



# Labor Market Analysis for Program Recommendation

## Geographic Information Occupations

### San Francisco-Peninsula Subregion

Prepared by the Bay Region Center of Excellence for Labor Market Research

Certificate Program

September 2026

| Recommendation Based on Labor Market Data: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> With Reservations <input type="checkbox"/> No |                                                                                                                                                                                                                          |                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                           | Earning Wage Meets Living Wage                                                                                                                                                                                           | Meets Demand                                                                                                                                             |
| Bay Region                                                                                                                                                | Entry Level Hourly Wage- \$29<br>Mid-Career Hourly Wage- \$37<br><br>Mid-Career Hourly Wage at or above the<br>Bay Living Wage ( \$27 )?<br><input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No       | Demand: 111<br>Supply: 57 ( 51% of Demand is Met)<br>Gap: 54<br><br>In-Demand?<br><input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |
| San Francisco-Peninsula Subregion                                                                                                                         | Entry Level Hourly Wage- \$32<br>Mid-Career Hourly Wage- \$42<br><br>Mid-Career Hourly Wage at or above the<br>Subregion Living Wage ( \$31 )?<br><input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | Demand: 29<br>Supply: 14 ( 48% of Demand is Met)<br>Gap: 15<br><br>In-Demand?<br><input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No  |

**Note:** An occupation is considered to provide a living wage if the mid-career wage is at or above the amount required for a single adult to be economically self-sufficient within a specified region. In this report, living wage estimates are based on the California Self-Sufficiency Standard. The Bay Region Center of Excellence is gradually transitioning to the MIT Living Wage Calculator. During this transition, we include estimates in the methodology section from both sources for reference and comparison. As a rule of thumb, an occupation will be considered **in-demand** when the supply is less than 75% of the demand and the labor market gap exceeds 40 openings (a reasonable regional

threshold for starting a new program), but this approach may not apply in all cases. For definitions of demand, supply, and living wage, please scroll to the bottom of the report under **Definitions**.

## Recommendation

The labor market data supports this proposed program. The occupations meet both the Bay Region and San Francisco-Peninsula subregion living wage at the entry and mid-career levels. An additional 54 students are needed in the Bay Region and 15 students in the San Francisco-Peninsula subregion to complete their program. Lastly, only 51% of labor market demand is being met in the Bay Region, and 48% of demand is being met in the San Francisco-Peninsula subregion overall.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 2206.10 - Geographic Information Systems programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at subregion in the state and region.

This report profiles Geographic Information Occupations in the 12 county Bay Region and in the San Francisco-Peninsula subregion. The occupations classified as middle-skill occupations require a certificate, or an associate degree, or it may require a bachelor's degree, but 33% or fewer of current workers in these roles hold one.

- Surveying and Mapping Technicians (17-3031):** Perform surveying and mapping duties, usually under the direction of an engineer, surveyor, cartographer, or photogrammetrist, to obtain data used for construction, mapmaking, boundary location, mining, or other purposes. May calculate mapmaking information and create maps from source data, such as surveying notes, aerial photography, satellite data, or other maps to show topographical features, political boundaries, and other features. May verify accuracy and completeness of maps.
  - Typical Entry-Level Educational: High school diploma or equivalent
  - Skill Level: Middle-Skill
  - Work Experience Required: None
  - Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 55%

## Occupational Demand

**Table 1. Employment Outlook for Geographic Information Occupations in the Bay Region**

| Occupation                        | 2025 Jobs  | 2030 Jobs  | 5-yr Change | 5-yr % Change | 5-yr Total Openings | Annual Openings | Entry Level Hourly | Mid-Career Hourly Wage |
|-----------------------------------|------------|------------|-------------|---------------|---------------------|-----------------|--------------------|------------------------|
| Surveying and Mapping Technicians | 831        | 861        | 30          | 4%            | 556                 | 111             | \$29               | \$37                   |
| <b>Total</b>                      | <b>831</b> | <b>861</b> | <b>30</b>   | <b>4%</b>     | <b>556</b>          | <b>111</b>      | <b>\$29</b>        | <b>\$37</b>            |

Source: Lightcast 2026.3

The Bay Region includes: Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Geographic Information Occupations in the San Francisco-Peninsula Subregion**

| Occupation                        | 2025 Jobs | 2030 Jobs | 5-yr Change | 5-yr % Change | 5-yr Total Openings | Annual Openings | Entry Level Hourly | Mid-Career Hourly Wage |
|-----------------------------------|-----------|-----------|-------------|---------------|---------------------|-----------------|--------------------|------------------------|
| Surveying and Mapping Technicians | 224       | 230       | 6           | 3%            | 147                 | 29              | \$32               | \$42                   |

| Occupation   | 2025 Jobs  | 2030 Jobs  | 5-yr Change | 5-yr % Change | 5-yr Total Openings | Annual Openings | Entry Level Hourly | Mid-Career Hourly Wage |
|--------------|------------|------------|-------------|---------------|---------------------|-----------------|--------------------|------------------------|
| <b>Total</b> | <b>224</b> | <b>230</b> | <b>6</b>    | <b>3%</b>     | <b>147</b>          | <b>29</b>       | <b>\$32</b>        | <b>\$42</b>            |

Source: Lightcast 2026.3

San Francisco-Peninsula Subregion includes: San Francisco, San Mateo Counties

### Job Postings in the Bay Region and San Francisco-Peninsula Subregion

**Table 3. Number of Job Postings by Occupation for the latest 12 months**

| Occupation                        | Bay Region | San Francisco-Peninsula |
|-----------------------------------|------------|-------------------------|
| Surveying and Mapping Technicians | 109        | 30                      |

Source: Lightcast 2026.3; "Job Posting Analytics." Sep. 2025 - Aug. 2026

**Table 4a. Top Job Titles in Job Postings for Geographic Information Occupations in the Bay Region**

| Title                   | Bay | Title                          | Bay |
|-------------------------|-----|--------------------------------|-----|
| Survey Technicians      | 21  | Field Surveyors                | 3   |
| Survey Assistants       | 7   | Site Surveyors                 | 3   |
| Land Technicians        | 6   | Surveying Technicians          | 3   |
| Mapping Technicians     | 6   | Scanning Technicians           | 2   |
| Land Survey Technicians | 6   | Survey Associates              | 2   |
| Surveyors               | 6   | Surveyors/Drafters             | 2   |
| Survey CAD Technicians  | 4   | Student Engineering Assistants | 2   |
| Hydrographic Surveyors  | 4   | Drafting Technicians           | 2   |
| Land Surveyors          | 4   | GIS Mapping Technicians        | 1   |

Source: Lightcast 2026.3; "Job Posting Analytics." Sep. 2025 - Aug. 2026

**Table 4b. Top Job Titles in Job Posting for Geographic Information Occupations in the San Francisco-Peninsula Subregion**

| Title                   | San Francisco-Peninsula | Title                  | San Francisco-Peninsula |
|-------------------------|-------------------------|------------------------|-------------------------|
| Survey Assistants       | 5                       | Survey Interviewers    | 1                       |
| Survey Technicians      | 5                       | Survey CAD Technicians | 1                       |
| Field Surveyors         | 3                       | Hydrographic Surveyors | 1                       |
| Surveyors               | 3                       | Mapping Analysts       | 1                       |
| Scanning Technicians    | 2                       | QA/QC Technicians      | 1                       |
| Mapping Technicians     | 2                       |                        |                         |
| Land Survey Technicians | 2                       |                        |                         |

| Title                   | San Francisco-Peninsula | Title | San Francisco-Peninsula |
|-------------------------|-------------------------|-------|-------------------------|
| GIS Mapping Technicians | 1                       |       |                         |
| Plumbing Assistants     | 1                       |       |                         |

Source: Lightcast 2026.3; "Job Posting Analytics." Sep. 2025 - Aug. 2026

## Industry Concentration

**Table 5. Industries Hiring for Geographic Information Occupations in the Bay Region**

| Industry - 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2025) | Jobs in Industry (2030) | % Change (2025-30) | % Occupation Group in Industry (2025) |
|-----------------------------------------------------------------------|-------------------------|-------------------------|--------------------|---------------------------------------|
| Engineering Services                                                  | 216                     | 225                     | 4%                 | 26%                                   |
| Architectural Services                                                | 207                     | 201                     | -3%                | 25%                                   |
| Local Government, Excluding Education and Hospitals                   | 80                      | 88                      | 9%                 | 10%                                   |
| Landscape Architectural Services                                      | 52                      | 49                      | -5%                | 6%                                    |
| Surveying and Mapping (except Geophysical) Services                   | 34                      | 35                      | 4%                 | 4%                                    |
| Building Inspection Services                                          | 30                      | 36                      | 17%                | 4%                                    |
| All Other Support Services                                            | 24                      | 26                      | 9%                 | 3%                                    |
| Natural Gas Distribution                                              | 20                      | 23                      | 15%                | 2%                                    |
| Custom Computer Programming Services                                  | 15                      | 16                      | 9%                 | 2%                                    |
| Federal Government, Military                                          | 13                      | 14                      | 6%                 | 2%                                    |

Source: Lightcast 2026.3

**Table 6. Top Employers Posting Geographic Information Occupations in the Bay Region and the San Francisco-Peninsula Subregion**

| Employer                                    | Bay | Employer                                    | San Francisco-Peninsula |
|---------------------------------------------|-----|---------------------------------------------|-------------------------|
| NV5                                         | 7   | Bkf Engineers                               | 3                       |
| Bkf Engineers                               | 5   | Vec                                         | 3                       |
| Langan Engineering & Environmental Services | 5   | GPAC                                        | 2                       |
| Woolpert                                    | 3   | Langan Engineering & Environmental Services | 2                       |
| GPAC                                        | 3   | Blew & Associates P.A                       | 2                       |
| Blew & Associates P.A                       | 3   | City & County of San Francisco              | 2                       |

Source: Lightcast 2026.3; "Job Posting Analytics." Sep. 2025 - Aug. 2026

## Educational Supply

There are four community colleges in the Bay Region issuing 57 awards on average annually (last 3 years ending 2024-25) on TOP 2206.10 - Geographic Information Systems. In the San Francisco-Peninsula subregion, there is one community college that issued 14 awards on average annually (last 3 years) on this TOP code.

There are no other CTE educational institutions in the Bay Region issuing awards on average annually (last 3 years ending 2023-24) on CIP 45.0702- Geographic Information Science and Cartography.

**Table 7. Community College Awards on TOP 2206.10 - Geographic Information Systems in the Bay Region**

| College       | Subregion               | Associate Degree | High unit Certificate | Low unit Certificate | Total     |
|---------------|-------------------------|------------------|-----------------------|----------------------|-----------|
| Diablo Valley | East Bay                | 4                | 1                     | 8                    | 13        |
| Foothill      | Silicon Valley          | 6                | 0                     | 22                   | 28        |
| San Francisco | San Francisco-Peninsula | 0                | 0                     | 14                   | 14        |
| West Valley   | Silicon Valley          | 0                | 0                     | 2                    | 2         |
| <b>Total</b>  | <b>-</b>                | <b>10</b>        | <b>1</b>              | <b>46</b>            | <b>57</b> |

Source: Data Mart

Note: The annual average for awards is 2022-23 to 2024-25.

## Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay Region with 111 annual openings for the Geographic Information occupational cluster and 57 annual (3-year average) awards for an annual undersupply of 54 students. In the San Francisco-Peninsula subregion, there is also a gap with 29 annual openings and 14 annual (3-year average) awards for an annual undersupply of 15 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 2206.10 - Geographic Information Systems**

| Metric Outcomes                                             | Bay All CTE Program | State 2206.10 | Bay 2206.10 | San Francisco-Peninsula 2206.10 |
|-------------------------------------------------------------|---------------------|---------------|-------------|---------------------------------|
| Students with a Job Closely Related to Their Field of Study | 75%                 | 78%           | 73%         | NA                              |
| Median Annual Earnings for SWP Exiting Students             | \$58,379            | \$58,104      | \$67,116    | \$83,136                        |
| Median Change in Earnings for SWP Exiting Students          | 31%                 | 31%           | 35%         | 60%                             |
| Exiting Students Who Attained the Living Wage               | 50%                 | 59%           | 57%         | 66%                             |

Source: DataVista Program Median of 2020 to 2022.

## Skills, Certifications and Education

**Table 9. Top Skills in Job Postings for Geographic Information Occupations in the Bay Region**

| Skill                  | Posting | Skill         | Posting |
|------------------------|---------|---------------|---------|
| Surveying              | 70      | Field Surveys | 23      |
| Legal Land Description | 30      | Field Notes   | 20      |

| Skill                 | Posting | Skill                               | Posting |
|-----------------------|---------|-------------------------------------|---------|
| Topography            | 30      | Global Positioning Systems          | 18      |
| AutoCAD               | 29      | Light Detection And Ranging (LiDAR) | 18      |
| Computer-Aided Design | 28      | Data Processing                     | 17      |
| Project Management    | 28      | Geographic Information Systems      | 16      |
| AutoCAD Civil 3D      | 27      | Topographic Surveying               | 16      |
| Civil Engineering     | 27      | Data Analysis                       | 15      |
| Data Collection       | 25      | Easement                            | 15      |
| Surveying Instruments | 25      | Workflow Management                 | 15      |

Source: Lightcast 2026.3; "Job Posting Analytics." Sep. 2025 - Aug. 2026

**Table 10. Certifications in Job Postings for Geographic Information Occupations in the Bay Region**

| Certification     | Posting | Certification           | Posting |
|-------------------|---------|-------------------------|---------|
| GIS Certification | 2       | Drone Pilot Certificate | 2       |

Source: Lightcast 2026.3; "Job Posting Analytics." Sep. 2025 - Aug. 2026

**Table 11. Education Requirements for Geographic Information Occupations in the Bay Region**

| Education Level            | Job Postings | % of Total |
|----------------------------|--------------|------------|
| High school or GED         | 23           | 33%        |
| Associate degree           | 18           | 26%        |
| Bachelor's degree & higher | 29           | 41%        |

Source: Lightcast 2026.3; "Job Posting Analytics." Sep. 2025 - Aug. 2026

Note: 43% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample.

## Methodology

Occupations for this report were identified by use of job descriptions and skills listed in O\*Net. Labor demand data is sourced from Lightcast occupation and job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CCCC Data Mart and CTE Launchboard.

This report uses living wage estimates from the California Self-Sufficiency Standard. The Bay Region Center of Excellence is gradually transitioning to the Massachusetts Institute of Technology (MIT) Living Wage Calculator, which will become the primary living wage benchmark used in future reports. During this transition, we include both estimates to provide context and allow readers to understand how the selected benchmark affects wage comparisons. Because the California Self-Sufficiency Standard and the MIT Living Wage Calculator use different methodologies, their estimates are not directly interchangeable. The MIT Living Wage Calculator generally produces higher living wage thresholds; therefore, future reports may identify fewer occupations as providing a living wage, even when the underlying occupational wage data has not changed. For comparison, the MIT living wage is \$33 per hour for the Bay Region and \$35 per hour for the San Francisco-Peninsula subregion. Under the California Self-Sufficiency Standard, the living wage is \$27 per hour for the Bay Region and \$31 per hour for the San Francisco-Peninsula subregion.

## Definitions

**Demand** refers to average annual openings which includes a combination of both [new jobs and replacement jobs](#) between 2025 to 2030. New jobs represent the total number of additional workers required in an occupation, calculated as the difference between the current number of workers and the projected number of unfilled positions. Replacements are jobs that will need to be filled by [new hires](#) due to existing workers leaving the occupation. The average annual openings figure is derived by dividing total openings (2025 to 2030) by five years.

**Supply** refers to the average number of [graduates](#) between academic years 2021–2022 and 2023–2024. Graduates include students from community colleges, other two-year private and public institutions, as well as four-year institutions.

**Living wage** refers to the amount of income required for working families to meet basic needs at a minimally adequate level, considering family composition, ages of children, and geographic differences in costs based on the Self-Sufficiency Standard methodology.

**Entry-level** wages are the hourly earnings paid to workers who are newly entering an occupation.

**Mid-career wages** are the hourly earnings paid to workers who have accumulated several years of experience in an occupation, reflecting increased productivity, skill proficiency, and responsibility beyond entry-level roles but short of late-career or senior positions.

## Sources

O\*Net Online

Lightcast

CTE LaunchBoard [www.calpassplus.org](http://www.calpassplus.org)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

CCCCO Data Mart

## Contacts

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