

**Labor Market Analysis for Program Recommendation**

**Aerial Remote Sensing and Photogrammetry Occupations**

**Santa Rosa Junior College**

### Prepared by the San Francisco Bay Center of Excellence for Labor Market Research

**December 2022**

## Recommendation

Based on all available data, there appears to be an “undersupply” of Aerial Remote Sensing and Photogrammetry workers compared to the demand for this cluster of occupations in the Bay region and in the North Bay sub-region (Marin, Napa, Solano, Sonoma counties). There is a projected annual gap of about 288 students in the Bay region and 28 students in the North Bay Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0957.30 - Surveying 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 colleges in the state and region, as well as to outcomes across all CTE programs at Santa Rosa Junior College and in the region.

This report profiles Aerial Remote Sensing and Photogrammetry Occupations in the 12 county Bay region and in the North Bay sub-region for a proposed new program at Santa Rosa Junior College.

* **Surveyors (17-1022):** Make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth’s surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes.
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: Internship/residency
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 24%
* **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. Excludes “Surveyors” (17-1022), “Cartographers and Photogrammetrists” (17-1021), and “Geoscientists, Except Hydrologists and Geographers” (19-2042).
  Entry-Level Educational Requirement: High school diploma or equivalent
  Training Requirement: Moderate-term on-the-job training
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 54%

## Occupational Demand

**Table 1. Employment Outlook for Aerial Remote Sensing and Photogrammetry Occupations in Bay Region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Surveyors | 1,226 | 1,262 | 35 | 3% | 649 | 130 | $37 | $47 |
| Surveying and Mapping Technicians | 1,205 | 1,258 | 53 | 4% | 889 | 178 | $24 | $35 |
| **Total** | **2,431** | **2,520** | **89** | **4%** | **1,538** | **308** |  |  |
| Source: EMSI 2022.3 |

**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 Aerial Remote Sensing and Photogrammetry Occupations in North Bay Sub-region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Surveyors | 163 | 195 | 32 | 20% | 114 | 23 | $33 | $42 |
| Surveying and Mapping Technicians | 163 | 172 | 9 | 5% | 127 | 25 | $22 | $28 |
| **Total** | **326** | **367** | **41** | **12%** | **241** | **48** |  |  |
| Source: EMSI 2022.3 |

**North Bay Sub-Region includes:** Marin, Napa, Solano, Sonoma Counties

### Job Postings in Bay Region and North Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Nov. 2021 – Oct. 2022)**

| **Occupation** | **Bay Region** | **North Bay** |
| --- | --- | --- |
| Surveyors | 474 | 79 |
| Mapping Technicians | 109 | 8 |
| Surveying Technicians | 107 | 10 |
| Source: Burning Glass |

**Table 4a. Top Job Titles for Aerial Remote Sensing and Photogrammetry Occupations for latest 12 months (Nov. 2021 – Oct. 2022) - Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Project Surveyor | 40 | Independent Field Surveyor | 11 |
| Professional Land Surveyor | 33 | Land Surveyor - Civil3D | 11 |
| Solar Site Surveyor | 28 | Licensed Land Surveyor, Pls , | 10 |
| Land Surveyor | 25 | Project Surveyor Land Surveying | 10 |
| Site Surveyor | 25 | Senior Project Surveyor Land Surveying | 10 |
| Licensed Land Surveyor Remote | 22 | Land Survey Technician , | 9 |
| Site Survey Technician | 20 | Solar Site Survey Technician | 9 |
| Surveyor | 19 | Survey Technician | 8 |
| Survey Party Chief | 18 | Licensed Land Surveyor | 7 |
| Source: Burning Glass |

**Table 4b. Top Job Titles for Aerial Remote Sensing and Photogrammetry Occupations for latest 12 months (Nov. 2021 – Oct. 2022) North Bay Sub-Region**

| **Title** | **North Bay** | **Title** | **North Bay** |
| --- | --- | --- | --- |
| Land Surveyor | 8 | Project Land Surveyor | 3 |
| Project Surveyor | 7 | Site Survey Technician | 3 |
| Site Surveyor | 7 | Associate/Deputy Surveyor | 2 |
| Solar Site Surveyor | 7 | Field Crew | 2 |
| Land Surveyor Technician | 6 | Project Surveyor Land Surveying | 2 |
| Licensed Land Surveyor Remote | 4 | Senior Project Surveyor | 2 |
| Licensed Land Surveyor | 3 | Surveyor | 2 |
| Monitoring And Gis Manager | 3 | Surveyor/ Licensed Land Surveyor | 2 |
| Professional Land Surveyor | 3 |  |  |
| Source: Burning Glass |

## Industry Concentration

**Table 5. Industries hiring Aerial Remote Sensing and Photogrammetry Workers in Bay Region**

| **Industry - 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2020)** | **Jobs in Industry (2025)** | **% Change (2020-25)** | **% Occupation Group in Industry (2020)** |
| --- | --- | --- | --- | --- |
| Architectural Services | 674 | 650 | -4% | 30% |
| Engineering Services | 606 | 616 | 2% | 27% |
| Local Government, Excluding Education and Hospitals | 170 | 168 | -1% | 7% |
| Landscape Architectural Services | 135 | 132 | -2% | 6% |
| Surveying and Mapping (except Geophysical) Services | 105 | 127 | 21% | 6% |
| Building Inspection Services | 63 | 72 | 14% | 3% |
| Natural Gas Distribution | 57 | 65 | 13% | 3% |
| Custom Computer Programming Services | 10 | 39 | 287% | 2% |
| Federal Government, Military | 24 | 25 | 2% | 1% |
| All Other Support Services | 20 | 26 | 35% | 1% |
| Source: EMSI 2022.3 |

**Table 6. Top Employers Posting Aerial Remote Sensing and Photogrammetry Occupations in Bay Region and North Bay Sub-Region (Nov. 2021 – Oct. 2022)**

| **Employer** | **Bay** | **Employer** | **North Bay** |
| --- | --- | --- | --- |
| Bkf Engineers | 37 | Bkf Engineers | 7 |
| Aei Consultants | 16 | La Stevens Associates Inc. | 6 |
| Six Flags Incorporated | 13 | County Sonoma | 5 |
| Tesla | 12 | Six Flags Incorporated | 4 |
| Solar Optimum | 12 | Sunrun | 3 |
| Sunrun | 11 | Solar Optimum | 3 |
| Source: Burning Glass |

## Educational Supply

There is one (1) community college in the Bay Region and North Bay Sub-Region issuing 20 awards on average annually (last 3 years ending 2019-20) on TOP 0957.30 - Surveying.

**Table 7. Community College Awards on TOP 0957.30 - Surveying in Bay Region**

| **College** | **Subregion** | **Associate Degree** | **Low unit Certificate** | **Total** |
| --- | --- | --- | --- | --- |
| Santa Rosa | North Bay | 9 | 11 | 20 |
| **Total** |  | **9** | **11** | **20** |
| Source: Data Mart |

Note: The annual average for awards is 2017-18 to 2019-20.

## Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 308 annual openings for the Aerial Remote Sensing and Photogrammetry occupational cluster and 20 annual (3-year average) awards for an annual undersupply of 288 students. In the North Bay Sub-Region, there is a small gap with 48 annual openings and 20 annual (3-year average) awards for an annual undersupply of 28 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0957.30 - Surveying**

| **Metric Outcomes** | **Bay All CTE Programs** | **SRJC All CTE Programs** | **State 0957.30** | **Bay 0957.30** | **North Bay 0957.30** | **SRJC 0957.30** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 74% | 74% | 83% | 75% | N/A | N/A |
| Median Annual Earnings for SWP Exiting Students | $47,419 | $42,405 | $60,370 | $64,899 | $64,261 | $64,261 |
| Median Change in Earnings for SWP Exiting Students | 23% | 29% | 47% | 22% | 64% | 64% |
| Exiting Students Who Attained the Living Wage | 52% | 58% | 80% | 82% | 93% | 93% |
| Source: Launchboard Strong Workforce Program Median of 2017 to 2020. |

## Skills, Certifications and Education

**Table 9. Top Skills for Aerial Remote Sensing and Photogrammetry Occupations in Bay Region (Nov. 2021 – Oct. 2022)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| Land Survey | 328 | Staff Management | 73 |
| AutoCAD | 210 | Geographic Information System (GIS) | 70 |
| Civil 3D | 185 | Autodesk | 56 |
| Project Management | 165 | Personal Protective Equipment (PPE) | 49 |
|  |

|  |  |  |  |
| --- | --- | --- | --- |
| Surveys | 165 | Computer Aided Drafting/Design (CAD) | 46 |
| Global Positioning System (GPS) | 160 | Land Development | 46 |
| Scheduling | 159 | Unmanned Aerial Systems (UAS) | 46 |
| Field Surveys | 139 | 3D Modeling / Design | 45 |
| Topographic Surveys | 132 | Site Surveys | 43 |
| Calculation | 131 | Solar Systems | 42 |
| Customer Service | 121 | Survey Instruments | 41 |
| Civil Engineering | 96 | Hand Tools | 40 |
| Budgeting | 73 | Robotics | 40 |
| Customer Contact | 73 | Geometry | 38 |

Source: Burning Glass

**Table 10. Certifications for Aerial Remote Sensing and Photogrammetry Occupations in Bay Region (Nov. 2021 – Oct. 2022)**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Driver's License | 250 | Engineer in Training Certification | 5 |
| Licensed Professional Surveyor | 175 | Civil Service Certification | 4 |
| Occupational Safety and Health Administration Certification | 30 | AutoCAD Certification | 4 |
| Civil Engineering Certificate | 26 | American Board for Engineering and Technology (ABET) Accredited | 4 |
| Cdl Class C | 14 | L.S. Certificate | 3 |
| Licensed Professional Engineer | 6 | Information Technology Certification | 3 |
| SANS/GIAC Certification | 5 | Pilot Certification | 2 |
| Personal Fitness Trainer Certification | 5 | Certified Survey Technician (CST) | 2 |
| GIAC Information Security Professional (GISP) | 5 | Business License | 2 |
| Source: Burning Glass |

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

**Table 11. Education Requirements for Aerial Remote Sensing and Photogrammetry Occupations in Bay Region**

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| High school or vocational training | 154 | 49% |
| Associate's degree | 18 | 6% |
| Bachelor's degree and higher | 141 | 45% |
| Source: Burning Glass |

Note: 55% 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 skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

## Sources

O\*Net Online
Labor Insight/Jobs (Burning Glass)
Economic Modeling Specialists International (EMSI)
CTE LaunchBoard www.calpassplus.org/Launchboard/
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
Living Insight Center for Community Economic Development
Chancellor’s Office MIS system

## Contacts

For more information, please contact:

* Leila Jamoosian, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), leila@baccc.net
* John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544