

Labor Market Analysis for Program Recommendation: 0948.40/Alternative Fuels and Advanced Transportation Technology (Hybrid Electric Vehicle Maintenance Specialist Certificate of Achievement) Orange County Center of Excellence, March 2025



Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met <input type="checkbox"/>	Endorsed: Some LMI Criteria Met <input checked="" type="checkbox"/>	Not LMI Endorsed <input type="checkbox"/>
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Program LMI Endorsement Criteria

	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Supply Gap:	Comments: there is projected to be 2,045 annual job openings throughout Los Angeles and Orange counties for <i>automotive service technicians and mechanics</i> , which is more than the 55 awards conferred by educational institutions .	
Self-Sufficiency Standard Living Wage ¹ :	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Comments: entry-level wages for <i>automotive service technicians and mechanics</i> are \$19.56 , which is significantly below the OC living wage of \$27.13 .	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Comments: typical entry-level education is a postsecondary non-degree award and 36% of workers in the field have completed some college or an associate degree as their highest level of education .	

Additional Considerations			
Emerging Occupation(s):	Yes <input type="checkbox"/>	Some <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Comments: N/A		
OC Resilient Job(s):	Yes <input type="checkbox"/>	Some <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Comments: See Resilient Jobs and US News & World Report Best Jobs		
U.S. News & World Report 2025 Best Jobs List ² :	Yes <input checked="" type="checkbox"/>	Some <input type="checkbox"/>	No <input type="checkbox"/>
	Comments: See Resilient Jobs and US News & World Report Best Jobs		

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to determine whether there is a supply gap in the Los Angeles/Orange County regional labor market related to one middle-skill occupation:

- *Automotive Service Technicians and Mechanics (49-3023)*

¹ At the direction of the California Community College Chancellor's Office, the living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage, to determine Orange County's living wage of \$27.13, last updated in March 2024.

² "100 Best Jobs," U.S. News & World Report, accessed January 28, 2025, <https://money.usnews.com/careers/best-jobs/rankings/the-100-best-jobs>.

Based on the available data there appears to be a supply gap for *automotive service technicians and mechanics* and typical education requirements for this occupation align with a community college education. However, entry-level wages are significantly below the Self-Sufficiency Standard living wage. **Therefore, due to some of the regional labor market criteria being met, the COE endorses this proposed program.**

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the occupations included in this report.

Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25 th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Automotive Service Technicians and Mechanics (49-3023)	LA: 1,488 OC: 557	LA: 51 OC: 4	OC: \$19.56	Postsecondary non-degree award	36%
Total	2,045	55	N/A	N/A	N/A

Demand:

- The number of jobs related to *automotive service technicians and mechanics* is projected to increase by 1% through 2028, equating to 2,045 annual job openings.
- Hourly entry-level wages for *automotive service technicians and mechanics* are \$19.56 in Orange County, which is significantly below the Self-Sufficiency Standard living wage.
- There were 5,202 online job postings for *automotive service technicians and mechanics* over the past 12 months. The highest number of postings were for automotive technicians, automotive technicians/mechanics, and automotive mechanics.
- The typical entry-level education for *automotive service technicians and mechanics* is a postsecondary non-degree award.
- Approximately 36% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 55 awards conferred by 4 community colleges in Los Angeles and Orange Counties from 2020 to 2023.
- No awards conferred by noncommunity college institutions from 2019 to 2022.
- Due to the low number of students, there was insufficient data to determine the median hourly earnings after exiting and the percentage of students employed in their field of study.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for *automotive service technicians and mechanics* from 2018 through 2028. Though there was a 7% decline across all occupations in Los Angeles and Orange counties from 2019 to 2020 due to the COVID-19 pandemic, employment for *automotive service technicians and mechanics* decreased by only 5% in Orange County during the same period.

In the two years preceding the pandemic, employment for this occupation decreased in Orange County, from 2018 through 2020. After a decrease in employment in 2020, employment increased through 2022 and decreased again in 2023. Employment for *automotive service technicians and mechanics* in Orange County is projected to grow through 2028, experiencing a similar rate relative to all occupations in Los Angeles and Orange counties.

Exhibit 2: Annual Percent Change in Jobs for Automotive Service Technicians and Mechanics, 2018-2028

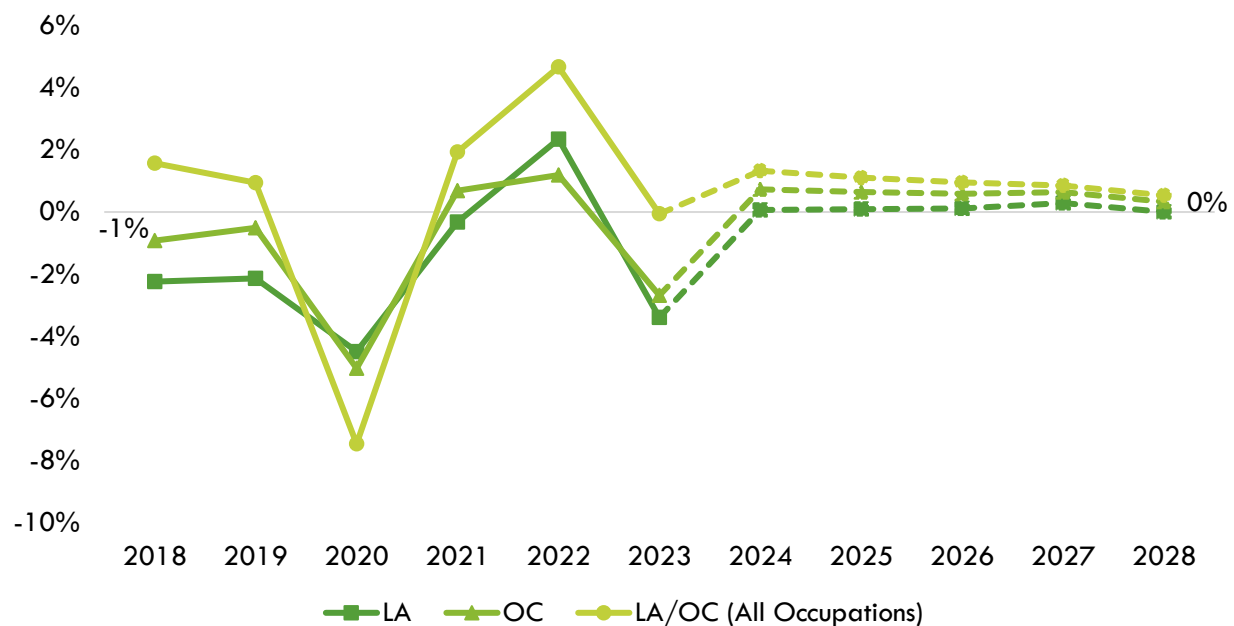


Exhibit 3 shows the five-year occupational demand projections for *automotive service technicians and mechanics*. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to increase by 1% through 2028. There is projected to be 2,045 jobs available annually.

Exhibit 3: Occupational Demand in Los Angeles and Orange Counties³

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
Los Angeles	16,348	16,440	92	1%	1,488
Orange	5,876	6,049	174	3%	557
Total	22,224	22,489	265	1%	2,045

Wages:

The labor market endorsement in this report considers the entry-level hourly wages for *automotive service technicians and mechanics* in Orange County as they relate to the county's living wage. Los Angeles County wages are included below to provide a complete analysis of the LA/OC region.

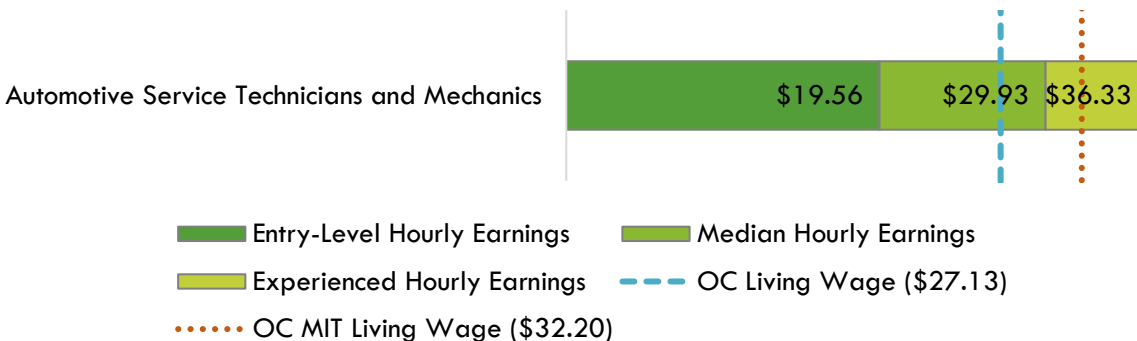
At the direction of the California Community College Chancellor's Office, the living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage, to determine Orange County's living wage of \$27.13,

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.

last updated in March 2024. Additionally, data for the MIT Living Wage, updated on February 10, 2025, is provided as a reference. Currently, the MIT Living Wage in Orange County is \$32.20. Both figures, which account for geographic-specific costs of necessities such as housing, food, health care, and transportation to assess the cost of living, are notated in the exhibits below.

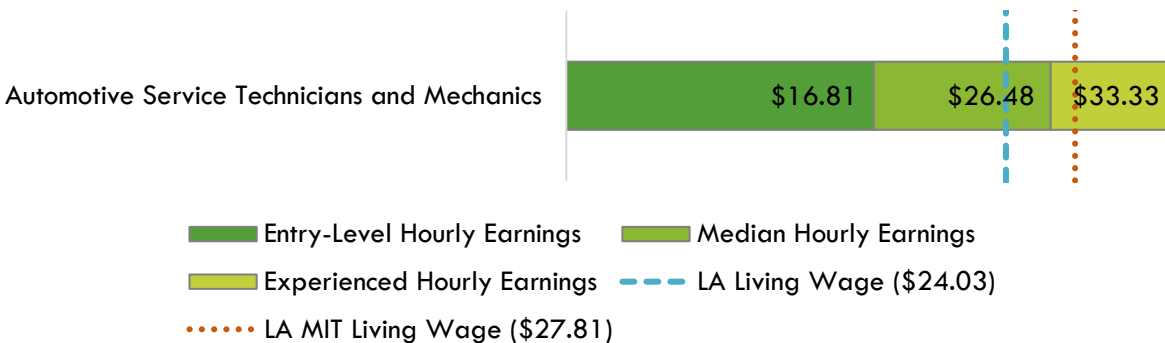
Entry-level hourly wages for *automotive service technicians and mechanics* are \$19.56, which is significantly below the Self-Sufficiency Standard living wage for one adult (\$27.13 in Orange County). Median hourly wages are \$29.93, which is above the living wage. Orange County's average wages of \$28.58 are slightly above the average statewide wage of \$27.59 for this occupation. Exhibit 4 shows the wage range for *automotive service technicians and mechanics* in Orange County and how they compare to the regional living wage.

Exhibit 4: Wages by Occupation in Orange County



Entry-level hourly wages for *automotive service technicians and mechanics* are \$16.81 which is significantly below the Self-Sufficiency Standard living wage for one adult (\$24.03 in Los Angeles County). Median hourly wages are \$26.48, which is above the living wage. Los Angeles County's average wages of \$25.97 are below the average statewide wage of \$27.59 for this occupation. Exhibit 5 shows the wage range for *automotive service technicians and mechanics* in Los Angeles County and how they compare to the regional living wage.

Exhibit 5: Wages by Occupation in Los Angeles County



Resilient Jobs and U.S. News & World Report Best Jobs:

Exhibit 6 shows if each occupation is considered an Orange County Great Recession-Resilient, COVID-19 Pandemic Recession-Resilient Job, or a 2025 U.S. News & World Report (USN&WR) Best Job. *Automotive service technicians and mechanics* only met the criteria to be considered a USN&WR Best Job.

Exhibit 6: Resilient Jobs and USN&WR Best Jobs Designations

Occupation	Great Recession-Resilient Job	COVID-19 Pandemic Recession-Resilient Job	2025 USN&WR Best Job
Automotive service technicians and mechanics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Job Postings:

Important Online Job Postings Data Note: Online job postings data is sourced from Lightcast, a labor market analytics firm that scrapes, collects, and organizes data from online job boards such as LinkedIn, Indeed, Glassdoor, Monster, GovernmentJobs.com, and thousands more. Lightcast uses natural language processing (NLP) to determine the related company, industry, occupation, and other information for each job posting. However, NLP has limitations that include understanding contextual words or phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.⁴ For these reasons, job postings could be assigned to the wrong employer, industry, or occupation within Lightcast's database.

Additionally, there are several limitations when analyzing job postings. A single job posting may not represent a single job opening, as employers may be creating a pool of candidates for future openings or hiring for multiple positions with a single posting. Additionally, not all jobs are posted online, and jobs may be filled through other methods such as internal promotion, word-of-mouth advertising, physical job boards, or a variety of other channels.

There were 5,202 online job postings related to *automotive service technicians and mechanics* listed in the past 12 months. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=5,202)

Occupation	Job Postings	Percentage of Job Postings
Automotive Service Technicians and Mechanics	5,202	100%
Total Postings	5,202	100%

⁴ K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), <https://link.springer.com/book/10.1007/978-81-322-3972-7>.

The top employers in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Employers by Number of Job Postings (n=5,202)

Employer	Job Postings	Percentage of Job Postings
Walmart	241	5%
Pep Boys	164	3%
Valvoline	160	3%
American Tire Depot	156	3%
Crash Champions	138	3%
Mv Transportation	138	3%
Bridgestone Corporation	98	2%
Monro Auto Service and Tire Centers	90	2%
CarMax	86	2%
Chevrolet	60	1%

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 9.

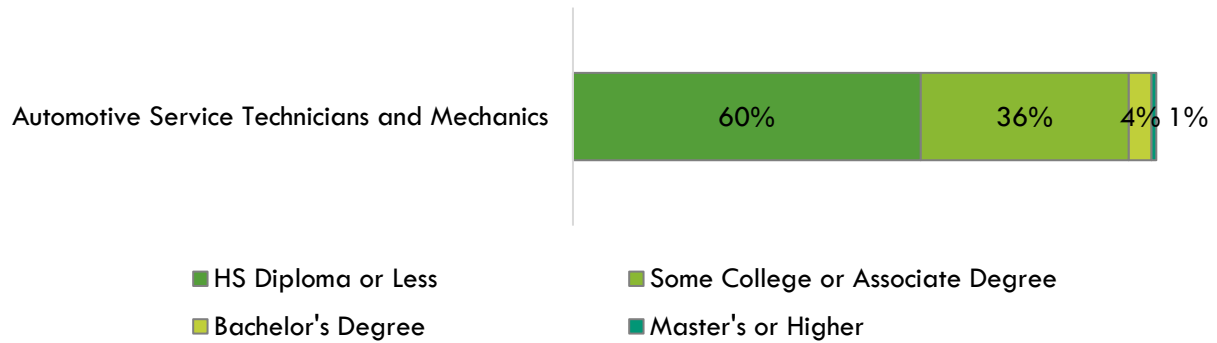
Exhibit 9: Top Skills by Number of Job Postings (n=5,202)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Automotive Services (1,448)	Communication (1,723)	Microsoft Excel (110)
Changing Oil (1,062)	Customer Service (1,660)	Web Browsers (90)
Brakes (753)	Detail Oriented (1,036)	Microsoft Office (89)
Suspension (Vehicle) (717)	Good Driving Record (920)	Firefox (87)
HVAC (541)	Lifting Ability (741)	Microsoft Edge (86)
Vehicle Inspection (525)	Sales (702)	Safari (Web Browser) (86)
Transmission (471)	Problem Solving (698)	Microsoft Outlook (82)
Mechanics (460)	Management (612)	Microsoft Word (64)
Tire Balancing And Rotation (448)	Troubleshooting (Problem Solving) (529)	Microsoft PowerPoint (62)
Tires (441)	English Language (432)	Apache Struts (34)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a postsecondary non-degree award as the typical entry-level education for *automotive service technicians and mechanics*. However, the national-level educational attainment data indicates 36% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 10 shows the educational attainment for this occupation.

Exhibit 10: National-level Educational Attainment for Occupations



Of the 37% of the cumulative job postings for *automotive service technicians and mechanics* that listed a minimum education requirement in Los Angeles/Orange County, 90% (1,752) requested a high school diploma or an associate degree and 10% (192) requested a bachelor's degree.

Educational Supply

The following supply tables displays the total supply for *automotive service technicians and mechanics* that align with these TOP/CIP codes and program needs.

Community College Supply:

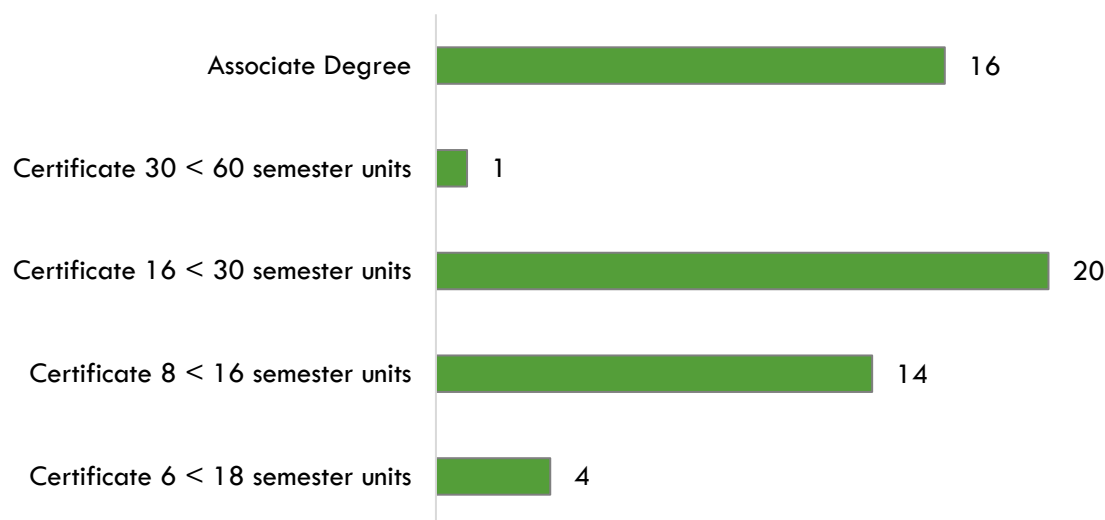
Exhibit 11 shows the three-year average number of awards conferred by community colleges in the related TOP code: Alternative Fuels and Advanced Transportation Technology (0984.40). The colleges with the most completions in the region are Rio Hondo, Long Beach, and LA Trade. Over the past 12 months, there were one other related program recommendation requests from regional community colleges.

Exhibit 11: Regional Community College Awards (Certificates and Degrees), 2020-2023

TOP Code	Program	College	2020- 2021 Awards	2021- 2022 Awards	2022- 2023 Awards	3-Year Award Average
0984.40	Alternative Fuels and Advanced Transportation Technology	LA Trade	3	6	18	9
		Long Beach	15	9	7	10
		Rio Hondo	30	44	20	31
		LA Subtotal	48	59	45	51
		Saddleback	2	6	4	4
		OC Subtotal	2	6	4	4
Supply Total/Average			50	65	49	55

Exhibit 12 shows the annual average community college awards by type from 2020-21 to 2022-23. The plurality of the awards are for certificates between 16 and less than 30 semester units, followed by associate degrees and certificates between 8 and less than 16 semester units.

Exhibit 12: Annual Average Community College Awards by Type, 2020-2023



Community College Student Outcomes:

Exhibit 13 shows the Strong Workforce Program (SWP) metrics for real estate programs in Coast College District (CCCD), the Orange County Region, and California. Per COCI, CCCD offers only one active course under the TOP code 0948.40 (Alternative Fuels and Advanced Transportation Technology). However, due to a low number of students, student outcome data is not available at the district and county level. Of the 684 California alternative fuels and advanced transportation technology students in the 2021-22 academic year, 5% (684) attended an Orange County college.

California students that exited County alternative fuels and advanced transportation technology programs in the 2021-22 academic year had median annual earnings of \$42,400 or \$20.38 per hour. Nearly 52% of California advanced transportation technology students attained the living wage.

Exhibit 13: Alternative Fuels and Advanced Transportation Technology (0948.40) Strong Workforce Program Metrics, 2021-22⁵

SWP Metric	CCCD	OC Region	California
SWP Students	N/A	35	684
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	N/A	57%	50%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	N/A	Insufficient Data	73%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	N/A	Insufficient Data	62
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	N/A	Insufficient Data	10
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	N/A	Insufficient Data	76%
Median Annual Earnings for SWP Exiting Students (2020-21)	N/A	Insufficient Data	\$42,400 (\$20.38)
Median Change in Earnings for SWP Exiting Students (2020-21)	N/A	Insufficient Data	79%
SWP Exiting Students Who Attained the Living Wage (2020-21)	N/A	Insufficient Data	52%

Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering alternative fuels and advanced transportation technology programs. No awards were conferred by noncommunity college institutions under the related Classification of Instructional Programs (CIP) code: Alternative Fuel Vehicle Technology/Technician (47.0614).

⁵ All SWP metrics are for 2021-22 unless otherwise noted.

Regional Demographics

This section examines demographic data for the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs.

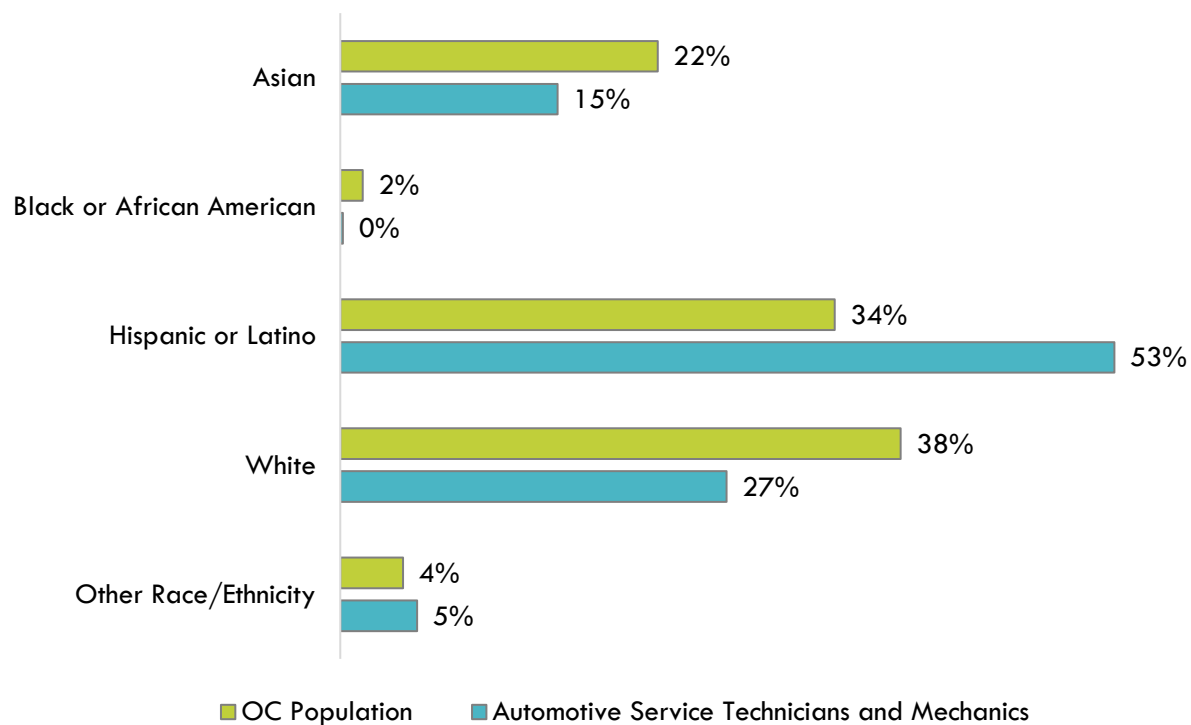
Student outcomes data was not available at the district and county level. Therefore, student demographic data is not available.

Ethnicity:

Exhibit 14 compares the ethnicity of the overall Orange County population, and occupation-specific data for *automotive service technicians and mechanics*.

Notably, 53% of workers employed as *automotive service technicians and mechanics* are Hispanic or Latino, which is much higher than the population (34%). Conversely, 27% of workers in the field are white, which is lower than the population (38%).

Exhibit 14: Program and County Demographics by Ethnicity

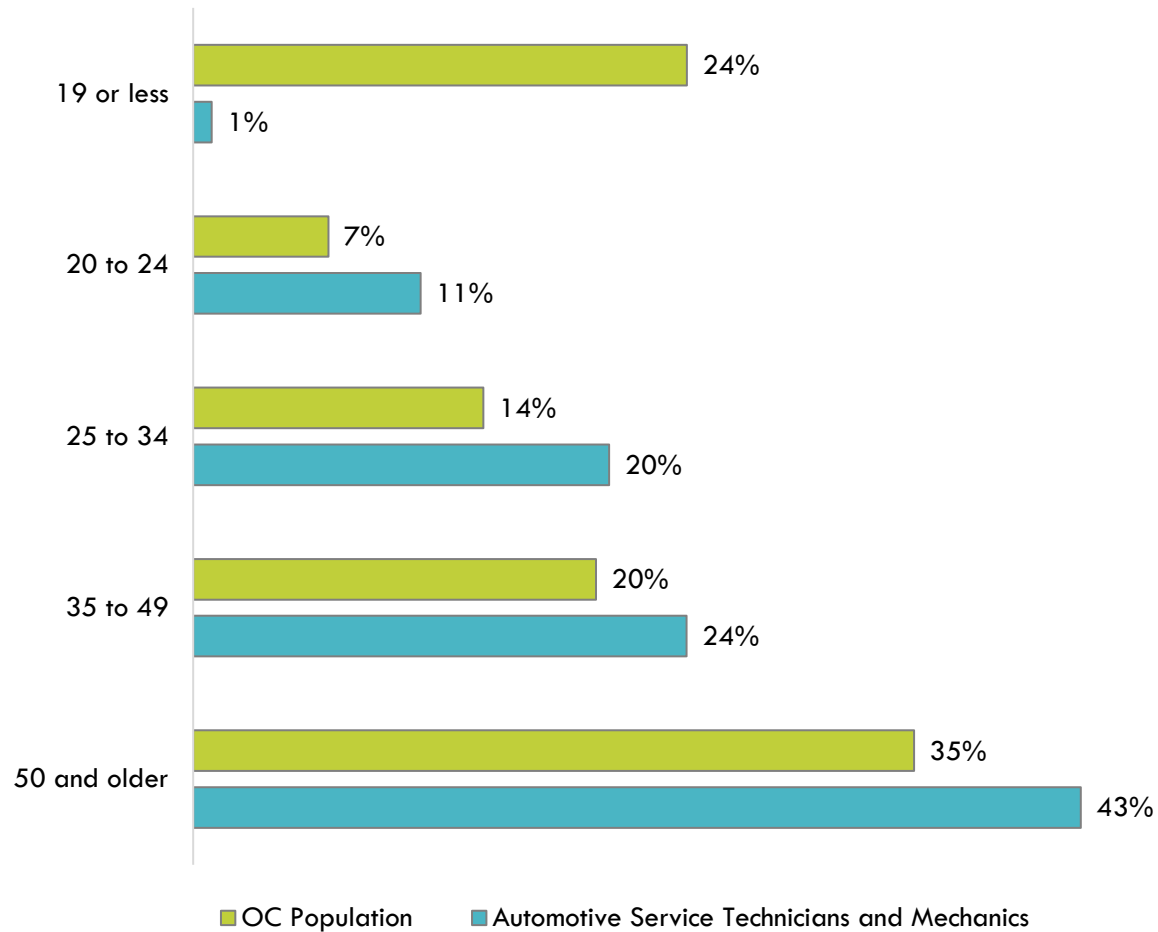


Age:

Exhibit 15 compares the overall Orange County population, and occupation-specific data for *automotive service technicians and mechanics*.

The plurality of *automotive service technician and mechanics* age groups are 50 and older (43%), followed by 35 to 49 (24%) and 25 to 34 (20%).

Exhibit 15: Program and County Demographics by Age

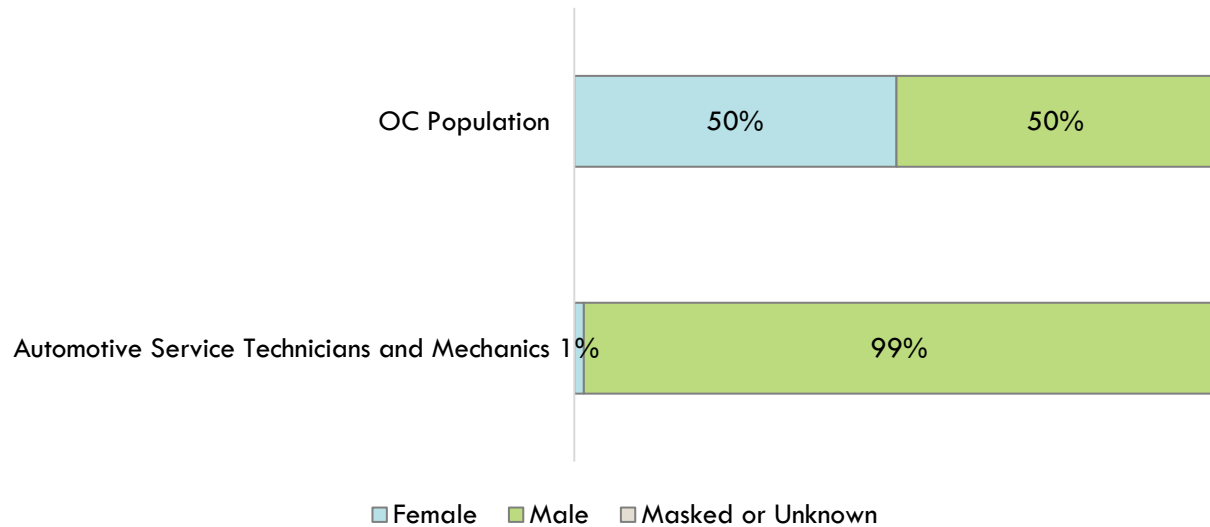


Sex:

Exhibit 16 compares the sex of the overall Orange County population, and occupation-specific data for *automotive service technicians and mechanics*.

Though the population is split evenly between women and men, only 1% of workers in the field are women.

Exhibit 16: Program and County Demographics by Sex



Appendix A: Methodology

The OC COE prepared this report by analyzing data from occupations and education programs. Occupational data is derived from Lightcast, a labor market analytics firm that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS) and other government agencies. Program supply data is drawn from two systems: Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- 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.

The OC COE determined labor market supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a "supply table" with this information, which is the source of the program supply data for this report. TOP code data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP code data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS. TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. Institutions outside of the California Community College system do not use TOP codes in their reporting systems.

Data included in this analysis represent the labor market demand for relevant positions most closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study which can signal demand and show what employers are looking for in potential employees but is not a perfect measure of the quantity of open positions.

All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/
Living Wage	<p>“Living Wage” measures the income necessary for an individual or family to afford basic expenses by assessing the costs such as housing, food, child care, health care, transportation, and taxes.</p> <p>Per the CCCCCO's this report's endorsement criteria uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard last updated in March 2024, which is \$27.13 per hour (\$56,451 annually) in Orange County. For more information, see: http://www.selfsufficiencystandard.org/California</p> <p>The MIT Living Wage, updated on February 10, 2025, is a nationally recognized living wage metric and is provided for reference. The current MIT Living Wage in Orange County is \$32.20. For more information, see: https://livingwage.mit.edu/counties/06059</p>
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations. For more information, see https://www.onetonline.org/help/online/
Educational Supply	<p>The CCCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu</p> <p>The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions</p>
Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx

Data Type	Source
Population and Occupation Demographics	<p>The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. For more information, see: https://www.census.gov/programs-surveys/acs</p> <p>Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: https://usa.ipums.org/usa/about.shtml</p>

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