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Program Endorsement Brief:

Web Design and Development in the Greater Sacramento region

North Far North Center of Excellence, September 2019

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INTRODUCTION

This report provides an overview of the labor market demand and educational program supply for web design and development related occupations in the Greater Sacramento region and the broader 22-county North Far North region.

SUMMARY OF KEY FINDINGS

- Web design and development occupations are projected to have almost 300 annual openings over the next five years.

- Median hourly wages for the selected occupations are above the regional living wage. Hourly wages are highest for web developers at $32 per hour. Graphic designers can expect to make $21 per hour.

- The typical entry-level education for a web developer is an associate's degree. The typical entry-level education for a graphic designer is a bachelor's degree.

- Four community colleges conferred a total of 21 certificates and degrees between 2016 and 2019.

The report contains the following sections:
- Occupational demand,
- Wages and job postings,
- Education and training,
- Regional program supply, and
- Findings and recommendations.

OCCUPATIONAL DEMAND

The following Standard Occupational Classification (SOC) codes related to the proposed program were included in the analysis:

15-1134.00 - Web Developers	
Description:	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 job titles:	Designer, Technology Applications Engineer, Web Architect, Web Design Specialist, Web Designer, Web Developer, Web Development Director, Web Development Instructor, Webmaster

27-1024.00 - Graphic Designers	
Description:	Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.
Sample job titles:	Artist, Creative Director, Creative Manager, Design Director, Designer, Graphic Artist, Graphic Designer, Online Producer, Production Artist, Publications Designer

Exhibit 1 summarizes the job trends by SOC codes in the 7-county Greater Sacramento region, the 22-county North Far North region, and California.
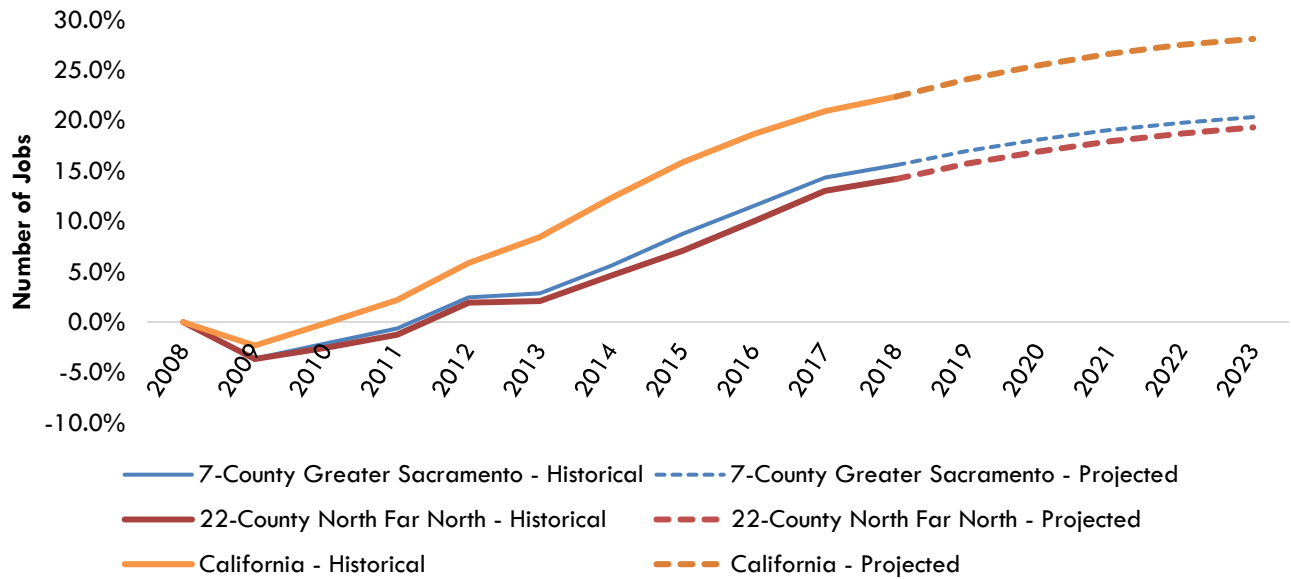
Exhibit 1. Employment and projected occupational demand[1]

Occupation	SOC	2008 Jobs	2018 Jobs	2023 Jobs	2018-23 % Change	Annual Openings	Annual Replacements
Web Developers	15-1134	775	1,184	1,252	5.7%	112	73
Graphic Designers	27-1024	1,779	1,768	1,822	3.0%	182	157
GREATER SACRAMENTO	**TOTALS**	**2,554**	**2,952**	**3,074**	**4.1%**	**293**	**231**
Web Developers	15-1134	944	1,449	1,539	6.2%	138	90
Graphic Designers	27-1024	2,276	2,229	2,304	3.3%	233	199
NORTH FAR NORTH	**TOTALS**	**3,220**	**3,679**	**3,843**	**4.5%**	**371**	**289**
Web Developers	15-1134	14,652	27,655	30,526	10.4%	2,809	1,654
Graphic Designers	27-1024	44,770	45,078	45,602	1.2%	4,572	4,020
CALIFORNIA	**TOTALS**	**59,422**	**72,733**	**76,128**	**4.7%**	**7,381**	**5,674**

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[1] Emsi 2019.2; QCEW Employees, Non-QCEW Employees and Self-Employed. The 7-county Greater Sacramento region includes El Dorado, Placer, Nevada, Sacramento, Sutter, Yolo and Yuba. The 22-county North Far North region includes the aforementioned counties as well as Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama and Trinity.

Exhibit 2 compares the rates of change of the total number of jobs between 2008 and 2018 in the Greater Sacramento region, the North Far North region, and California. It also compares occupational demand projections from 2018 through 2023 across the same areas. The rate of change is indexed to the base year 2008 total number of jobs.

Exhibit 2. Rate of Change for Selected Occupations[2]

Legend:
— 7-County Greater Sacramento - Historical
---- 7-County Greater Sacramento - Projected
— 22-County North Far North - Historical
---- 22-County North Far North - Projected
— California - Historical
---- California - Projected

WAGES AND JOB POSTINGS

Exhibit 3 compares the median hourly wages of the selected occupations in the study regions to the Sacramento Metropolitan Statistical Area (MSA) living wage for a one-adult household and a one-adult, one-child household.[3]

Exhibit 3. Wages for selected occupations[4]

Legend:
■ 7-County Greater Sacramento
■ 22-County North Far North
■ California
······ Sacramento MSA Living Wage - 1 adult, 1 child
---- Sacramento MSA Living Wage - 1 adult

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[2] Ibid.
[3] Living Wage Calculator: Counties and Metropolitan Statistical Areas in California, http://livingwage.mit.edu/
[4] Emsi 2019.2; QCEW Employees, Non-QCEW Employees and Self-Employed.

Burning Glass identified a pool of 1,506 job postings in the Greater Sacramento region for the selected occupations. This data represents job listings posted online within the last year, from September 1, 2018, through August 31, 2019.

Exhibit 4 compares the 12-month job posting trends of the selected occupations to the median number of job postings in the Greater Sacramento region.
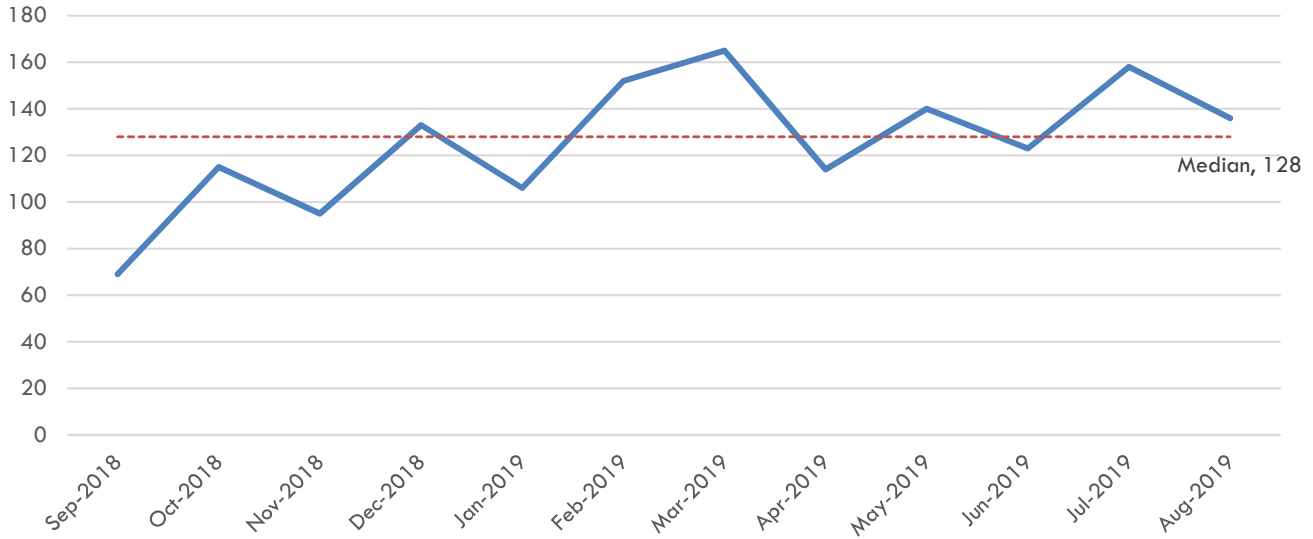
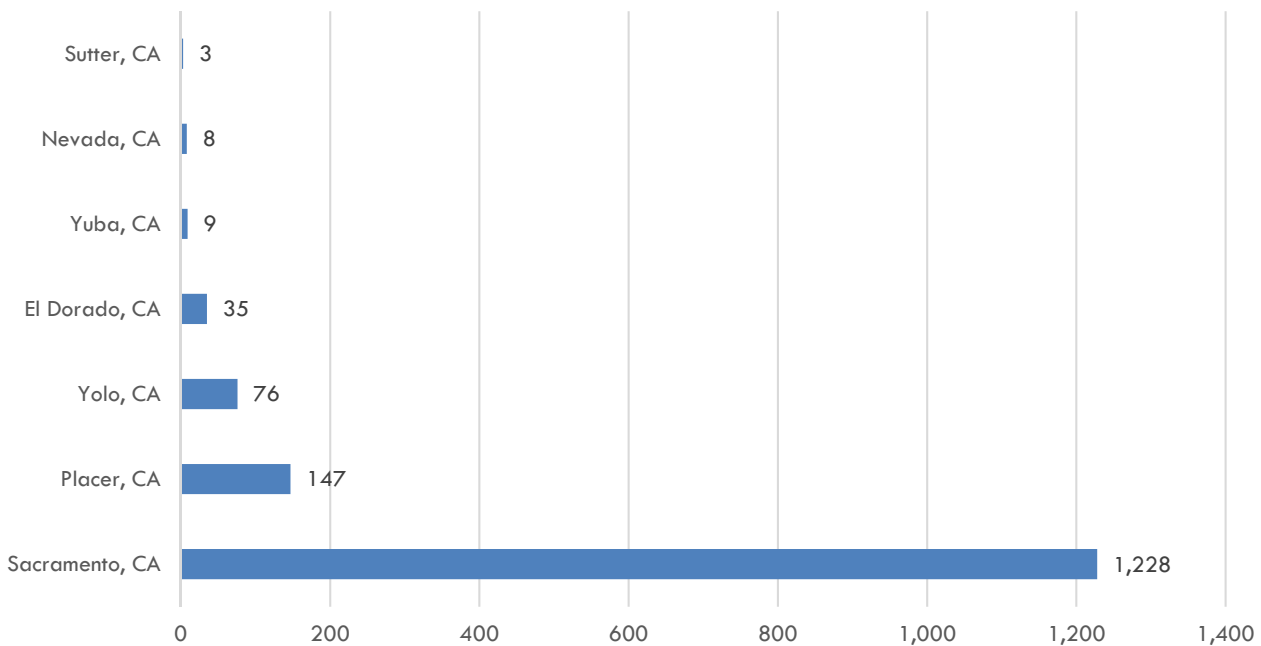**Exhibit 4: Job postings trend for selected occupations**[5]

Exhibit 5 shows the number of job postings by county for the selected occupations.

Exhibit 5. Top job postings locations for selected occupations[6]

[5] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool," http://www.burning-glass.com, 2019.
[6] Ibid.

Exhibit 6 lists the employers with the most job openings for the selected occupations within the study region. More than 50% of job postings were excluded because they did not include an employer name. As a result, the table below may not be representative of the full sample.

Exhibit 6: Top employers by number of job postings[7]

Employer	Greater Sacramento (n = 747)	
	Number of Postings	Percent of Postings
State of California	23	3%
University Enterprises Incorporated	19	3%
University of California	16	2%
SBM Management Services	12	2%
Symsoft Solutions	11	1%
Staff Technical Incorporated	10	1%
Intel Corporation	8	1%
University California Davis	7	1%
Skyslope	7	1%
Golden Credit Union	7	1%

Exhibit 7 shows the top job titles for the selected occupations in the Greater Sacramento region. All 1,506 job postings included job titles.

Exhibit 7. Top job titles by number of job postings[8]

15-1134.00 - Web Developers (n= 1,228)			27-1024.00 - Graphic Designers (n=278)		
Title	Job Postings	% Job Posting	Title	Job Postings	% Job Posting
Web Developer	176	14%	Graphic Designer	173	62%
Front End Developer	110	9%	Visual Designer	19	7%
User Experience (UX) Designer	62	5%	Freelance Graphic Designer	9	3%
Graphic Designer	50	4%	Production Artist	9	3%
Web Applications Developer	50	4%	Graphic Artist	8	3%
PHP Developer	48	4%	Student Assistant	4	1%
Software Development Engineer	42	3%	Visual Information Specialist	4	1%
ASP .Net Developer	37	3%	Analog Digital Design Engineer	3	1%
User Interface (UX)/User Experience (UX) Designer	37	3%	Design Studio Specialist	3	1%
Front End Web Developer	32	3%	Junior Graphic Designer	3	1%

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[7] Ibid.
[8] Ibid.

Exhibit 8 shows the skills most in-demand for the selected occupations in the Greater Sacramento region. All 1,506 job postings included required skills information.
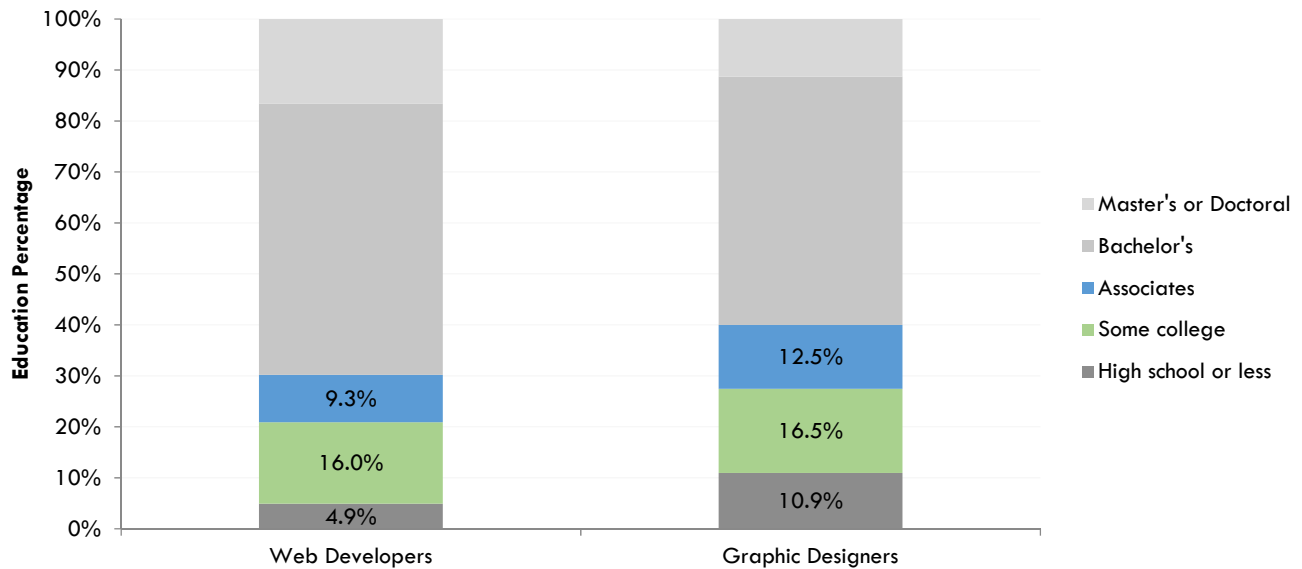
Exhibit 8. Top skills by number of job postings [9]

15-1134.00 – Web Developers (n= 1,228)			27-1024.00 – Graphic Designers (n=278)		
Title	Job Postings	% Job Posting	Title	Job Postings	% Job Posting
JavaScript	638	52%	Graphic Design	221	79%
Web Development	420	34%	Adobe Photoshop	158	57%
SQL	323	26%	Adobe Indesign	143	51%
Web Application Development	291	24%	Adobe Illustrator	110	40%
jQuery	272	22%	Adobe Acrobat	103	37%
HTML5	264	21%	Adobe Creative Suite	98	35%
Java	263	21%	Web Site Design	53	19%
Bootstrapping	255	21%	Social Media	46	17%
Microsoft C#	239	19%	Typesetting	44	16%
Software Development	233	19%	Project Management	33	12%

EDUCATION AND TRAINING

Exhibit 9 shows the average level of educational attainment for workers 25 years and older by occupation across the U.S.

Exhibit 9. Typical educational attainment for selected occupations, nationally[10]

Exhibit 10 shows the typical entry-level education requirements, on-the-job training, and work experience requirements for the selected occupations in the Greater Sacramento region.

Exhibit 10. Typical education, training, and work experience for selected occupations[11]

Occupations	SOC	Typical Entry-Level Education	Typical On-The-Job Training	Work Experience Required
Web Developers	15-1134	Associate's degree	None	None
Graphic Designers	27-1024	Bachelor's degree	None	None

PROGRAM SUPPLY

Analysis of existing educational programs shows that there is one Taxonomy of Program (TOP) code related to training for web design and development occupations: 0614.30 – Website Design and Development. The corresponding Classification of Instructional Programs (CIP) code for this program is 11.0801 – Web Page, Digital/Multimedia and Information Resources Design.

Exhibit 11 compares the average total number of awards (certificates and degrees) conferred by colleges in the selected TOP and CIP codes in the Greater Sacramento region over the last three academic years.

Exhibit 11. Total awards conferred by Greater Sacramento post-secondary institutions, 2016-19[12]
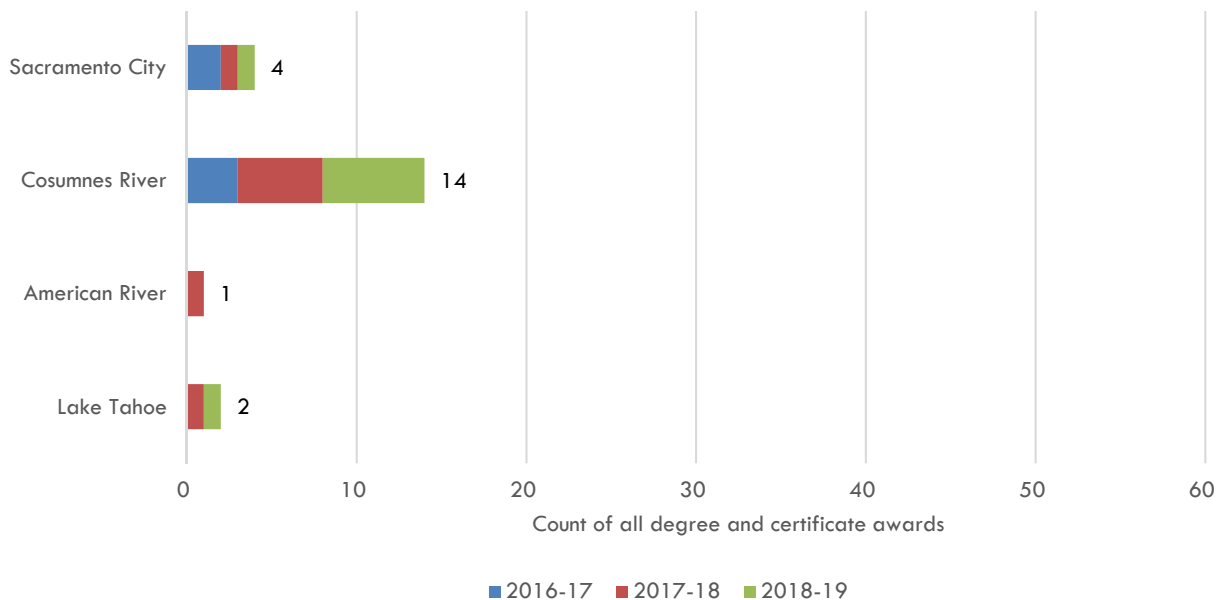
Count of all degree and certificate awards

■2016-17 ■2017-18 ■2018-19

Exhibit 12 displays program awards by level and year for the selected education programs over the last three academic years.

Exhibit 12. Program awards conferred by Greater Sacramento community colleges, 2015-2018[13]

0614.30 – WEBSITE DESIGN AND DEVELOPMENT	CERTIFICATE				ASSOCIATE			
	2016-17	2017-18	2018-19	AVG	2016-17	2017-18	2018-19	AVG
LAKE TAHOE	0	0	0	0	0	1	1	1
AMERICAN RIVER	0	1	0	0	0	0	0	0
COSUMNES RIVER	2	2	0	1	1	3	6	3
SACRAMENTO CITY	0	1	1	1	2	0	0	1
TOTALS	2	4	1	2	3	4	7	5

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[13] Ibid.

FINDINGS

- Between 2008 and 2018, web design and development occupations added almost 400 jobs in the Greater Sacramento region. This trend will continue over the next five years, albeit at a much slower rate, with the addition of 120 new jobs - a projected growth rate of 4.1%.

- Web design and development occupations are projected to have almost 300 annual openings over the next five years.

- The Greater Sacramento region is projected to grow at a rate similar to the North Far North region and the state.

- Median hourly wages for the selected occupations are above the regional living wage. Hourly wages are highest for web developers at $32 per hour. Graphic designers can expect to make $21 per hour.

- While the typical entry-level education for a web developer is an associate's degree, only 26% of incumbent workers have attended some college or have an associate's degree. Fifty-three percent of incumbent web developers have a bachelor's degree.

- Similarly, 29% of incumbent graphic designers have attended some college or have an associate's degree; nearly 50% have a bachelor's degree. The typical entry-level education for a graphic designer is a bachelor's degree.

- There are four community colleges in the region that offer awards in 0614.30 – Website design and development – American River, Cosumnes River, Lake Tahoe, and Sacramento City.

- These colleges conferred a total of 21 certificates and degrees between 2016 and 2019.

- There are no private or other post-secondary institutions in the region that offer training related to website design and development.

RECOMMENDATIONS

- Based on a three-year average of annual award in website design and development in the Greater Sacramento region (21 certificates and degrees), and projected yearly openings for related occupations (300 openings), the region appears to have some demand for programs related to the occupation.

COE Recommendation		
Move forward with program	Program is not recommended	Additional information needed
☒	☐	☐

METHODOLOGY

Occupations in this report were identified using O*Net. Findings in this report were determined using labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data from Emsi, and jobs posting data from Burning Glass.

APPENDIX A: DATA SOURCES

Sources used for data analysis purposes in this report include:

- U.S. Department of Labor/Employment and Training Administration (DOLETA) O*NET Online

- Burning Glass, Labor Insight/Jobs

- Economic Modeling Specialists, International (EMSI)

- California Employment Development Department, Labor Market Information Division (EDD, LMID)

- Bureau of Labor Statistics, Occupational Employment Statistics (OES)

- California Community Colleges Chancellor's Office, Cal-PASS Plus LaunchBoard

- Living Insight Center for Community Economic Development, Self-Sufficiency Standard Tool for California

- California Community Colleges Chancellor's Office Management Information Systems (MIS Data Mart)

- U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

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