



Labor Market Analysis: 0948.40 – Alternative Fuels and Advanced Transportation 47.0614 – Alternative Fuel Vehicle Technology/Technician

**Advanced Transportation Technology; Hydrogen Automotive Technology—
Associate of Science (A.S.) degree; Certificate requiring 30 to <60 semester units;
Certificate requiring 16 to <30 semester units**

Los Angeles Center of Excellence, July 2026

Program Endorsement:	Endorsed: All Criteria Met ☐	Endorsed: Some Criteria Met ☒	Not Endorsed ☐
Program Endorsement Criteria			
Supply Gap:	Yes ☒		No ☐
Living Wage: (Entry-Level, 25 th)	Yes ☐		No ☒
Education:	Yes ☒		No ☐
Emerging Occupation(s)			
	Yes ☐		No ☒

SUMMARY

This report analyzes whether local labor market demand is being met by community college programs aligned with the identified middle-skill occupations¹ 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 occupations in the region. While the majority of annual openings in Los Angeles and Orange counties have entry-level wages that are lower than the self-sufficiency standard wage, one-third of current workers in the field have completed some college or an associate degree as their highest level of educational attainment.

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

¹ 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.

Key Findings

Supply Gap

- 3,183 annual job openings are projected in the region through 2029. This number is greater than the three-year average of 2,755 awards conferred by educational institutions in the region.
 - Over the past 12 months, there were only **27 online job postings for middle-skill automotive occupations that listed “hydrogen” as a keyword in the job posting**. The highest number of job postings were for field service technicians (8 job postings).

Living Wage

- 78% of annual job openings for these middle-skill automotive occupations have entry-level wages **below** Los Angeles County’s self-sufficiency standard hourly wage (\$24.03/hour).²

Educational Attainment

- 79% of the annual job openings typically require a postsecondary non-degree award for middle-skill automotive occupations in the LA/OC region.
- 35%-36% of workers in the field have completed some college or an associate degree, according to national educational attainment data.

Community college supply

- 15 community colleges issued awards related to automotive technology and/or alternative fuels in the greater LA/OC region.
- 1,937 awards (degrees and certificates) were conferred on average each year between 2023 and 2025.

Other postsecondary supply

- 5 educational institutions in the LA/OC region have conferred awards in programs related to automotive technology and/or alternative fuels over the past three years.
- 818 awards were conferred on average each year by other postsecondary institutions throughout the greater LA/OC region between 2022 and 2024.

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.](#)

- **Automotive Service Technicians and Mechanics (49-3023)**³
- **Bus and Truck Mechanics and Diesel Engine Specialists (49-3031)**⁴

² Center for Women’s Welfare, University of Washington. (2024). *The self-sufficiency standard for California 2024*. <http://selfsufficiencystandard.org/California>.

³ [Automotive Service Technicians and Mechanics \(bls.gov\)](https://www.bls.gov/occupations/49-3023)

⁴ [Diesel Service Technicians and Mechanics \(bls.gov\)](https://www.bls.gov/occupations/49-3031)

OCCUPATIONAL DEMAND

Exhibit 1 shows the five-year occupational demand projections for these middle-skill automotive occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 4% through 2029. There will be more than 3,100 job openings per year through 2029 due to job growth and replacements. The majority of jobs in 2024 for these middle-skill automotive occupations (74%) were located in Los Angeles County.

Exhibit 1: Current employment and occupational demand, Los Angeles and Orange counties⁵

Geography	2024 Jobs	2029 Jobs	2024-2029 Change	2024-2029 % Change	Annual Openings
Los Angeles	25,390	26,078	688	3%	2,305
Orange	8,813	9,394	581	7%	878
Total	34,203	35,472	1,269	4%	3,183

Detailed Occupation Data

Exhibit 2 displays the current employment and projected occupational demand for each of the target occupations in Los Angeles County. The average percentage of workers aged 55+ across all occupations in the Los Angeles/Orange County region is 26%; occupations with a larger share of workers aged 55 and older typically have greater replacement needs to offset the amount of impending retirements. On average, 81% of workers across all occupations in California are employed full-time.

Exhibit 2: Detailed employment and occupational demand, Los Angeles County⁶

Occupation	2024 Jobs	2029 Jobs	5-Yr % Change	Annual Openings	% Aged 55 and older	% Full Time Workers
Automotive Service Technicians and Mechanics	19,788	20,250	2%	1,794	23%	93%
Bus and Truck Mechanics and Diesel Engine Specialists	5,601	5,829	4%	511	26%	100%
Total	25,390	26,078	3%	2,305	-	-

WAGES

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill automotive 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.

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

⁶ Ibid.

Los Angeles County

The majority, 78%, of annual openings for these middle-skill automotive occupations have entry-level wages below the self-sufficiency standard wage for one adult (\$24.03 in Los Angeles County). Typical entry-level hourly wages are in a range between \$18.19 and \$27.85. (Exhibit 3).

One occupation has entry-level wages above the self-sufficiency standard wage:

- *Bus and truck mechanics and diesel engine specialists*, \$27.85

Experienced workers can expect to earn wages between \$34.96 and \$40.44, which are higher than the self-sufficiency standard.

Exhibit 3: Earnings for occupations in Los Angeles County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Automotive Service Technicians and Mechanics	\$18.19	\$27.22	\$34.96	\$56,600
Bus and Truck Mechanics and Diesel Engine Specialists	\$27.85	\$36.24	\$40.44	\$75,400

*Rounded to the nearest \$100

Orange County

The majority, 83%, of annual openings for these middle-skill automotive occupations have entry-level wages below the self-sufficiency standard wage for one adult (\$27.13 in Orange County). Typical entry-level hourly wages are in a range between \$20.96 and \$29.29 (Exhibit 4).

One occupation has entry-level wages above the self-sufficiency standard wage:

- *Bus and truck mechanics and diesel engine specialists*, \$29.29

Experienced workers can expect to earn wages between \$37.96 and \$42.16, which are higher than the self-sufficiency standard.

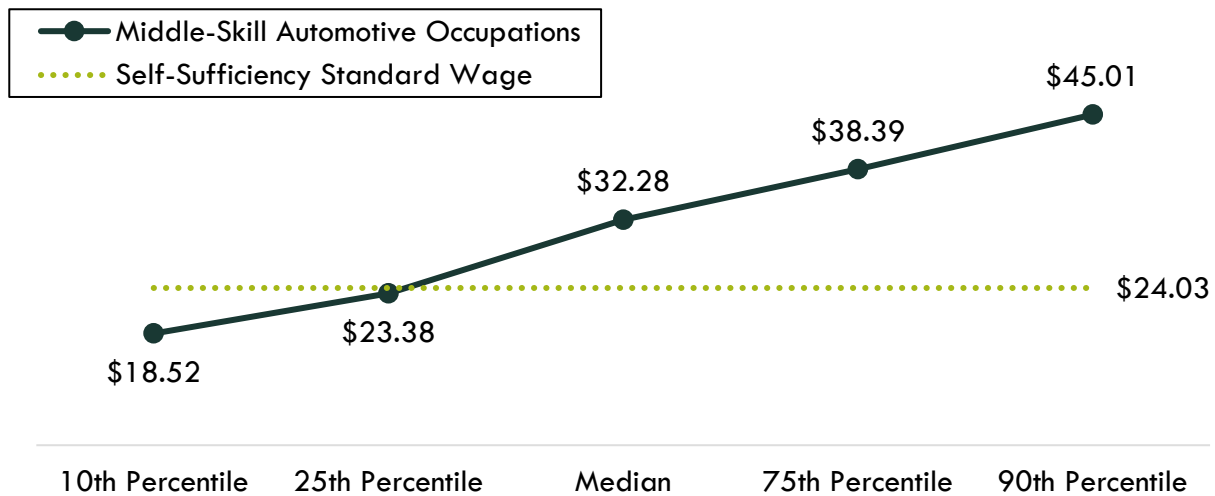
Exhibit 4: Earnings for occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Automotive Service Technicians and Mechanics	\$20.96	\$30.15	\$37.96	\$62,700
Bus and Truck Mechanics and Diesel Engine Specialists	\$29.29	\$37.82	\$42.16	\$78,700

*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 \$23.38; this is below the living wage for one single adult in Los Angeles County (\$24.03). Exhibit 5 shows the average hourly wage for the occupations in this report, for entry-level to experienced workers.

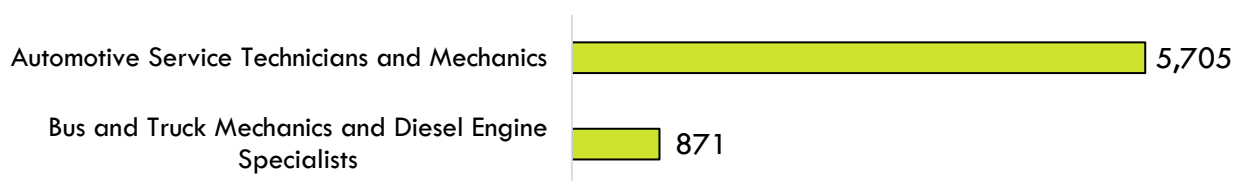
Exhibit 5: Average hourly earnings for target occupations, Los Angeles and Orange counties



JOB POSTINGS BY OCCUPATION

There were 6,576 online job postings related to middle-skill automotive occupations 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 (87%) were for *automotive service technicians and mechanics*, followed by *bus and truck mechanics and diesel engine specialists* (13%).

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
- Automotive technicians - Automotive mechanics - Mechanics - Diesel mechanics - Automotive technicians/mechanics	- Automotive services - Changing oil - Brakes - Suspension (vehicle) - Good driving record - Diesel engines	- Pep Boys - Valvoline - Bridgestone Corporation - Walmart - Toyota Motor - Sonic Automotive

In the greater Los Angeles/Orange County region, 34% of the target job postings listed a minimum educational requirement. Exhibit 8 details the number and percentage of job postings by educational level.

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

Education Level	Job Postings	% of Job Postings
Bachelor's degree	57	3%
Associate degree	68	3%
High school diploma or vocational training	2,086	94%

JOB POSTINGS BY KEYWORD

Of these 6,576 online job postings related to middle-skill automotive occupations, only **27 mentioned “hydrogen” as a keyword in the job posting**. The majority of job postings were for *automotive service technicians and mechanics* (18 job postings), followed by *bus and truck mechanics and diesel engine specialists* (9 job postings). Job postings were analyzed for the most common job titles, skills, and employers associated with the keyword and target occupations in this report (Exhibit 9).

Exhibit 9: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles (# of job postings)	Top Skills	Top Employers
- Field service technicians (8) - Mechanics (7) - Fuel Technicians (2) - Vehicle service technicians (2) - Truck and trailer mechanics (2) - Fleet mechanics (2)	- Electrical systems - Electric vehicles - HVAC - High voltage - Electronic components	- Top Tempo Technical* - Motor Coach Industries - KETT Engineering* - Hexagon Agility - Santa Clarity Valley Water Agency

*Staffing company

In the greater Los Angeles/Orange County region, 30% of the hydrogen-related automotive job postings listed a minimum educational requirement. Exhibit 10 details the number and percentage of job postings by educational level.

Exhibit 10: Education levels requested in job postings for hydrogen-related automotive jobs, Los Angeles and Orange counties

Education Level	Job Postings	% of Job Postings
Bachelor's degree	1	12%
Associate degree	0	0%
High school diploma or vocational training	7	88%

EDUCATIONAL ATTAINMENT

In the greater Los Angeles/Orange County region, the majority of annual job openings (79%) typically require a postsecondary non-degree award (Exhibit 11). Furthermore, the national-level data indicates between 35% and 36% 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 11: Entry-level education preferred by employers nationally, Bureau of Labor Statistics

Occupation	Education Level
Automotive Service Technicians and Mechanics	Postsecondary non-degree award
Bus and Truck Mechanics and Diesel Engine Specialists	High school diploma or equivalent

EDUCATIONAL SUPPLY

Community College Supply

Exhibit 12 shows the annual and three-year average number of awards conferred by community colleges in programs that have historically trained for the occupations of interest. The colleges with the most completions in the region are LA Trade-Tech, Cypress, and Santa Ana.

Exhibit 12: Regional community college awards (certificates and degrees), 2023-2025

TOP Code	Program	College	2022-23 Awards	2023-24 Awards	2024-25 Awards	3-Year Average
0947.00	Diesel Technology	Citrus	51	31	37	40
		LA Trade-Tech	31	75	81	62
		LA Subtotal	82	106	118	102
		Santa Ana	14	22	53	30
		OC Subtotal	14	22	53	30
Supply Subtotal/Average			96	128	171	132
0948.00	Automotive Technology	Cerritos	75	184	196	152
		Citrus	100	64	84	83
		Compton	45	15	21	27
		East LA	27	23	108	53
		El Camino	43	57	65	55
		LA Pierce	82	77	181	113
		LA Trade-Tech	142	199	322	221
		Long Beach	94	107	138	113
		Pasadena	84	214	171	156
		Rio Hondo	80	101	108	96
		LA Subtotal	772	1,041	1,394	1,069
		Cypress	200	258	258	239
		Fullerton	42	21	71	45
		Golden West	111	200	98	136
		Saddleback	35	180	160	125
		Santa Ana	76	159	172	136
		OC Subtotal	464	818	759	680
Supply Subtotal/Average			1,236	1,859	2,153	1,749
0948.40	Alternative Fuels and Advanced Transportation Technology	LA Pierce	-	-	18	6
		LA Trade-Tech	18	11	15	15
		Long Beach	7	2	5	5
		Rio Hondo	20	33	26	26
		LA Subtotal	45	46	64	52
		Saddleback	4	4	4	4
		OC Subtotal	4	4	4	4
Supply Subtotal/Average			49	50	68	56
Supply Total/Average			1,381	2,037	2,392	1,937

Exhibit 13 displays the community college awards broken down by award type. In this case, the majority of awards issued by community colleges are certificates (83%).

Exhibit 13: Community college awards by award type, 2023-2025

Award Type	# of Awards	% of Awards
Bachelor's degrees	8	>1%
A.A./A.S. degrees	235	12%
Certificates	1,610	83%
Noncredit awards	84	4%
Total	1,937	100%

Other Postsecondary Supply

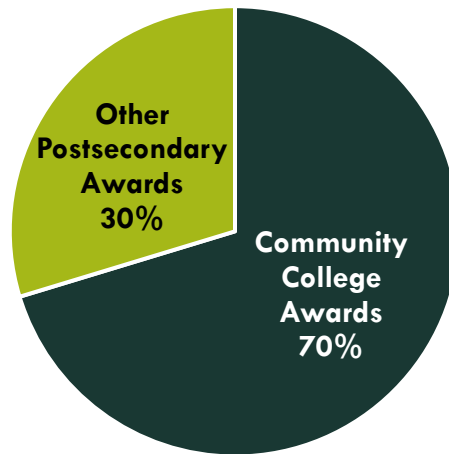
For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for middle-skill automotive occupations. Exhibit 14 shows the number of awards conferred by these institutions in relevant programs. Due to different data collection periods, the most recent data is from 2022 to 2024. Between 2022 and 2024, other postsecondary college institutions in the region conferred an average of 818 sub-baccalaureate awards. Sub-baccalaureate awards include associate degrees, postsecondary awards, and other academic awards that typically take fewer than four years to complete. Over the past three years, there have been no awards conferred in the related CIP code: Alternative Fuel Vehicle Technology/Technician (47.0614).

Exhibit 14: Other regional postsecondary awards, 2022-2024

CIP Code	Program	Postsecondary Institution	2021-22 Awards	2022-23 Awards	2023-24 Awards	3-Year Average
47.0604	Automobile/ Automotive Mechanics Technology/ Technician	Baldwin Park Adult & Community Education	4	6	10	7
		UEI College-Garden Grove	64	101	119	95
		UEI College-Gardena	91	82	94	89
		UEI College-West Covina	102	132	130	121
		Universal Technical Institute-Southern CA	391	463	423	426
47.0605	Diesel Mechanics Technology/ Technician	Universal Technical Institute-Southern CA	58	102	82	81
Supply Total/Average			710	886	858	818

Exhibit 15 shows the proportion of community college awards conferred in the greater Los Angeles/Orange County region compared to the number of other postsecondary awards for the programs in this report. The majority of awards conferred in these programs are awarded by community colleges in the greater Los Angeles/Orange County region.

Exhibit 15: Percentage of community college awards compared to other postsecondary institution awards in the Los Angeles/Orange County region



APPENDIX: OCCUPATION DESCRIPTIONS

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

- **Automotive Service Technicians and Mechanics (49-3023)** Diagnose, adjust, repair, or overhaul automotive vehicles.⁷
- **Bus and Truck Mechanics and Diesel Engine Specialists (49-3031)** Diagnose, adjust, repair, or overhaul buses and trucks, or maintain and repair any type of diesel engine. Includes mechanics working primarily with automobile or marine diesel engines.⁸

⁷ [Automotive Service Technicians and Mechanics \(bls.gov\)](https://www.bls.gov/occupations/49-3023)

⁸ [Diesel Service Technicians and Mechanics \(bls.gov\)](https://www.bls.gov/occupations/49-3031)

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DATA SOURCES

POWERED BY



- 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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