

Web Developers

Labor Market Analysis: San Diego County

April 2020

Summary



The brief provides labor market information about *Web Developers* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. While the brief focuses primarily on *Web Developers*, it also provides additional labor market information, wherever possible, for less commonly analyzed occupations such as *Web Administrators*, *Search Marketing Strategists*, and *Web Content Writers*. According to available labor market information, *Web Developers* in San Diego County have a labor market demand of 235 annual job openings, and 10 educational institutions in San Diego County supply 200 awards for this occupation, suggesting that there is a supply gap. This occupation's entry-level and median wages are above the living wage. According to the California Community Colleges' outcomes data, the percentage of students who completed programs related to *Web Developers* and earned a living wage is above the state average for students who complete Career Education programs in general. This brief recommends proceeding with developing a program because 1) its entry-level and median earnings are above the living wage; 2) an associate degree is needed for the occupation; and 3) a supply gap exists for *Web Developer* positions.

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 15-1134):** Design, create, and modify websites. Analyze user needs to implement website 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 designed to facilitate the creation of web and multimedia content.

While this brief primarily focuses on *Web Developers*, it also provides additional information from online job postings for occupations that are not commonly analyzed in labor market research.² These occupations include:

- **Web Administrators (15-1199.03):** Manage web environment design, deployment, development and maintenance activities. Perform testing and quality assurance of web sites and web applications.
- **Search Marketing Strategists (15-1199.10):** Employ search marketing tactics to increase visibility and engagement with content, products, or services in Internet-enabled devices or interfaces. Examine search query behaviors on general or specialty search engines or other Internet-based content. Analyze research, data, or technology to understand user intent and measure outcomes for ongoing optimization.
- **Copy Writers (27-3043.04) or Web Content Writers or Producers:³** Write advertising copy for use by publication or broadcast media to promote sale of goods and services.

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/).

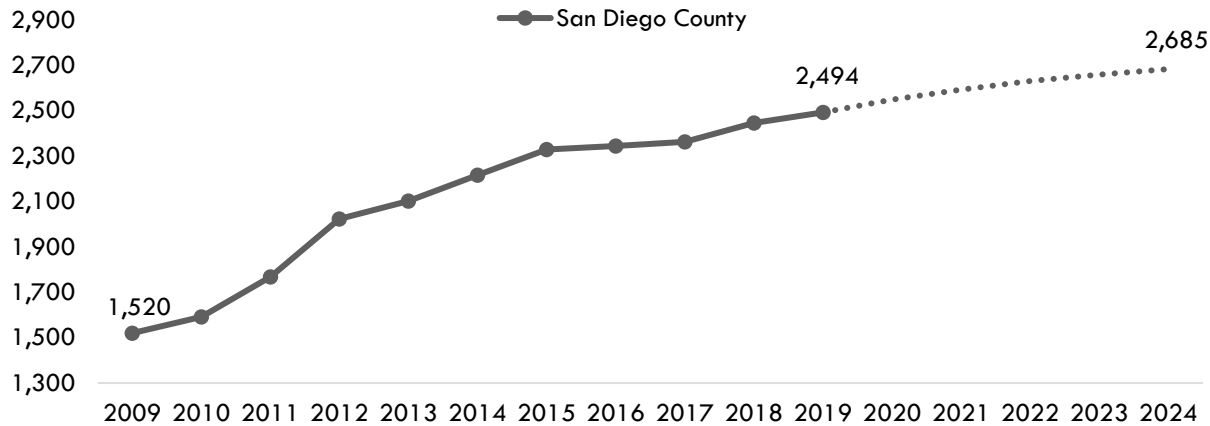
² The Centers of Excellence for Labor Market Research (COE) and other labor market researchers typically analyze six-digit occupational codes from the SOC-O*NET system (ononline.org/help/online/search#code). Six-digit codes are more common and have more data, whereas eight-digit codes are less common and typically have insufficient data to analyze. However, data for eight-digit codes exist in online job postings and were included in this brief.

³ One of the reported job titles for Copy Writers (27-3043.04) is “Web Content Writers.” The system that analyzes online job postings has “Web Content Producers” as a specialized occupation, so for the purpose of this brief, “Web Content Producers” was used in online job posting queries.

Projected Occupational Demand

Between 2019 and 2024, *Web Developers* are projected to increase by 191 net jobs or eight 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 Web Developers (2009-2024)⁴

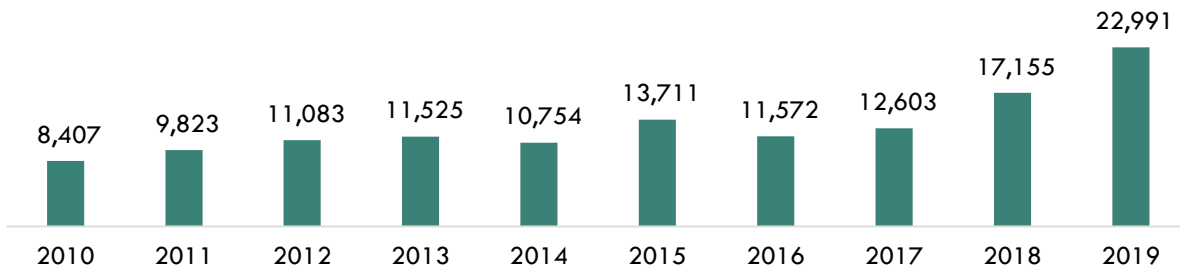


Online Job Postings

This report analyzes not only historical and projected data (traditional labor market information or LMI), 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 2019, there was an average of 12,962 online job postings per year for *Web Developers* in San Diego County (Exhibit 2a).

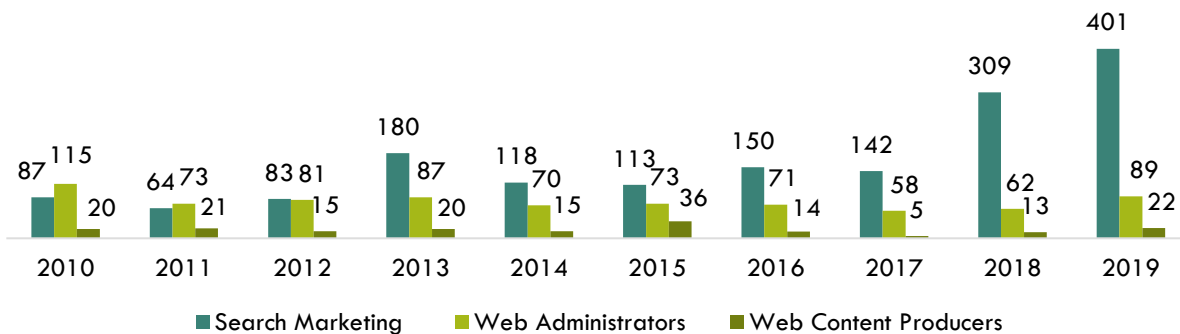
⁴ Emsi 2020.01; QCEW, Non-QCEW, Self-Employed.

Exhibit 2a: Number of Online Job Postings for Web Developers in San Diego County (2010-2019)⁵



Similarly, during this period, there was an average of 261 online job postings for *Search Marketing Strategists, Web Administrators, and Web Content Producers* (Exhibit 2b).

Exhibit 2b: Number of Online Job Postings for Search Marketing Strategists, Web Administrators, and Web Content Producers in San Diego County (2010-2019)



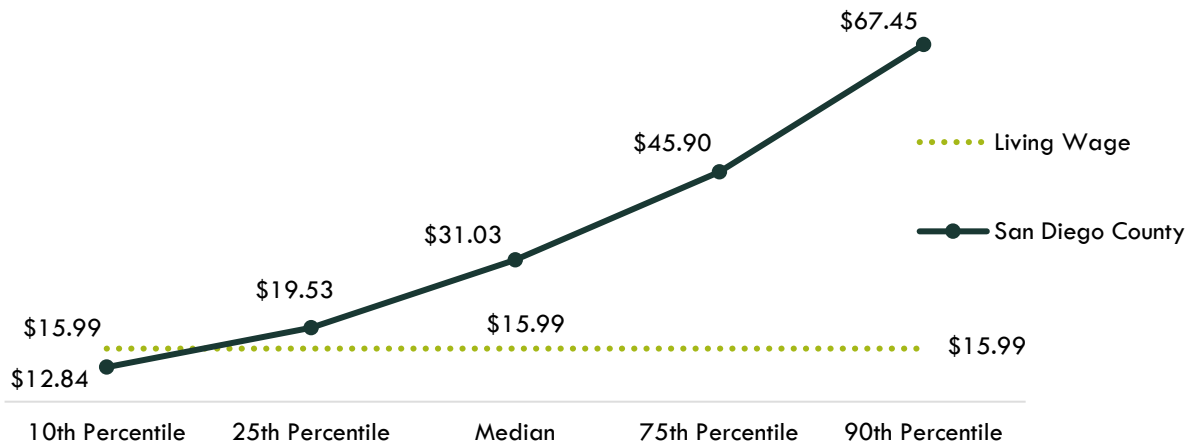
Earnings

Web Developers receive median hourly earnings of **\$26.39**; this is more than the living wage for a single adult in San Diego County, which is **\$15.99** per hour (Exhibit 3).⁶

⁵ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2019.

⁶ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightccd.org/2018-self-sufficiency-standard.

Exhibit 3: Hourly Earnings⁷ for Web Developers in San Diego County⁸



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.⁹ There are **eight** TOP codes and **17** 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.

Exhibit 4: Related TOP and CIP Codes for Web Developers

Web Developers
TOP 061420: Electronic Game Design
TOP 061430: Website Design and Development*
TOP 070200: Computer Information Systems
TOP 070210: Software Applications
TOP 070700: Computer Software Development

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 2020.01; 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).

Web Developers

TOP 070710: Computer Programming

TOP 070900: World Wide Web Administration*

TOP 070910: E-Commerce (technology emphasis)

CIP 10.0304: Animation, Interactive Technology, Video Graphics and Special Effects

CIP 11.0103: Information Technology

CIP 11.0199: Computer and Information Sciences, Other

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*

CIP 15.1202: Computer Technology/Computer Systems Technology

CIP 15.1204: Computer Software Technology/Technician

CIP 50.0411: Game and Interactive Media Design

CIP 52.0208: E-Commerce/Electronic Commerce

According to TOP data, [seven](#) community colleges supply the region with awards for this occupation: [Cuyamaca College](#), [Grossmont 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 2014-15 through PY2017-18 Average)**

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY15-16 to PY17-18)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY17-18)
061430	Website Design and Development	133	0	133
	• Cuyamaca	5	0	
	• MiraCosta	2	0	
	• Palomar	0	0	
	• San Diego Cont. Ed.	95	0	
	• San Diego Mesa	20	0	
	• Southwestern	11	0	
070900	World Wide Web Administration	29	0	29
	• Grossmont	4	0	
	• Palomar	9	0	
	• San Diego Cont. Ed.	16	0	
11.0801	Web Page, Digital/Multimedia and Information Resources Design	0	38	38
	• The Art Institute of California-San Diego	0	36	
	• Coleman University	0	0	
	• Platt College-San Diego	0	2	
			Total	200

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply¹⁰ suggests that there is a **supply gap** for this occupation in San Diego County, with **235** annual openings and **200** awards. Comparatively, there are **2,911** annual openings in California and **760** awards, demonstrating that there is a supply gap across the state¹¹ (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 Over supply
San Diego	235	200	35
California	2,911	760	2,151

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.

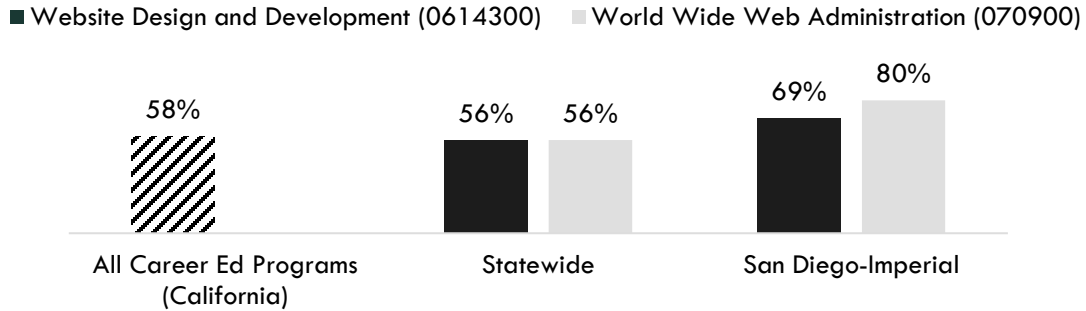
Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, between **69** and **80** percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Web Developers*, compared to **56** percent statewide and **58** percent of students in Career Education programs in general across the state (Exhibit 7a).

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

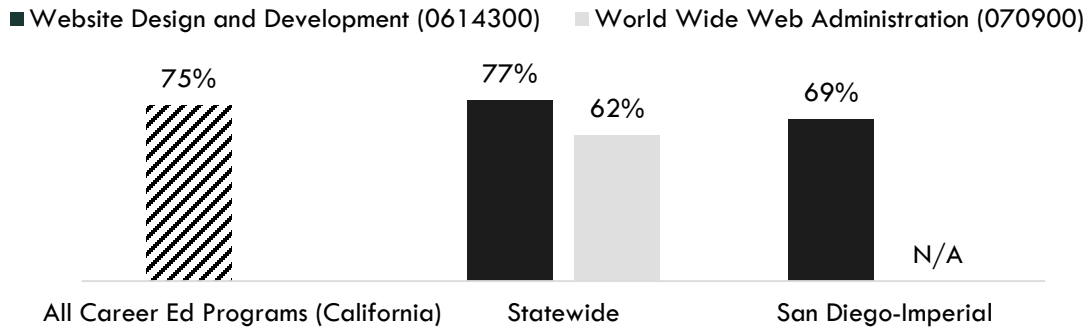
¹¹ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16¹²



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 related program, compared to 62 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, PY2014-15¹³



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

¹³ 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, 2017 and December 31, 2019, the top five employers in San Diego County for this occupation were [Northrop Grumman](#), [CACI](#), [Qualcomm](#), [Anthem Blue Cross](#), and [General Atomics](#) (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for Web Developers¹⁴

Top Employers	
• Northrop Grumman	• Accenture
• CACI	• Booz Allen Hamilton
• Qualcomm	• Teradata Operations
• Anthem Blue Cross	• ViaSat
• General Atomics	• Deloitte

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 an [associate degree](#).¹⁵

Exhibit 9: National Educational Attainment of Web Developers¹⁶

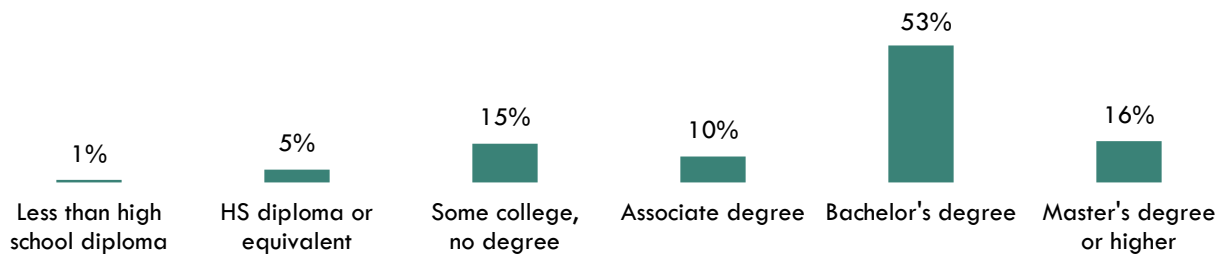


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2017 and December 31, 2019.

¹⁴ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

¹⁵ Emsi 2020.01; QCEW, Non-QCEW, Self-Employed.

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: Top Skills for Web Developers in San Diego County¹⁷

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Project Management • Software Development • Systems Engineering • Quality Assurance and Control • Scheduling 	<ul style="list-style-type: none"> • Communication Skills • Teamwork / Collaboration • Planning • Problem Solving • Writing 	<ul style="list-style-type: none"> • SQL • JavaScript • Microsoft Excel • Java • Python

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Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

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

¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.