production: Construction, alteration, and finishing of garments to industry or customer specifications.

On SDCE's course outlines of record for the Clothing Construction Program and The Sewn Product Business Program courses, the topics taught in the two programs provides evidence that these programs do not align with TOP 1303.00, 1303.10 or 1303.20.

The Clothing Construction Program does not teach design principles or concepts, rather it is focused on construction, fitting and finishing of garments and sewn products. The level of education required for entering the job market with these skills is not a bachelors or associate degree. The jobs listed in the provided LMI data do not reflect what our student with this certificate would qualify for.
.

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If this TOP must be used, then the 1303.30 - Fashion Production: Construction, alteration and finishing of garments to industry or customer specifications would provide better data for this certificate program.

The following SOC codes were provided by new program leadership to the program review chair in a crosswalk check-up communication during the summer of 2019.

For Clothing Construction Program: These do not require a Bachelor's or higher. These are no college required, on-the-job training or certification training jobs.

SOC Codes:

- 27-1012 Craft Artists
- 51-6051 Sewers, Hand
- 51-6052 Tailors, dressmakers and custom sewers
- 51-6090 Miscellaneous Textile, Apparel and Furnishings Workers
- 51-6031 Sewing machine operators
- 51-6092 Fabric and Apparel Patternmakers
- 51-6099 Textile, Apparel and Furnishings Workers, all other
- 25-3021 Self-Enrichment Teachers
- 39-3092 Costume Attendants

During the instructional review process this year, the new program leadership was informed that to make change to any codes it must go through curriculum committee updates and revisions.

The Sewn Product Business Program does not teach design principles or concepts, rather it is focuses on product development, manufacturing construction, business model development and marketing strategies for creating a sewn product business through entrepreneurship. The level of education required for entering the job market with these skills is not a bachelors or associate degree. The jobs listed in the provided LMI data do not reflect what our student with this certificate would qualify for.

The TOP 13 – Family and Consumer Sciences does not identify labor market information for the Sewn Product Business Program.

The following TOP would be more appropriate:

TOP 05 – Business and Management

- 0501.00 – Business and Commerce, General Processes, principles, and procedures of purchasing, selling, producing, and interchanging goods, commodities, and services to prepare a person for a position of responsibility, management, and/or ownership.
- 0506.40 – Small Business and Entrepreneurship Principles, practices, and strategies of small business wholesale, retail, or service operations for owners/managers, and marketing principles and methods applicable to developing businesses.

- 0506.50 – Retail Store Operations and Management Principles and methods of retail store operations and management, including department stores and supermarkets.
- 0509.40 –Sales and Salesmanship Sales functions and tasks generally applicable to any marketing environment, including retailing, sales, and customer service.

The following SOC and CIP codes were provided by new program leadership to the program review chair in a crosswalk checkup communication during the summer of 2019:

CIP CODES Should Include the Following under the Sewn Product Business program:

- 520701 Entrepreneurship/Entrepreneurial Studies
- 520703 Small Business Administration/Management
- 190902 Apparel and Textile Manufacture
- 190203 Consumer Merchandising/Retailing Management
- 190906 Fashion and Fabric Consultant
- 190999 Apparel and Textiles, Other
- 190201 Business Family and Consumer Sciences, Human Sciences
- 521401 Marketing/Marketing Management, General

SOC Codes

- 11-9190 Managers, All other
- 13-1199 Business operations specialists, All other

During the instructional review process this year, the new program leadership was informed that to change any TOP codes, the request must go through curriculum committee updates and revisions.

2. Industry Alignment and Employer Engagement
In the past two years, what specific program updates have been made in response to changing industry needs? *(Recommendation: refer to past advisory committee meeting minutes.)*

(250 Word Limit)

In order to properly align with Industry and have employer engagement it has been determined that the Clothing and Textile Arts (Formerly referred to as Fashion) curriculum be renovated into clear pathways with updated courses to align properly with the industry. Evidence of this is well documented throughout the narrative in the Annual Program Review document. During the planned curriculum updating process, the TOP codes will be addressed and connections will be made for proper LMI will be secured in future reviews.

Of note, in a recent survey of our SDCE CLTX students (135 student responses) a majority responded that the reason they were enrolled in our programs was to establish their own sewn product businesses.

3. Program Does Not Unnecessarily Duplicate Other Training Programs (Supply)
Please describe how your program provides a unique, complementary, or collaborative training opportunity in the region. *(Recommendation: refer to Section II of the Program Fact Sheet)*

(250 Word Limit)

No other institution in the district offers a Clothing, Textile Arts and Entrepreneurship certificate for Sewn Products. The program is unique. There are small business planning courses and certificates, but these do not incorporate manufacturing, sourcing or marketing strategies specific to the Clothing and Textile Arts Industry.

1 in 6 people in the world work within the Clothing and Textile Arts Industry. For the economic health of San Diego County there is a need for small businesses development.

4. Overall Need
Please describe the supply gap or oversupply associated with your program. Please use this space to explain any data discrepancies and include any recommendations from your advisory committee. *(Recommendation: refer to Section II of the Program Fact Sheet)*

(250 Word Limit)

The Clothing Construction program is currently working within the established SDCE curriculum approval process to submit a program TopCode change to 1303.30 – Fashion Production.

The Sewn Product Business Program is currently working within the established SDCE curriculum approval process to submit a program TopCode change to 0506.40 – Small Business and Entrepreneurship.

Once these TopCodes are approved to be changed to the new TopCode, they will be reviewed in a similar fashion.

Please see question one's narrative for further detail on this matter. The advisory committee has been consulted in reviewing program offerings.

5. Demonstrated Effectiveness
Please describe how your program's completion and employment outcomes demonstrate student success. If your completion or employment outcomes are low, please explain why and what you will do to improve them. *(Recommendation: refer to sections III, IV, V, and IV of the Program Fact Sheet)*

Currently, we have student alumni that have created and operate successful sewn product businesses in the region post earning certifications.

Additional strategies are being employed to improve student employment outcomes such

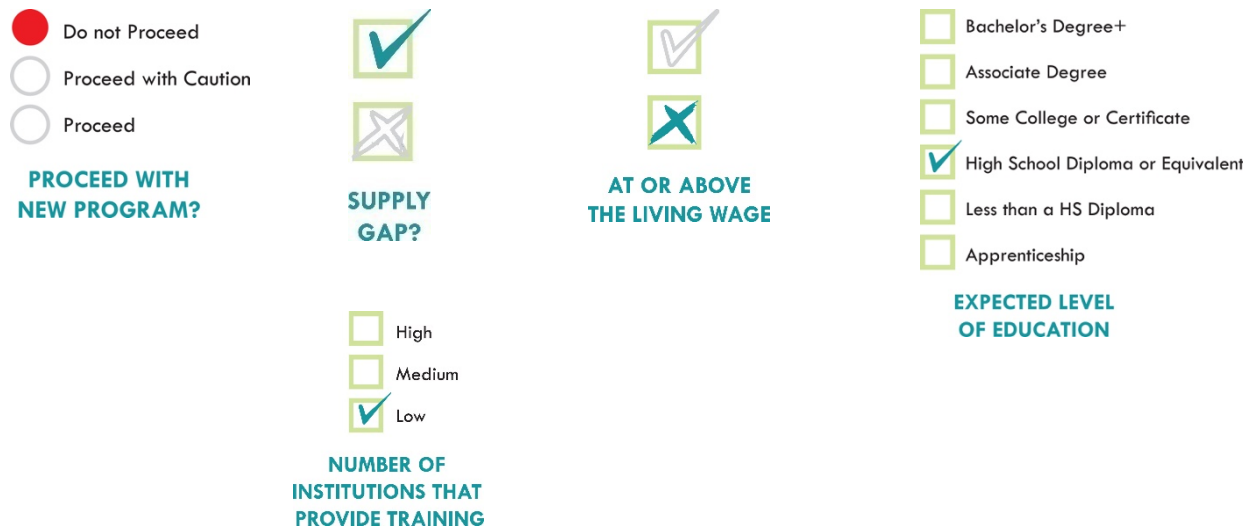as a major curriculum revision with eliminations of outdated courses and development of

innovative, updated programs creating multiple pathways to success is proposed for the Fashion Discipline. This includes the renaming of the discipline to Clothing, Textile Arts and Entrepreneurship. The new focus of the discipline will branch beyond the outdated and nonrelevant traditional focus of "Fashion Design Education" to include entrepreneurial and design thinking approaches to the industry to meet the needs of the students.

Fashion Merchandising

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

- 🔴 Do not Proceed
- ⚪ Proceed with Caution
- ⚪ Proceed

PROCEED WITH NEW PROGRAM?

✅

SUPPLY GAP?

❌

AT OR ABOVE THE LIVING WAGE

- ☐ High
- ☐ Medium
- ☑ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Fashion Merchandising* program. The training provided by this program is likely to lead to employment as *Merchandise Displayers and Window Trimmers*. According to available labor market information, this occupation has a labor market demand of 95 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Two community colleges supply the region with 31 for-credit awards (15 associate degrees, 9 certificates with 18 to < 30 units, and other certificates with varying numbers of units): Palomar College and San Diego Mesa College. In terms of noncredit awards, only San Diego Continuing Education has a program, but no awards have been issued. In short, the region supplies 31 for-credit and noncredit awards for 95 annual job openings, suggesting that there is a labor market supply gap. However, this brief recommends to not proceed with a new program because of the small labor market demand and because this occupation's entry-level and median wages are both below the living wage.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Fashion Merchandising (TOP 130320). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Fashion Merchandising*, which will be the focus of this report:

Merchandise Displayers and Window Trimmers (SOC 27-1026): Plan and erect commercial displays, such as those in windows and interiors of retail stores and at trade exhibitions. Sample reported job titles include:

- Visual Merchandiser (VM)
- Visual Merchandising Specialist
- Merchandising Representative
- Display Specialist
- Visual Specialist

- Decorator
- Merchandising Specialist
- Merchandiser
- Display Decorator
- Visual Presentation Manager

Projected Occupational Demand

Between 2018 and 2023, *Merchandise Displayers and Window Trimmers* is projected to increase by 39 net jobs or four percent (Exhibit 1). Employers in San Diego County will need to hire 95 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Merchandise Displayers and Window Trimmers* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

2

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 908 online job postings per year for *Merchandise Displayers and Window Trimmers* in San Diego County (Exhibit 2).
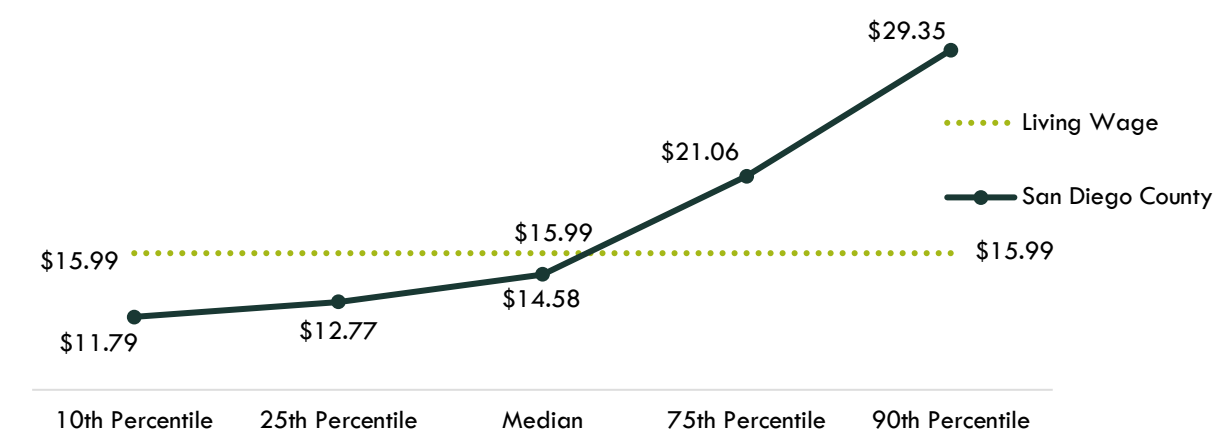
Exhibit 2: Number of Online Job Postings for *Merchandise Displayers and Window Trimmers* in San Diego County (2010-2018)[4]
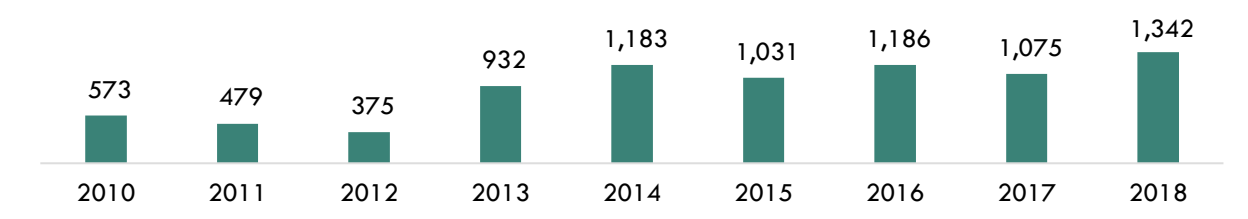
Earnings

Merchandise Displayers and Window Trimmers receive median hourly earnings of $14.58; this is less than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Merchandise Displayers and Window Trimmers* in San Diego County[7]

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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.
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3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, two community colleges supply the region with for-credit awards for Fashion Merchandising (TOP 130320): Palomar College and San Diego Mesa College (Exhibit 4a).
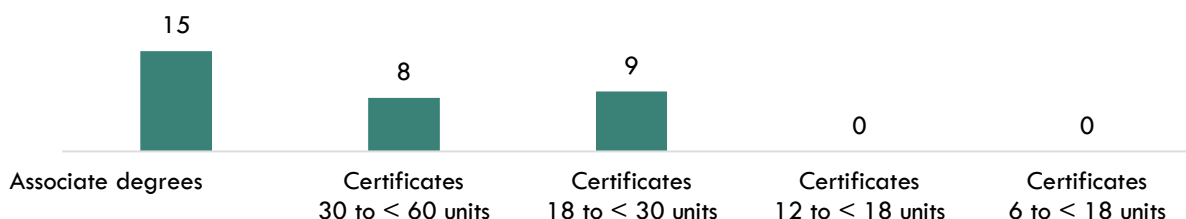
Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Palomar	Associate of Science (A.S.) degree	0	9	5	5
	Associate of Arts (A.A.) degree	11	1	0	4
	Certificate 30 to < 60 units	0	2	1	1
	Certificate 18 to < 30 units	12	9	6	9
	Total	**23**	**21**	**12**	**19**
San Diego Mesa	Associate of Science (A.S.) degree	0	6	11	6
	Certificate 30 to < 60 units	4	6	11	7
	Total	**4**	**12**	**22**	**13**
Total		**27**	**33**	**34**	**31***

Note: The numbers may not add up exactly due to rounding.

Broken down by award type, the colleges supplied the most awards in associate degrees (15), followed by certificates with 18 to < 30 units (9), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Fashion Merchandising (TOP 130320)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units
15	8	9	0	0

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[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] There are four CIP codes related to Fashion Merchandising (TOP 130320): Apparel and Textile Marketing Management (CIP 190905), Fashion and Fabric Consultant (CIP 190906), Fashion Merchandising (CIP 521902), and Apparel and Accessories Marketing Operations (CIP 521904).

4

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Fashion Merchandising (TOP 130320), with an average of zero noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE
(Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Fashion Retail Business	Program Award	0	0	0	0

Demand vs. Supply

In short, the region supplies 31 for-credit and noncredit awards for 95 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

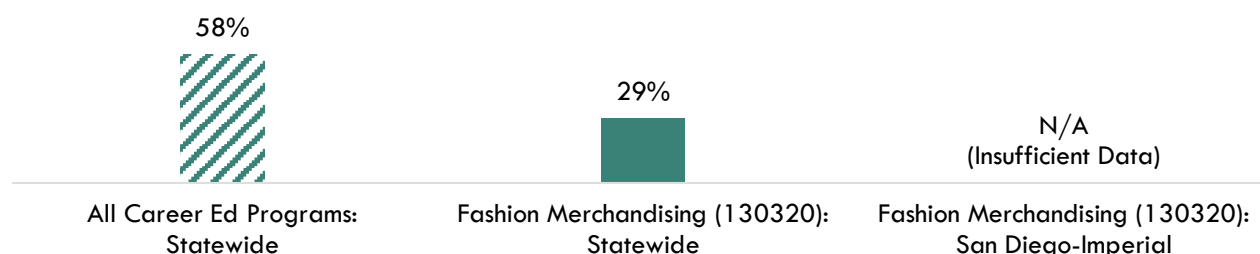**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Fashion Merchandising (TOP 130320)	95	0	31	**64**

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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region earned a living wage after completing a Fashion Merchandising (130320) program, compared to 29 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

58%	29%	N/A (Insufficient Data)
All Career Ed Programs: Statewide	Fashion Merchandising (130320): Statewide	Fashion Merchandising (130320): San Diego-Imperial

According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Fashion Merchandising (130320) program, compared to 69 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

75%	69%	N/A (Insufficient Data)
All Career Ed Programs: Statewide	Fashion Merchandising (130320): Statewide	Fashion Merchandising (130320): San Diego-Imperial

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

6

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Advantage Sales & Marketing, Macy's, TJX Companies, Best Buy, and JCPenney (Exhibit 8).
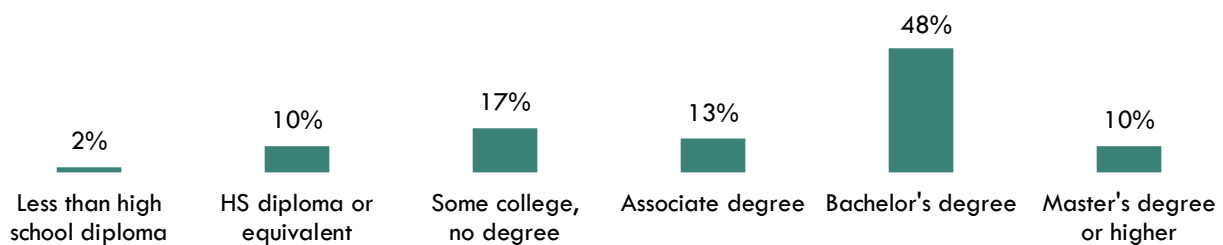
Exhibit 8: Top Employers in San Diego County for *Merchandise Displayers and Window Trimmers*[12]

Top Employers	
• Advantage Sales & Marketing	• Marshalls Incorporated
• Macy's	• Toys R Us, Inc.
• TJX Companies, Inc.	• Target
• Best Buy	• American Greeting Corporation, Inc.
• JCPenney	• Sears

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is short-term on-the-job training. The typical entry-level education is high school diploma or equivalent.[13]

Exhibit 9a: National Educational Requirements for *Merchandise Displayers and Window Trimmers*[14]

2%	10%	17%	13%	48%	10%
Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher

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7

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Merchandise Displayers and Window Trimmers* was a high school diploma or vocation training (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements *for Merchandise Displayers and Window Trimmers* **in San Diego County in Online Job Postings**[16]
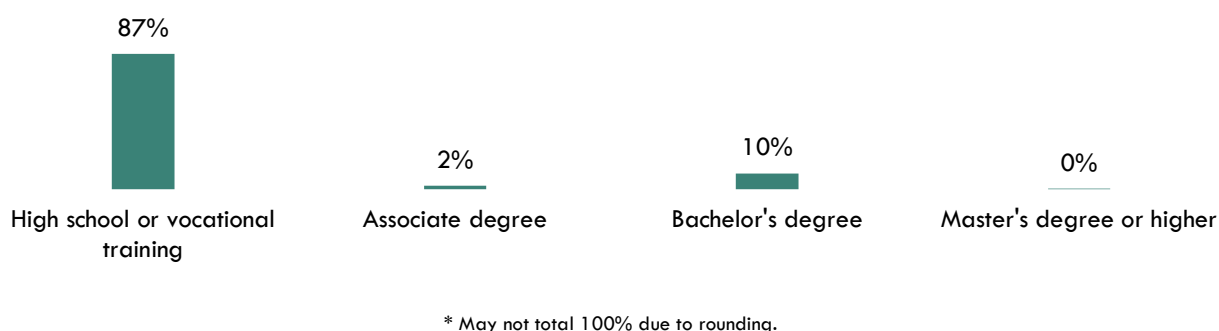

87%
High school or vocational training

2%
Associate degree

10%
Bachelor's degree

0%
Master's degree or higher

* May not total 100% due to rounding.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Merchandise Displayers and Window Trimmers* **in San Diego County**[17]

Specialized Skills	Soft Skills	Software Skills
• Merchandising	• Physical Abilities	• Microsoft Excel
• Retail Industry Knowledge	• Communication Skills	• Microsoft Word
• Sales	• Organizational Skills	• Adobe Acrobat
• Customer Service	• Detail-Oriented	• Microsoft PowerPoint
• Store Management	• Teamwork / Collaboration	• SAS

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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9

Faculty Narrative

Top Code: 130320
Top Code Description: Fashion Merchandising
Degrees and Certificates offered: Fashion Retail Business Program

Step 1: Utilize the individual COE Program Fact Sheet to inform responses.

Step 2: Submit your 2019-2020 Advisory Committee Membership List with your completed Faculty Narrative. Advisory Committee Membership List template is available for use (optional).

The questions below align directly to the requirements outlined within Education Code 78016.

Demonstrated Labor Market Demand
1. Please describe the demand for workers that your program trains for in the region.
(Recommendation: refer to Section I and II of the Program Fact Sheet)

The Fashion Retail Business Program had only one of it's courses (CLTX 670) taught during the period under review in this instructional program review. When it was taught, it was discovered that the program was not fully aligned with Industry needs. The teaching of the program was placed on hold in order to revise and align the program to student needs and LMI.

There is not enough data to conduct analysis and review of the program.

Even though the Fashion Retail Business Program is not receiving a through program review, it is important to acknowledge a problem with the TOP code reporting.

The LMI analysis supplied for this years Annual Instructional Program Review reflects a small labor market supply gap for Fashion TOP 130320 for San Diego County.

Concerns have been raised by new program leadership regarding the reporting of SDCE's Fashion Retail Business program under TOP 1303.20, Fashion Merchandising. The Taxonomy of Programs provides the following descriptions under TOP 13 - Family and Consumer Sciences.

TOP 13 – Family and Consumer Sciences

- 1303.00 – Fashion Fashion and its influence on individuals and society, including fashion's principles and concepts as related to design, construction, merchandising and selection; and the study of textiles involving the design, production, finishing, characteristics, selection, use, and care of fibers and fabrics.
- 1303.10 – Fashion Design: Design and construction of garments.
- 1303.20 – Fashion Merchandising: Merchandising of fashion and related articles in retail and wholesale establishments.
- 1303.30 – Fashion Production: Construction, alteration, and finishing of garments to industry or customer specifications.

On SDCE's course outlines of record for the Fashion Retail Business Program courses, the topics taught in the program provides evidence that the program does not align with TOP 1303.00 or 1303.20.

The Retail Fashion Business Program does not teach the merchandising of fashion and related articles in retail and wholesale establishments. The focus of the program is preparing students for entry level work in retail sales and customer service. The level of education required for entering the job market with these skills is not a bachelors or associate degree. The jobs listed in the provided LMI data do not reflect what our student with this certificate would qualify for.

The following SOC and CIP codes were provided by new program leadership to the program review chair in a crosswalk checkup communication during the summer of 2019 and would supply the better LMI:

SOC CODES:
521803 Retailing and Retail Operations
190905 Apparel and Textile Marketing Management
190203 Consumer Merchandising/Retailing Management

SOC CODES:
11-9190 Managers, All other
13-1199 Business operations, All other
41-2031 Retail Salesperson
41-9099 Sales and Related Workers, All other
27-1026 Merchandise Displayers and Window Trimmers

During the instructional review process this year, the new program leadership was informed that to change any TOP codes, the request must go through curriculum committee updates and revisions.

2. Industry Alignment and Employer Engagement
In the past two years, what specific program updates have been made in response to changing industry needs? *(Recommendation: refer to past advisory committee meeting minutes.)*

As stated in the annual review narrative and in LMI question 1, the Fashion Retail

Business Program is on hold for revision to better align with Industry.

3. Program Does Not Unnecessarily Duplicate Other Training Programs (Supply)
Please describe how your program provides a unique, complementary, or collaborative training opportunity in the region. *(Recommendation: refer to Section II of the Program Fact Sheet)*

As stated in the annual review narrative and in LMI question 1, the Fashion Retail Business Program is on hold for revision to better align with Industry.

4. Overall Need

Please describe the supply gap or oversupply associated with your program. Please use this space to explain any data discrepancies and include any recommendations from your advisory committee. *(Recommendation: refer to Section II of the Program Fact Sheet)*

As stated in the annual review narrative and in LMI question 1, the Fashion Retail

Business Program is on hold for revision to better align with Industry.

5. Demonstrated Effectiveness

Please describe how your program's completion and employment outcomes demonstrate student success. If your completion or employment outcomes are low, please explain why and what you will do to improve them. *(Recommendation: refer to sections III, IV, V, and IV of the Program Fact Sheet)*

As stated in the annual review narrative and in LMI question 1, the Fashion Retail

Business Program is on hold for revision to better align with Industry.

Child Development/Early Care and Education

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary

PROCEED WITH NEW PROGRAM?

SUPPLY GAP?

- ☑ High
- ☐ Medium
- ☐ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Child Development/Early Care and Education* program. The training provided by this program is likely to lead to employment as *Childcare Workers*. According to available labor market information, this occupation has a labor market demand of 1,821 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Eight community colleges supply the region with 399 for-credit awards (160 certificates with 6 to < 18 units, 112, associate degrees, and other certificates with varying numbers of units): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 403 awards over the last three program years. In short, the region supplies 403 for-credit and noncredit awards for 1,821 annual job openings, suggesting that there is a labor market supply gap. However, this brief does not recommend moving forward with a new program because 1) entry-level and median wages are below the living wage; 2) eight out of 10 community colleges have a program; and 3) the expected level of education for this occupation is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Child Development/Early Care and Education (TOP 130500). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for this program, which will be the focus of this report:
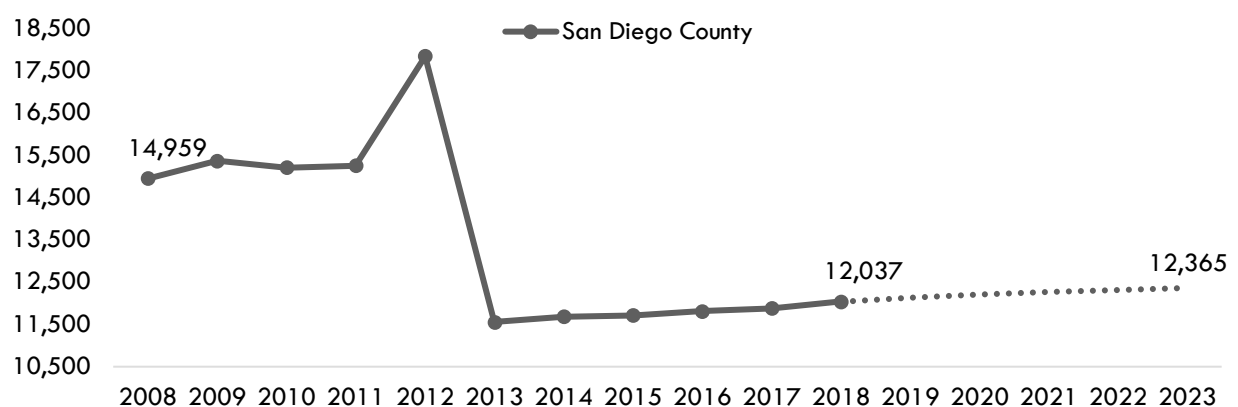
Childcare Workers (SOC 39-9011): Attend to children at schools, businesses, private households, and childcare institutions. Perform a variety of tasks, such as dressing, feeding, bathing, and overseeing play. Sample reported job titles include:

- Babysitter
- Daycare Provider
- Child Caregiver
- Household Manager
- Childcare Professional

- Child Care Assistant
- Childcare Worker
- Nanny
- Family Manager
- Child Care Attendant

Projected Occupational Demand

Between 2018 and 2023, *Childcare Workers* are projected to increase by 328 net jobs or three percent (Exhibit 1). Employers in San Diego County will need to hire 1,821 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Childcare Workers* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 2,073 online job postings per year for *Childcare Workers* in San Diego County (Exhibit 2).
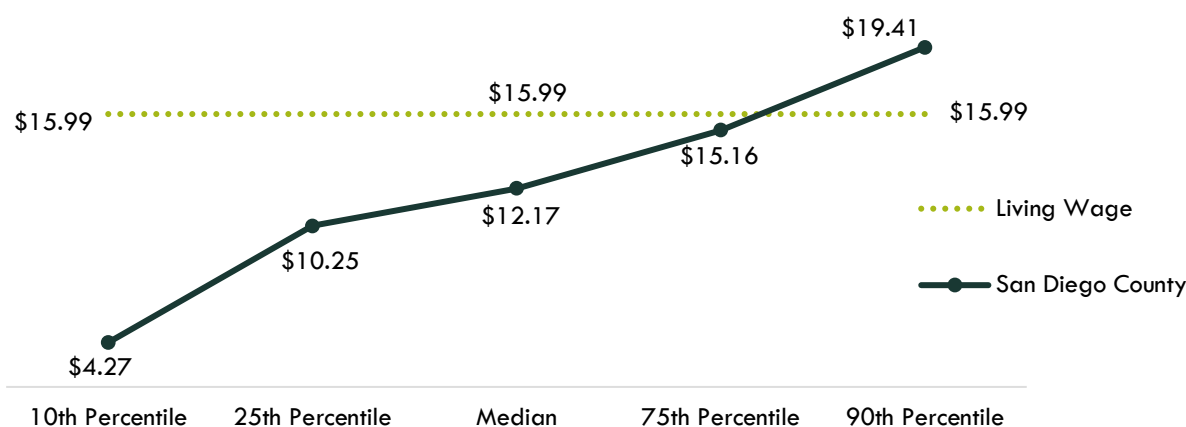
Exhibit 2: Number of Online Job Postings for *Childcare Workers* in San Diego County (2010-2018)[4]
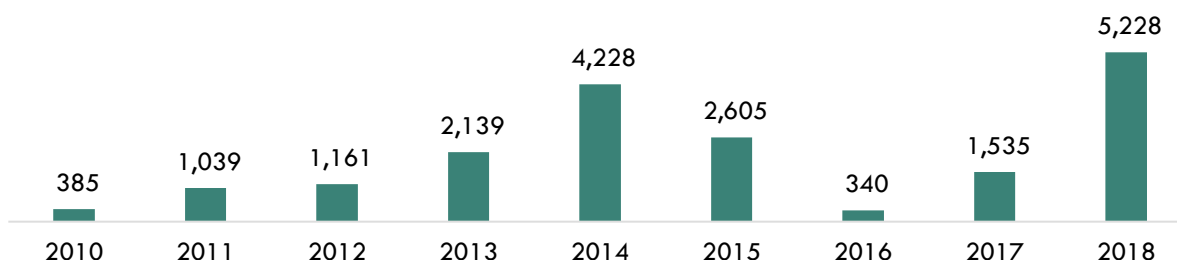
Earnings

Childcare Workers have median hourly earnings of $12.17; this is less than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Childcare Workers* in San Diego County[7]

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, eight community colleges supply the region with for-credit awards for Child Development/Early Care and Education (TOP 130500): Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College (Exhibit 4b).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate in Science for Transfer (A.S.-T) Degree	1	3	0	1
	Total	**1**	**3**	**0**	**1**
Grossmont	Associate of Science (A.S.) degree	8	16	17	14
	Certificate 30 to < 60 units	9	14	20	14
	Total	**17**	**30**	**37**	**28**
MiraCosta	Associate of Arts (A.A.) degree	28	21	29	26
	Certificate 30 to < 60 units	17	8	14	13
	Certificate 18 to < 30 units	61	45	69	58
	Certificate 12 to < 18 units	1	0	2	1
	Certificate 6 to < 18 units	68	132	148	116
	Total	**175**	**206**	**262**	**214**
Palomar	Associate in Science for Transfer (A.S.-T) Degree	4	2	2	3
	Associate in Arts for Transfer (A.A.-T) Degree	0	0	8	3
	Associate of Science (A.S.) degree	0	12	9	7
	Associate of Arts (A.A.) degree	14	1	1	5
	Certificate 30 to < 60 units	17	14	12	14
	Certificate 6 to < 18 units	29	8	28	22
	Total	**64**	**37**	**60**	**54**

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[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] There are two CIP codes related to Child Development/Early Care and Education (TOP 130500): Education/Teaching of Individuals in Early Childhood Special Education Programs. (CIP 131015) and Early Childhood Education and Teaching (CIP 131210).

4

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego City	Certificate 30 to < 60 units	3	3	0	2
	Certificate 18 to < 30 units	35	33	0	23
	Certificate 6 to < 18 units	2	1	2	2
	Total	**40**	**37**	**2**	**26**
San Diego Mesa	Certificate 6 to < 18 units	2	8	0	3
	Total	**2**	**8**	**0**	**3**
San Diego Miramar	Certificate 30 to < 60 units	4	0	0	1
	Certificate 6 to < 18 units	21	29	0	17
	Total	**25**	**29**	**0**	**18**
Southwestern	Associate of Arts (A.A.) degree	59	53	48	53
	Certificate 30 to < 60 units	2	0	1	1
	Total	**61**	**53**	**49**	**54**
Total		**385**	**403**	**410**	**399**

Note: The numbers may not add up exactly due to rounding.

Broken down by award type, the colleges supplied the most awards in certificates with 6 to < 18 units (160), followed by associate degrees (112), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Child Development/Early Care and Education (TOP 130500)* **in San Diego County (Three-Year Average 2015-16 through 2017-18)**
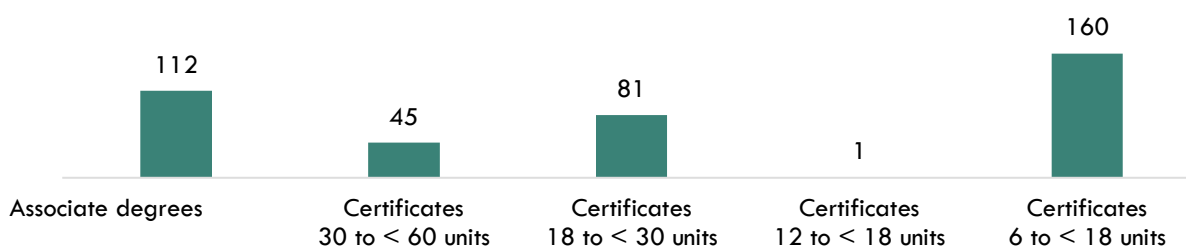
In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Child Development/Early Care and Education (TOP 130500), with an average of four noncredit awards (Exhibit 5).

Exhibit 5: Number of Noncredit Awards Conferred by SDCE
(Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Child Development 1; Child Development 2	Program Award	3	1	9	4

Demand vs. Supply

In short, the region supplies 403 for-credit and noncredit awards for 1,821 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Child Development/Early Care and Education (TOP 130500)	1,821	4	399	**1,418**

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.

6

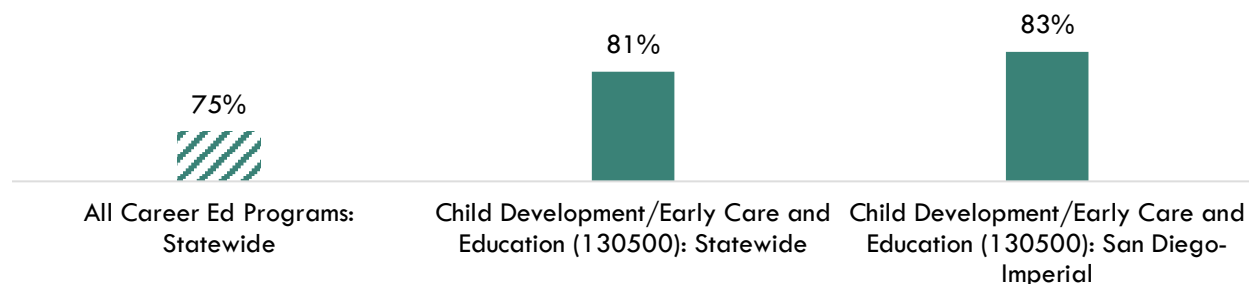## Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 38 percent of students in the San Diego-Imperial region earned a living wage after completing a Child Development/Early Care and Education (TOP 130500) program, compared to 35 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Child Development/Early Care and Education (130500): Statewide	Child Development/Early Care and Education (130500): San Diego-Imperial
58%	35%	38%
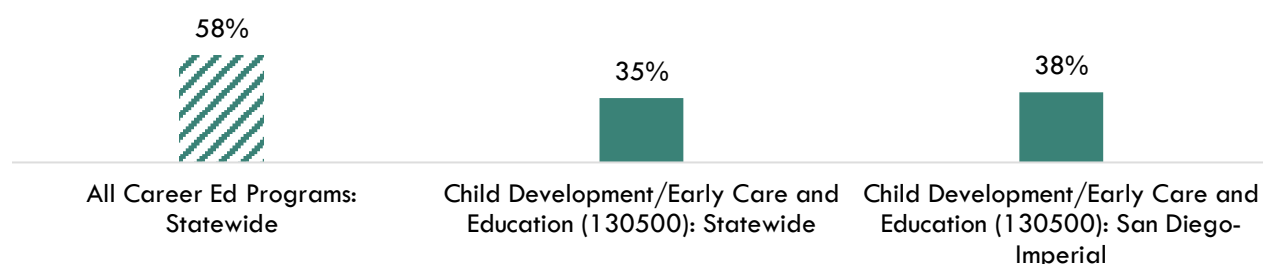
According to the California Community Colleges LaunchBoard, 83 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Child Development/Early Care and Education (TOP 130500) program, compared to 81 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Child Development/Early Care and Education (130500): Statewide	Child Development/Early Care and Education (130500): San Diego-Imperial
75%	81%	83%

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

7

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Sitter, College Nannies Sitters Tutors Development, Petsitter, 24 Hour Fitness, and Coronado Unified (Exhibit 8).
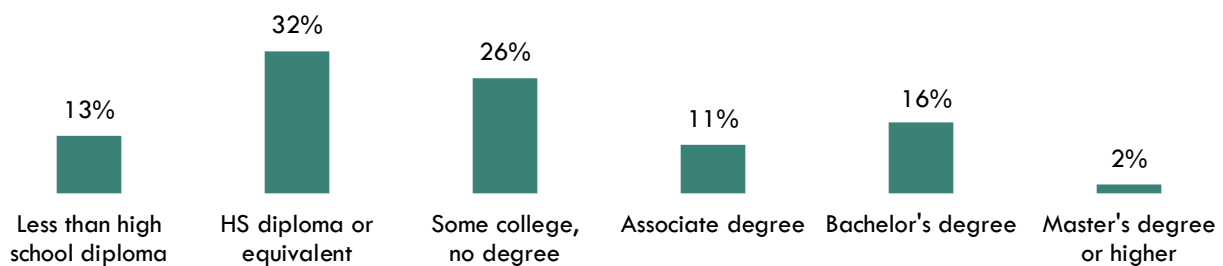
Exhibit 8: Top Employers in San Diego County for *Childcare Workers*[12]

Top Employers	
• Sitter	• Goodwill
• College Nannies Sitters Tutors Development, Inc.	• Rover
• Petsitter	• Sitter Service
• 24 Hour Fitness	• Sitter.com
• Coronado Unified	• Public Consulting Group

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is short-term on-the-job training. The typical entry-level education is a high school diploma or equivalent.[13]

Exhibit 9a: National Educational Requirements for *Childcare Workers*[14]

- Less than high school diploma: 13%
- HS diploma or equivalent: 32%
- Some college, no degree: 26%
- Associate degree: 11%
- Bachelor's degree: 16%
- Master's degree or higher: 2%

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Similarly, based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Childcare Workers* was a high school diploma or vocational training (Exhibit 9b).[15]

Exhibit 9b: Educational Requirements for *Childcare Workers* in San Diego County in Online Job Postings[16]

80%
High school or vocational training

6%
Associate degree

14%
Bachelor's degree

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Childcare Workers* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Child Care • Babysitting • Meal Preparation • Cardiopulmonary Resuscitation • Caregiving	• Energetic • Communication Skills • Organizational Skills • Spanish • Creativity	• Microsoft Excel • Microsoft Word • YouTube • Microsoft PowerPoint • QuickBooks

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

9

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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.

Nutrition, Foods, and Culinary Arts

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary
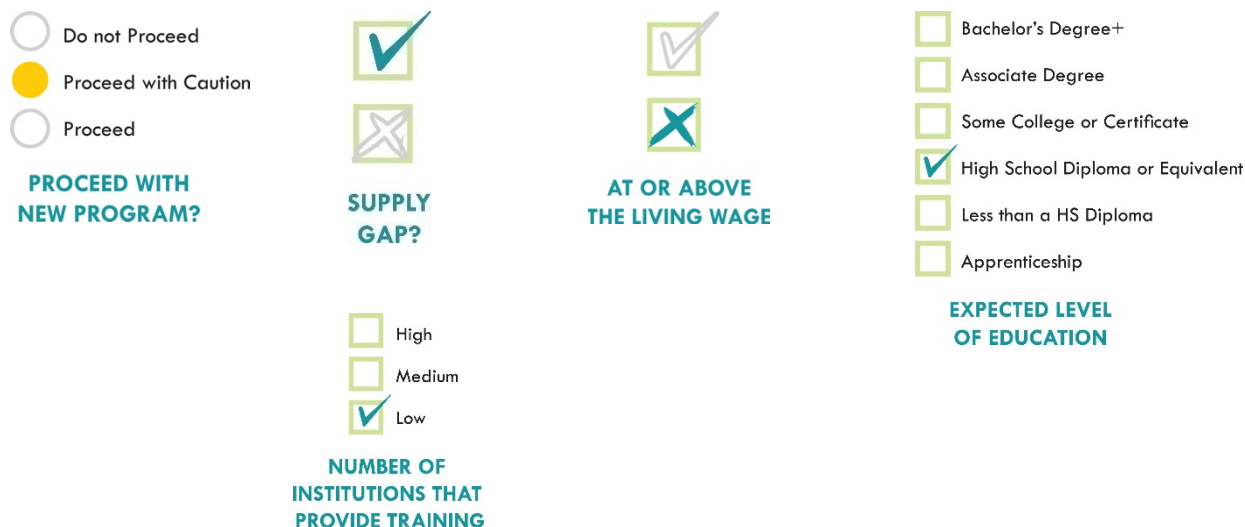
This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Nutrition, Foods, and Culinary Arts* program. The training provided by this program is likely to lead to employment as *First-Line Supervisors of Food Preparation and Serving Workers*. According to available labor market information, this occupation has a labor market demand of 1,676 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. San Diego Mesa College is the only college that supplied for-credit awards in this program, with an average of 11 associate degrees and 10 certificates (18 to < 30 units) in the past three program years. San Diego Continuing Education is the only institution with a noncredit program, but no awards have been issued. In short, the region supplies 20 for-credit and noncredit awards for 1,676 annual job openings, suggesting that there is a labor market supply gap. However, this brief recommends to proceed with caution as the entry-level wages for this occupation is below the living wage. If a new program were to be develop, it should provide training that would allow students to obtain median wages for the occupation, which is closer to the living wage in the county.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Nutrition, Foods, and Culinary Arts (TOP 130600). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Nutrition, Foods, and Culinary Arts*, which will be the focus of this report:

> **First-Line Supervisors of Food Preparation and Serving Workers** (SOC 35-1012): Directly supervise and coordinate activities of workers engaged in preparing and serving food. Sample reported job titles include:

- Kitchen Supervisor
- Kitchen Manager
- Restaurant Manager
- Food Service Director
- Food and Nutrition Services Supervisor

- Food Service Supervisor
- Cafeteria Manager
- Food Service Manager
- Food Production Supervisor
- Dietary Supervisor

Projected Occupational Demand

Between 2018 and 2023, *First-Line Supervisors of Food Preparation and Serving Workers* are projected to increase by 1,006 net jobs or 10 percent (Exhibit 1). Employers in San Diego County will need to hire 1,676 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *First-Line Supervisors of Food Preparation and Serving Workers* (2008-2023)[3]

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[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

2

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 1,094 online job postings per year for *First-Line Supervisors of Food Preparation and Serving Workers* in San Diego County (Exhibit 2).
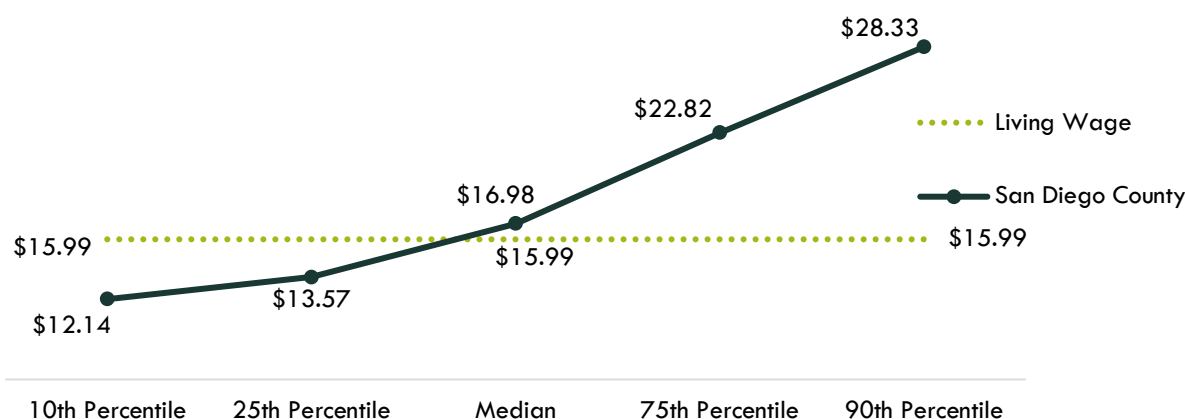
Exhibit 2: Number of Online Job Postings for *First-Line Supervisors of Food Preparation and Serving Workers* in San Diego County (2010-2018)[4]

2010	2011	2012	2013	2014	2015	2016	2017	2018
415	521	722	1,036	1,027	1,132	1,510	1,443	2,041
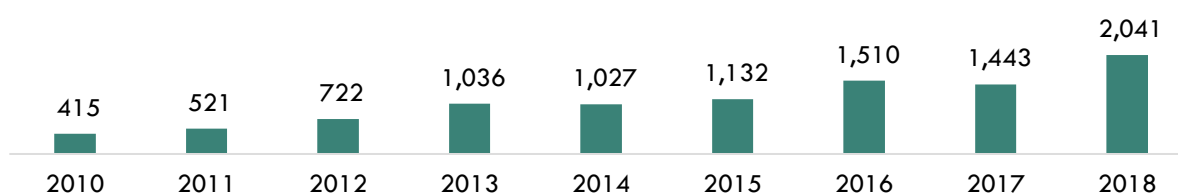
Earnings

First-Line Supervisors of Food Preparation and Serving Workers have median hourly earnings of $16.98, which is more than the living wage for a single adult in San Diego County at $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *First-Line Supervisors of Food Preparation and Serving Workers* in San Diego County[7]

	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile
San Diego County	$12.14	$13.57	$16.98	$22.82	$28.33
Living Wage	$15.99				$15.99

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, one community college supplies the region with for-credit awards for Nutrition, Foods, and Culinary Arts (TOP 130600): San Diego Mesa College (Exhibit 4a).
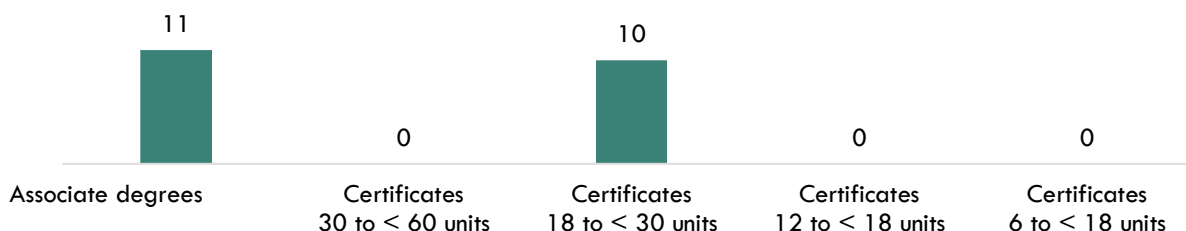
Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego Mesa	Associate in Science for Transfer (A.S.-T) Degree	0	0	2	1
	Associate of Science (A.S.) degree	8	9	12	10
	Certificate 18 to < 30 units	7	10	12	10
Total		**15**	**19**	**26**	**20***

Note: The numbers may not add up exactly due to rounding.

San Diego Mesa College awarded an average of 11 associate degrees and 10 certificates with 18 to < 30 units for Nutrition, Foods, and Culinary Arts (TOP 130600) in the past three program years (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Nutrition, Foods, and Culinary Arts (TOP 130600)* in San Diego County (Three-Year Average 2015-16 through 2017-18)

11 — Associate degrees	
0 — Certificates 30 to < 60 units	
10 — Certificates 18 to < 30 units	
0 — Certificates 12 to < 18 units	
0 — Certificates 6 to < 18 units	

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[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] There are three CIP codes related to Nutrition, Foods, and Culinary Arts (TOP 130600): Cooking and Related Culinary Arts, General (CIP 120500), Culinary Arts and Related Services, Other (CIP 120599), and Foods, Nutrition, and Wellness Studies, General (CIP 190501).

4

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Nutrition, Foods, and Culinary Arts (TOP 130600), with an average of zero noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Food Preparation for Healthcare Professionals	Program Award	0	0	0	0

Demand vs. Supply

In short, the region supplies 20 for-credit and noncredit awards for 1,676 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)
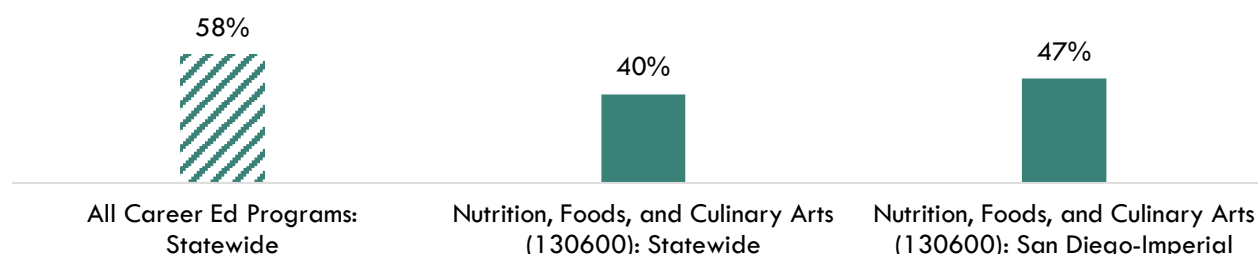
TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Nutrition, Foods, and Culinary Arts (TOP 130600)	1,676	0	20	**1,656**

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.
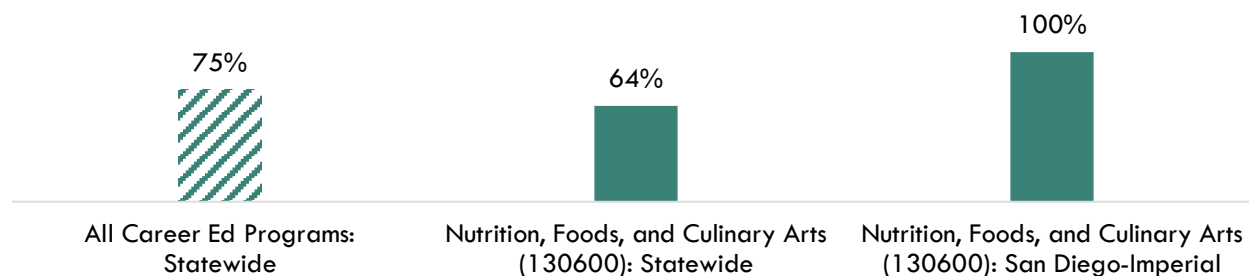
5

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 47 percent of students in the San Diego-Imperial region earned a living wage after completing a Nutrition, Foods, and Culinary Arts (130600) program, compared to 40 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Nutrition, Foods, and Culinary Arts (130600): Statewide	Nutrition, Foods, and Culinary Arts (130600): San Diego-Imperial
58%	40%	47%

According to the California Community Colleges LaunchBoard, 100 percent of seven students who responded to the Career Technical Education Outcomes Survey (CTEOS)[11] in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Nutrition, Foods, and Culinary Arts (130600) program, compared to 64 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[12]

All Career Ed Programs: Statewide	Nutrition, Foods, and Culinary Arts (130600): Statewide	Nutrition, Foods, and Culinary Arts (130600): San Diego-Imperial
75%	64%	100%

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[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] cteos.santarosa.edu
[12] Most recent year with available data is Program Year 2014-15. 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.

6

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Starbucks Coffee Company, Marriott International Incorporated, Hilton Hotel Corporation, KFC, and Jamba Juice (Exhibit 8).
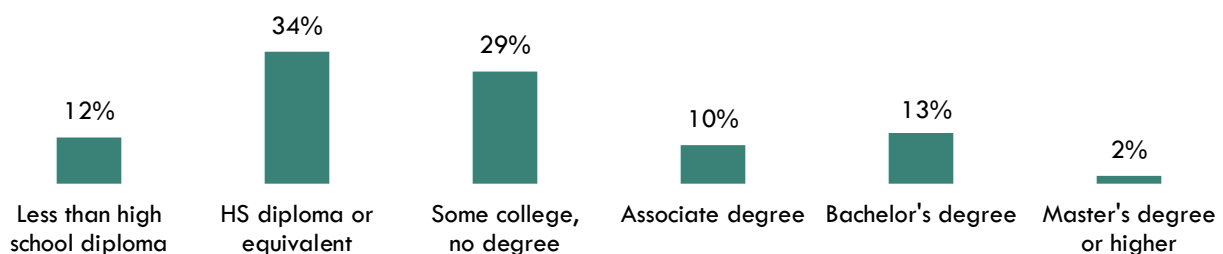
Exhibit 8: Top Employers in San Diego County for *First-Line Supervisors of Food Preparation and Serving Workers*[13]

Top Employers	
• Starbucks Coffee Company	• Rubio's Restaurants
• Marriott International Incorporated	• Jack in the Box
• Hilton Hotel Corporation	• Panera Bread
• KFC	• Caesars's Entertainment
• Jamba Juice	• Instacart

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is none. The typical entry-level education is a high school diploma or equivalent.[14]

Exhibit 9a: National Educational Requirements for *First-Line Supervisors of Food Preparation and Serving Workers*[15]

Bar chart showing educational requirements:
- Less than high school diploma: 12%
- HS diploma or equivalent: 34%
- Some college, no degree: 29%
- Associate degree: 10%
- Bachelor's degree: 13%
- Master's degree or higher: 2%

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[13] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[15] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Similarly, based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *First-Line Supervisors of Food Preparation and Serving Workers* was a high school diploma or vocational training (Exhibit 9b).[16]

Exhibit 9b: Educational Requirements for *First-Line Supervisors of Food Preparation and Serving Workers* in San Diego County in Online Job Postings[17]

High school or vocational training	Associate degree	Bachelor's degree	Master's degree or higher
80%	4%	13%	2%
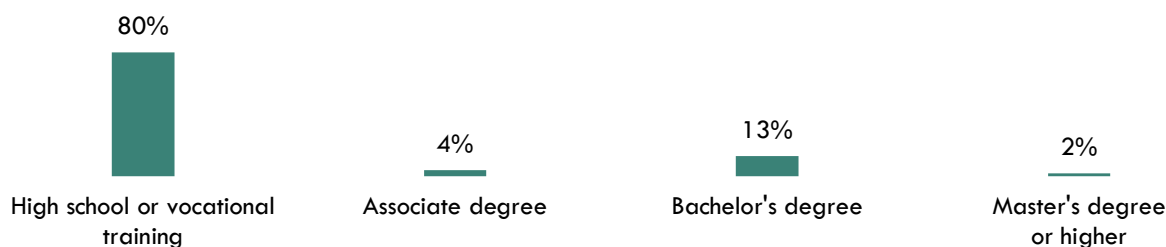
*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *First-Line Supervisors of Food Preparation and Serving Workers* in San Diego County[18]

Specialized Skills	Soft Skills	Software Skills
• Scheduling	• Physical Abilities	• Microsoft Excel
• Cash Handling	• Communication Skills	• Microsoft Word
• Customer Service	• English	• Microsoft Processing
• Retail Industry Knowledge	• Teamwork / Collaboration	• Microsoft PowerPoint
• Staff Management	• Leadership	• Microsoft Outlook

[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[17] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[18] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

8

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9

Culinary Arts

Labor Market Analysis for Noncredit Programs: San Diego County

September 2019

Summary

- 🔴 Do not Proceed
- ⚪ Proceed with Caution
- ⚪ Proceed

PROCEED WITH NEW PROGRAM?

SUPPLY GAP?

AT OR ABOVE THE LIVING WAGE

- ☐ Bachelor's Degree+
- ☐ Associate Degree
- ☐ Some College or Certificate
- ☑ High School Diploma or Equivalent
- ☐ Less than a HS Diploma
- ☐ Apprenticeship

EXPECTED LEVEL OF EDUCATION

- ☐ High
- ☑ Medium
- ☐ Low

NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING

This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Culinary Arts* program. The training provided by this program is likely to lead to employment as *Chefs and Head Cooks*. According to available labor market information, the occupation has a labor market demand of 235 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Three community colleges supply the region with 149 for-credit awards: Grossmont College, San Diego Mesa College, and Southwestern College. While these colleges offer associate degrees, they awarded more certificates than associate degrees. More specifically, "Certificates 30 to < 60 units" has the largest number of awards over the past three program years. Only San Diego Continuing Education supplies noncredit awards for this occupation, which averaged 100 awards over the same period. In short, the region supplies 249 for-credit and noncredit awards for 235 annual job openings, suggesting that there is a labor market oversupply. This brief recommends not to proceed with a new program because of a potential labor market oversupply. However, entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The highest expected level of education for this occupation is a high school diploma or equivalent.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Culinary Arts (TOP 130630). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified one occupation from the Standard Occupational Classification (SOC)[2] system for *Culinary Arts*, which will be the focus of this report:

> **Chefs and Head Cooks (SOC 35-1011):** Direct and may participate in the preparation, seasoning, and cooking of salads, soups, fish, meats, vegetables, desserts, or other foods. May plan and price menu items, order supplies, and keep records and accounts. Sample reported job titles include:

- Sous Chef
- Kitchen Manager
- Corporate Executive Chef
- Banquet Chef
- Head Cook

- Executive Chef (Ex Chef)
- Executive Sous Chef
- Chef
- Line Cook
- Cook

Projected Occupational Demand

Between 2018 and 2023, *Chefs and Head Cooks* are projected to increase by 146 net jobs or 9 percent (Exhibit 1). Employers in San Diego County will need to hire 235 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for *Chefs and Head Cooks* (2008-2023)[3]

---

[1] Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.
[2] 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.
[3] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

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 demand that are not captured by historical data. Between 2010 and 2018, there was an average of 414 online job postings per year for *Chefs and Head Cooks* in San Diego County (Exhibit 2).
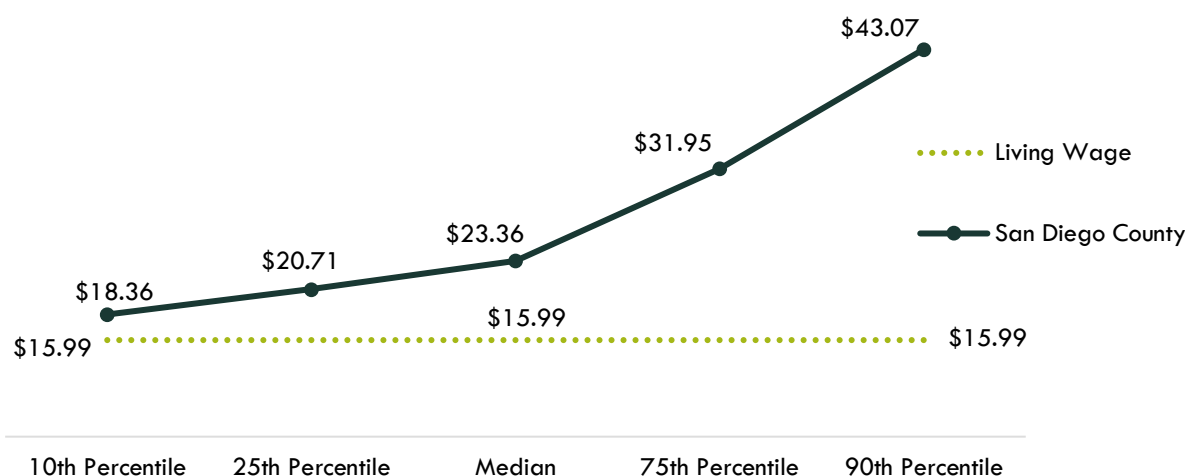
Exhibit 2: Number of Online Job Postings for *Chefs and Head Cooks* in San Diego County (2010-2018)[4]
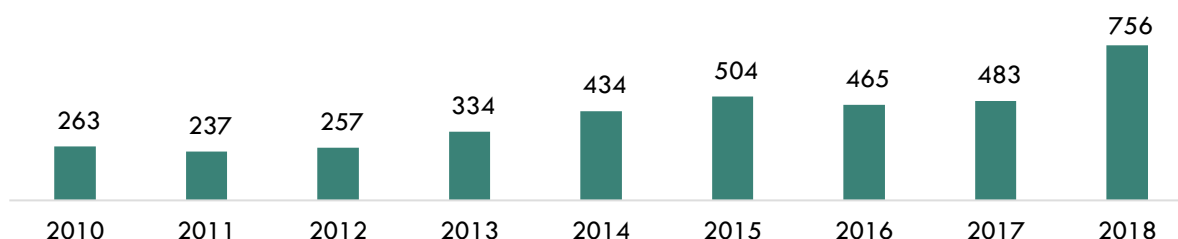
Earnings

Chefs and Head Cooks receive median hourly earnings of $23.36; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3).[5]

Exhibit 3: Hourly Earnings[6] for *Chefs and Head Cooks* in San Diego County[7]

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[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-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 2019.03; QCEW, Non-QCEW, Self-Employed.

3

Educational Supply

Educational supply for an occupation can estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[8] According to TOP and CIP[9] data, three community colleges supply the region with for-credit awards for Culinary Arts (TOP 130630): Grossmont College, San Diego Mesa College, and Southwestern College (Exhibit 4a).

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

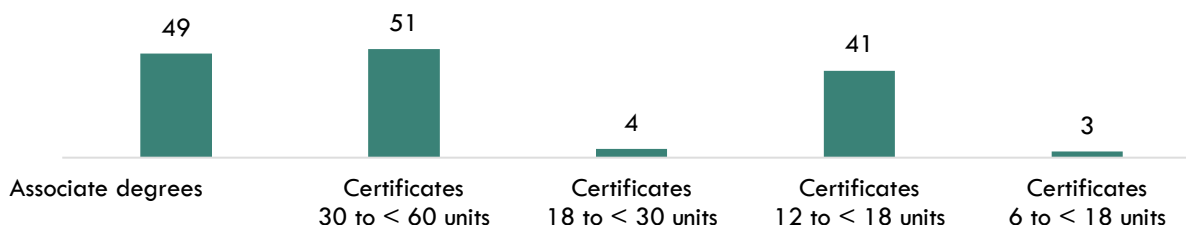| College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Grossmont	Associate of Science (A.S.) degree	23	23	19	22
	Certificate 30 to < 60 units	27	32	17	25
	Certificate 12 to < 18 units	29	68	27	41
	Total	**79**	**123**	**63**	**88**
San Diego Mesa	Associate of Science (A.S.) degree	18	22	16	19
	Certificate 30 to < 60 units	29	21	19	23
	Certificate 6 to < 18 units	1	0	0	0
	Total	**48**	**43**	**35**	**42**
Southwestern	Associate of Science (A.S.) degree	7	9	7	8
	Certificate 30 to < 60 units	3	5	2	3
	Certificate 18 to < 30 units	3	4	5	4
	Certificate 6 to < 18 units	0	5	5	3
	Total	**13**	**23**	**19**	**18**
Total		**140**	**189**	**117**	**149***

Note: The numbers may not add up exactly due to rounding.

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[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] There are four CIP codes related to Culinary Arts (TOP 130630): Cooking and Related Culinary Arts, General (CIP 120500), Baking and Pastry Arts/Baker/Pastry Chef (CIP 120501), Culinary Arts/Chef Training (CIP 120503), and Food Preparation/Professional Cooking/Kitchen Assistant (CIP 120505).

4

Broken down by award type, the colleges supplied the most awards in certificates with 30 to < 60 units (51), followed by associate degrees (49), and so forth (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Culinary Arts TOP 130630* in San Diego County (Three-Year Average 2015-16 through 2017-18)

49	51	4	41	3
Associate degrees	Certificates 30 to < 60 units	Certificates 18 to < 30 units	Certificates 12 to < 18 units	Certificates 6 to < 18 units

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Culinary Arts (TOP 130630), with an average of 100 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE (Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Culinary Arts Advanced; Culinary Arts and Sciences; Culinary Arts; Professional Bakeshop Skills	Program Award	146	74	80	100

Demand vs. Supply

In short, the region supplies 249 for-credit and noncredit awards for 235 annual job openings, suggesting that there is a labor market oversupply (Exhibit 6).

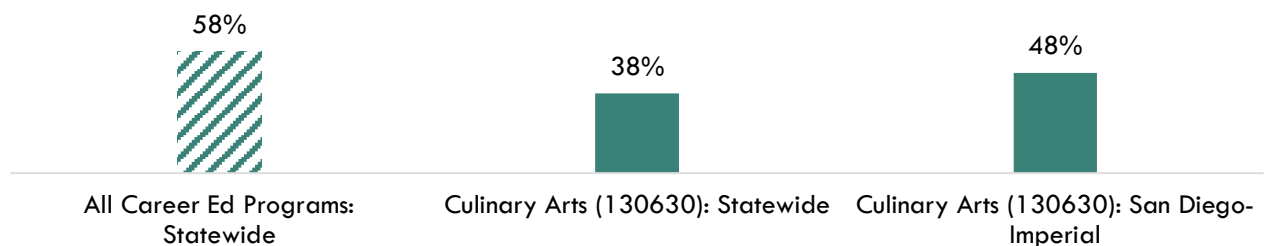**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or **Oversupply**
		Noncredit	For-Credit	
Culinary Arts (TOP 130630)	235	100	149	**14**

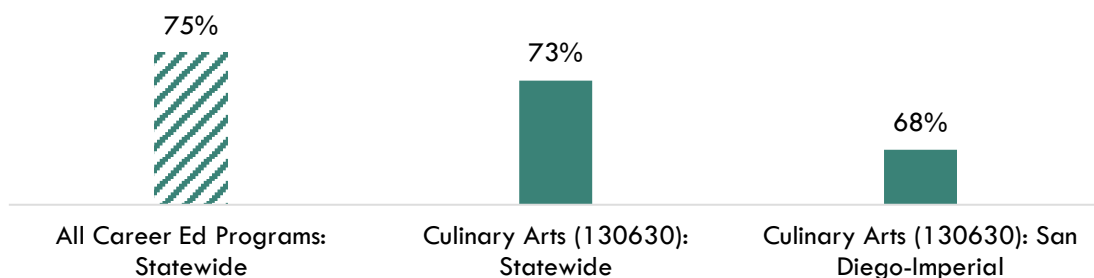## Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 48 percent of students in the San Diego-Imperial region earned a living wage after completing a Culinary Arts (130630) program, compared to 38 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

All Career Ed Programs: Statewide	Culinary Arts (130630): Statewide	Culinary Arts (130630): San Diego-Imperial
58%	38%	48%

According to the California Community Colleges LaunchBoard, 68 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Culinary Arts (130630) program, compared to 73 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

All Career Ed Programs: Statewide	Culinary Arts (130630): Statewide	Culinary Arts (130630): San Diego-Imperial
75%	73%	68%

---

[10] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[11] Most recent year with available data is Program Year 2014-15. 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.

6

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were Benihana, Hilton Hotel Corporation, Omni Hotel Corporation, Sodexo, and Compass Group (Exhibit 8).
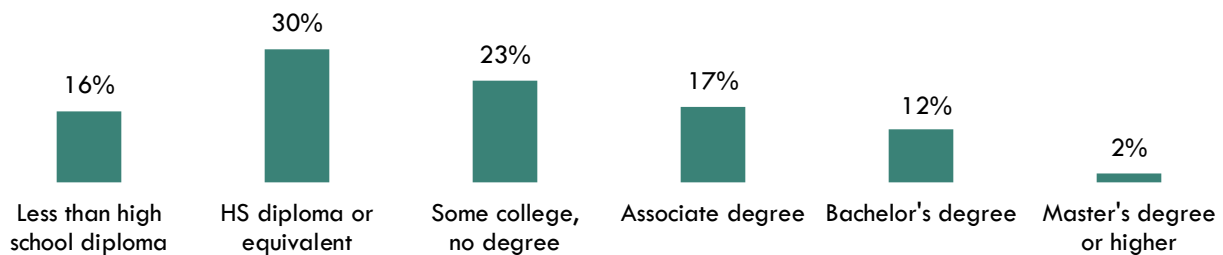
Exhibit 8: Top Employers in San Diego County for *Chefs and Head Cooks*[12]

Top Employers	
• Benihana	• Destination Hotels & Resorts
• Hilton Hotel Corporation	• Marriott International Incorporated
• Omni Hotel Corporation	• Nordstrom
• Sodexo	• Fax Restaurant Concepts
• Compass Group	• Fairmont Hotels & Resorts

Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. There is no typical on-the-job training for this occupation. The typical entry-level education is high school diploma or equivalent.[13]

Exhibit 9a: National Educational Requirements for *Chefs and Head Cooks*[14]

Less than high school diploma	HS diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree or higher
16%	30%	23%	17%	12%	2%

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[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

7

Similarly, based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Chefs and Head Cooks* was a high school diploma or vocational training (Exhibit 9b).[15]

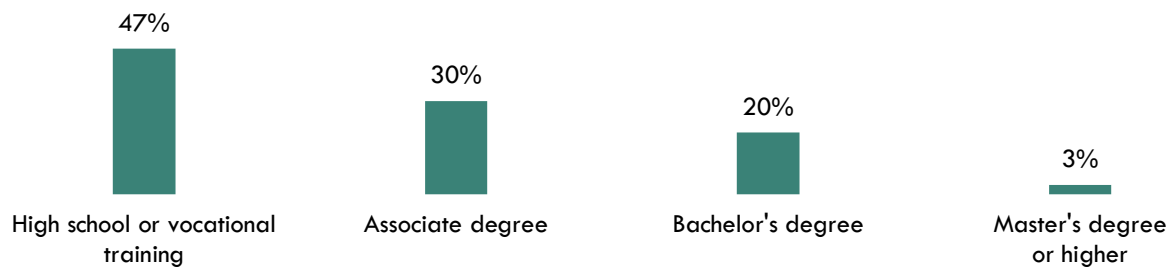**Exhibit 9b: Educational Requirements for *Chefs and Head Cooks* in San Diego County in Online Job Postings[16]**

47%	30%	20%	3%
High school or vocational training	Associate degree	Bachelor's degree	Master's degree or higher

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Chefs and Head Cooks* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Cooking	• Communication Skills	• Microsoft Excel
• Scheduling	• Planning	• Microsoft Word
• Cost Control	• Physical Abilities	• Microsoft PowerPoint
• Food Preparation	• Organizational Skills	• Facebook
• Budgeting	• English	• Word Processing

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[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[16] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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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.

Faculty Narrative

Top Code: 130630
Top Code Description: Culinary Arts
Degrees and Certificates offered: Culinary Arts Advanced Program Culinary Arts and Science Program Culinary Arts Program Professional Bakeshop Skills Program

Step 1: Utilize the individual COE Program Fact Sheet to inform responses.
Step 2: Submit your 2019-2020 Advisory Committee Membership List with your completed Faculty Narrative. Advisory Committee Membership List template is available for use (optional).

The questions below align directly to the requirements outlined within Education Code 78016.

Demonstrated Labor Market Demand
1. Please describe the demand for workers that your program trains for in the region.
*(Recommendation: refer to Section I and II of the Program Fact Sheet)*

(250 Word Limit)

Based on the data provided to us from the Center of Excellence (COE), we have noticed that our Culinary Arts & Science, Professional Bakeshop Skills, and Advanced Culinary Arts programs are currently only utilizing 1 top code (130630), when they all should be utilizing 4 top codes in total (130600, 130630, 130700, & 130710). Since we are currently only coded under the 130630 top code, our data for demonstrating and determining labor market demand is not accurate because it only shows a small sampling of jobs in the county.

Projected Occupational Demand (Based on 130630)

Currently the average demand for a food service occupation in San Diego county is 277 annual job openings under this specific top code. Between 2018 and 2023, Chefs and Head Cooks are projected to increase by 146 net jobs or 9 percent. Employers in San Diego County will need to hire 235 workers annually to fill new jobs and back fill jobs due to attrition caused by turnover and retirement. These are higher paying jobs for individuals with industry experience, and the report shows that the median hourly earnings of $23.36 well exceeds San Diego County's living wage of $15.99 per hour.

Exhibit 1: Number of Jobs for *Chefs and Head Cooks* (2008-2023)[3]
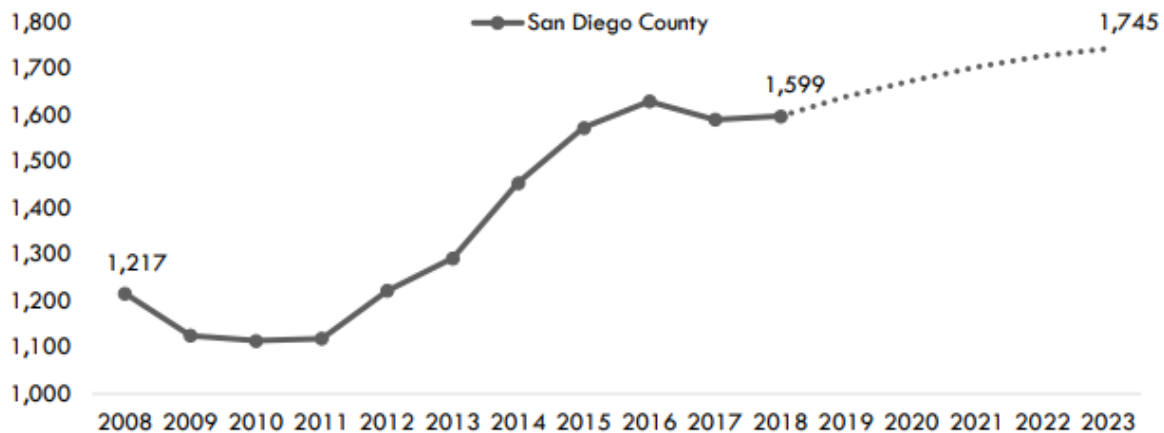
Projected Occupational Demand (If we also utilized top code 130600)

If we also utilized top code 130600 for this program as well, it shows that there are 1,676 annual job openings for nutrition, foods, and culinary arts. This data also shows that Mesa College is the only other institution utilizing this specific top code, and they have only issued out 11 associate degrees and 10 non-credit certificates in the past 3 years. That data shows that there is a supply gap of 1,655 industry jobs. Even though these are lower paying jobs, the report does show that the median hourly earnings of $16.98 exceeds San Diego County's living wage, which is $15.99 per hour.

Exhibit 1: Number of Jobs for *First-Line Supervisors of Food Preparation and Serving Workers* (2008-2023)[3]
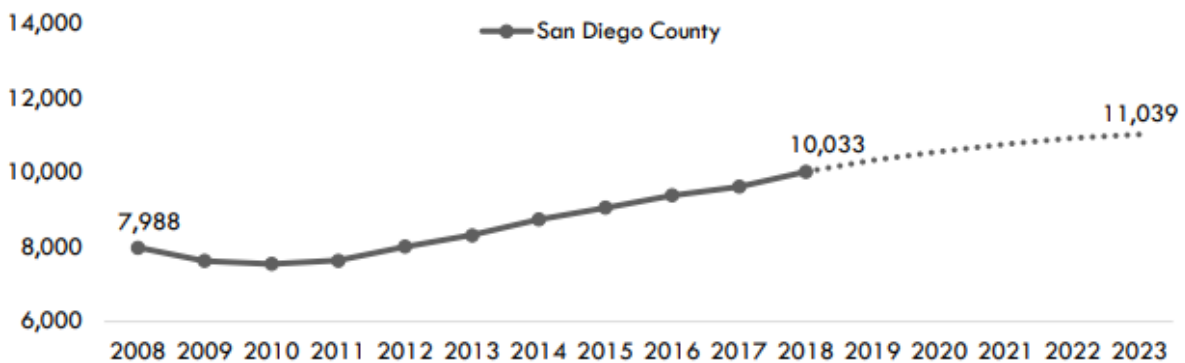
We know the labor market demand figures are actually higher in the county than the report concludes because we are a tourist destination with hospitality and tourism being one of our largest job sectors. Based on additional research that our faculty members did, we are able to conclude that our industry is a major employment sector in San Diego county.

Occupation code	title (click on the occupation title to view its profile)	Level	Employment	Employment RSE	Employment per 1,000 jobs		Median hourly wage	Mean hourly wage	Annual mean wage	Mean wage RSE
35-0000	**Food Preparation and Serving Related Occupations**	major	155,800	1.4%	106.465	1.15	$12.28	$14.07	$29,270	1.0%
35-1011	Chefs and Head Cooks	detail	1,290	17.9%	0.882	0.99	$24.18	$28.61	$59,510	3.5%
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	detail	9,710	7.1%	6.633	1.00	$17.02	$18.69	$38,870	2.3%
35-2011	Cooks, Fast Food	detail	7,050	16.8%	4.815	1.43	$11.96	$12.53	$26,070	2.0%
35-2012	Cooks, Institution and Cafeteria	detail	2,330	10.5%	1.593	0.58	$15.02	$16.00	$33,280	2.2%
35-2014	Cooks, Restaurant	detail	17,850	7.4%	12.198	1.32	$13.90	$14.49	$30,130	1.3%
35-2015	Cooks, Short Order	detail	1,420	31.1%	0.969	0.90	$13.14	$13.46	$28,000	2.4%
35-2019	Cooks, All Other	detail	380	33.6%	0.257	2.00	$17.38	$18.23	$37,920	5.5%
35-2021	Food Preparation Workers	detail	10,810	9.7%	7.384	1.31	$12.39	$13.26	$27,570	1.9%
35-3011	Bartenders	detail	7,620	11.3%	5.210	1.19	$12.03	$14.83	$30,850	3.6%
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	detail	38,230	5.8%	26.125	1.03	$11.86	$12.64	$26,290	1.1%
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	detail	2,340	12.1%	1.602	0.49	$12.14	$13.18	$27,410	1.8%
35-3031	Waiters and Waitresses	detail	30,980	5.1%	21.168	1.19	$12.14	$15.22	$31,660	2.6%
35-3041	Food Servers, Nonrestaurant	detail	2,300	14.5%	1.574	0.86	$11.80	$12.68	$26,370	2.4%
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	detail	8,150	8.5%	5.568	1.77	$11.83	$12.79	$26,600	1.8%
35-9021	Dishwashers	detail	8,340	10.1%	5.702	1.63	$11.47	$12.14	$25,240	1.5%
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	detail	5,820	12.4%	3.975	1.38	$11.93	$12.58	$26,170	2.4%
35-9099	Food Preparation and Serving Related Workers, All Other	detail	(8)	(8)	(8)	(8)	$11.78	$12.29	$25,560	3.2

This information was obtained from the U.S. Bureau of Labor Statistics: Hospitality Labor Market Statistics (https://www.bls.gov/oes/current/oes_41740.htm#35-0000).

2. Industry Alignment and Employer Engagement

In the past two years, what specific program updates have been made in response to changing industry needs? *(Recommendation: refer to past advisory committee meeting minutes.)*

(250 Word Limit)

We meet with our advisory board of industry professionals once a semester to ensure our alignment with current industry needs and demands. We have them review our curriculum at each meeting in order to make course material recommendations that keeps us up-to-date with industry standards. We are in the process of updating all of our department's curriculum in order to make all of our offerings more robust and increase our student's employability.

Our course curriculum utilizes various teaching modalities in order to provide our students with the best learning environment. Our entire program is modeled after the kitchen environment that students will experience in the industry and in this environment, they receive hands-on, technical training. We also have a lecture/theory component in the program as well to ensure that students understand the theory behind the techniques that they are learning in the lab classroom environment.

We also build in components to our programs that will help students to improve their computer skills and soft skills in order to effectively work in a team environment. Our previous advisory boards have stressed the importance of our students obtaining these skills within the program because these are skills they are not always able to teach them on the job. Based on our current curriculum and projects assigned in class, our students graduate with an understanding of all the specialized, soft, and software skills that are listed in table exhibit 10 in the COE report below.

Exhibit 10: Top Skills for *Chefs and Head Cooks* in San Diego County[17]

Specialized Skills	Soft Skills	Software Skills
• Cooking	• Communication Skills	• Microsoft Excel
• Scheduling	• Planning	• Microsoft Word
• Cost Control	• Physical Abilities	• Microsoft PowerPoint
• Food Preparation	• Organizational Skills	• Facebook
• Budgeting	• English	• Word Processing

3. Program Does Not Unnecessarily Duplicate Other Training Programs (Supply)

Please describe how your program provides a unique, complementary, or collaborative training opportunity in the region. *(Recommendation: refer to Section II of the Program Fact Sheet)*

(250 Word Limit)

The data for top code 130630 shows that there are 3 community colleges (Mesa, Grossmont, and Southwestern) that supply the region with awards, both degrees and certificates. If we were able to utilize additional top codes that pertain to the content we teach in the course, we would see that these institutions do not have the same course content and offerings that we provide to our students. Our program does collaborate with Mesa College through articulation (credit-by-exam), and we have students that take advantage of that opportunity every academic year.

We also believe that this data does show the demand and need for non-credit certificates, like the ones CE offers, because the majority of students attending the credit colleges are receiving certificates instead of Associate of Science degrees. Based on the COE data, it shows that Mesa, Grossmont, and Southwestern have a 3 year average of 99 certificates issued compared to CE's average of 100 certificates in the same 3 year period. For example, CE out performed the colleges in issuing program certificates by 63% with 146 awards compared to the 3 institution's 92 awards in 2015/2016.

Our students are able to receive a program certificate in a shorter duration of time and at minimal costs to the student, which in turn helps them to enter the workforce sooner with a variety of employable skills.

Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2015-16 through 2017-18)

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Grossmont	Associate of Science (A.S.) degree	23	23	19	22
	Certificate 30 to < 60 units	27	32	17	25
	Certificate 12 to < 18 units	29	68	27	41
	Total	**79**	**123**	**63**	**88**
San Diego Mesa	Associate of Science (A.S.) degree	18	22	16	19
	Certificate 30 to < 60 units	29	21	19	23
	Certificate 6 to < 18 units	1	0	0	0
	Total	**48**	**43**	**35**	**42**
Southwestern	Associate of Science (A.S.) degree	7	9	7	8
	Certificate 30 to < 60 units	3	5	2	3
	Certificate 18 to < 30 units	3	4	5	4
	Certificate 6 to < 18 units	0	5	5	3
	Total	**13**	**23**	**19**	**18**
Total		140	189	117	149*

Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE
(Program Years 2015-16 through 2017-18)

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Culinary Arts Advanced; Culinary Arts and Sciences; Culinary Arts; Professional Bakeshop Skills	Program Award	146	74	80	100

4. Overall Need

Please describe the supply gap or oversupply associated with your program. Please use this space to explain any data discrepancies and include any recommendations from your advisory committee. *(Recommendation: refer to Section II of the Program Fact Sheet)*

(250 Word Limit)

The data in the COE report for top code 130630 shows that the region supplies 249 for-credit and noncredit awards for 235 annual job openings, which suggests that there is a labor market oversupply.

Top Code 130630

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Culinary Arts (TOP 130630)	235	100	149	14

We believe that this data is an inaccurate representation of the actual number of annual job postings because we have narrowed the field too much only utilizing the one top code for our 4 programs since we prepare our students for a wide variety of jobs. If we utilize additional top codes, like we identified earlier (130600, 130700, & 130710), we believe that the data will show a large supply gap that our department's programs are helping to fill on an annual basis.

For Example: Top Code 130600

**Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Nutrition, Foods, and Culinary Arts (TOP 130600)	1,676	0	20	1,656

5. Demonstrated Effectiveness

Please describe how your program's completion and employment outcomes demonstrate student success. If your completion or employment outcomes are low, please explain why and what you will do to improve them. *(Recommendation: refer to sections III, IV, V, and IV of the Program Fact Sheet)*

(250 Word Limit)

As stated above, our completion rate is on par with, if not exceeding our college counterparts, which demonstrates that our completion rate is good. As the COE report states, 48% of students in San Diego county earn a living wage after completing a Culinary Arts (130630) program, compared to 38% statewide.
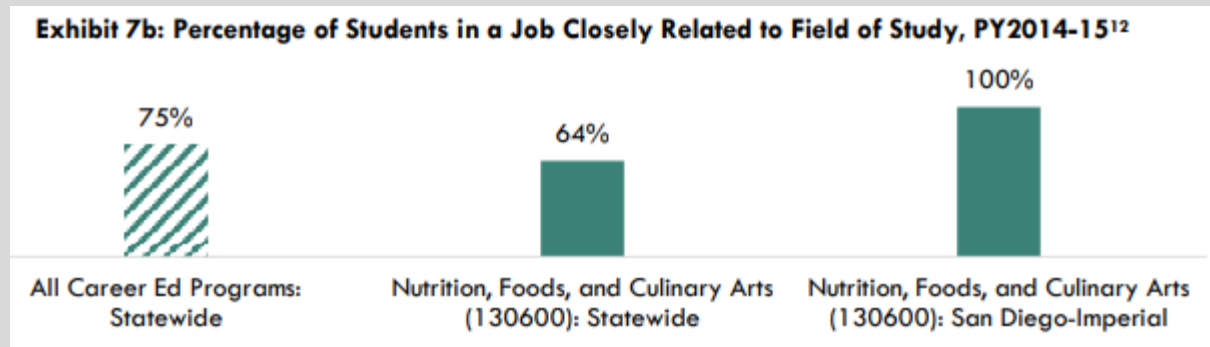
Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]

- All Career Ed Programs: Statewide — 58%
- Culinary Arts (130630): Statewide — 38%
- Culinary Arts (130630): San Diego-Imperial — 48%
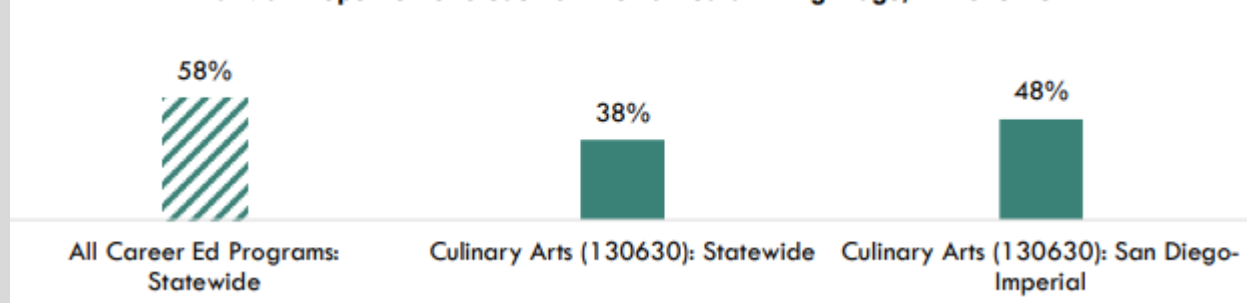
In terms of employment, the data shows that 68% of students in San Diego county obtain a job closely related to their field of study after completing a Culinary Arts (130630) program, compared to 73% statewide.

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[11]

- All Career Ed Programs: Statewide — 75%
- Culinary Arts (130630): Statewide — 73%
- Culinary Arts (130630): San Diego-Imperial — 68%
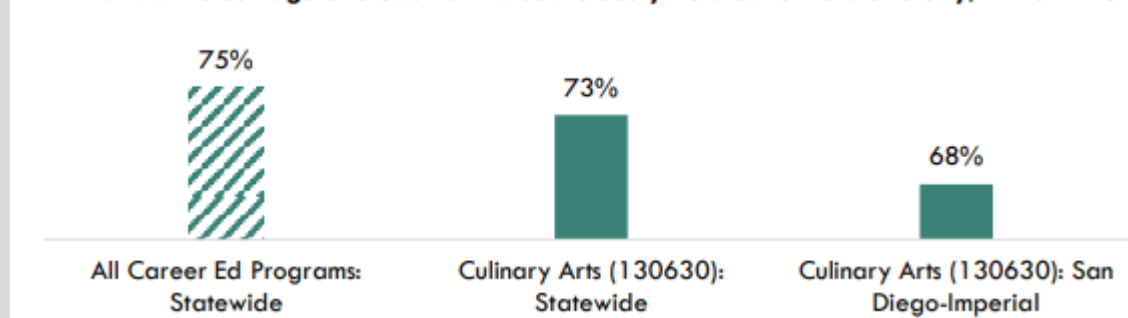
If we were utilize additional top codes, our faculty believes that the data study will show a large increase in students in San Diego county obtaining a job closely related to their field of study after completing one of our programs.

For Example: Top Code 130600

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15[12]

75%	64%	100%
All Career Ed Programs: Statewide	Nutrition, Foods, and Culinary Arts (130600): Statewide	Nutrition, Foods, and Culinary Arts (130600): San Diego-Imperial

The report also talked about employer data within San Diego county, and we believe that this report is missing vital employers within the county that employ a large amount of culinary chefs, line cooks, and food service workers (i.e. Cohn Group, Festivities, Brigantine Restaurant Group, etc.).

Top Employer Data from COE Report

Exhibit 8: Top Employers in San Diego County for *Chefs and Head Cooks*[12]

Top Employers

- Benihana
- Hilton Hotel Corporation
- Omni Hotel Corporation
- Sodexo
- Compass Group
- Destination Hotels & Resorts
- Marriott International Incorporated
- Nordstrom
- Fax Restaurant Concepts
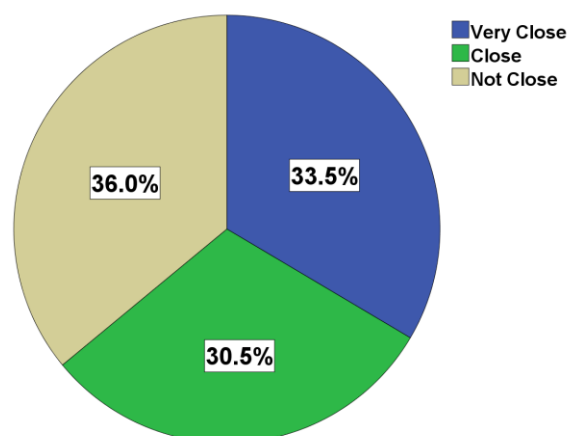- Fairmont Hotels & Resorts

San Diego Adult College (Non-Credit)

Completer and skills-building students at San Diego Adult College (Non-Credit) were surveyed if they met one of the following criteria in 2016-2017, and did not enroll (or were minimally enrolled) in 2017-2018: earned a non-credit vocational degree, CTE award or completed 48 CTE hours. The survey was administered in early 2019 by e-mail, text message (SMS), and telephone. The survey addressed student perceptions of their CTE program, employment outcomes, and how their coursework and training relate to their current career. A total of 3818 students were surveyed and 1161 (30%) students responded: 44% by email, 44% by phone, and 12% by SMS.
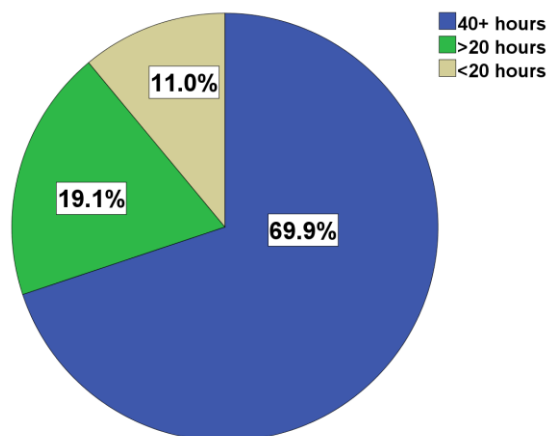
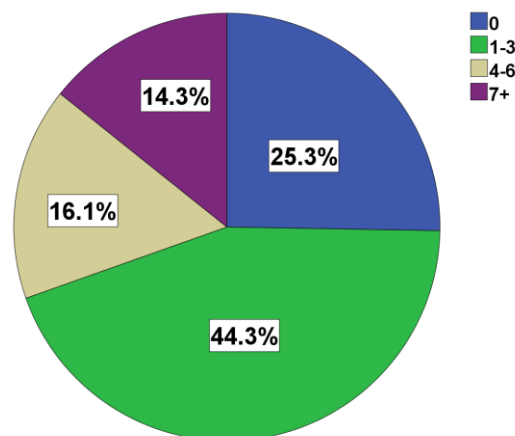*How satisfied are students with the education and training they received?*

Very Satisfied: 64.4% | Satisfied: 28.3% | Other: 7.3%
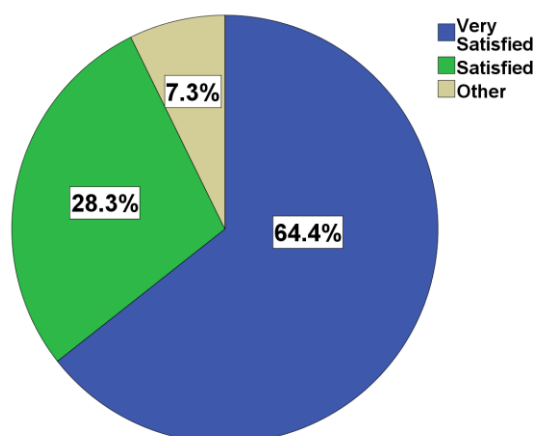
How many students secured a job that is closely related to their program of study?

Very Close: 33.5% | Close: 30.5% | Not Close: 36.0%

How many hours per week are employed students working?

40+ hours: 69.9% | >20 hours: 19.1% | <20 hours: 11.0%

How many months did it take for students to find a job?

0: 25.3% | 1-3: 44.3% | 4-6: 16.1% | 7+: 14.3%

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What were the hourly wages of the students before training versus after training?

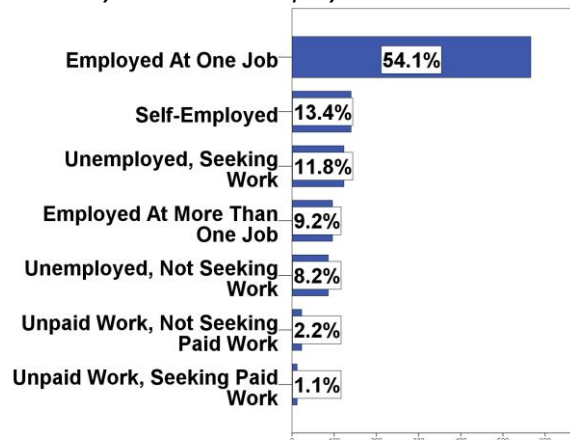*What is your current employment status?*
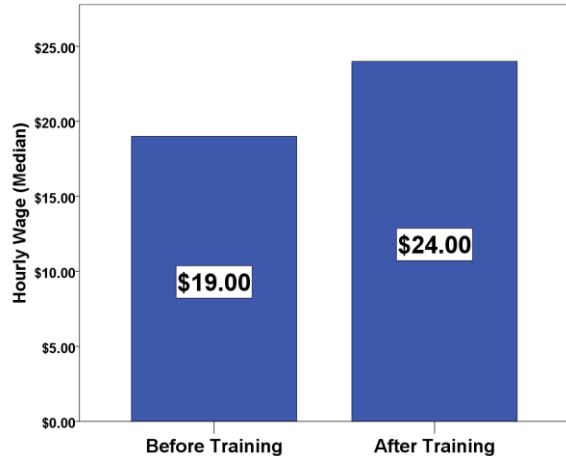
What were the hourly wages of transfer students and non-transfer students—before training versus after training?
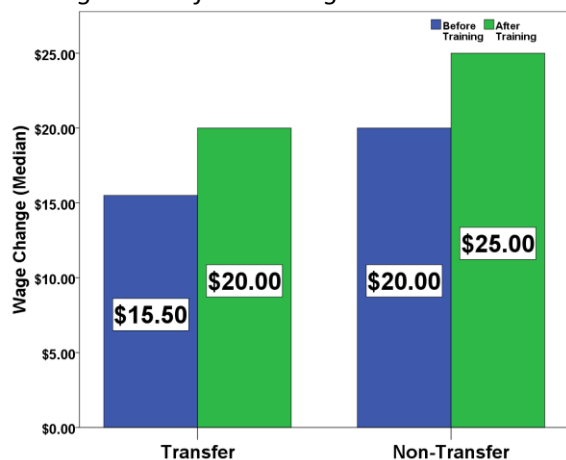
Does the similarity between job and program of study influence wage gains?

More Key Results

$5 is the overall change in hourly wages after completing training—in dollars

26% is the overall change in hourly wages after completing training—in percentage gain

77% of respondents reported being employed for pay

12% of respondents reported transferring to another college or university

93% of respondents reported being very satisfied or satisfied with their training.

Conclusion

The results of the survey showed that completing CTE studies and training – whether or not a credential is earned, whether or not a student transfers – is related to positive employment outcomes. The preponderance of respondents are employed and are working in the same field as their studies or training. Notably, students realize a greater wage gain after completing their studies if they secure a job that is similar to their program of study.