Occupation Report

Civil Engineers

Sacramento-Roseville-Folsom, CA MSA

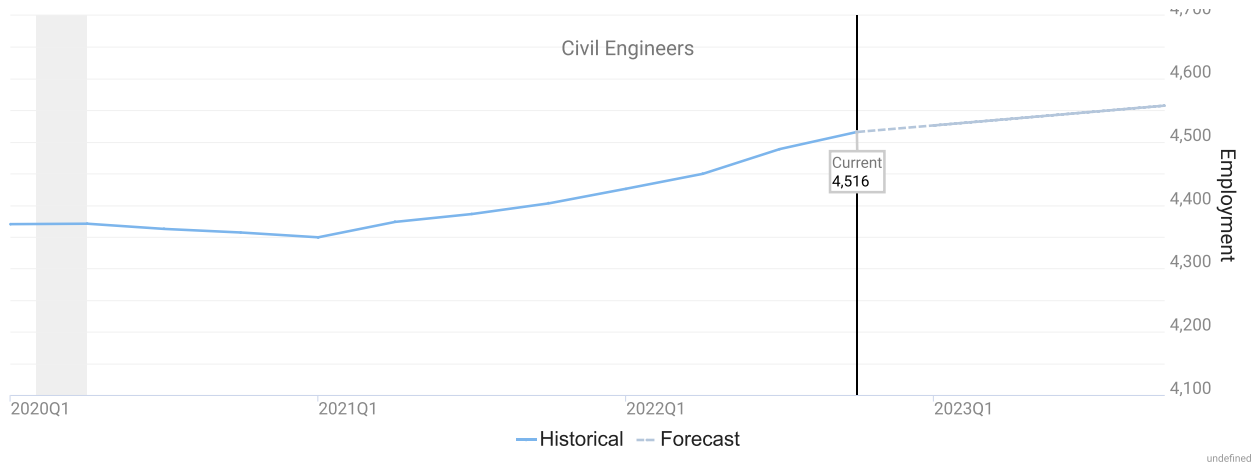# Occupation Snapshot

6-Digit Occupation	Empl	Avg Mean Wages	LQ	3-Year Empl Change	Annual Demand	Forecast Ann Growth
Civil Engineers	4,516	$122,000	2.02	185	354	0.9%
Civil Engineers	**4,516**	**$122,000**	**2.02**	**185**	**354**	**0.9%**

Civil Engineers

Current
4,516

Employment

2020Q1   2021Q1   2022Q1   2023Q1

— Historical   - - Forecast

undefined

💡 "Annual Demand" is the projected need for new entrants into an occupation. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

💡 "Forecast Ann Growth" is the expected change in jobs due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix and population growth (as computed and modeled by Chmura).

Employment by Industry

Industry Title	% of Occ Empl	Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Architectural, Engineering, and Related Services	37.9%	1,711	1,222	246	1,468
Executive, Legislative, and Other General Government Support	15.1%	682	468	39	507
Administration of Human Resource Programs	8.6%	390	267	20	287
Justice, Public Order, and Safety Activities	7.5%	338	234	25	259
Administration of Environmental Quality Programs	7.3%	332	227	16	242
Administration of Economic Programs	7.0%	316	216	14	229
Nonresidential Building Construction	4.2%	190	133	18	150
Highway, Street, and Bridge Construction	1.4%	63	45	8	53
Building Equipment Contractors	0.9%	39	27	2	29
Management, Scientific, and Technical Consulting Services	0.8%	36	26	7	33
Utility System Construction	0.8%	34	24	5	29
Natural Gas Distribution	0.7%	32	22	1	23
Foundation, Structure, and Building Exterior Contractors	0.7%	31	21	3	25
Residential Building Construction	0.6%	28	20	3	23
Colleges, Universities, and Professional Schools	0.6%	27	19	3	22
Administration of Housing Programs, Urban Planning, and Community Development	0.6%	27	18	1	19
Water, Sewage and Other Systems	0.5%	23	16	3	19
All Others	4.8%	218	152	20	173

💡 The industry distribution indicates the industries in which workers in the occupation(s) are primarily found.

💡 "10-Year Empl Growth" may show industries with positive as well as negative growth; this would indicate that the occupation(s) being examined are expected to expand within some industries while contracting in others.
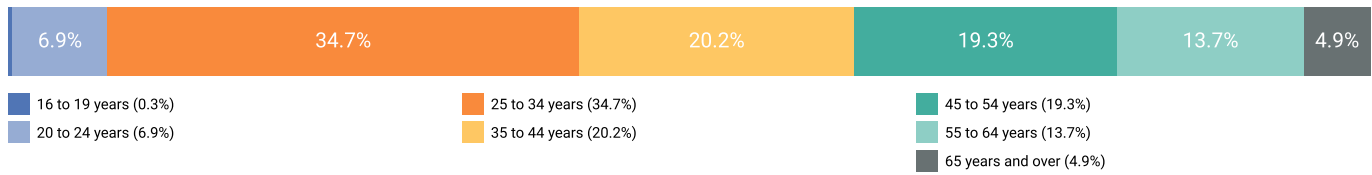
Wages
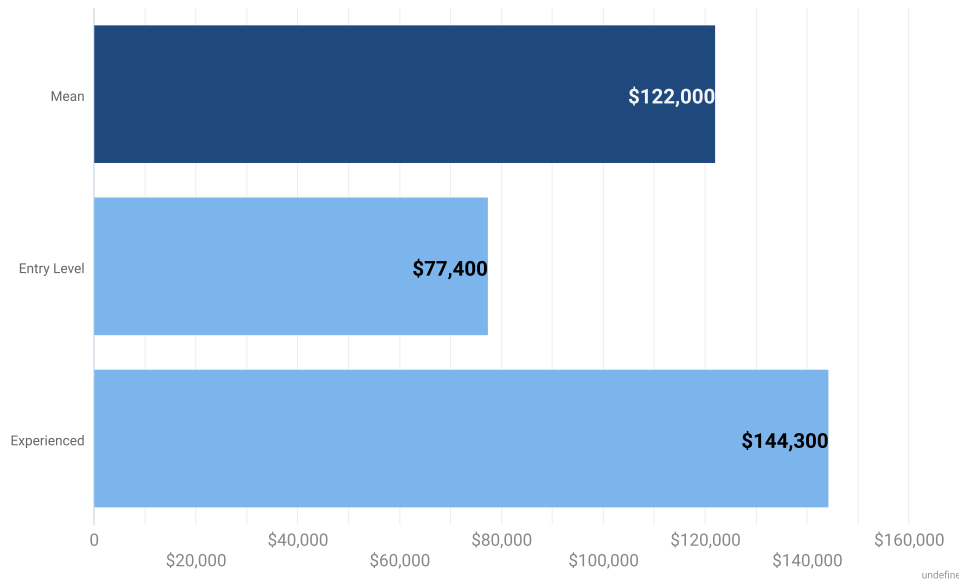
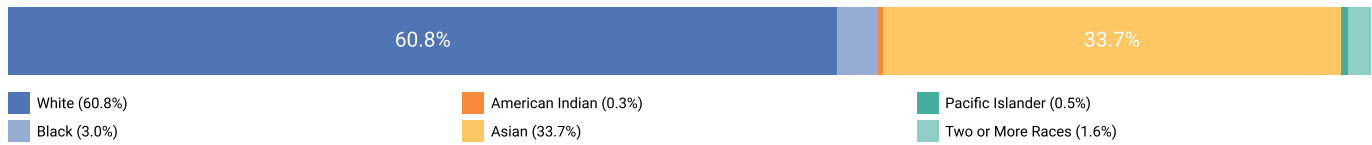| Occupation	Mean	Median	Entry Level	Experienced
Civil Engineers	$122,000	$131,900	$77,400	$144,300

Occupation wages here utilize BLS OEWS data, imputed and brought forward by Chmura.

When this report is run for an occupation group, the table above displays up to the top ten detailed occupations which have the highest average wages within the occupation group.
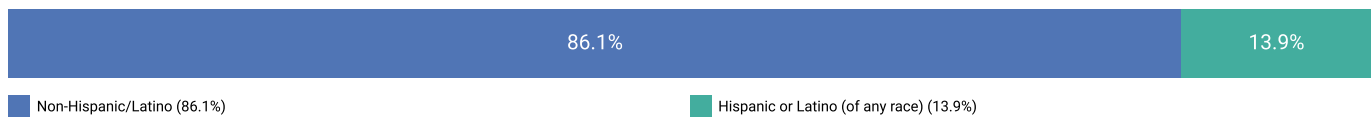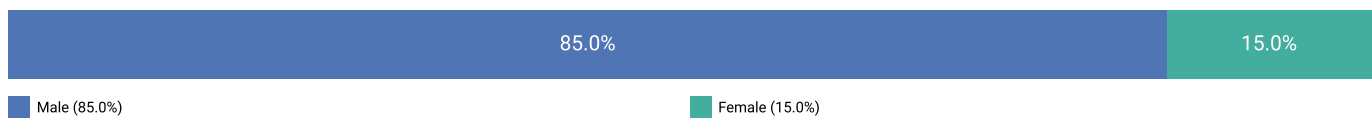
Occupation Demographics

Age

| 6.9% | 34.7% | 20.2% | 19.3% | 13.7% | 4.9% |

- 16 to 19 years (0.3%)
- 20 to 24 years (6.9%)
- 25 to 34 years (34.7%)
- 35 to 44 years (20.2%)
- 45 to 54 years (19.3%)
- 55 to 64 years (13.7%)
- 65 years and over (4.9%)

Race

| 60.8% | 33.7% |

- White (60.8%)
- Black (3.0%)
- American Indian (0.3%)
- Asian (33.7%)
- Pacific Islander (0.5%)
- Two or More Races (1.6%)

Ethnicity

| 86.1% | 13.9% |

- Non-Hispanic/Latino (86.1%)
- Hispanic or Latino (of any race) (13.9%)

Gender

| 85.0% | 15.0% |

- Male (85.0%)
- Female (15.0%)

Education and Training Requirements

| 100.0% |

- Short-term OJT, no exp, no award (0.0%)
- Moderate-term OJT, no exp, no award (0.0%)
- Long-term training, no exp, no award (0.0%)
- Previous work experience, no award (0.0%)
- 2-year degree or certificate (0.0%)
- Bachelor's degree (100.0%)
- Postgraduate degree (0.0%)

Education Profile

Educational Attainment

| < High School (0.3%) | High School (1.6%) | Some College (3.3%) | Two-Year (4.0%) | Four-Year (61.4%) | Master's (24.9%) | PhD (4.5%) |

61.4% | **24.9%** | **4.5%**

- < High School (0.3%)
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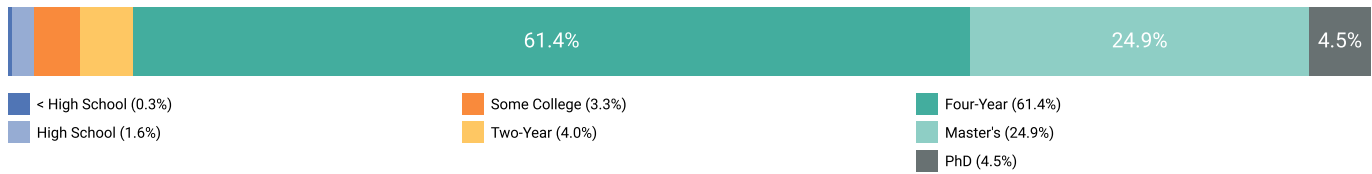
Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Civil Engineers	Bachelor's degree	None	None

💡 The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this occupation(s) in aggregate.

💡 The table indicates typical education and training requirements rather than the mix of attainment of workers in such positions.

Postsecondary Programs Linked to Civil Engineers

| Program	Awards
California State University-Sacramento	
Civil Engineering, General	179
University of California-Davis	
Civil Engineering, General	228
Civil Engineering, Other	7
Transportation and Highway Engineering	8

The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.

Among postsecondary programs at schools located in the Sacramento-Roseville-Folsom, CA MSA, the sampling above identifies those most linked to Civil Engineers. For a complete list see JobsEQ®, http://www.chmuraecon.com/jobseq

RTI (Job Postings)

Active Job Ads by Date

■ Jul 4, 2022 to Jun 25, 2023   ■ Jul 5, 2021 to Jun 26, 2022
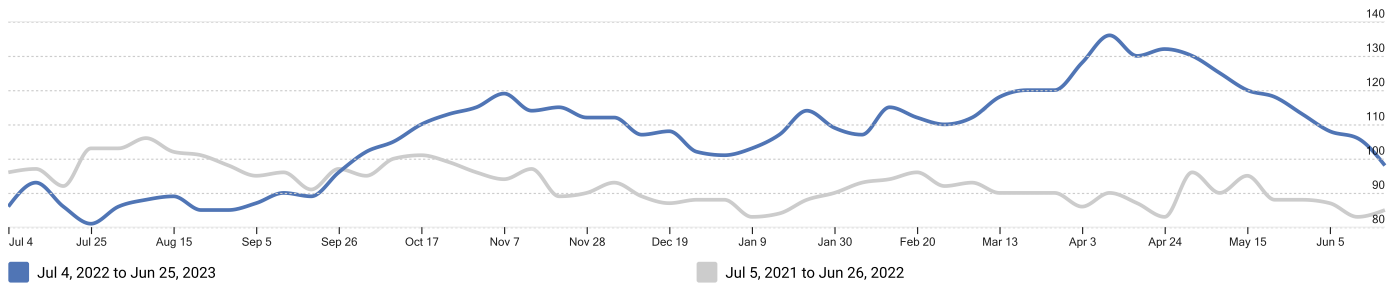
💡 Online job ads are a timely indicator of local demand. Occupation assignments shown below are made by Chmura based upon analysis of job titles and job descriptions. Top employers and listed job requirements are shown on the following pages.

Occupations

SOC	Occupation	Active Job Ads	
17-2051.00	Civil Engineers	383	
17-2051.02	Water/Wastewater Engineers	80	
17-2051.01	Transportation Engineers	66	

Locations

Location	Active Job Ads	
Sacramento, California	174	
Sacramento County, California	51	
Roseville, California	23	
Folsom, California	21	
Rancho Cordova, California	19	
Rancho Cordova, CA 95670	17	
Sacramento, CA 95828	16	
Placerville, CA 95667	15	
Mather, CA 95655	7	
Sacramento, CA 95815	7	

Employers

Employer Name	Active Job Ads	
Jobot	43	
State of California Department of Transportation	25	
Jacobs	23	
Kimley-Horn	17	
gpac	17	
Dewberry	16	
HDR	14	
AECOM	12	
The County of El Dorado	12	
Department of the Interior	11	

Hard Skills

Skill Name	Active Job Ads	
Autodesk AutoCAD	199	
Microsoft Office	96	
Microsoft Excel	73	
Computer Aided Design Software (CAD Software)	53	
Autodesk Revit	46	
Mathematics	32	
Computer Aided Design and Drafting Software (CADD)	31	
Technical Writing	30	
Microsoft Word	28	
Calculus	21	

Job Titles

Job Title	Active Job Ads	
Structural Engineer	26	
Civil Engineer	20	
Senior Civil Engineer	19	
Associate Civil Engineer	13	
Senior Structural Engineer	12	
Senior Bridge Engineer	10	
Civil Engineer - Civil3D	8	
Civil Engineer Designer - Transportation	7	
Structural Engineer - Large complex building projects REMOTE	7	
Staff Engineer / Professional Engineer	6	

Education Levels

Minimum Education Level	Active Job Ads	
Bachelor's degree	351	
Master's degree	11	
Associate's degree	5	
Doctoral or professional degree	2	
Unspecified/other	160	

Programs

Program Name	Active Job Ads	
Civil Engineering	226	
Engineering	93	
Structural Engineering	37	
Science	20	
Transportation	16	
Environmental	15	
Environmental Engineering	15	
Mechanical Engineering	15	
Construction Management	14	
Architecture	7	

Top Skill and Certification Gaps

**Top 10 Skill Gaps in Sacramento-Roseville-Folsom, CA MSA**

Name	Candidates	Openings	Gap
Mathematics	15	29	-15
Teaching/Training, Job	12	19	-8
Modeling Software	3	11	-7
Asset Management	5	12	-7
Mathsoft Mathcad	8	15	-7
Quality Management	0	4	-4
Calculus	20	24	-4
Client Relations	0	4	-3
ANSYS	0	3	-3
ESRI ArcView	1	4	-2

Top 10 Certification Gaps in Sacramento-Roseville-Folsom, CA MSA

| Name	Candidates	Openings	Gap
Secret Clearance	0	1	-1
First Aid Certification	0	1	0
Project Management Professional (PMP)	1	1	0
Certified Construction Manager (CCM)	1	0	1
Engineer in Training (EIT)	58	47	11

Skill and certifications gaps can help inform employee development programs, as well as provide a comparison of the needs of regional employers to the supply.

Occupation Gaps

Supply Deficit	Supply Surplus

Civil Engineers ($122,000)

−19
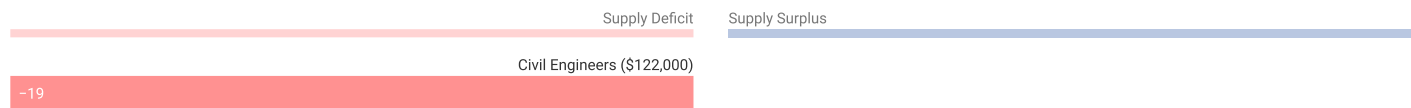
The above are the potential average annual gaps over 10 years. Many variables go into this analysis, but at its core it is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents. When an area, for example, has an occupation expected to grow quickly but the educational requirement for the occupation does not match well with the educational attainment of its residents, there is a high potential for an occupation shortfall in the region. Alternatively, slow-growing or contracting occupations often represent potential supply surpluses.

The potential supply shortfall is an underlying force that the market needs to resolve one way or another, such as by employers recruiting from further distances for these occupations, wages going up to attract more candidates, and/or increased demand and wages enticing more local residents to get training for these occupations. While this an important analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, and award and skill gap analyses.

Geographic Distribution
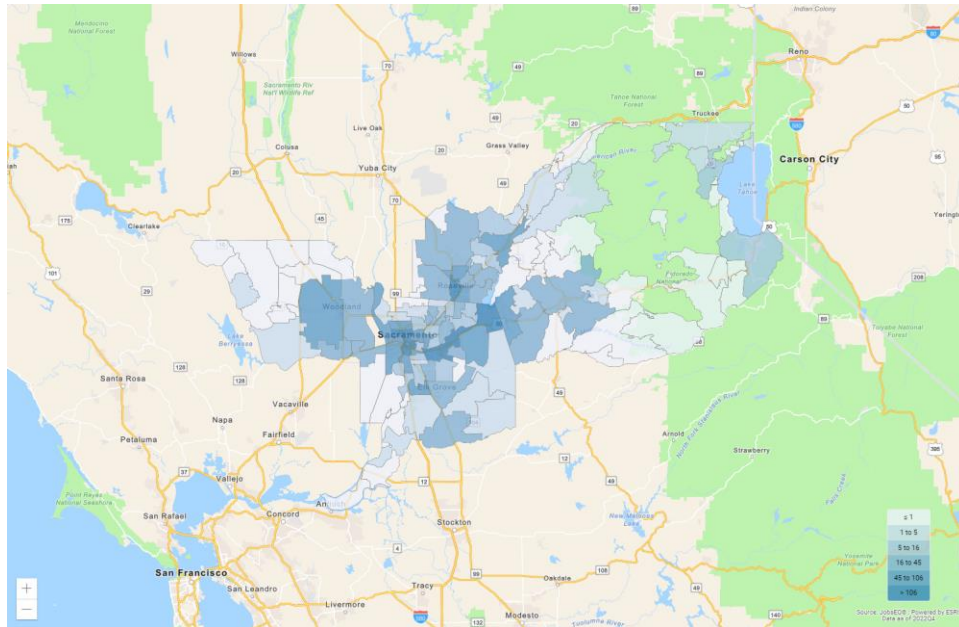
Top ZCTAs by Place of Work for Civil Engineers, 2022Q4

Region	Employment
ZCTA 95814	1,247
ZCTA 95630	362
ZCTA 95811	250
ZCTA 95827	181
ZCTA 95833	155
ZCTA 95670	147
ZCTA 95826	131
ZCTA 95816	118
ZCTA 95678	110
ZCTA 95818	107
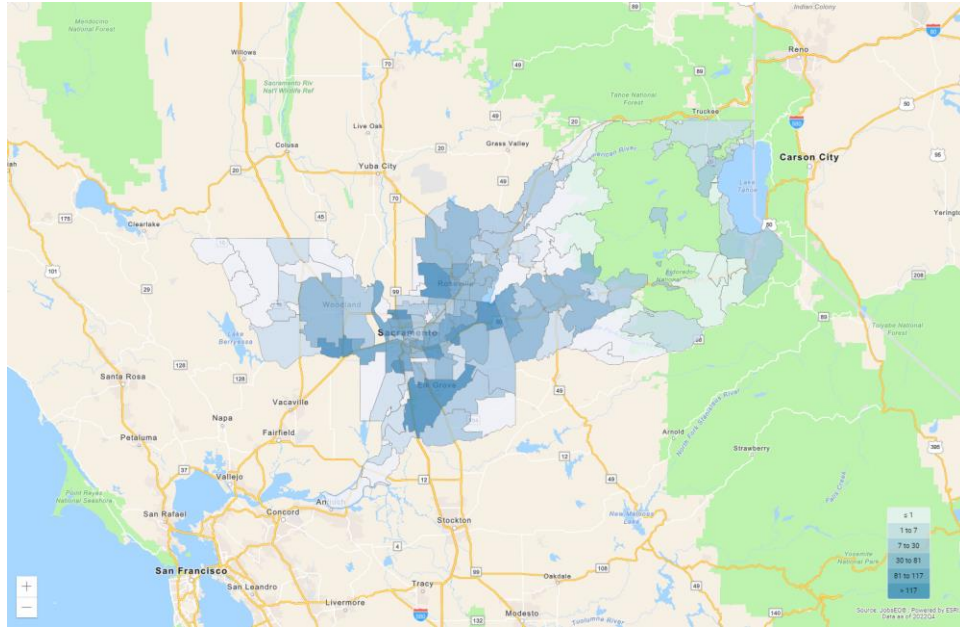
Top ZCTAs by Place of Residence for Civil Engineers, 2022Q4

Region	Employment
ZCTA 95630	286
ZCTA 95831	172
ZCTA 95758	164
ZCTA 95747	158
ZCTA 95835	149
ZCTA 95757	145
ZCTA 95616	134
ZCTA 95624	130
ZCTA 95826	124
ZCTA 95670	117

"Place of work" employment is based upon the location of employers for these workers. "Place of residence" data refers to the home locations of the workforce, which is typically the preferred data set to use when calculating labor availability within a drive-time or radius of a potential worksite.

Sacramento-Roseville-Folsom, CA MSA Regional Map

Data Notes

- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2022Q4 and is based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS OEWS data. Employment forecasts are modeled by Chmura and are consistent with BLS national-level 10-year forecasts. Wages by occupation are as of 2022Q4, utilizing BLS OEWS data, imputed and brought forward by Chmura. Entry-level and experienced wages are derived from these source data, computed by Chmura.
- Industry employment is as of 2022Q4 and is based upon BLS QCEW data, imputed by Chmura where necessary, and supplemented by additional sources including Census ZBP data.
- Education and training requirements are from the BLS. Educational attainment mix and other occupation demographics data are modeled by Chmura for 2022Q4 using regional occupation employment from JobsEQ, ZCTA-level demographics data from the Census Bureau, and national occupation-demographics patterns from the BLS.
- Postsecondary awards are per the NCES and are for the 2020-2021 academic year. Any programs shown are linked with the occupation(s) being analyzed via the program-occupation crosswalk, which may not be comprehensive. Any programs shown reflect only data reported to the NCES; reporting is required of all Title IV schools. Training providers that do not report data to the NCES are not reflected.
- Job ads data are online job posts from the Real-Time Intelligence (RTI) data set, produced wholly by Chmura and gleaned from over 40,000 websites. Data reflect ads active during the last twelve month period ending 06/29/2023 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Historical ad volume is revised as additional data are made available and processed. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures.
- For skill and certification gaps, openings and candidates are based upon regional occupation demand (growth plus separations) and the percent of skill demand and supply. Skill demand mix data are per a one-year sample of RTI data; skill supply data are estimated using a five-year sample of resumes data; both data sets compiled as of August 2021. Data may be based, at least in part, on data from broader geographies; see the Skill Gaps analytic export for more details.
- Occupation gaps are modeled by Chmura, indicating long-term potential supply and demand mismatches in a region due, in part, to job demand and labor pool dyanamics, including educational attainment and projected growth.
- Occupation employment by place of residence is as of 2022Q4 and modeled by Chmura based upon occuaption employment by place of work and commuting patterns. Commuting patterns are derived from source data from the Census Bureau, occupation-specific commuting tendancies, and updated to reflect more recent population and employment estimates.
- Figures may not sum due to rounding.

Region Definition

Sacramento-Roseville-Folsom, CA MSA is defined as the following counties:

El Dorado County, California

Placer County, California

Sacramento County, California

Yolo County, California

FAQ

What is (LQ) location quotient?

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is annual demand?

Annual demand is a of the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.