

**Labor Market Analysis: 0299.00 – Other Architecture and Environmental Design  
Environmental Technology – Certificate requiring 6 to <18 semester units  
Los Angeles Center of Excellence, July 2024**

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

## SUMMARY

This report analyzes whether local labor market demand is being met by community college programs aligned with the identified middle-skill occupations<sup>1</sup> or whether a shortage of workers exists. Labor market demand is measured by annual job openings while education supply is measured by the number of awards (degrees and certificates) conferred on average each year.

Based on the available data, there appears to be a supply gap for the two identified middle-skill environmental technology occupations in the region. Furthermore, entry-level wages exceed the self-sufficiency standard wage in both Los Angeles and Orange counties, and the Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education level for both occupations in this report.

**Recommendation: Due to all three program endorsement criteria being met, the Los Angeles Center of Excellence for Labor Market Research (LA COE) endorses this proposed program.**

## Key Findings

### Supply Gap

- 222 annual job openings are projected in the region through 2027. This number is greater than the three-year average of 78 awards conferred by educational institutions in the region.

<sup>1</sup> Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree. 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.

### **Living Wage**

- Both occupations have entry-level wages **above** Los Angeles County's self-sufficiency standard hourly wage (\$18.10/hour).<sup>2</sup>

### **Educational Attainment**

- An associate degree is the typical entry-level education for these environmental technology occupations, according to the Bureau of Labor Statistics (BLS).
- 34%-50% of workers in the field have completed some college or an associate degree, according to national educational attainment data.

### **Community college supply**

- 6 community colleges issued awards related to environmental technology in the greater LA/OC region.
- 78 awards (degrees and certificates) were conferred on average each year between 2021 and 2023.

### **Other postsecondary supply**

- No educational institutions in the LA/OC region conferred sub-baccalaureate awards in environmental technology programs over the past three years.

## **TARGET OCCUPATIONS**

LA COE prepared this report to provide regional labor market and postsecondary supply data related to two middle-skill occupations. [For full occupation descriptions, please see Appendix.](#)

- **Environmental Engineering Technologists and Technicians (17-3025)**<sup>3</sup>
- **Environmental Science and Protection Technicians, Including Health (19-4042)**<sup>4</sup>

## **OCCUPATIONAL DEMAND**

Exhibit 1 shows the five-year occupational demand projections for these environmental technology occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to decrease by 4% through 2027. However, there will be more than 200 job openings per year through 2027 due to retirements and workers leaving the field. The majority of jobs in 2022 for these middle-skill environmental technology occupations (69%) were located in Los Angeles County.

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

<sup>3</sup> [Environmental Engineering Technologists and Technicians \(bls.gov\)](#)

<sup>4</sup> [Environmental Science and Protection Technicians, Including Health \(bls.gov\)](#)

## Exhibit 1: Current employment and occupational demand, Los Angeles and Orange counties<sup>5</sup>

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	1,482	1,447	(36)	(2%)	154
Orange	670	628	(42)	(6%)	68
<b>Total</b>	<b>2,152</b>	<b>2,075</b>	<b>(78)</b>	<b>(4%)</b>	<b>222</b>

### Detailed Occupation Data

Exhibit 2 displays the current employment and projected occupational demand for each of the target occupations in Los Angeles County. The percentage of workers aged 55+ and automation index are included in order to visualize upcoming replacement demand for these occupations.

## Exhibit 2: Current employment, projected occupational demand, percentage of workers aged 55+, Los Angeles County<sup>6</sup>

Occupation	2022 Jobs	2027 Jobs	5-Yr % Change	Annual Openings	% Aged 55 and older*	Auto-mation Index**	% Full Time Workers***
Environmental Engineering Technologists and Technicians	237	164	(31%)	17	26%	92.4	Data unavail.
Environmental Science and Protection Technicians, Including Health	1,246	1,283	3%	137	19%	88.5	100%
<b>Total</b>	<b>1,482</b>	<b>1,447</b>	<b>(2%)</b>	<b>154</b>	<b>-</b>	<b>-</b>	<b>-</b>

\*The average percentage of workers aged 55 and older across all occupations in the greater LA/OC region is 27%. These occupations have a smaller share of older workers, which typically indicates fewer replacements needs to offset the amount of impending retirements.

\*\*The automation index captures an occupation's risk of being affected by automation with a base of 100. An automation index greater than 100 indicates a higher-than average risk of automation; less than 100 indicates a lower-than-average risk.

\*\*\* Across all jobs in California, 81% of workers are employed full-time.

## WAGES

The labor market endorsement in this report considers the entry-level hourly wages for these environmental technology occupations 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 greater Los Angeles/Orange County region.

<sup>5</sup> Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

<sup>6</sup> Ibid.

## Los Angeles County

Both occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$23.01 and \$26.54. (Exhibit 3). Experienced workers can expect to earn wages between \$39.40 and \$44.23.

**Exhibit 3: Earnings for occupations in Los Angeles County**

Occupation	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 <sup>th</sup> Percentile)	Median Annual Earnings*
Environmental Engineering Technologists and Technicians	\$26.54	\$34.47	\$44.23	\$71,700
Environmental Science and Protection Technicians, Including Health	\$23.01	\$29.05	\$39.40	\$60,400

\*Rounded to the nearest \$100

## Orange County

Both occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$22.28 and \$26.47 (Exhibit 4). Experienced workers can expect to earn wages between \$38.11 and \$43.86.

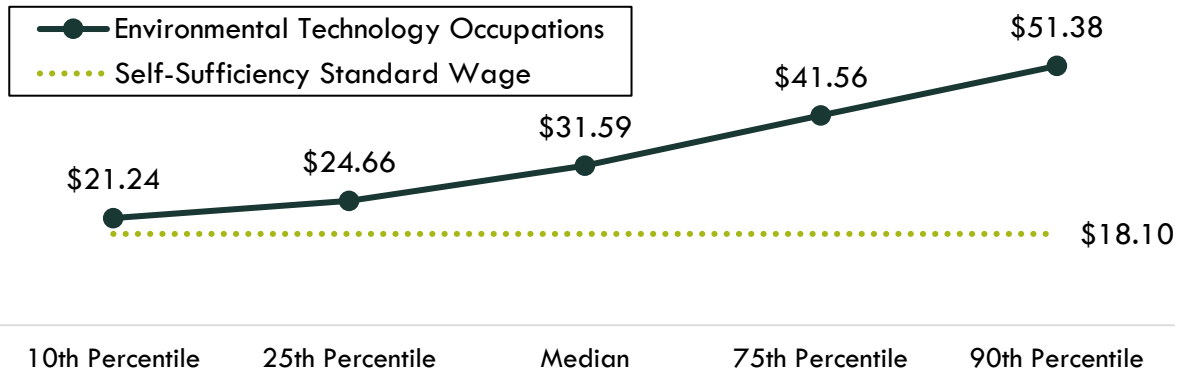
**Exhibit 4: Earnings for occupations in Orange County**

Occupation	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 <sup>th</sup> Percentile)	Median Annual Earnings*
Environmental Engineering Technologists and Technicians	\$26.47	\$34.28	\$43.86	\$71,300
Environmental Science and Protection Technicians, Including Health	\$22.28	\$28.12	\$38.11	\$58,500

\*Rounded to the nearest \$100

Across the greater Los Angeles and Orange County region, the average entry-level hourly earnings for the occupations in this report are \$24.66; this is above the living wage for one single adult in Los Angeles County (\$18.10). Exhibit 5 shows the average hourly wage for the occupations in this report, for entry-level to experienced workers.

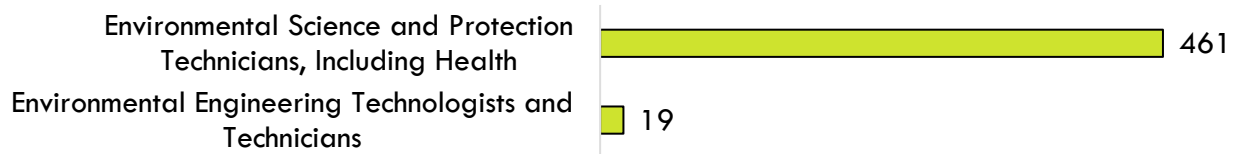
**Exhibit 5: Average hourly earnings for environmental technology occupations, Los Angeles and Orange counties**



## JOB POSTINGS

There were 480 online job postings related to environmental technology listed in the past 12 months in Los Angeles and Orange counties. Exhibit 6 displays the number of job postings by occupation. The majority of job postings (96%) were for environmental science and protection technicians, including health, followed by environmental engineering technologists and technicians (4%).

**Exhibit 6: Job postings by occupation (last 12 months), Los Angeles and Orange counties**



Job postings were analyzed for the most common job titles, skills, and employers associated with the target occupations in this report (Exhibit 7).

**Exhibit 7: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties**

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> <li>Environmental technicians</li> <li>Environmental field technicians</li> <li>Environmental test technicians</li> <li>LDAR technicians</li> <li>Environmental laboratory technicians</li> </ul>	<ul style="list-style-type: none"> <li>Occupational Safety and Health Administration (OSHA)</li> <li>Forklift truck operation</li> <li>Biology</li> <li>Emergency response</li> <li>Project management</li> </ul>	<ul style="list-style-type: none"> <li>Aerotek*</li> <li>HPC Industrial</li> <li>Harsco Corporation</li> <li>Clean Earth</li> <li>Clean Harbors</li> <li>Altech Environmental Services</li> </ul>

\*Staffing company

In the greater Los Angeles/Orange County region, 54% of the environmental technology job postings listed a minimum educational requirement. The number and percentage of job postings by educational level appear in exhibit 8.

**Exhibit 8: Education levels requested in job postings for environmental technology occupations, Los Angeles and Orange counties**

Education Level	Job Postings	% of Job Postings
Bachelor's degree	51	20%
Associate degree	30	12%
High school diploma or vocational training	179	69%

**EDUCATIONAL ATTAINMENT**

The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for the environmental technology occupations in this report (Exhibit 9). Furthermore, the national-level data indicates between 34% and 50% of workers in the field have completed some college or an associate degree as their highest level of educational attainment. The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

**Exhibit 9: Entry-level education preferred by employers nationally, Bureau of Labor Statistics**

Occupation	Education Level
Environmental Engineering Technologists and Technicians	Associate degree
Environmental Science and Protection Technicians, Including Health	Associate degree

**EDUCATIONAL SUPPLY**

**Community College Supply**

Exhibit 10 shows the annual and three-year average number of awards conferred by community colleges in the related TOP codes: Other Architecture and Environmental Design (0299.00) and Environmental Technology (0303.00). The colleges with the most completions in the region are Santa Monica, Rio Hondo, and East LA. Over the past three years, no other postsecondary institutions in the greater LA/OC region conferred sub-baccalaureate awards for environmental technology programs. Sub-baccalaureate awards include associate degrees, postsecondary awards, and other academic awards that typically take fewer than four years to complete.

**Exhibit 10: Regional community college awards (certificates and degrees), 2021-2023**

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
0299.00	Other Architecture and Environmental Design	East LA	2	2	17	7
		<b>LA Subtotal</b>	<b>2</b>	<b>2</b>	<b>17</b>	<b>7</b>
		<b>Supply Subtotal/Average</b>	<b>2</b>	<b>2</b>	<b>17</b>	<b>7</b>
0303.00	Environmental Technology	Rio Hondo	4	14	11	10
		Santa Monica	74	57	30	54
		<b>LA Subtotal</b>	<b>78</b>	<b>71</b>	<b>41</b>	<b>63</b>
		Irvine	9	8	1	6
		Saddleback	-	1	-	0
		Santiago Canyon	-	2	2	1
		<b>OC Subtotal</b>	<b>9</b>	<b>11</b>	<b>3</b>	<b>8</b>
<b>Supply Subtotal/Average</b>	<b>87</b>	<b>82</b>	<b>44</b>	<b>71</b>		
<b>Supply Total/Average</b>	<b>89</b>	<b>84</b>	<b>61</b>	<b>78</b>		

**APPENDIX: OCCUPATION DESCRIPTIONS**

LA COE prepared this report to provide regional labor market supply and demand data related to these target occupations:

- **Environmental Engineering Technologists and Technicians (17-3025)** Apply theory and principles of environmental engineering to modify, test, and operate equipment and devices used in the prevention, control, and remediation of environmental problems, including waste treatment and site remediation, under the direction of engineering staff or scientists. May assist in the development of environmental remediation devices.<sup>7</sup>
- **Environmental Science and Protection Technicians, Including Health (19-4042)** Perform laboratory and field tests to monitor the environment and investigate sources of pollution, including those that affect health, under the direction of an environmental scientist, engineer, or other specialist. May collect samples of gases, soil, water, and other materials for testing.<sup>8</sup>

<sup>7</sup> [Environmental Engineering Technologists and Technicians \(bls.gov\)](https://www.bls.gov)

<sup>8</sup> [Environmental Science and Protection Technicians, Including Health \(bls.gov\)](https://www.bls.gov)

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**DATA SOURCES**

- O\*NET Online
- Lightcast (formerly 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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