

**Program Endorsement Brief: 2206.10 – Geographic Information Systems
Geospatial Technology (Certificate)**

Los Angeles/Orange County Center of Excellence, February 2022

Summary

Program Endorsement:	Endorsed: All Criteria Met <input checked="" type="checkbox"/>	Endorsed: Some Criteria Met <input type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Living Wage: (Entry-Level, 25th)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Emerging Occupation(s)			
Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>	

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to one middle-skill occupation: *surveying and mapping technicians* (17-3031), and one emerging occupation: *geographic information systems technologists and technicians* (15-1299.02). Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree.¹ This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data, there appears to be a supply gap for *surveying and mapping technicians* in the region. In addition to the entry-level wage exceeding the self-sufficiency standard wage in both Los Angeles and Orange counties, more than half of incumbent workers have completed some college or an associate degree. **Due to all of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **172 jobs available annually** in the region due to new job growth and replacements, **which is more than the 87 awards conferred annually** by educational institutions in the region.
- **Living Wage Criteria** – In Los Angeles County, the **typical entry-level hourly wage** for *surveying and mapping technicians* is **\$29.27, which is above the self-sufficiency**

¹ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor’s degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

standard wage (living wage) for one adult in the region (\$18.10 in Los Angeles County).²

- **Educational Criteria** – The Bureau of Labor Statistics (BLS) lists a **high school diploma or equivalent** as the typical entry-level education for *surveying and mapping technicians*.
 - However, national-level educational attainment data indicates that **56% of workers in the field have completed some college or an associate degree**.

Supply:

- Between 2017 and 2020, **five community colleges** in the LA/OC region issued awards in programs that have historically trained for the middle-skill occupation of interest, conferring an average of **87 awards**.
- Currently, there are no non-community college institutions in the LA/OC region that have conferred awards in relevant programs.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for *surveying and mapping technicians*. In Los Angeles/Orange County, the number of jobs related to *surveying and mapping technicians* is projected to increase by 4% through 2025. There will be more than 170 job openings per year through 2025 due to job growth and replacements.

This report includes employment projection data by Emsi which uses EDD information. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the full impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the full impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties³

Geography	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	Annual Openings
Los Angeles	860	888	28	3%	114
Orange	431	448	17	4%	58
Total	1,291	1,337	46	4%	172

² Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: <http://selfsufficiencystandard.org/california>.

³ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Wages

The labor market endorsement in this report considers the hourly wages for *surveying and mapping technicians* in Los Angeles County, as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the LA/OC region. Detailed wage information, by county, is included in Appendix A.

Los Angeles County – The typical entry-level hourly wage for *surveying and mapping technicians* is \$29.27, which is **above** the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Experienced workers can expect to earn approximately \$48.69/hour.

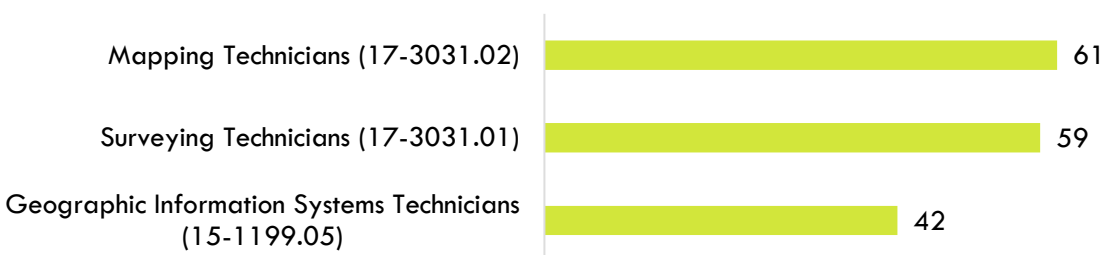
Orange County – The typical entry-level hourly wage for *surveying and mapping technicians* is \$29.99, which is **above** the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Experienced workers can expect to earn approximately \$49.34/hour.

Job Postings

Over the past 12 months, there have been 162 online job postings related to the occupations of interest. Exhibit 2 displays the number of job postings by occupation. The majority of job postings (38%) were for *mapping technicians* (17-3031.02) and *surveying technicians* (17-3031.01) (36%), followed by *geographic information systems technicians* (15-1199.05) (26%). The highest number of job postings were for survey technicians, GIS technicians, site survey technicians, GPS technicians, and survey field technicians. The top skills were land survey, AutoCAD, field surveys, geographic information system (GIS), and ArcGIS. The top employers, by number of job postings, in the region were Cannon Corporation and Sunrun. While not included in this analysis, Esri, the creator of GIS technology is headquartered in Redlands and posts many job opportunities in the Inland Empire.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the full impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Exhibit 2: Job postings by occupation (last 12 months)



Educational Attainment

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for *surveying and mapping technicians*. However, national-level educational attainment data indicates that 56% of workers in the field have completed some college or an associate degree.

Educational Supply

Community College Supply – Exhibit 3 shows the annual and three-year average number of awards conferred by community colleges in Surveying (0957.30) and Geographic Information Systems (2206.10). The colleges with the most completions in the region are Santiago Canyon and Rio Hondo.

Exhibit 3: Regional community college awards (certificates and degrees), 2017-2020

TOP Code	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0957.30	Surveying	East LA	4	-	-	1
		LA Subtotal	4	-	-	1
		Santiago Canyon	46	64	44	51
		OC Subtotal	46	64	44	51
		Supply Subtotal/Average	50	64	44	53
2206.10	Geographic Information Systems	LA Pierce	-	7	2	3
		Rio Hondo	36	19	15	23
		LA Subtotal	36	26	17	26
		Cypress	12	8	4	8
		OC Subtotal	12	8	4	8
Supply Subtotal/Average			48	34	21	34
Supply Total/Average			98	98	65	87

Non-Community College Supply – Currently, there are no non-community college institutions in the LA/OC region that have conferred awards in relevant programs.

Appendix A: Occupational demand and wage data by county

Exhibit 4. Los Angeles County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Surveying and Mapping Technicians (17-3031)	860	888	28	3%	114	\$29.27	\$40.50	\$48.69

Exhibit 5. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Surveying and Mapping Technicians (17-3031)	431	448	17	4%	58	\$29.99	\$41.26	\$49.34

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Surveying and Mapping Technicians (17-3031)	1,291	1,337	46	4%	172	HS diploma or equivalent

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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