

Web Developers

Labor Market Analysis: San Diego County

April 2019

Summary

- Do not Proceed
- Proceed with Caution
- Proceed

**PROCEED WITH
NEW PROGRAM?**



**SUPPLY
GAP?**



**AT OR ABOVE
THE LIVING WAGE**



**NUMBER OF
INSTITUTIONS THAT
PROVIDE TRAINING**



**NUMBER OF ANNUAL
JOB OPENINGS**



**EXPECTED LEVEL
OF EDUCATION**

Bachelor's Degree+

Associate Degree

Some College or Certificate

High School Diploma or Equivalent

Less than a HS Diploma

Apprenticeship

According to available labor market information, there is a small supply gap for *Web Developers* in San Diego County. *Web Developers* have a labor market demand of 199 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Nine educational institutions in San Diego County supply 116 awards for this occupation, suggesting that there is a supply gap. However, this supply number does not include people currently in the labor force looking for work as *Web Developers*. This occupation's entry-level and median wages are higher than the Self-Sufficiency Standard, suggesting that students who successfully complete a program and obtain employment in a related field may earn living wages.

Introduction

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

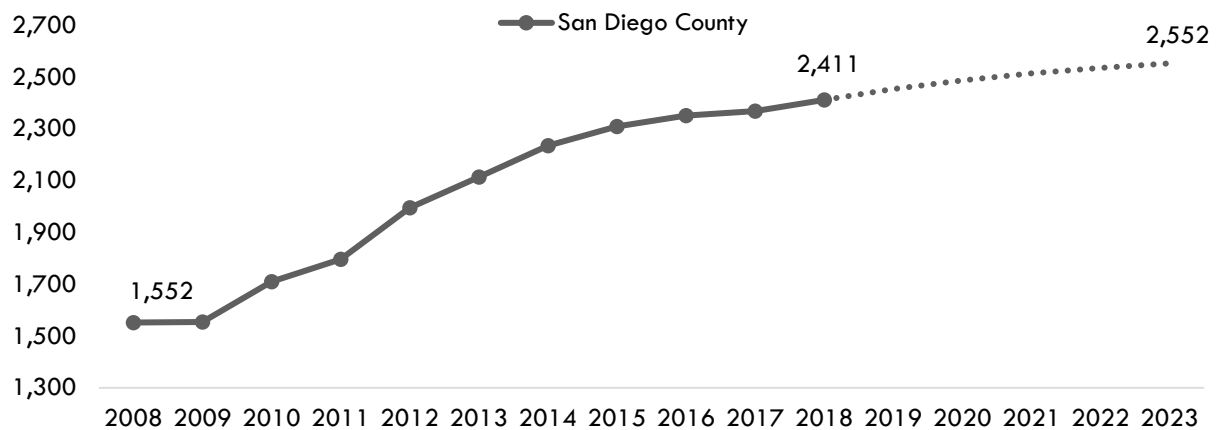
Web Developers (SOC 15-1124): Design, create, and modify websites. Analyze user needs to implement websites content, graphics, performance, and capacity. May integrate websites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software to facilitate the creation of Web and multimedia content. Sample reported job titles include:

- Web Designer
- Webmaster
- Web Architect
- Web Development Instructor
- Web Development Director
- Web Design Specialist
- Technology Applications Engineer
- Designer
- Web Content Developer

Projected Occupational Demand

Between 2018 and 2023, *Web Developers* are projected to increase by 141 jobs or six percent (Exhibit 1). Employers in San Diego County will need to hire 199 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 Web Developers (2008-2023)²



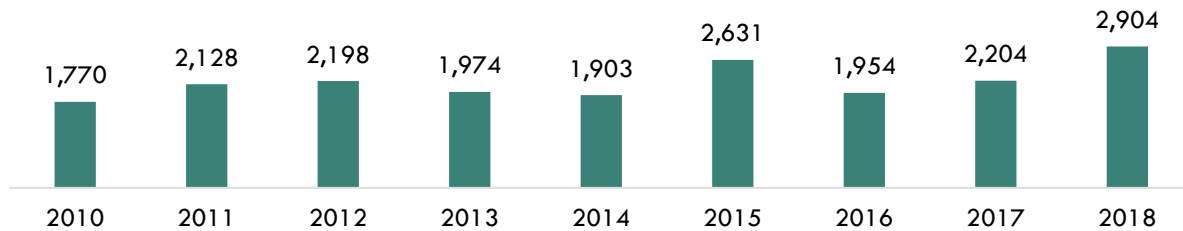
¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc/).

² Source: Emsi 2019.01; QCEW, Non-QCEW, Self-Employed.

Online Job Postings

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).

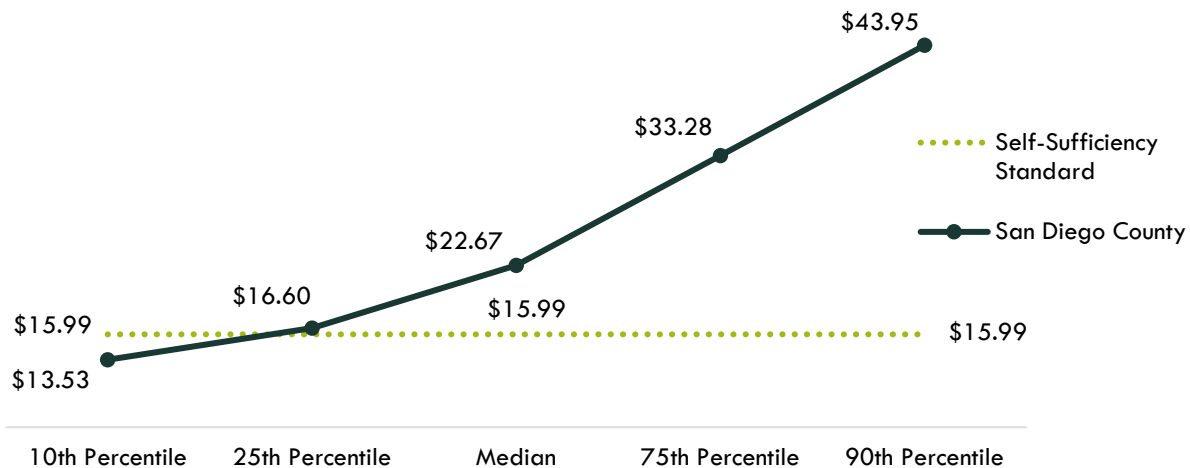
Exhibit 2: Number of Online Job Postings for Web Developers in San Diego County (2010-2018)³



Earnings

The median hourly earnings for Web Developers is \$22.67. This is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 3).⁴

Exhibit 3: Hourly Earnings⁵ for Web Developers in San Diego County⁶



³ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

⁴ The self-sufficiency wage in San Diego for one adult is \$15.99 (insightcced.org/2018-self-sufficiency-standard).

⁵ 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.

⁶ Source: Emsi 2019.01; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁷ There are **six** TOP codes and **12** CIP codes related to *Web Developers* (Exhibit 4). Because these TOP and CIP codes train for a variety of Information and Communication Technologies (ICT) occupations such as “Network and Computer Systems Administrators,” “Software Developers,” “Computer Programmers,” etc., there is no one-to-one match between TOP/CIP code and SOC code. As a result, this brief uses a conservative estimate of program supply and only calculates awards from TOP and CIP codes with an asterisk (*) in Exhibit 4.⁸

Exhibit 4: Related TOP and CIP Codes for *Web Developers*

<i>Web Developers</i>
TOP 061430: Website Design and Development*
TOP 070210: Software Applications
TOP 070700: Computer Software Development
TOP 070710: Computer Programming
TOP 070900: World Wide Web Administration*
TOP 070910: E-Commerce (technology emphasis)
CIP 11.0201: Computer Programming/Programmer, General
CIP 11.0202: Computer Programming, Specific Applications
CIP 11.0203: Computer Programming, Vendor/Product Certification
CIP 11.0299: Computer Programming, Other
CIP 11.0601: Data Entry/Microcomputer Applications, General
CIP 11.0602: Word Processing
CIP 11.0801: Web Page, Digital/Multimedia and Information Resources Design*
CIP 11.0899: Computer Software and Media Applications, Other
CIP 11.1003: Computer and Information Systems Security/Information Assurance
CIP 11.1004: Web/Multimedia Management and Webmaster*

⁷ 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).

⁸ The TOP/CIP codes in the exhibit without an asterisk were accounted for in other labor market briefs produced by the San Diego-Imperial Center of Excellence for Labor Market Research (COE). The COE attempts to de-duplicate program awards whenever possible. Because a TOP/CIP code may train for more than one occupation, the COE moves program supply from a labor market brief if the supply may be accounted for elsewhere in order to reduce miscalculated oversupply numbers.

Web Developers

CIP 15.1204: Computer Software Technology/Technician

CIP 52.0208: E-Commerce/Electronic Commerce

According to TOP data, six community colleges supply the region with awards for this occupation: Cuyamaca College, MiraCosta College, Palomar College, San Diego Continuing Education, San Diego Mesa College, and Southwestern College. According to CIP data, three non-community colleges supply the region with awards, The Art Institute of California-San Diego, Coleman University, and Platt College-San Diego (Exhibit 5).

Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2013-14 through PY2016-17 Average)

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY14-15 to PY16-17)	Other Educational Institutions 3-Yr Annual Average Awards (PY13-14 to PY15-16)	3-Yr Total Average Supply (PY13-14 to PY16-17)
061430	Website Design and Development	107	0	107
	• Cuyamaca	8	0	
	• MiraCosta	2	0	
	• Palomar	1	0	
	• San Diego Cont. Ed.	69	0	
	• San Diego Mesa	20	0	
	• Southwestern	7	0	
11.0801	Web Page, Digital/Multimedia and Information Resources Design	0	9	9
	• The Art Institute of California-San Diego	0	3	
	• Coleman University	0	4	
	• Platt College-San Diego	0	2	
			Total	116

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁹ suggests that there is a **supply gap** for this occupation in San Diego County, with **199** annual openings and **116** awards. Comparatively, there are **2,690** annual openings in California and **409** awards¹⁰ (Exhibit 6).

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

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	199	116	83
California	2,690	409	2,281

Please note: This is a basic analysis of supply and demand of labor. 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. Additionally, the data does not include workers who are currently in the labor force who could fill these positions or workers who are not captured by publicly available data.

Student Outcomes

Based on the information available in the CTE LaunchBoard, students who took courses in the related TOP codes exhibited the following outcomes (Exhibit 7).

Exhibit 7: Strong Workforce Program Metrics for TOP 061430: Website Design and Development San Diego-Imperial Region vs. California (PY2015-16)

Metric	San Diego-Imperial	California
Number of course enrollments ¹¹	2,211	8,176
Completed 12+ CTE units in one year ¹²	209	1,168
Completed 48+ CTE contact hours in one year ¹³	155	423
Number of students who got a degree or certificate ¹⁴	114	194

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

¹⁰ Centers of Excellence Student Outcomes supply table. (coecc.net/Supply-and-Demand.aspx).

¹¹ The number of enrollments in courses assigned to the TOP code in the selected year.

¹² The number of students who completed 12 or more credit CTE units.

¹³ The number of students who completed 48 or more noncredit CTE instructional contact hours.

¹⁴ The number of unduplicated students who earned a locally-issued certificate, Chancellor's Office approved certificate, associate degree, and/or California Community Colleges bachelor's degree in the selected TOP code.

Metric	San Diego-Imperial	California
Number of students who transferred ¹⁵	96	394
Employed in the second fiscal quarter after exit ¹⁶	58%	60%
Employed in the fourth fiscal quarter after exit ¹⁷	60%	60%
Job closely related to field of study ¹⁸	N/A	N/A
Median earnings in the second fiscal quarter after exit ¹⁹	\$9,270	\$8,598
Median change in earnings ²⁰	48%	53%
Attained a living wage ²¹	69%	56%

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 [ServiceNow](#), [Thermo Fisher Scientific](#), [Hewlett-Packard](#), [Via Technical](#), and [Sony Electronics](#) (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for Web Developers²²

Top Employers	
<ul style="list-style-type: none"> • ServiceNow • Thermo Fisher Scientific Inc. • Hewlett-Packard • Via Technical • Sony Electronics Inc. 	<ul style="list-style-type: none"> • Qualcomm • Illumina Incorporated • Teradata Operations, Inc. • Accenture • Sayva Solutions

¹⁵ Students who took non-introductory courses or completed a California Community Colleges Chancellor's Office award in the selected TOP code in selected year who subsequently enrolled for the first time in a four-year institution the following year.

¹⁶ Among all exiters with a valid SSN, the percentage who were employed two quarters after exiting California Community Colleges.

¹⁷ Among exiting students with a valid SSN, the percentage who were employed four quarters after exiting California Community Colleges.

¹⁸ Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

¹⁹ Among exiting students, the median second-quarter earnings one year after the year in which they exited California Community Colleges.

²⁰ Among exiting students with a valid SSN, the percentage change in earnings one year before and one year after exiting California Community Colleges.

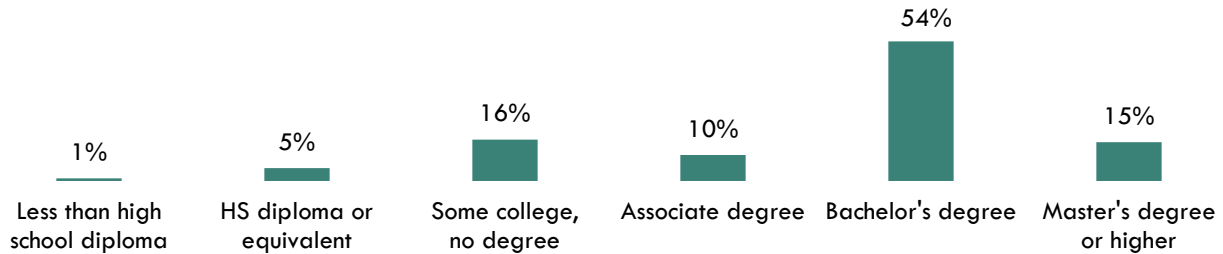
²¹ Among completers and skills builders who exited, the proportion of students who attained a living wage.

²² 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 profession. The typical entry-level education is a bachelor's degree.²³

Exhibit 9: National Educational Attainment of Web Developers²⁴



*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 County²⁵

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> JavaScript Web Development jQuery HTML5 Web Application Development 	<ul style="list-style-type: none"> Communication Skills Teamwork / Collaboration Creativity Problem Solving Writing 	<ul style="list-style-type: none"> JavaScript jQuery HTML5 AngularJS Git

Prepared by:

Tina Ngo Bartel, Director

John Edwards, Research Analyst

San Diego-Imperial Center of Excellence for Labor Market Research

tngobartel@miracosta.edu

jedwards@miracosta.edu



²³ Source: Emsi, 2018.04; QCEW, Non-QCEW, Self-Employed.

²⁴ "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.

²⁵ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

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.