

# Labor Market Analysis for Program Review: 0948.00/Automotive Technology (Automotive Technology)

Orange County Center of Excellence, December 2024



FOR LABOR MARKET RESEARCH

ORANGE COUNTY

Program reviews are conducted by individual colleges to periodically review curriculum of their existing programs, and in the case of career technical education programs, ensure continued alignment with regional labor market needs. Because a program review evaluates an existing program, rather than establishing a new program, additional supply will not be added; therefore, the endorsement criteria included in this report is determined slightly differently than it is for a new program that requires regional recommendation.

## 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 <b>2,045 annual job openings</b> throughout Los Angeles and Orange counties for <i>automotive service technicians and mechanics</i> , which is <b>more than the 1,767 awards conferred by educational institutions</b> .	
Self-Sufficiency Standard Living Wage <sup>1</sup> :	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Comments: <b>entry-level hourly wages for automotive service technicians and mechanics are \$19.56, which is significantly below the OC living wage of \$27.13.</b>	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Comments: the typical entry-level education for <i>automotive service technicians and mechanics</i> is a <b>postsecondary nondegree award and 36% of workers in the field have completed some college or an associate degree as their highest level of education.</b>	

### 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 <a href="#">Resilient Jobs and US News &amp; World Report Best Jobs</a>		
U.S. News & World Report 2024 Best Jobs List <sup>2</sup> :	Yes <input checked="" type="checkbox"/>	Some <input type="checkbox"/>	No <input type="checkbox"/>
	Comments: See <a href="#">Resilient Jobs and US News &amp; World Report Best Jobs</a>		

<sup>1</sup> 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.

<sup>2</sup> "100 Best Jobs of 2024," U.S. News & World Report, accessed May 7, 2024, <https://money.usnews.com/careers/best-jobs/rankings/the-100-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)*

Based on the available data there appears to be a supply gap for these *automotive service technicians and mechanics* and typical education requirements for this occupation aligns with a community college education. However, the 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 <sup>th</sup> Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Automotive Service Technicians and Mechanics (49-3023)	LA: 1,488 OC: 557	LA: 1,325 OC: 443	OC: \$19.56	Postsecondary nondegree award	36%
<b>Total</b>	<b>2,045</b>	<b>1,767</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

#### Demand:

- The number of jobs related to *automotive service technicians and mechanics* is projected to increase 1% through 2028, equating to 2,045 annual job openings.
- Hourly entry-level wages for *automotive service technicians and mechanics* are \$19.56, which is significantly below the Self-Sufficiency Standard living wage.
- There were 5,216 online job postings for *automotive service technicians and mechanics* over the past 12 months. The highest number of postings were for automotive technicians, automotive mechanics, and automotive technicians/mechanics.
- The typical entry-level education for *automotive service technicians and mechanics* is a postsecondary nondegree 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 1,175 awards conferred by 20 community colleges in Los Angeles and Orange Counties from 2020 to 2023.
- Non-community college institutions conferred an average of 593 awards from 2019 to 2022.
- Orange County community college students that exited automotive technology programs in the 2020-21 academic year had a median annual wage of \$34,514 (\$16.59 per hour) after exiting the program and 31% attained the regional living wage.
- Throughout Orange County, 62% of automotive technology students that exited their program in 2019-20 reported that they are working in a job closely related to 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 in *automotive service technicians and mechanics* decreased only 5% in Orange County during the same period. These automotive technology occupations are projected to grow at a similar rate as all occupations through 2028.

**Exhibit 2: Annual Percent Change in Jobs for Automotive service technicians and mechanics, 2018-2028**

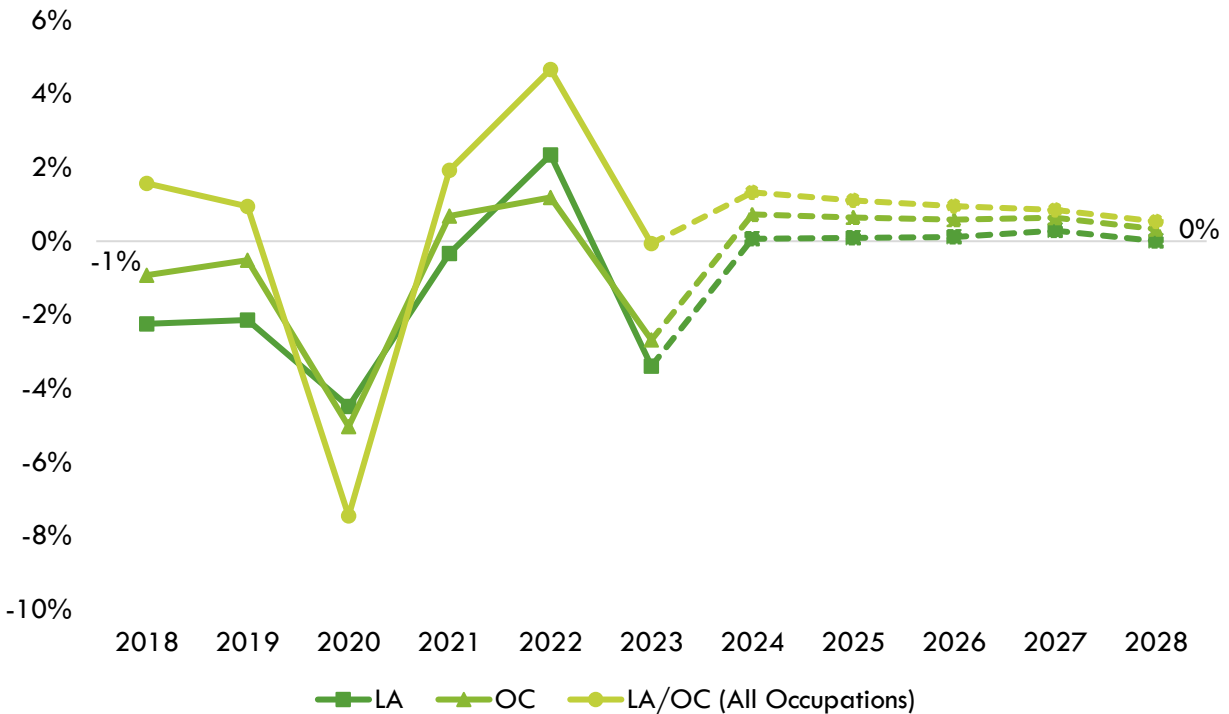


Exhibit 3 shows the five-year occupational demand projections for *automotive service technicians and mechanics*. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to increase by 1% through 2028. There is projected to be 2,045 jobs available annually.

**Exhibit 3: Occupational Demand in Los Angeles and Orange Counties<sup>3</sup>**

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
<b>Total</b>	<b>22,224</b>	<b>22,489</b>	<b>265</b>	<b>1%</b>	<b>2,045</b>

<sup>3</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.

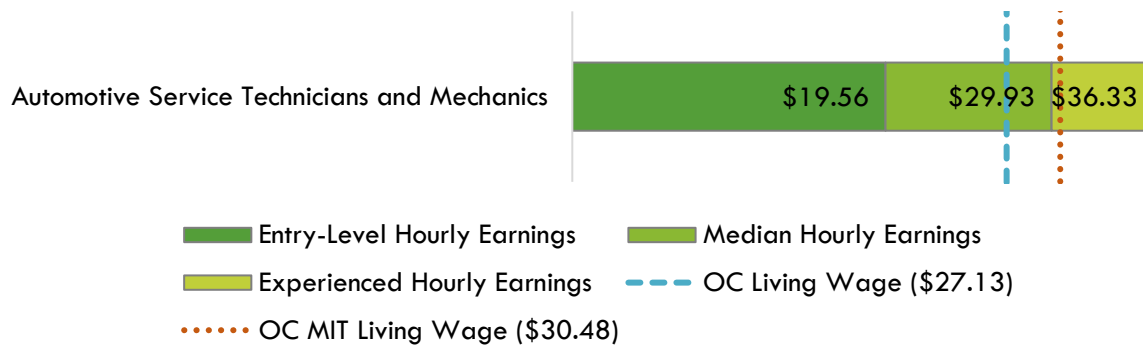
## Wages:

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, last updated in March 2024. Additionally, data for the MIT Living Wage, updated on February 14, 2024, is provided as a reference. Currently, the MIT Living Wage in Orange County is \$30.48. 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.

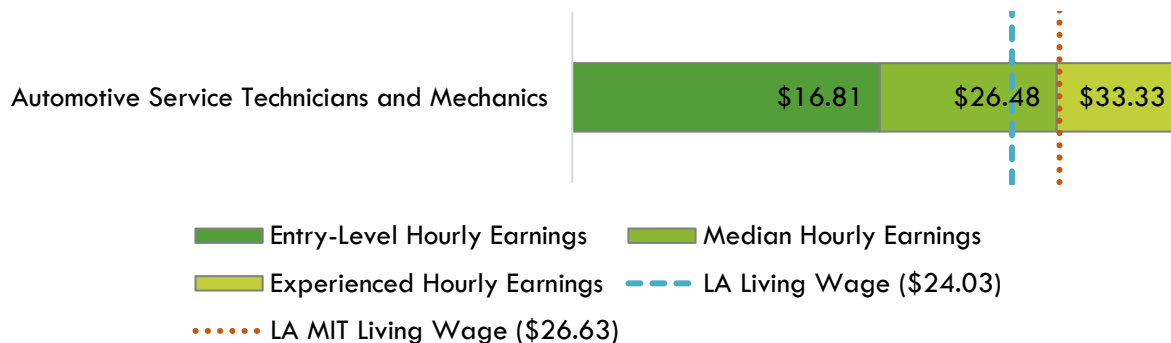
Typical entry-level hourly wages for *automotive service technicians and mechanics* are \$19.56, which is significantly below the living wage for one adult (\$27.13 in Orange County). The median wage is \$29.93, which is above the living wage. Orange County's average wages are above the average statewide wage of \$27.59 for this occupation. Exhibit 4 shows the wage range for *automotive service technicians and mechanics* in Orange County and how it compares to the regional living wage.

### Exhibit 4: Wages by Occupation in Orange County



Typical entry-level hourly wages for *automotive service technicians and mechanics* are \$16.81, which is significantly below the living wage for one adult (\$24.03 in Los Angeles County). The median wage is \$26.48, which is above the living wage. Los Angeles County's average wages 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 it compares 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 the occupation is considered an Orange County Great Recession-Resilient, COVID-19 Pandemic Recession-Resilient Job, or a 2024 U.S. News & World Report (USN&WR) Best Job. *Automotive service technicians and mechanics* met the criteria to be considered a 2024 USN&WR Best Job. However, this occupation did not meet the criteria to be considered a Great Recession-Resilient nor a COVID-19 Pandemic Recession-Resilient Job.

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

Occupation	Great Recession-Resilient Job	COVID-19 Pandemic Recession-Resilient Job	2024 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 of phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.<sup>4</sup> 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 5,216 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=5,216)**

Occupation	Job Postings	Percentage of Job Postings
Automotive Service Technicians and Mechanics	5,216	100%
<b>Total Postings</b>	<b>5,216</b>	<b>100%</b>

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=5,216)**

Employer	Job Postings	Percentage of Job Postings
Walmart	231	4%
Crash Champions	202	4%

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

Employer	Job Postings	Percentage of Job Postings
American Tire Depot	175	3%
Pep Boys	163	3%
Valvoline	149	3%
Mv Transportation	122	2%
Bridgestone Corporation	98	2%
Monro Auto Service and Tire Centers	79	2%
Honda	65	1%
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.

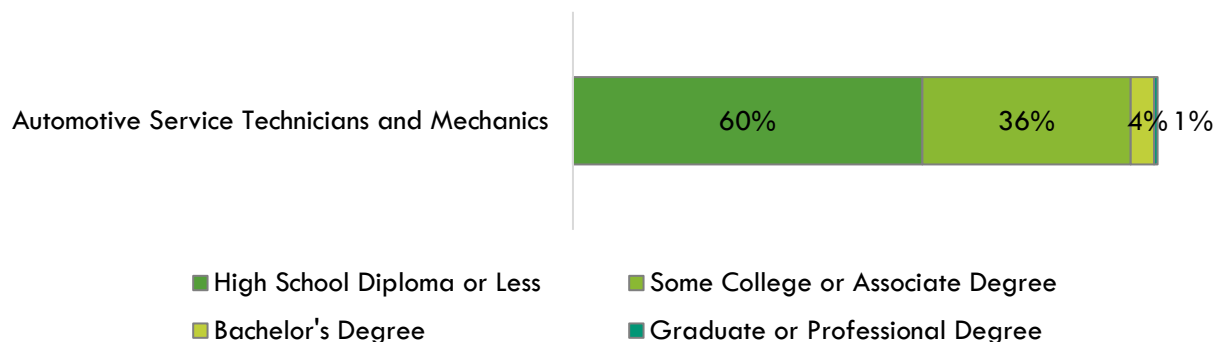
Exhibit 9: Top Skills by Number of Job Postings (n=5,216)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Automotive Services (1,492)	Customer Service (1,647)	Microsoft Excel (108)
Changing Oil (1,027)	Communication (1,616)	Microsoft Office (108)
Suspension (Vehicle) (705)	Detail Oriented (923)	Microsoft Outlook (82)
Brakes (700)	Good Driving Record (899)	Microsoft Word (63)
HVAC (488)	Lifting Ability (796)	Microsoft PowerPoint (62)
Mechanics (482)	Sales (712)	Web Browsers (49)
Hand Tools (472)	Problem Solving (692)	Firefox (45)
Transmission (470)	Management (628)	Microsoft Edge (43)
Vehicle Inspection (449)	Troubleshooting (Problem Solving) (528)	Safari (Web Browser) (43)
Oil and Gas (430)	English Language (424)	Apache Struts (28)

### Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a postsecondary nondegree award as the typical entry-level education for *automotive service technicians and mechanics*. However, the national-level educational attainment data indicates that 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 38% of the cumulative job postings for *automotive service technicians and mechanics* that listed a minimum education requirement in Los Angeles/Orange County, 88% (1,748) requested a high school diploma, vocational training, or an associate degree and 11% (214) requested a bachelor's degree.

# Educational Supply

## Community College Supply:

Exhibit 11 shows the three-year average number of awards conferred by community colleges in the related TOP codes:

- Diesel Technology (0947.00)
- Automotive Technology (0948.00)
- Alternative Fuels and Advance Transportation Technology (0948.40)
- Manufacturing and Industrial Technology (0956.00)

The colleges with the most completions in the region are Cypress, LA Trade, and Rio Hondo. Over the past 12 months, there were three related program recommendation requests from regional community colleges.

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

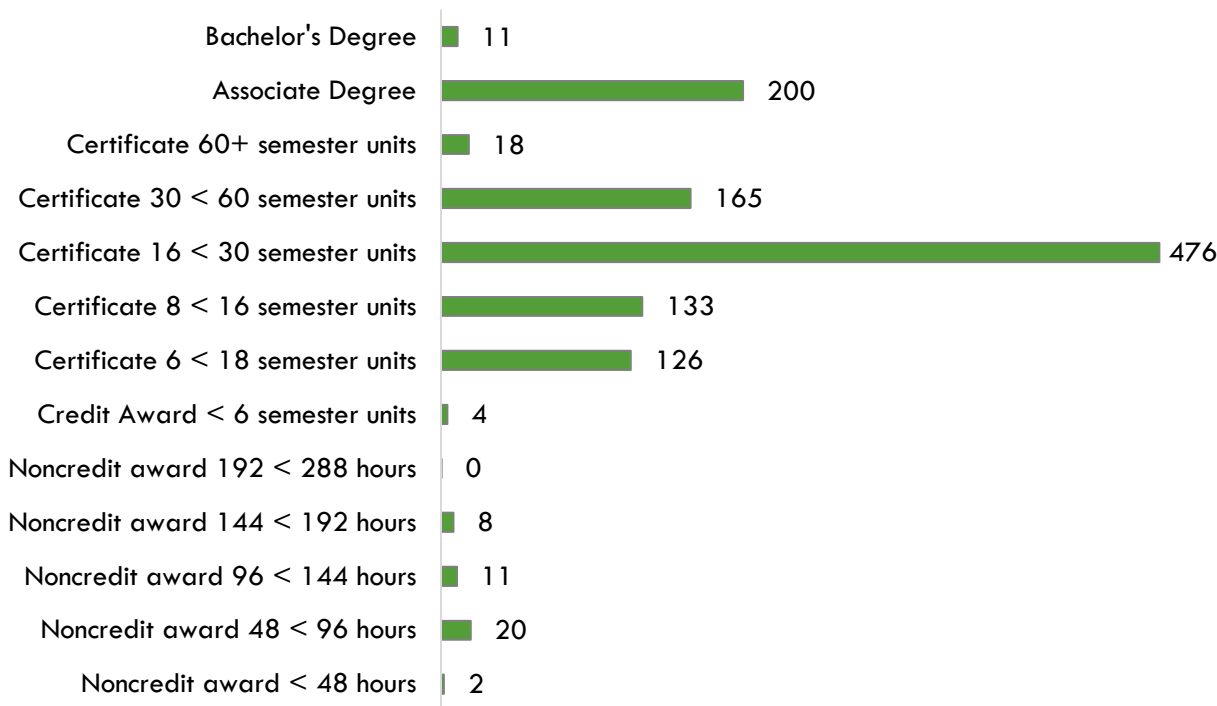
TOP Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
0947.00	Diesel Technology	Citrus	43	30	51	41
		LA Trade	20	41	31	31
		<b>LA Subtotal</b>	<b>63</b>	<b>71</b>	<b>82</b>	<b>72</b>
		Santa Ana	10	0	14	8
		<b>OC Subtotal</b>	<b>10</b>	<b>0</b>	<b>14</b>	<b>8</b>
<b>Supply Subtotal/Average</b>			<b>73</b>	<b>71</b>	<b>96</b>	<b>80</b>
0948.00	Automotive Technology	Cerritos	22	45	75	47
		Citrus	10	35	100	48
		Compton	1	24	58	28
		East LA	18	43	52	38
		El Camino	35	35	43	38
		LA Pierce	44	49	82	58
		LA Trade	81	108	142	110
		Long Beach	42	66	94	67
		Pasadena	36	166	84	95
		Rio Hondo	55	92	80	76
		<b>LA Subtotal</b>	<b>344</b>	<b>663</b>	<b>810</b>	<b>606</b>
		Cypress	140	219	200	186
		Fullerton	25	26	42	31
		Golden West	21	69	111	67
		Saddleback	15	26	35	25
		Santa Ana	57	52	76	62
		Cypress	140	219	200	186
		<b>OC Subtotal</b>	<b>258</b>	<b>392</b>	<b>464</b>	<b>371</b>
		<b>Supply Subtotal/Average</b>			<b>602</b>	<b>1,055</b>

TOP Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
0948.40	Alternative Fuels and Advance Transportation Technology	LA Trade	3	6	18	9
		Long Beach	15	9	7	10
		Rio Hondo	30	44	20	31
		<b>LA Subtotal</b>	<b>48</b>	<b>59</b>	<b>45</b>	<b>51</b>
		Saddleback	2	6	4	4
		<b>OC Subtotal</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>4</b>
<b>Supply Subtotal/Average</b>			<b>50</b>	<b>65</b>	<b>49</b>	<b>55</b>
0956.00	Manufacturing and Industrial Technology	Cerritos	1	1	1	1
		El Camino	0	4	2	2
		Glendale	0	1	0	0
		LA Trade	9	15	3	9
		LA Valley	7	0	2	3
		Mt San Antonio	4	13	26	14
		<b>LA Subtotal</b>	<b>50</b>	<b>65</b>	<b>49</b>	<b>55</b>
		Fullerton	20	18	9	16
		Irvine	4	2	0	2
		Saddleback	4	8	4	5
		Santa Ana	2	4	0	2
		Santiago Canyon	12	7	6	8
		<b>OC Subtotal</b>	<b>42</b>	<b>39</b>	<b>19</b>	<b>33</b>
		<b>Supply Subtotal/Average</b>			<b>63</b>	<b>73</b>
<b>Supply Total/Average</b>			<b>788</b>	<b>1,264</b>	<b>1,472</b>	<b>1,175</b>



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, distantly followed by associate degrees and certificates between 30 and less than 60 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 automotive technology programs in Rancho Santiago Community College District (RSCCD), the Orange County Region, and California. Of the 1,511 Orange County automotive technology students in the 2021-22 academic year, 31% (469) attended an RSCCD college.

RSCCD students that exited automotive technology programs in the 2021-22 academic year had lower median annual earnings (\$32,136 or \$15.45 per hour) compared to all automotive technology students in Orange County (\$34,514 or \$16.59 per hour). A slightly lower percentage (29%) of RSCCD automotive technology students attained the living wage when compared to all automotive technology students in Orange County (31%).

### Exhibit 13: Automotive Technology (0948.00) Strong Workforce Program Metrics, 2021-22<sup>5</sup>

SWP Metric	RSCCD	OC Region	California
SWP Students	469	1,511	13,315
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	25%	35%	35%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	58%	61%	82%

<sup>5</sup> All SWP metrics are for 2021-22 unless otherwise noted.

SWP Metric	RSCCD	OC Region	California
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	34%	190	1,368
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	Insufficient Data	22	234
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	50%	62%	62%
Median Annual Earnings for SWP Exiting Students (2020-21)	\$32,136 (\$15.45)	\$34,514 (\$16.59)	\$36,316 (\$17.46)
Median Change in Earnings for SWP Exiting Students (2020-21)	63%	80%	52%
SWP Exiting Students Who Attained the Living Wage (2020-21)	29%	31%	69%

### Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering automotive technology training programs. Exhibit 14 displays the annual and three-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) codes:

- Automotive Engineering Technology/Technician (15.0803)
- Automobile/Automotive Mechanics Technology/Technician (47.0604)
- Vehicle Emissions Inspection and Maintenance Technology/Technician (47.0612)

No awards were conferred under the following related CIP codes:

- Motorsports Engineering Technology/Technician (15.0807)
- Medium/Heavy Vehicle and Truck Technology/Technician (47.0613)
- Alternative Fuel Vehicle Technology/Technician (47.0614)
- High Performance and Custom Engineer Technician/Mechanic (47.0617)

The available data covers 2019 to 2022. During this period, non-community college institutions in the region conferred an average of 593 awards annually in related programs.

**Exhibit 14: Regional Non-Community College Awards, 2019-2022**

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
15.0803	Automotive Engineering Technology/Technician	Art Center College of Design	43	52	38	44
		Hacienda La Puente Adult Education	25	31	22	26
<b>Supply Subtotal/Average</b>			<b>68</b>	<b>83</b>	<b>60</b>	<b>70</b>
47.0604	Automobile/Automotive Mechanics Technology/Technician	Baldwin Park Adult & Community Education	10	3	4	6
		UEI College-Garden Grove	0	7	64	24
		UEI College-Gardena	127	73	91	97

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		UEI College-West Covina	98	78	102	93
		Universal Technical Institute-Southern California	306	206	391	301
<b>Supply Subtotal/Average</b>			<b>541</b>	<b>367</b>	<b>652</b>	<b>520</b>
47.0612	Vehicle Emissions Inspection and Maintenance Technology/Technician	California Career School	7	0	0	2
<b>Supply Subtotal/Average</b>			<b>7</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>Supply Total/Average</b>			<b>616</b>	<b>450</b>	<b>712</b>	<b>593</b>

## Regional Demographics

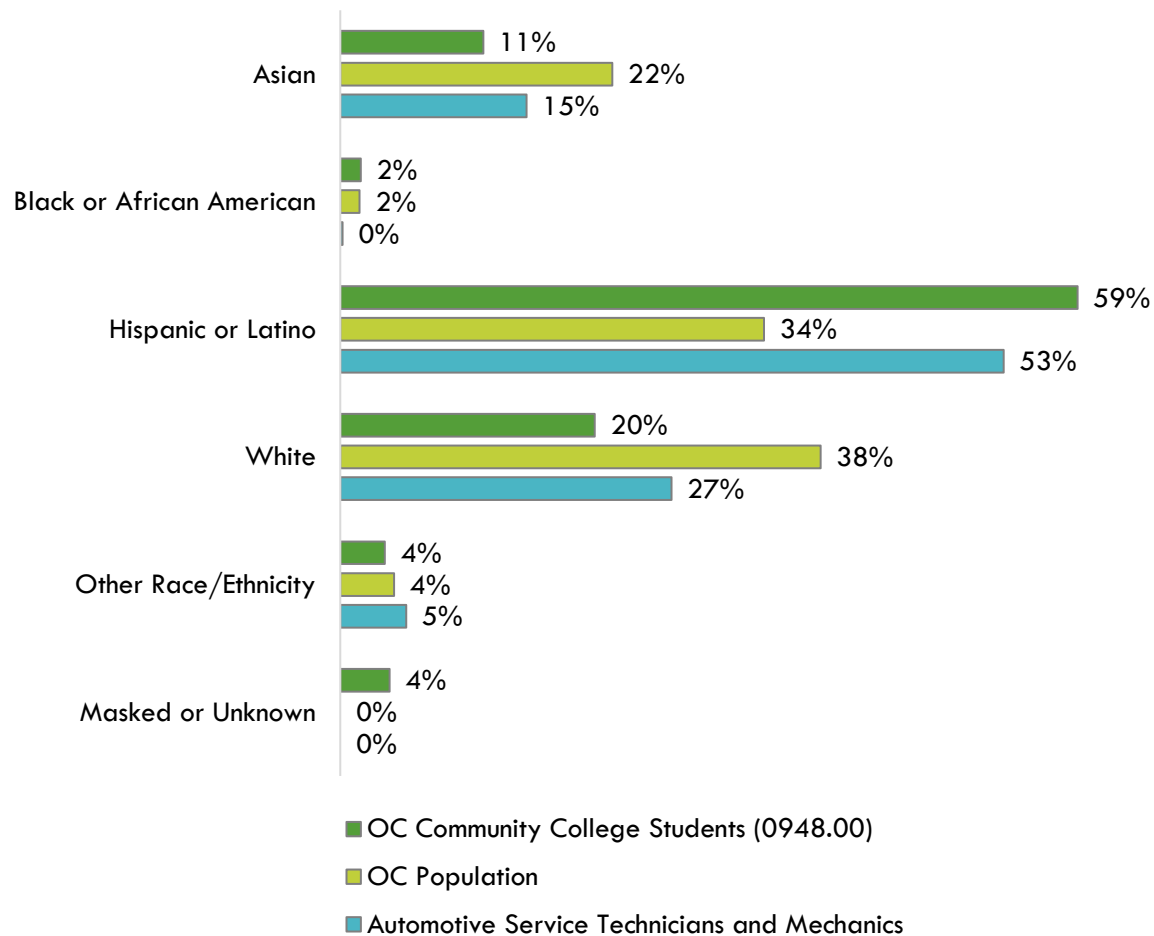
This section examines demographic data for Orange County community college students in automotive technology programs compared to the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs.

### Ethnicity:

Exhibit 15 compares the ethnicity of Orange County community college students enrolled in automotive technology programs, the overall Orange County population, and occupation-specific data for *automotive service technicians and mechanics*.

Notably, over half of community college automotive technology students (59%) and workers in the field (53%) are Hispanic or Latino, which is higher than the population (34%). Conversely, the plurality of individuals in the population is white (38%), which is higher than both community college automotive technology students (20%) and workers in the field (27%).

Exhibit 15: Program and County Demographics by Ethnicity

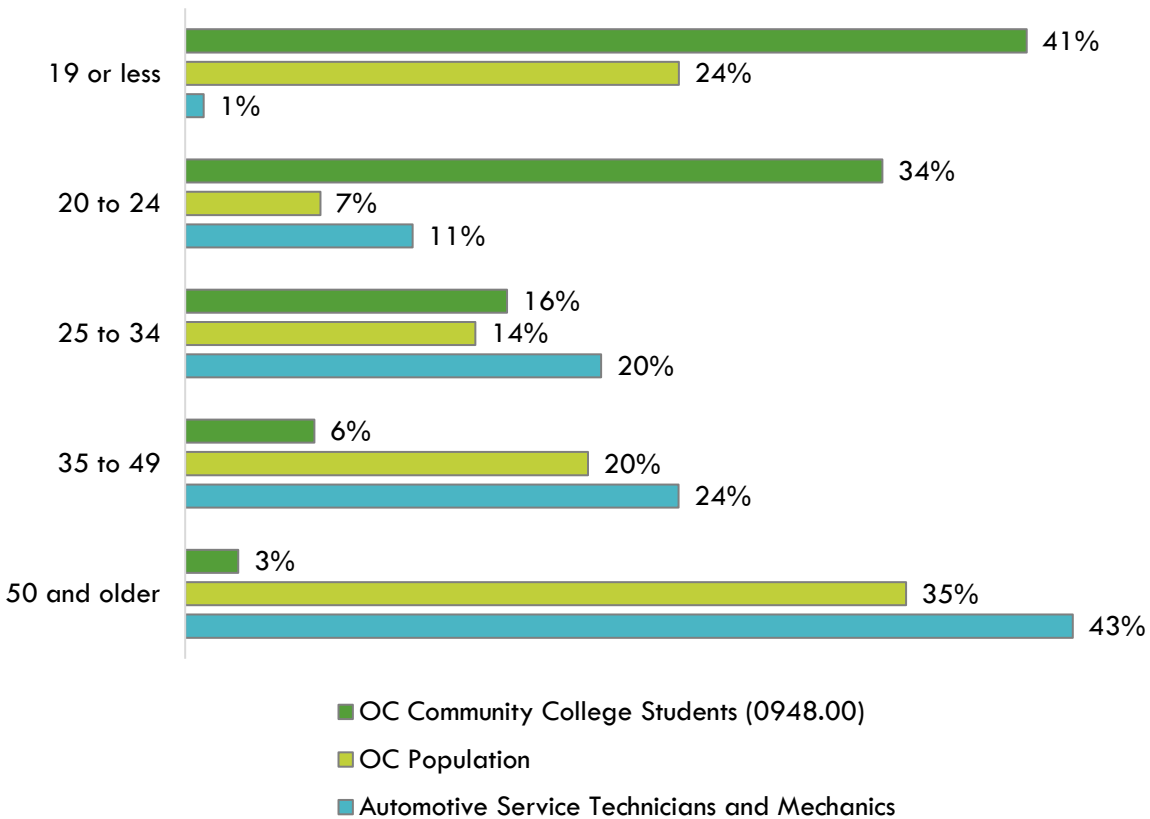


## Age:

Exhibit 16 compares the age of Orange County community college students enrolled in automotive technology programs, the overall Orange County population, and occupation-specific data for *automotive service technicians and mechanics*.

A large majority of community college automotive technology students are 24 or less (75%), which is significantly higher than the population (31%) and workers in the field (12%). Conversely, the vast majority of workers in the field are 25 and older (88%), which is higher than the population (69%) and significantly higher than community college automotive technology students (25%).

Exhibit 16: Program and County Demographics by Age

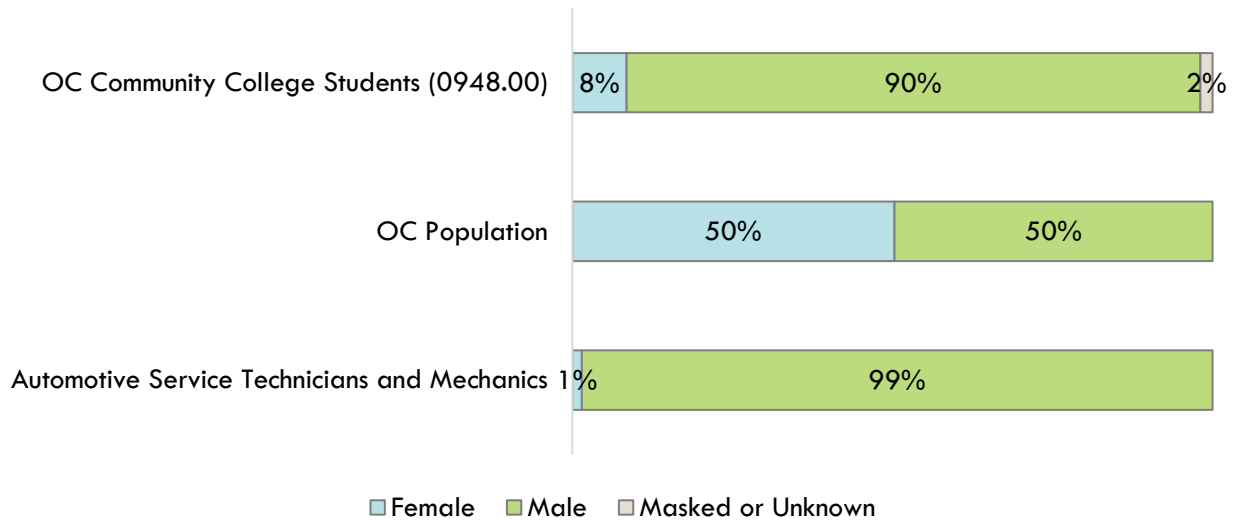


## Sex:

Exhibit 17 compares the sex of Orange County community college students enrolled in automotive technology programs, 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 8% of community college automotive technology students and 1% of workers in the field are women.

**Exhibit 17: 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](http://datamart.cccco.edu)) and CIP code data comes from the Integrated Postsecondary Education Data System ([nces.ed.gov/ipeds/use-the-data](http://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	<p>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 <a href="https://lightcast.io/">https://lightcast.io/</a></p>
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: <a href="http://www.selfsufficiencystandard.org/California">http://www.selfsufficiencystandard.org/California</a></p> <p>The MIT Living Wage, updated on February 14, 2024, is a nationally recognized living wage metric and is provided for reference. The current MIT Living Wage in Orange County is \$30.48. For more information, see: <a href="https://livingwage.mit.edu/counties/06059">https://livingwage.mit.edu/counties/06059</a></p>
Typical Education and Training Requirements, and Educational Attainment	<p>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 <a href="https://www.bls.gov/emp/documentation/education/tech.htm">https://www.bls.gov/emp/documentation/education/tech.htm</a></p>
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	<p>The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations. For more information, see <a href="https://www.onetonline.org/help/online/">https://www.onetonline.org/help/online/</a></p>
Educational Supply	<p>The CCCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: <a href="https://datamart.cccco.edu">https://datamart.cccco.edu</a></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 <a href="https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions">https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions</a></p>
Student Metrics and Demographics	<p>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: <a href="https://www.calpassplus.org/LaunchBoard/Home.aspx">https://www.calpassplus.org/LaunchBoard/Home.aspx</a></p>



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: <a href="https://www.census.gov/programs-surveys/acs">https://www.census.gov/programs-surveys/acs</a></p> <p>Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: <a href="https://usa.ipums.org/usa/about.shtml">https://usa.ipums.org/usa/about.shtml</a></p>

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