

Summary

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

Program LMI Endorsement Criteria

	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Supply Gap:	<i>Comments:</i> there is projected to be 1,086 middle-skill annual job openings throughout Los Angeles and Orange counties for these middle-skill technical theater occupations, which is more than the 369 awards conferred by educational institutions.	
Living Wage: (Entry-Level, 25 th)	<i>Comments:</i> all annual job openings for these middle-skill technical theater occupations have entry-level hourly wages above the OC living wage of \$20.63.	
Education:	<i>Comments:</i> The majority (69%) of annual job openings for these middle-skill technical theater occupations typically require a postsecondary nondegree award and more than one-third of workers in the field have completed some college or an associate degree as their highest level of education.	

Emerging Occupation(s)

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<i>Comments:</i> N/A	

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 four technical theater occupations:

- Middle-Skill
 - Audio and Video Technicians (27-4011)
 - Lighting Technicians (27-4015)
- Above Middle-Skill – denoted with an asterisk (*) throughout this report.
 - Producers and Directors (27-2012)*

Middle-skill occupations typically require a community college education while above middle-skill occupations typically require at least a bachelor’s degree.

Based on the available data, there appears to be a supply gap for these middle-skill technical theater occupations in the region, entry-level wages are above the living wage, and typical education requirements with a community college education. **Therefore, due to all 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
Audio and Video Technicians (27-4011)	LA: 674 OC: 76 TTL: 750	LA: 257 OC: 112 TTL: 369	OC: \$21.24	Postsecondary nondegree award	38%
Lighting Technicians (27-4015)	LA: 302 OC: 34 TTL: 335	Accounted for Above	OC: \$24.08	High school diploma or equivalent	38%
Middle-Skill Total	1,086	369	N/A	N/A	N/A
Producers and Directors (27-2012)*	LA: 4,933 OC: 237 TTL: 5,170	LA: 2,286 OC: 659 TTL: 2,945	OC: \$32.85	Bachelor's degree	19%
Above Middle-Skill Total	5,170	2,945	N/A	N/A	N/A
Total	6,256	3,314	N/A	N/A	N/A

*Denotes an above middle-skill occupation

Demand:

- The number of jobs related to these middle-skill technical theater occupations are projected to increase 14% through 2027. There is projected to be 1,086 annual job openings.
- Hourly entry-level wages for these middle-skill technical theater occupations range from \$21.14 to \$24.08 in Orange County, which is above the living wage of \$20.63.
- There were 913 online job postings for these middle-skill technical theater occupations over the past 12 months. The highest number of postings were for audiovisual technicians, lighting technicians, and audio/video technicians.
- The typical entry-level education for these middle-skill technical theater occupations ranges from a high school diploma or equivalent to a postsecondary nondegree award.
- Approximately 38% of workers in these middle-skill occupations have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 1,112 awards conferred by 22 community colleges in Los Angeles and Orange Counties from 2019 to 2022. Of those, 26% (286) were for the middle-skill occupations.
- Non-community college institutions conferred an average of 2,202 awards from 2019 to 2021. Of those, 4% (83) were for the middle-skill occupations.
- Orange County community college students that exited technical theater programs in the 2020-21 academic year had a median annual wage of \$26,212 after exiting the program and 23% attained the regional living wage.
- There was insufficient data to determine the percentage of technical theater students that exited and 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 all three of the technical theater occupations researched in this report from 2017 through 2027. Employment in these technical theater occupations declined 16% from 2019 to 2020 in Orange County, which is more than double the 7% decline across all occupations due to the COVID-19 pandemic. Employment in these technical theater occupations is projected to grow at a similar rate when compared to all occupations through 2027.

Exhibit 2: Annual Percent Change in Jobs for Technical Theater Occupations, 2017-2027

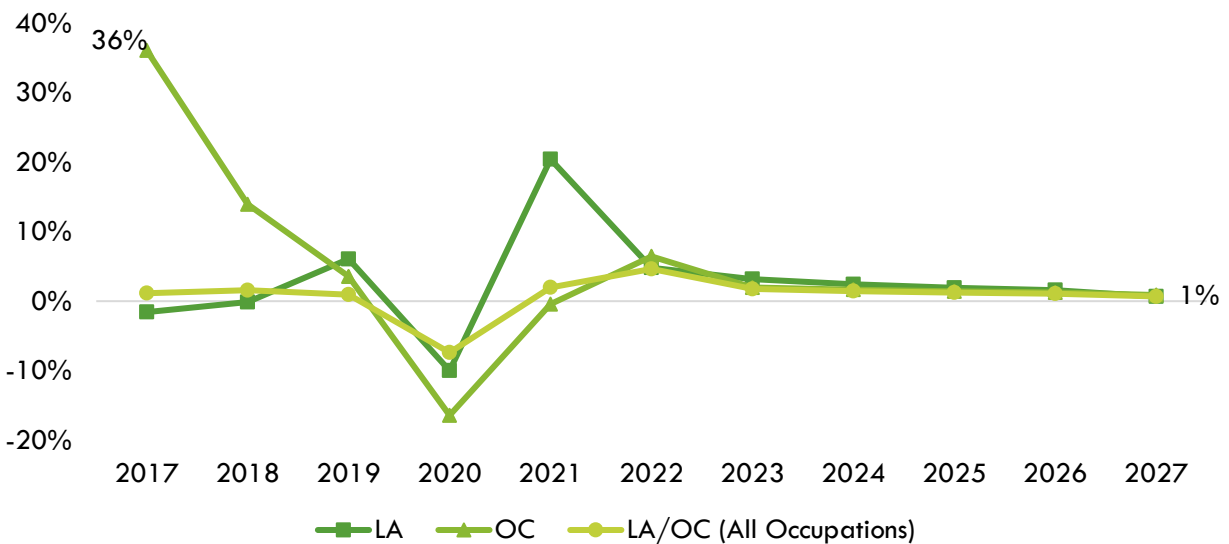


Exhibit 3 shows the five-year occupational demand projections for these middle-skill technical theater occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to create 14% through 2027. There is projected to be 1,140 jobs available annually. Of those, 90% (976) are projected to be in Los Angeles County.

Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties¹

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	7,536	8,559	1,022	14%	976
Orange	849	967	118	14%	110
Total	8,386	9,526	1,140	14%	1,086

Exhibit 4 shows the five-year occupational demand projections for *producers and directors*, the sole above middle-skill technical theater occupation in this report. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to increase by 9% through 2027. There is projected to be 5,170 jobs available annually. Of those, 95% (4,933) are projected to be in Los Angeles County.

¹ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Exhibit 4: Above Middle-Skill Occupational Demand in Los Angeles and Orange Counties

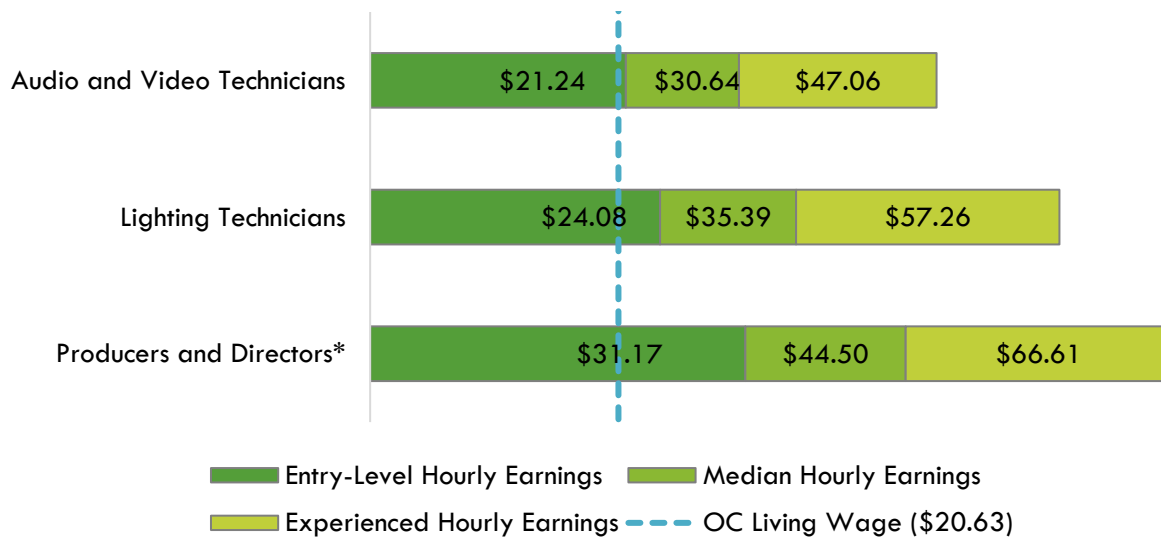
Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	41,801	45,788	3,988	10%	4,933
Orange	2,240	2,349	110	5%	237
Total	44,040	48,137	4,097	9%	5,170

Wages:

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill technical theater occupations in Orange County as they relate to the county’s living wage. Los Angeles County wages are included below in order to provide a complete analysis of the LA/OC region.

All annual openings for these middle-skill technical theater occupations have entry-level wages above the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages range between \$21.24 and \$24.08. Orange County’s average wages are nearly identical to the average statewide wage of \$39.30 for these occupations. Exhibit 5 shows the wage range for each of these technical theater occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

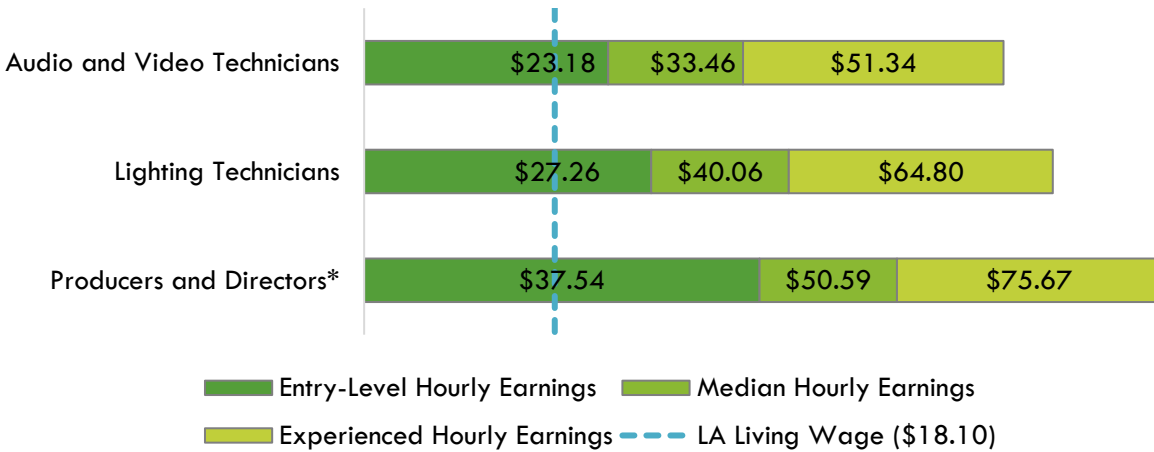
Exhibit 5: Wages by Occupation in Orange County



*Denotes an above middle-skill occupation

All annual openings for these middle-skill technical theater occupations have entry-level wages above the living wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$23.18 and \$27.26. Los Angeles County’s average wages are above the average statewide wage of \$39.30 for these occupations. Exhibit 6, on the following page, shows the wage range for each of these technical theater occupations in Los Angeles County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 6: Wages by Occupation in Los Angeles County



*Denotes an above middle-skill occupation

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.² 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 2,807 online job postings related to these technical theater occupations listed in the past 12 months. Of those, 32% (913) were for middle-skill technical theater occupations. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=2,807)

Occupation	Job Postings	Percentage of Job Postings
Producers and Directors*	1,894	67%
Audio and Video Technicians	856	30%
Lighting Technicians	57	2%
Total Postings	2,807	100%

*Denotes an above middle-skill occupation

² 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 for the middle-skill technical theater occupations in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Middle-Skill Employers by Number of Job Postings (n=913)

Employer	Job Postings	Percentage of Job Postings
Audiovisual Technicians	374	41%
Lighting Technicians	50	5%
Audio/Video Technicians	39	4%
Audio Visual Managers	36	4%
Video Technicians	36	4%
Stage Technicians	25	3%
Stagehands	24	3%
Audio Technicians	23	3%
Video Production Specialists	23	3%
Audiovisual/IT Technicians	17	2%

The top employers for *producers and directors*, the sole above middle-skill occupation, in the region, by number of job postings, are shown in Exhibit 9.

Exhibit 9: Top Above Middle-Skill Employers by Number of Job Postings (n=1,894)

Employer	Job Postings	Percentage of Job Postings
Disney	52	3%
Riot Games	43	2%
Spectrum	43	2%
CBS Broadcasting	40	2%
Canteen Vending	34	2%
NBC	32	2%
Fox News Network	28	1%
Amazon	23	1%
Apple	20	1%
Nexstar Media Group	20	1%

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for these middle-skill occupations in Exhibit 10.

Exhibit 10: Top Skills for Middle-Skill Occupations by Number of Job Postings (n=913)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Audiovisual Equipment (130)	Communications (482)	Microsoft Office (88)
Electrical Wiring (123)	Troubleshooting (Problem Solving) (407)	Microsoft Excel (69)
Project Management (106)	Customer Service (319)	Zoom (Video Conferencing Tool) (61)
Crestron (A/V Systems) (103)	Operations (250)	Microsoft PowerPoint (48)
Electronic Components (100)	Management (159)	Microsoft Outlook (44)
Control Systems (92)	Professionalism (155)	Adobe Photoshop (38)
Invoicing (90)	Lifting Ability (154)	Adobe Premiere Pro (37)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Operations Management (89)	Problem Solving (150)	Adobe After Effects (36)
Low Voltage (75)	Detail Oriented (145)	Pro Tools (29)
Audio-Visual Technology (73)	Video Conferencing (128)	Final Cut Pro (26)

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for *producers and directors* in Exhibit 11.

Exhibit 11: Top Skills for Above Middle-Skill Occupations by Number of Job Postings (n=1,894)

Top Specialized Skills	Top Soft Skills	Top Software and Computer Skills
Project Management (504)	Communications (984)	Adobe Photoshop (217)
Marketing (494)	Detail Oriented (493)	Microsoft Office (163)
Workflow Management (342)	Management (471)	Microsoft Excel (159)
Post-Production (336)	Writing (408)	JIRA (151)
Social Media (223)	Editing (393)	Adobe Premiere Pro (135)
Adobe Photoshop (217)	Planning (367)	Adobe After Effects (124)
Content Creation (201)	Leadership (362)	Microsoft PowerPoint (117)
Production Process (191)	Multitasking (338)	Instagram (98)
Video Production (179)	Problem Solving (334)	TikTok (97)
JIRA (147)	Operations (314)	Adobe Creative Suite (95)

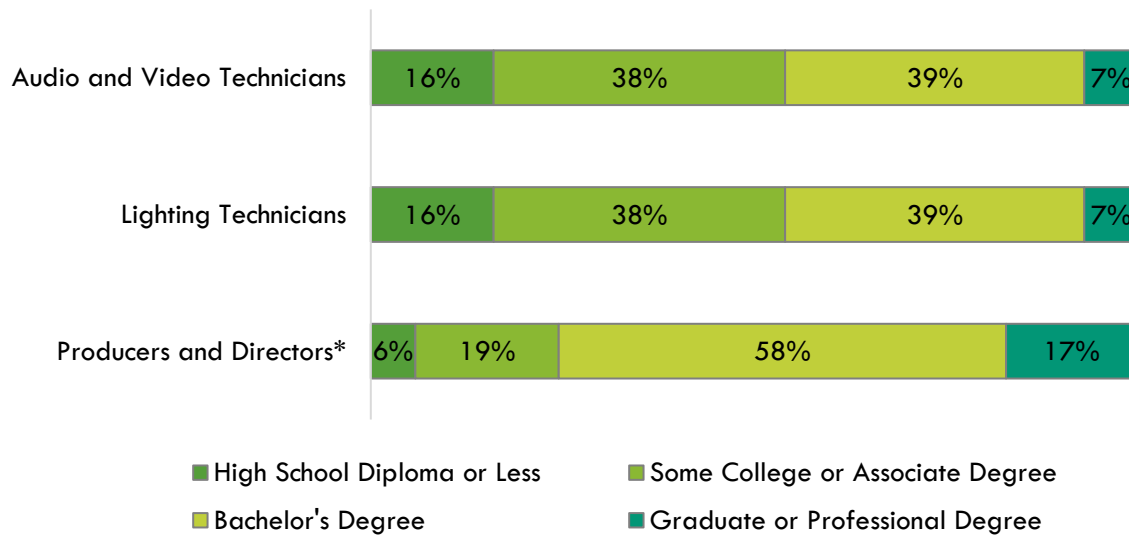
Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for *lighting technicians*; a postsecondary nondegree award for *audio and video technicians*; and a bachelor's degree for *producers and directors*. The national-level educational attainment data indicates that approximately 38% of workers in the middle-skill occupations have completed some college or an associate degree as their highest level of education. Approximately 19% of *producers and directors* have completed some college or an associate degree. Exhibit 12 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Of the 51% of the cumulative job postings for these middle-skill technical theater occupations that listed a minimum education requirement in Los Angeles/Orange County, 79% (363) requested a high school diploma or an associate degree and 21% (99) requested a bachelor's degree.

Conversely, of the 44% of the postings for these above middle-skill technical theater occupations that listed a minimum education requirement, 86% (712) requested a bachelor's degree and 14% (114) requested a high school diploma or an associate degree.

Exhibit 12: National-level Educational Attainment for Occupations



*Denotes an above middle-skill occupation

Educational Supply

Community College Supply:

Exhibit 13 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Radio and Television (0604.00), Radio (0614.10), Television (including combined TV/Film/Video) (0604.20), Film Production (0612.20), Commercial Music (1005.00), and Technical Theater (1006.00). The colleges with the most completions in the region are Saddleback, LA City, and LA Valley. Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

Exhibit 13: Regional Community College Awards (Certificates and Degrees), 2019-2022

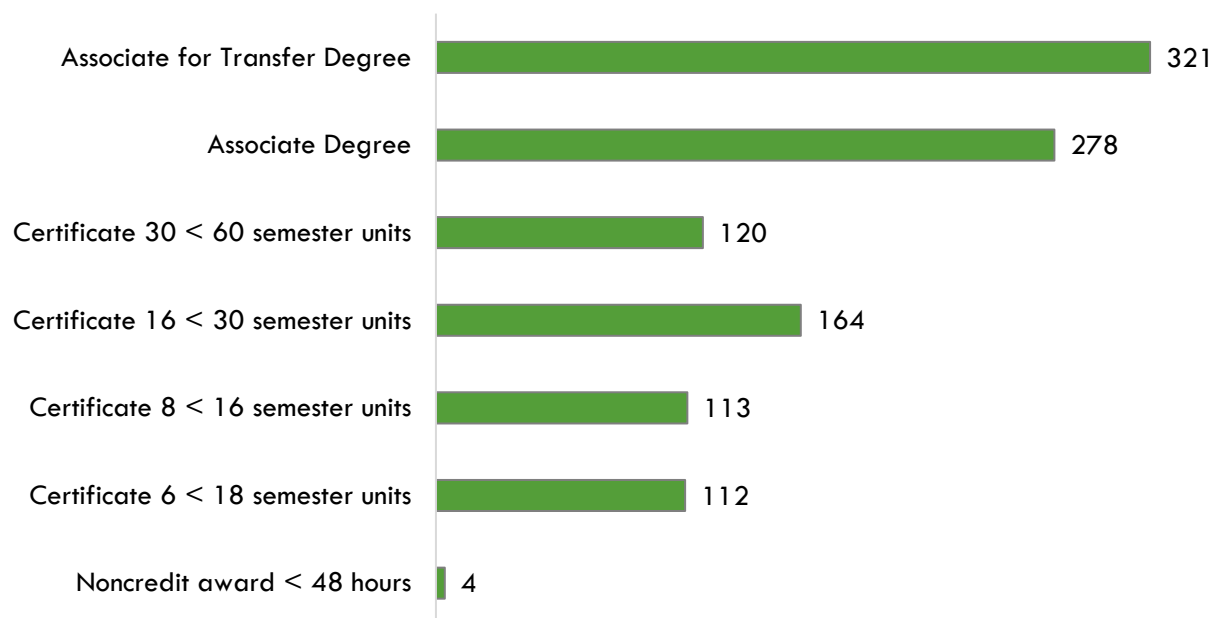
TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
0604.00	Radio and Television	LA Valley	17	12	9	13
		Long Beach	2	2	7	4
		Santa Monica	29	16	8	18
		LA Subtotal	48	30	24	36
		Fullerton	0	2	1	1
		Saddleback	136	98	144	126
		OC Subtotal	136	98	144	126
Supply Subtotal/Average			244	184	130	187
0604.10	Radio	LA Valley	5	3	4	5
		Mt San Antonio	9	0	0	3
		Pasadena	3	1	1	2
		LA Subtotal	17	4	5	10
		Fullerton	4	5	0	3
		OC Subtotal	4	5	0	3
Supply Subtotal/Average			21	9	5	13
0604.20	Television	Cerritos	0	5	13	6
		El Camino	22	27	32	27
		Glendale	14	17	25	19
		LA City	34	45	35	38
		LA Pierce	26	29	31	29
		LA Valley	31	42	48	41
		Long Beach	35	42	49	42
		Mt San Antonio	54	34	50	46
		Pasadena	45	65	51	54
		LA Subtotal	261	306	334	302
		Cypress	15	16	20	17
		Fullerton	48	52	55	51
		Orange Coast	40	22	46	36

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		Saddleback	2	0	15	6
		Santa Ana	17	6	13	12
		OC Subtotal	122	96	149	122
		Supply Subtotal/Average	383	402	483	424
0612.20	Film Production	Cerritos	8	11	22	14
		LA City	62	45	116	73
		LA Valley	31	35	54	40
		Santa Monica	59	41	45	49
		West LA	7	28	10	15
		Cerritos	8	11	22	14
		LA Subtotal	167	160	247	191
		Orange Coast	48	26	32	35
		Saddleback	3	0	0	1
		OC Subtotal	51	26	32	36
		Supply Subtotal/Average	218	168	279	227
1005.00	Commercial Music	Cerritos	5	8	13	9
		Citrus	51	51	26	42
		Compton	1	1	0	1
		East LA	0	2	0	0
		Glendale	0	2	0	1
		LA City	129	12	25	55
		LA Harbor	4	0	7	3
		LA Valley	10	6	18	11
		Long Beach	0	1	0	0
		Pasadena	0	2	0	0
		LA Subtotal	200	85	90	122
		Cypress	17	10	12	13
		Fullerton	10	8	7	8
		Irvine	1	0	0	0
		Orange Coast	8	1	1	3
		Saddleback	9	61	95	55
		Santa Ana	4	7	7	6
		OC Subtotal	49	87	122	85
		Supply Subtotal/Average	423	248	172	277
1006.00	Technical Theater	Citrus	8	7	5	7
		East LA	15	6	32	18
		Glendale	1	0	2	1

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		LA City	1	2	4	2
		LA Pierce	13	7	3	8
		LA Valley	2	1	1	1
		Pasadena	2	2	1	2
		Santa Monica	17	6	16	13
		Citrus	8	7	5	7
		LA Subtotal	59	31	64	52
		Cypress	3	7	6	5
		Fullerton	4	33	0	12
		Golden West	1	0	0	0
		Irvine	3	4	3	3
		Saddleback	2	4	3	3
		Santa Ana	3	6	2	4
		Cypress	3	7	6	5
		OC Subtotal	16	54	14	27
Supply Subtotal/Average			75	85	78	79
Supply Subtotal/Average			1,130	984	1,226	1,112

Exhibit 14 shows the annual average community college awards by type from 2019-20 through 2021-22. The plurality of the awards are associate for transfer degrees, closely followed by associate degrees, and certificates of 16 to less than 30 semester units.

Exhibit 14: Annual Average Community College Awards by Type, 2019-2022



Community College Student Outcomes:

Exhibit 15 shows the Strong Workforce Program (SWP) metrics for technical theater programs in Coast Community College District (CCCD), the Orange County Region, and California. Of the 344 technical theater students in Orange County, 4% (15) attended a CCCD college. Due to the low number of students, there is insufficient data to determine additional outcomes for CCCD students.

Orange County students that exited technical theater programs in the 2019-20 academic year had a 35% median change in earnings, which is similar to students throughout California (39%). Median earnings for students that exited technical theater programs were low for the Orange County Region (\$26,212) and statewide (\$21,924). Three was insufficient data to determine the percentage of Orange County students that are employed in their field of study.

Exhibit 15: Technical Theater (1006.00) Strong Workforce Program Metrics, 2020-21³

SWP Metric	CCCD	OC Region	California
SWP Students	15	344	3,054
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	Insufficient Data	18%	17%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	Insufficient Data	79%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	Insufficient Data	26	74
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	Insufficient Data	51	406
SWP Students with a Job Closely Related to Their Field of Study (2018-19)	Insufficient Data	Insufficient Data	59%
Median Annual Earnings for SWP Exiting Students (2019-20)	Insufficient Data	\$26,212 (\$12.60)	\$21,924 (\$10.54)
Median Change in Earnings for SWP Exiting Students (2019-20)	Insufficient Data	35%	39%
SWP Exiting Students Who Attained the Living Wage (2019-20)	Insufficient Data	23%	21%

Non-Community College Supply:

For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for these technical theater occupations. Exhibit 16 shows the annual and three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Codes: Radio and Television (09.0701), Recording Arts Technology/Technician (10.0203), Directing and Theatrical Production (50.0507), and Cinematography and Film/Video Production (50.0602). Due to different data collection periods, the most recent three-year period of available data is from 2019 to 2021. Between 2019 and 2021, non-community colleges in the region conferred an average of 2,202 awards annually in related training programs. Of those, 96% (2,119) were for *producers and directors*.

³ All SWP metrics are for 2020-21 unless otherwise noted.

Exhibit 16: Regional Non-Community College Awards, 2019-2021

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
09.0701	Radio and Television	California State University-Fullerton	189	185	187
		California State University-Long Beach	0	0	0
		California State University-Los Angeles	154	147	150
		California State University-Northridge	396	427	412
		Loyola Marymount University	0	1	0
		Pepperdine University	20	13	17
Supply Subtotal/Average			766	784	775
10.0203	Recording Arts Technology/ Technician	California State University-Dominguez Hills	0	2	1
		Columbia College Hollywood	0	21	10
		Loyola Marymount University	13	12	12
		Mount Saint Mary's University	0	0	0
		Musicians Institute	73	48	60
Supply Subtotal/Average			86	83	83
50.0507	Directing and Theatrical Production	California Institute of the Arts	3	2	2
		Pepperdine University	0	1	0
		University of Southern California	0	0	0
		Vanguard University of Southern California	3	4	4
Supply Subtotal/Average			6	7	6
50.0602	Cinematography and Film/Video Production	Art Center College of Design	33	41	37
		Biola University	56	56	56
		California Institute of the Arts	39	36	37
		Chapman University	193	166	180
		Columbia College Hollywood	0	105	52
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	12	10	10
		Los Angeles Film School	245	255	250

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
		Loyola Marymount University	118	99	109
		Mount Saint Mary's University	20	21	20
		New York Film Academy	348	315	332
		University of La Verne	0	0	0
		University of Southern California	261	216	239
		Supply Subtotal/Average	1,340	1,337	1,338
		Supply Subtotal/Average	2,198	2,211	2,202

Regional Demographics

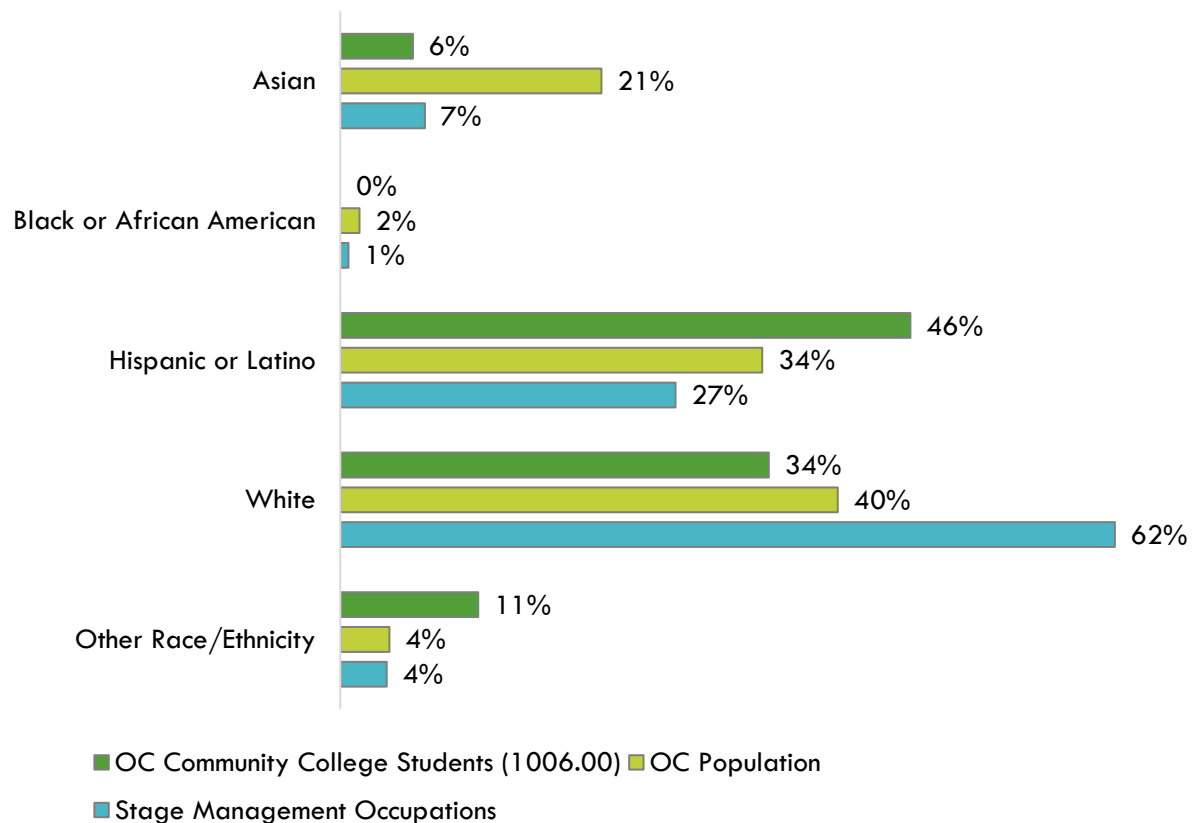
This section analyzes demographic data for Orange County community college students enrolled in technical theater programs compared to the OC population, as well occupational data, for the purpose of identifying potential diversity and equity issues that can be addressed by community college programs.

Ethnicity:

Exhibit 17 shows the ethnicity of Orange County community college students enrolled in technical theater programs compared to the overall Orange County population, as well as the three technical theater occupations included in this report. Notably, 62% of workers employed in these technical theater occupations are white, which is significantly higher than the population (40%) and community college technical theater students (34%). Conversely, 46% of community college technical theater students are Hispanic or Latino, which is higher than the Orange County population (34%) and significantly higher than workers in these technical theater occupations (27%).

Examining disaggregated data for each occupation (not shown), the occupations with the highest percentage of Hispanic or Latino workers are the middle-skill occupations. Additionally, *producers and directors* has the highest percentage of white workers (64%) and also has the highest typical entry-level wages.

Exhibit 17: Program and County Demographics by Ethnicity

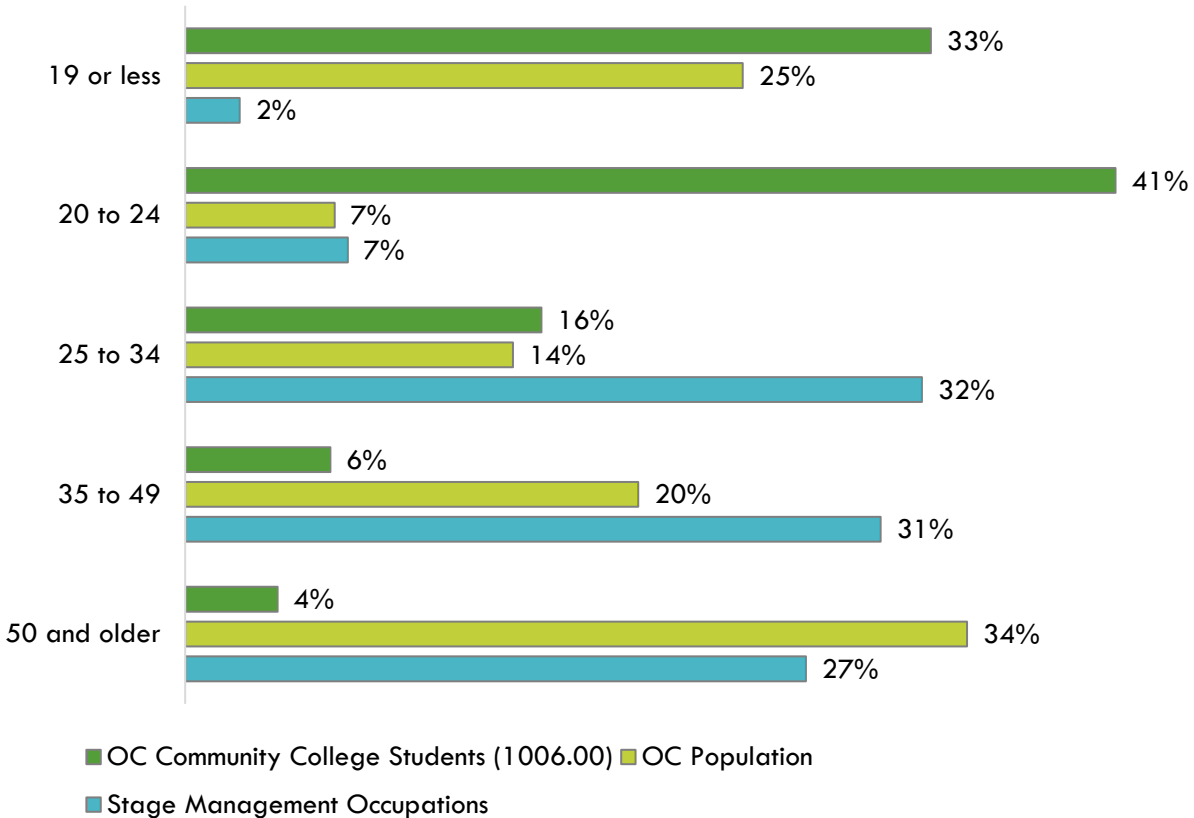


Age:

Exhibit 18 shows the age of Orange County community college students enrolled in technical theater programs compared to the overall Orange County population, as well as the three technical theater occupations included in this report. The plurality of workers in these technical theater occupations are age 25 to 34 (32%), which is significantly higher than the population (14%) and community college technical theater students (16%). Only 9% of workers in these occupations are 24 or less, which is significantly lower than the population (32%), and community college technical theater students (74%).

Examining disaggregated data for each occupation (not shown), there are no significant differences when comparing all occupations.

Exhibit 18: Program and County Demographics by Age



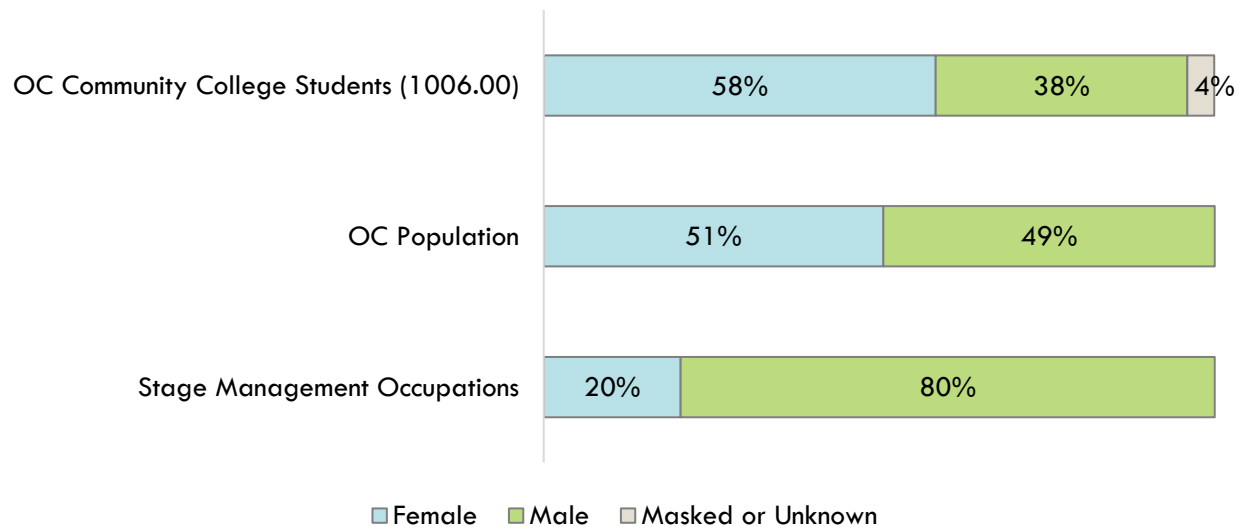
Sex:

Exhibit 19 shows the sex of Orange County community college students enrolled in technical theater programs compared to the overall Orange County population as well as these technical theater occupations.

Though the Orange County population is split nearly evenly between men and women, 80% of workers in these technical theater occupations are men. Conversely, 58% of community college technical theater students are women.

Examining disaggregated data for each occupation (not shown), the two middle-skill occupations have the highest percentage of male workers (92%), followed by *producers and directors* (73%).

Exhibit 19: 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	<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 https://lightcast.io/</p>
Living Wage	<p>The living wage is derived from the Insight Center’s California Family Needs Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, child care, health care, transportation, and taxes. For more information, see: https://insightccd.org/family-needs-calculator/</p> <p>The living wage for one adult in Orange County is \$20.63 per hour (\$42,910.40 annually). This figure is used by the CCCCCO to calculate the percentage of students that attained the regional living wage.</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 https://www.bls.gov/emp/documentation/education/tech.htm</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 https://www.onetonline.org/help/online/</p>
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	<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: https://www.calpassplus.org/LaunchBoard/Home.aspx</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: 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>

For more information, please contact the Orange County Center of Excellence:

Jesse Crete, Ed. D., Director
 crete_jesse@rscdd.edu

Jacob Poore, Assistant Director
 poore_jacob@rscdd.edu

September 2023

