

Pasadena City College

Program Demand Gap Analysis: Environmental Scan and Review of Academic Programs

Executive Summary

June 2024



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Pasadena City College (PCC) is a public, two-year postsecondary educational institution in California. To further its goal of providing the county with well-trained and well-educated residents, PCC continually pursues improvement in various forms. An up-to-date understanding of the county economy and the demand for skilled labor is vital to the planning efforts of the college as it seeks to adapt its program offerings to the requirements of an ever-changing workforce. PCC partnered with Lightcast, a leading provider of labor market data, to complete a program demand gap analysis, which assesses county job openings against educational program completions.



RECOMMENDATIONS

High Demand, Low Supply <i>How can we expand these program opportunities?</i>	High Demand, High Supply <i>Can we focus on student equity and success?</i>
Vocational ESL Health Care (NON-CREDIT) Basic Graphic Design (NON-CREDIT) Paralegal (CERT, ASSOC) Business Administration – Entrepreneurship and Small Business Management (CERT) Radio & Television (CERT) Design Media Arts: Interactive Art Design (CERT) Business Administration (ASSOC, T-T) Studio Arts (ASSOC) Theatre Arts (ASSOC, T-T) Art History (ASSOC) Journalism (T-T) American Sign Language (T-T)	Registered Nursing (ASSOC) Engineering Technology, General (ASSOC) Licensed Vocational Nursing (CERT) Administration of Justice (ASSOC)
Low Demand, Low Supply <i>Should we reevaluate these programs?</i>	Low Demand, High Supply <i>Are we connecting these programs to opportunities outside LA county?</i>
Laser Technology (CERT) Fire Technology (CERT) Dance (ASSOC) Electronic Game Design (CERT, ASSOC) Yoga Teacher Training (ASSOC) Russian (ASSOC) Agriculture Plant Science (T-T)	Natural Sciences (ASSOC) Biology/Biological Sciences, General (T-T) Psychology, General (ASSOC, T-T) Sociology, General (ASSOC, T-T) Political Science (T-T)

Source: Lightcast program demand gap model.
 Degree Levels indicated in parentheses correspond to the level at which these programs exhibit the characteristics of their quadrant.
 For quadrant definitions refer to page 52 of PCC's PDGA Main Report.

NEW PROGRAM OPPORTUNITIES

One hundred certificate level programmatic areas of opportunity have been identified in the program demand gap analysis, most of which are related to goods production occupations. At the associate degree level, there are fewer opportunities for new programs, considering the college's current offerings. Nonetheless, PCC should consider new programs related to healthcare support occupations, whether its focus is on job openings in Los Angeles (LA) County or California. Another 26 programmatic areas of opportunity were identified at the transfer-track degree level, many of which are related to business & financial operations occupations, a demand which PCC could establish or adjust existing transfer-track degrees to meet. Some program opportunities may be related to the college's current program offerings, which indicates an opportunity for a curriculum adjustment to better align with LA County's current and projected labor market demand. A selection of these occupations, which have the most openings in LA County by award level, appear in Table 2.

Table 1: Program Opportunities by Education Level

SOC TITLE	2023 JOBS	ANNUAL JOB OPENINGS	ANNUAL COMPL.	GAP	MEDIAN HOURLY WAGE	ED. LEVEL
First-Line Supervisors of Transportation & Material Moving Workers, Except Aircraft Cargo Handling Supervisors	18,913	1,333	0	1,332	\$27.46	CERT
Production, Planning, & Expediting Clerks	19,996	1,065	5	1,060	\$24.81	CERT
Inspectors, Testers, Sorters, Samplers, & Weighers	14,792	1,021	0	1,021	\$21.78	CERT
Sales & Related Workers, All Other	10,591	588	2	587	\$24.96	CERT
Property, Real Estate, & Community Association Managers	17,616	638	117	521	\$30.35	CERT
Physical Therapist Assistants	2,384	288	74	214	\$38.68	ASSOC
Veterinary Technologists & Technicians	2,128	190	33	157	\$23.33	ASSOC
Respiratory Therapists	4,207	193	85	108	\$41.19	ASSOC
Airline Pilots, Copilots, & Flight Engineers	6,452	551	0	551	\$113.39	T-T
Training & Development Specialists	8,951	390	0	390	\$33.38	T-T
Agents & Business Managers of Artists, Performers, & Athletes	6,529	431	65	365	\$49.29	T-T
Educational Instruction & Library Workers, All Other	10,699	325	0	325	\$26.16	T-T
Logisticians	6,931	321	0	321	\$38.30	T-T

SOC refers to the Standard Occupational Classification system used to classify occupations. Average annual job openings represent county data from 2023 to 2033. Numbers may not sum due to rounding.
Source: Lightcast program demand gap model.

INTRODUCTION

For the purposes of the program demand gap analysis, PCC serves LA County California. This report outlines the county's economy and uses the county's average annual projected job openings between 2023 and 2033 as a measurement of labor market demand. When job openings are compared to the county's supply of educational program completions, the analysis determines how well PCC's program offerings satisfy county workforce demand. In addition, this report offers recommendations for new program development. In its entirety, the analysis is a starting point for PCC as the college continues to develop programs using data-based decision-making strategies. The following figures and table display key findings of the analyses.



Lightcast provides colleges and universities with labor market data that helps create better outcomes for students, businesses, and communities. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. Hundreds of institutions use Lightcast to align programs with county needs, drive enrollment, connect students with in-demand careers, track their alumni's employment outcomes, and demonstrate their institution's economic impact on their county. Visit lightcast.io/solutions/education to learn more or connect with us.

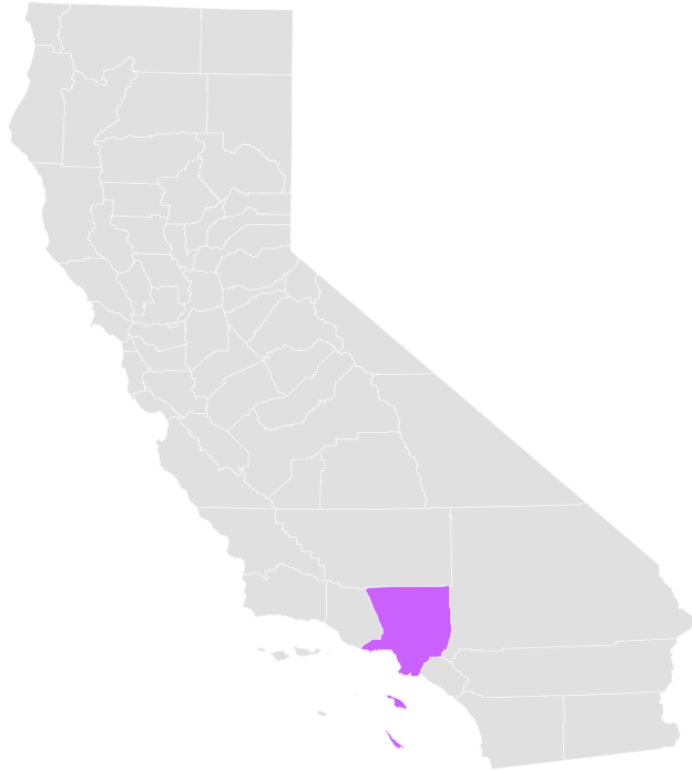


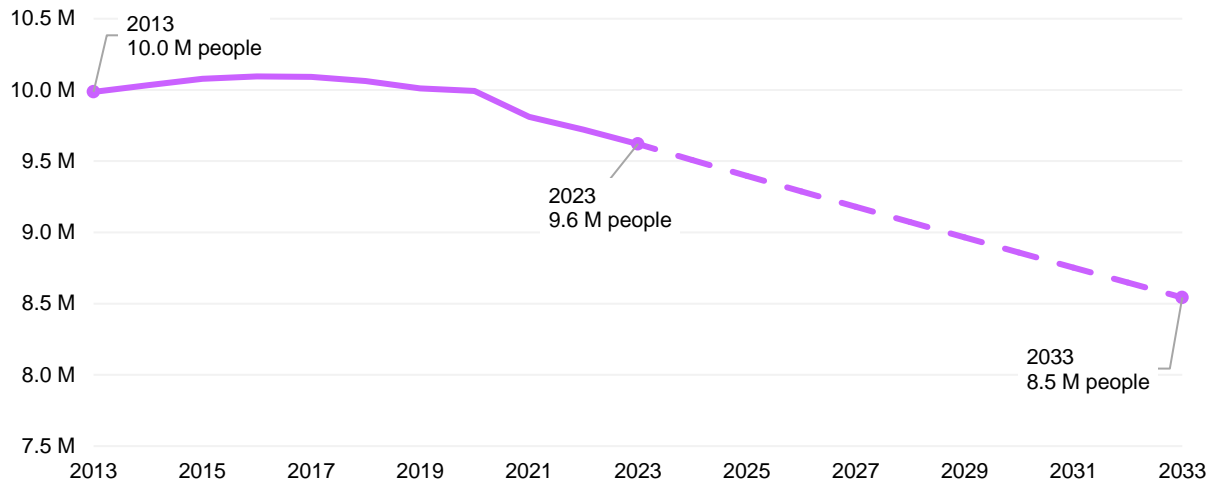
Figure 1: Map of Los Angeles County



ENVIRONMENTAL SCAN

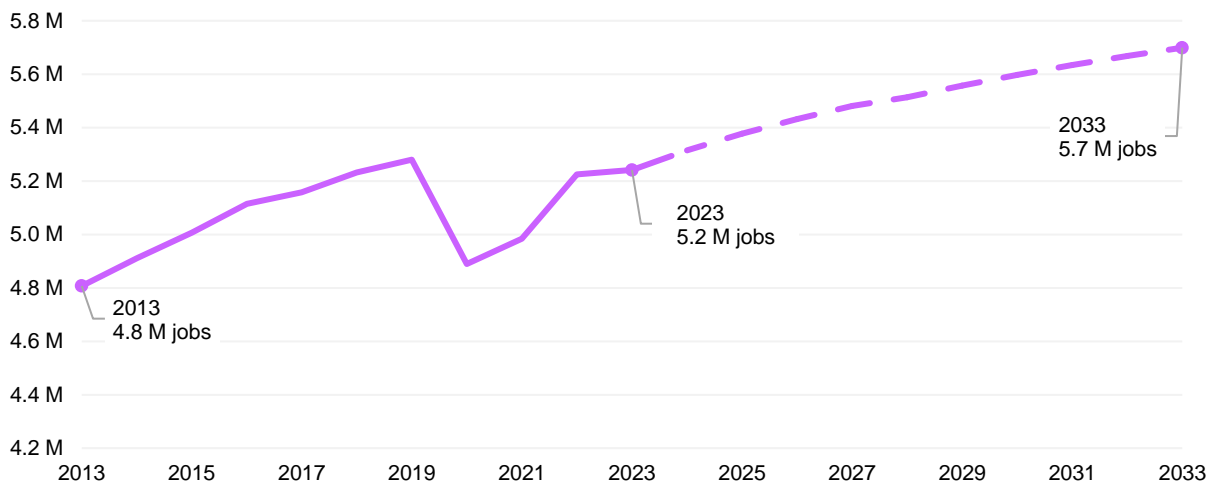
In 2013, 10.0 million people lived in Los Angeles County, and 8.5 million people are projected to live in the county by 2033 (Figure 2). As shown in Figure 3, Los Angeles County supported 4.8 million jobs in 2013. By 2023, that number increased to 5.2 million jobs for an increase of 9.0%. The impact of the Covid-19 pandemic is clearly illustrated in Figure 3 by the loss of jobs from 2019 to 2020. However, jobs in Los Angeles County recovered well from 2020 to 2021 and are projected to continue growing over the next ten years at a similar pace to the rate of growth before the pandemic.

Figure 2: Historical and Projected Population in Los Angeles County, 2013 to 2033



Source: Lightcast demographics data, U.S. Census Bureau, U.S. Health Department.

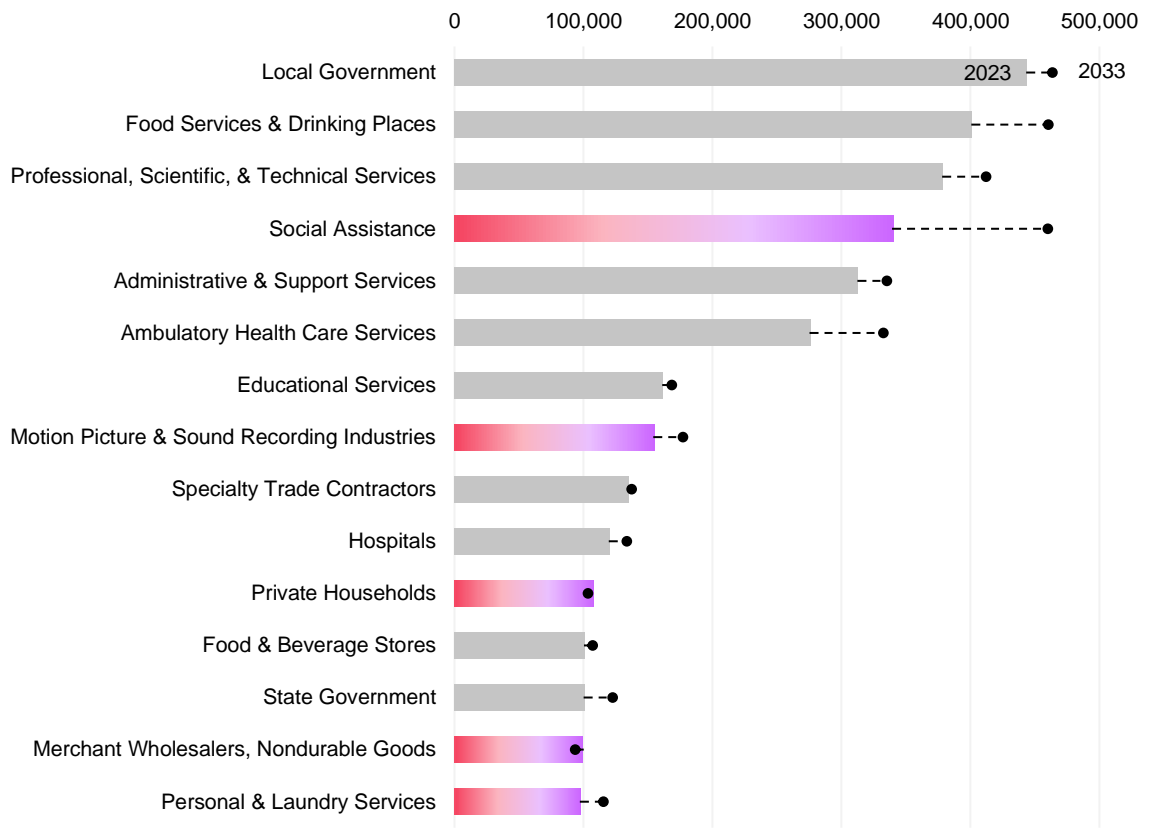
Figure 3: Historical and Projected Jobs in Los Angeles County, 2013 to 2033



Source: Employees & Self-Employed 2024.1.

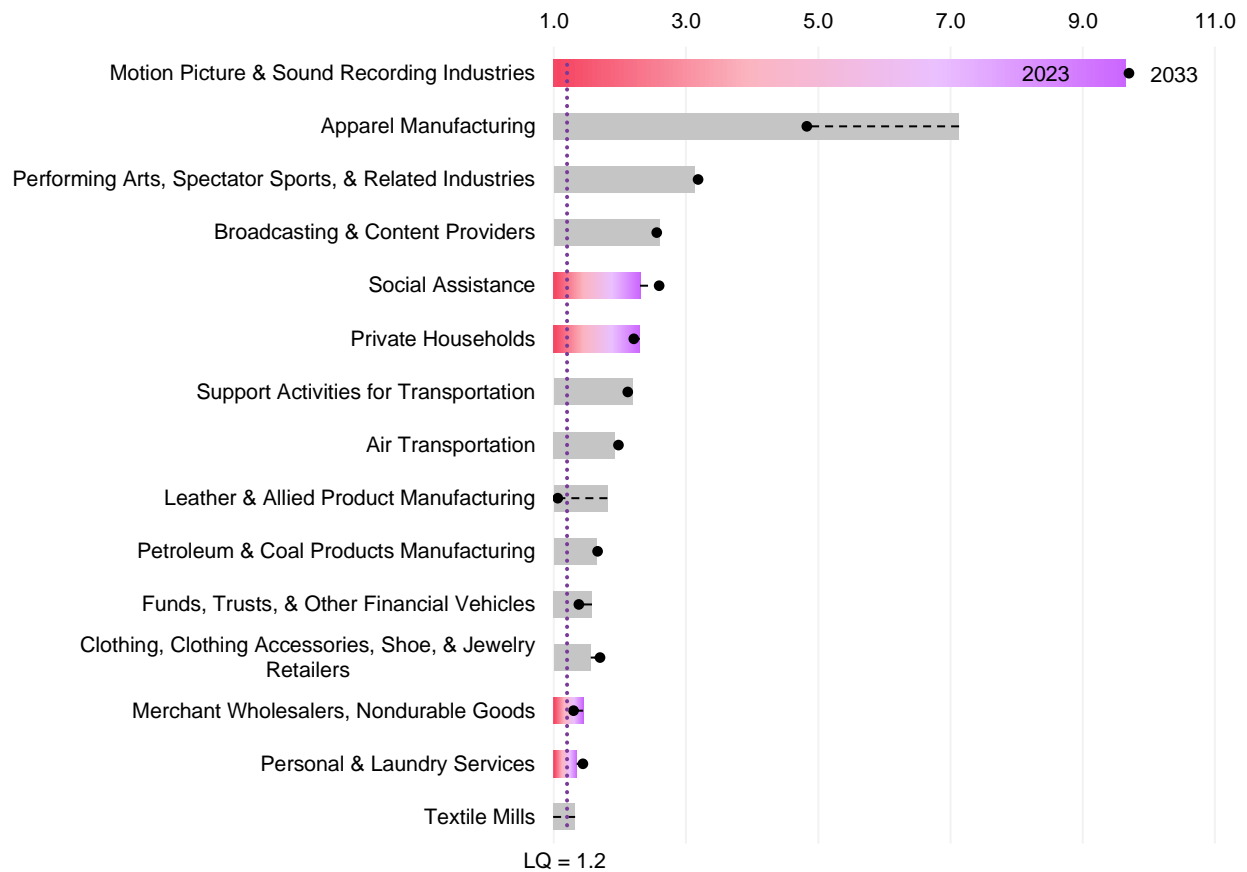
Figure 4 displays the top industry subsectors in terms of employment in Los Angeles County, and Figure 5 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients (LQs). High LQs (usually anything greater than 1.2) are an indication that the county has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or potentially to other counties.

Figure 4: Top Industry Subsectors in Los Angeles County by Jobs



Source: Employees & Self-Employed 2024.1.

Figure 5: Top Industry Subsectors in Los Angeles County by Employment Concentration (LQ)



Source: Employees & Self-Employed 2024.1.

Note the highlighted bars in the figures. Across all of Los Angeles County's industry subsectors, five are within the top 15 in terms of jobs with relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the county's economy and offers the college insight into potential employment opportunities for its students. These industry subsectors, and their top three occupations, ranked by 2023 jobs, are:

- Social Assistance (Home Health and Personal Care Aides; Childcare Workers; and Preschool Teachers, Except Special Education);
- Motion Picture & Sound Recording Industries (Producers and Directors; Film and Video Editors; and Actors);
- Private Households (Childcare Workers; Maids and Housekeeping Cleaners; and Home Health and Personal Care Aides);
- Merchant Wholesalers, Nondurable Goods (Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products; Laborers and Freight, Stock, and Material Movers, Hand; and Stockers and Order Fillers); and
- Personal & Laundry Services (Hairdressers, Hairstylists, and Cosmetologists; Manicurists and Pedicurists; and Animal Caretakers).

The data in Table 1 show several of the county's socioeconomic indicators. Household income, reported as a median annual value, includes the income of all individuals in a household, 15

years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population.

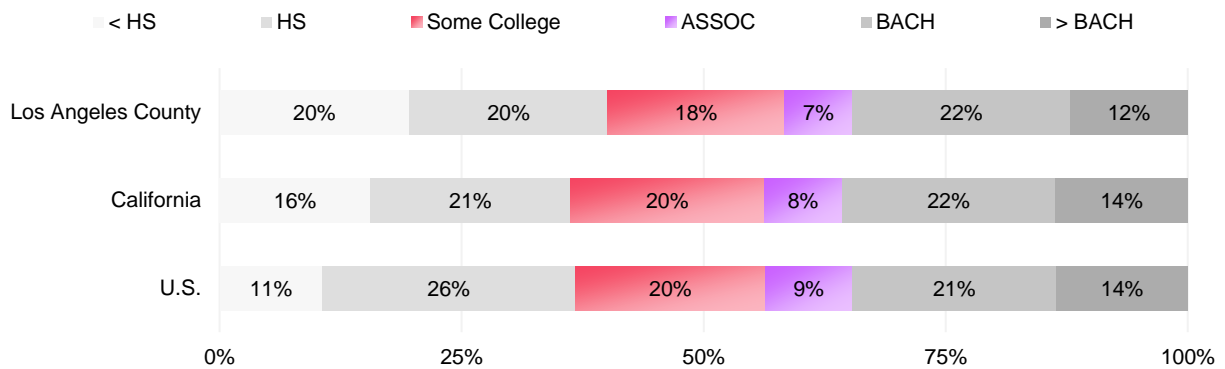
Table 2: Income, Unemployment, and Poverty Characteristics for Los Angeles County and California

COUNTY	MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE	PER CAPITA INCOME	POVERTY ALL PEOPLE
PACCD	\$96,962	6.4%	\$47,624	11.5%
Los Angeles County	\$83,411	7.0%	\$41,847	13.7%
California	\$91,551	3.4%	46,661	12.2%

Source: American Community Survey 2022 five-year estimates from the U.S. Census Bureau Data.

Figure 6 displays the highest educational attainments of Los Angeles County, California, and U.S. adults, without reference to gender and the major race and ethnic groups. Educational attainment data are useful for targeting specific population groups with less than or greater than average education levels.

Figure 6: Highest Educational Attainments of Adults in Los Angeles County, California, and the U.S.



Numbers may not sum due to rounding.

Source: Lightcast demographics data and U.S. Census Bureau, American Community Survey.

PROGRAM DEMAND GAP ANALYSIS

The program demand gap analysis provides results across all of PCC’s non-credit, certificate, and degree level programs, which have been classified by their formal TOP code. The analysis connects the college’s program completers with the availability of job openings in LA County. For PCC’s non-credit programs, the analysis is similar in that it connects the college’s completers with the availability of county job openings but without the additional reference to non-credit program completions from other postsecondary educational institutions in Los Angeles County. Furthermore, the analysis focuses on the gaps and surpluses in the programs

by award level. A gap or surplus larger than 1,000 is considered beyond normal labor market fluctuations and therefore an area of consideration for program development.

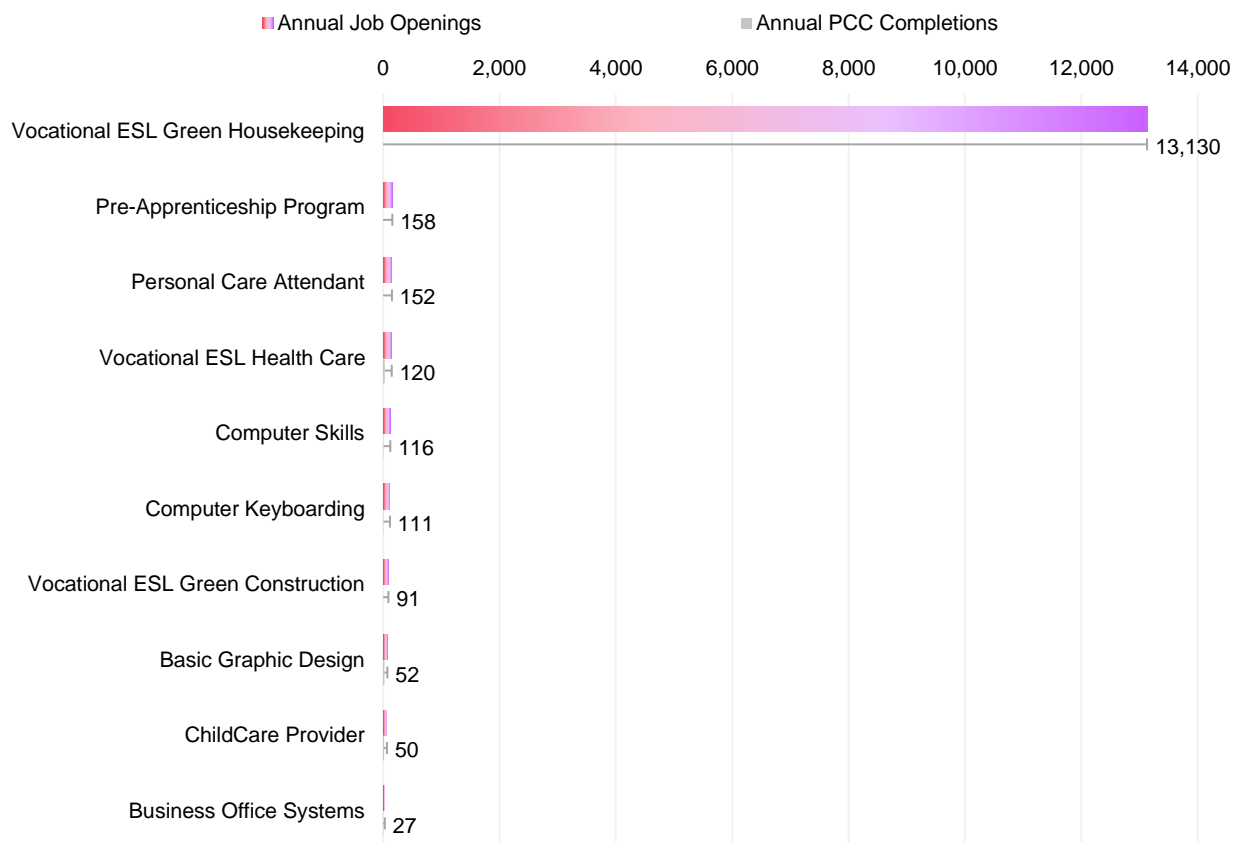
Non Credit Analysis

PCC offers 21¹ non-credit programs, which, when grouped by their TOP codes results in 17 unique programs to evaluate. The non-credit programs can be designed for self-enrichment; however, PCC offers them with workforce skills in mind. Using a customized non-credit program-to-occupation map, the programs are analyzed using similar methods to the program demand gap analysis. One non-credit program has a significant gap above the 1,000-openings level of significance. With regards to specific programmatic results, the following non-credit programs should be considered for expansion due to their gap and median hourly wage: Vocational ESL Health Care and Basic Graphic Design. The three largest non-credit programs offered by PCC in terms of average annual completions are Vocational ESL Health Care, Basic Graphic Design, and Child Care Provider. Since PCC's current highest completion programs are also in line with the programs with the largest gap and highest median hourly wage, this indicates that PCC is efficiently allocating resources to those programs that not only serve Los Angeles County, but also serves the students by providing high median hourly wages. It is worth noting that only the Vocational ESL Green Housekeeping program has a gap beyond the 1,000-level of significance. There are few education programs that specifically train for janitors and housekeepers, which is why this program has such a large gap of unmet annual job openings. Although there are few education programs of this nature, there are many other sources of workers that may be supplying these occupations in Los Angeles County and many workers likely receive on-the-job training. PCC should do more research on other sources of workers for these occupations before making a determination on program expansion.

- One non-credit program has a significant gap above the 1,000 openings level of significance.
- PCC's Highest completions programs are in line with the regional gaps, indicating PCC is efficiently allocating resources to serve both it's students and Los Angeles County at the non-credit level.
- PCC should do more research on alternative sources of workers for Janitors and Housekeepers before considering expanding the Vocational ESL Green Housekeeping program.

¹ PCC provided a total of 21 programs for evaluation, due to the similarity of some of these programs, they have been analyzed together. The programs that were analyzed together are: Child Care Provider, Vocational ESL Child Care Provider, and Family Home Child Care Provider; and Intro Start Small Business, and Intro Start Small Business Bilingual. Additionally, one program (Basic Workforce Readiness DSPS) is excluded from this analysis due to its broad scope, making an occupation mapping impractical.

Figure 7: Top 10 Gaps for Non-Credit Programs



Non-credit programs are grouped by their TOP code.
 Source: Lightcast program demand gap model.

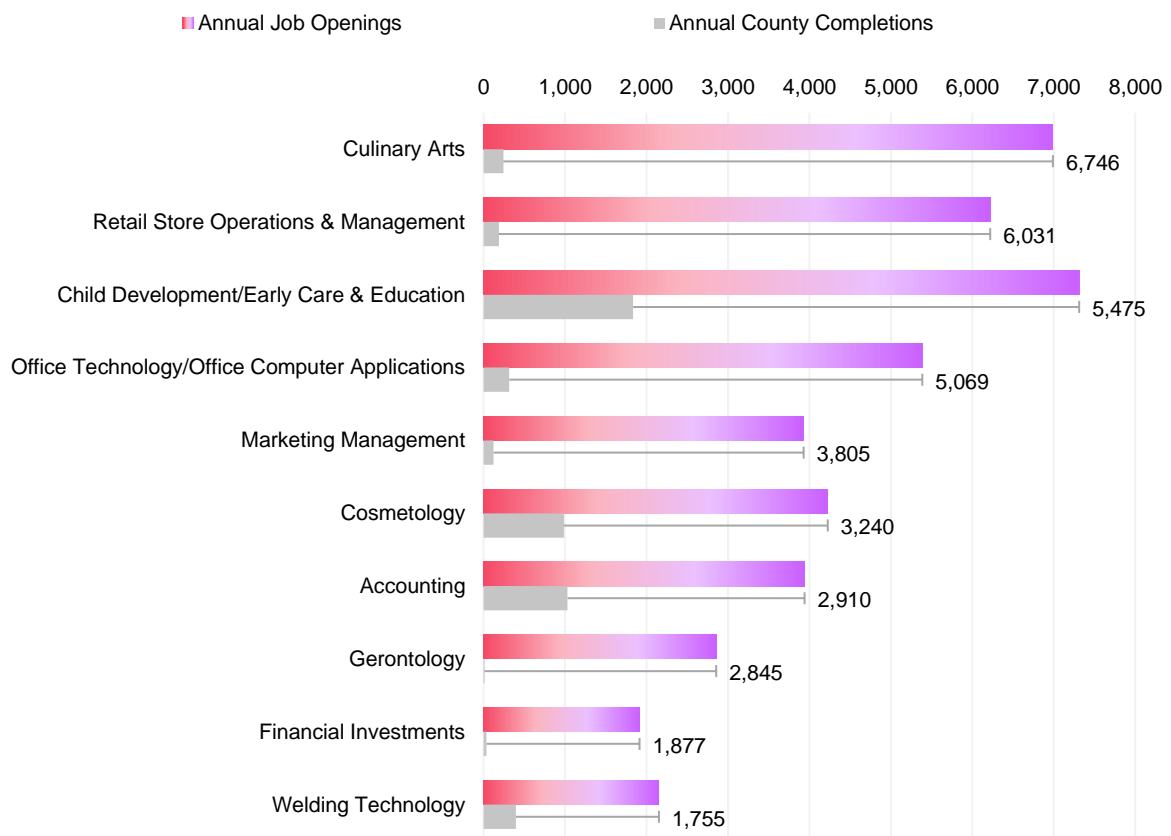
Certificate Analysis

PCC offers over 100 certificate programs, which when grouped by their TOP codes results in 61 certificate level programs for analysis, 14 of which have a significant gap above the 1,000-openings level of significance. With regards to specific programmatic results, the following certificate level programs should be considered for expansion due to their gap and median hourly wage: Paralegal; Small Business and Entrepreneurship; Administration of Justice; Anesthesia Technology; Radio & Television; and Animation. The three largest certificate level programs offered by PCC in terms of average annual completions are Automotive Technology, Small Business and Entrepreneurship, and Registered Nursing. While these programs do not have gaps above the 1,000-openings level of significance, each has a large gap and two have a median hourly wage above the living wage in the county for a household of two working adults with two children, \$30.15. It is worth noting however, that the Automotive Technology program does provide a wage remarkably close to the living wage (\$27.95). This bodes well for PCC students who complete this program, as they will likely be able to find gainful employment and see their wages grow over time to exceed the county living wage of \$30.15.

From this, it appears that PCC is allocating resources efficiently to meet the needs of the county and its completers.

- 14 certificate level programs have a significant gap above the 1,000 openings level of significance.
- Consider expanding Paralegal; Small Business and Entrepreneurship; Administration of Justice; Anesthesia Technology; Radio & Television; and Animation programs due to their large gap and high median hourly wage.
- PCC’s Highest completions programs have high gaps and high median hourly wages, indicating it is efficiently allocating resources to serve both it’s students and Los Angeles County at the certificate award level.

Figure 8: Top 10 Certificate Level Gaps



Source: Lightcast program demand gap model.

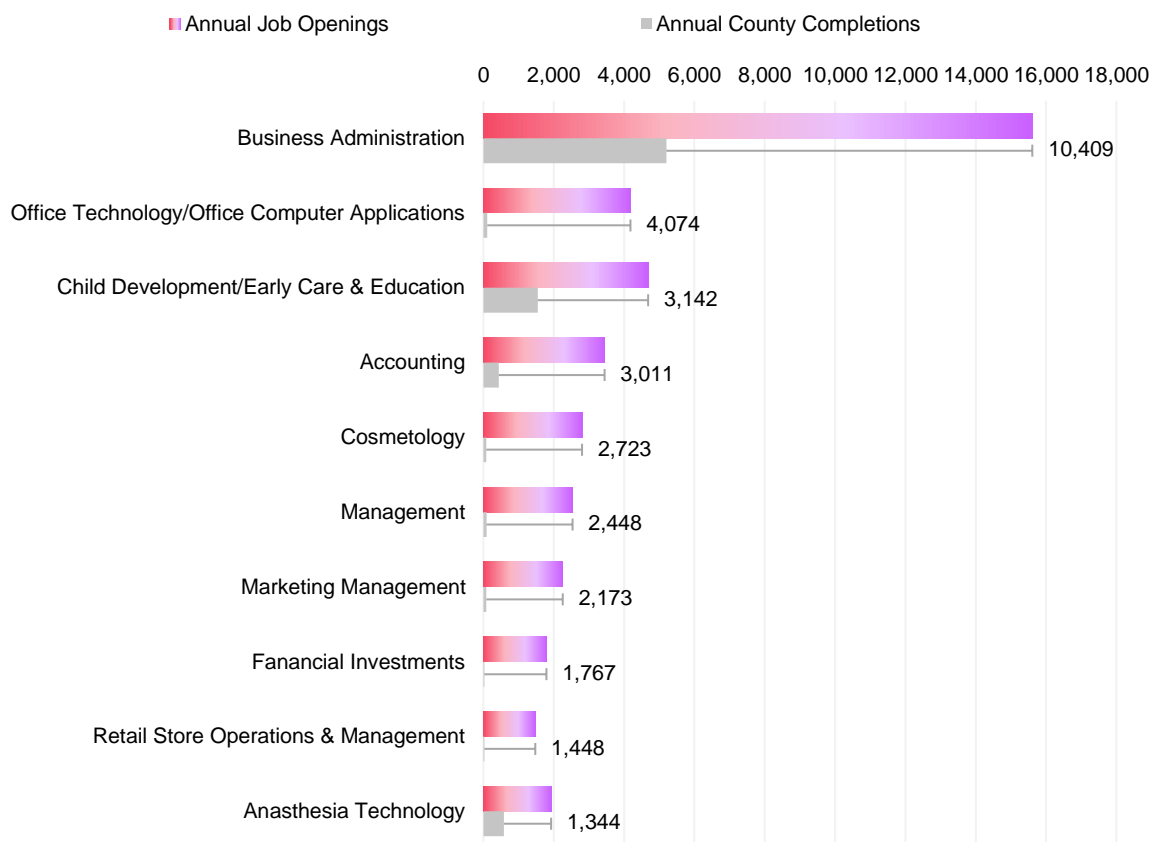
Associate Analysis

PCC offers 84 associate degree level programs, 14 of which have a significant gap above the 1,000-openings level of significance. Three programs at this award level have a significant surplus of completions. With regards to specific programmatic results, the following associate degree programs should be considered for expansion due to their gap and median hourly

wage: Business Administration; Paralegal; Art; Theatre Arts; Registered Nursing; and Fine Arts, General. The three largest associate degree programs offered by PCC in terms of average annual completions are Natural Sciences; Business Administration; and Psychology. Two of the three highest completion programs at PCC have a surplus in the county (Biological and Physical Sciences (and Mathematics) and Psychology). For the Biological and Physical Sciences (and Mathematics) program, the surplus is 1,238. This is due to both a high supply from PCC (1,071) and a high supply from other institutions in the county (4,429) all competing for a relatively small number of openings (3,191). While this is a significant gap, it is possible that completers in these programs are finding employment outside the county, or finding employment in occupations that are more loosely related to their coursework, but that their coursework armed them with the critical thinking skills necessary to be successful in those unrelated occupations. It is worth noting that the Business Administration program is also a top completer program for PCC and has the largest gap at the associate degree (10,409) and transfer-track degree levels (16,957). Regarding PCC's programs with a significant surplus, the college should examine the employment outcomes of their graduates in these programs to discover where students are finding employment and consider adjustments based on this information.

- 14 associate level programs have a significant gap above the 1,000 openings level of significance.
- Three programs have a significant surplus and PCC should investigate where those completers are finding employment.
- Two of the three top completions programs at PCC have significant surpluses. It is recommended that PCC evaluate the allocation of resources to ensure that it is serving the needs of students and Los Angeles County at the associate award level.

Figure 9: Top 10 Associate Degree Level Gaps



Source: Lightcast program demand gap model.

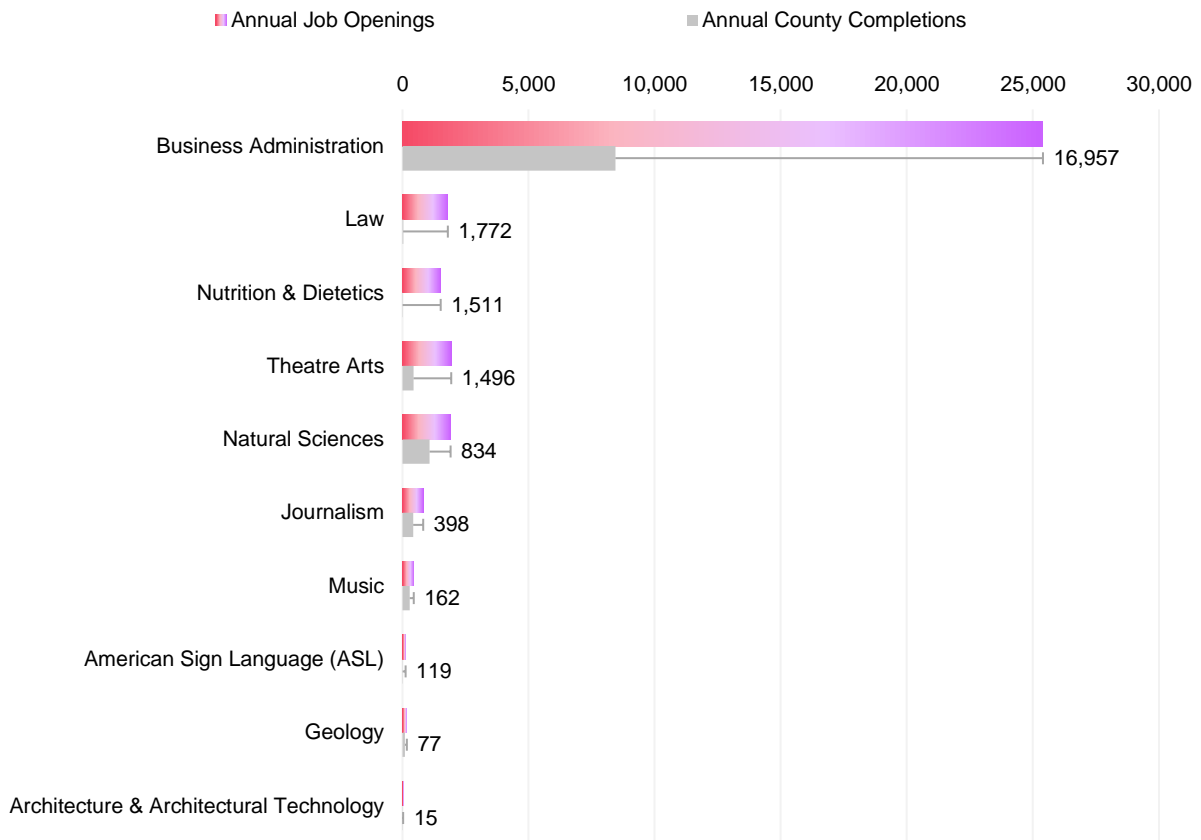
Transfer-Track Analysis

PCC offers 34 transfer-track degree programs. In other words, a program completer could readily transfer into a similar bachelor’s degree level program at another postsecondary educational institution in the state. Of these programs, four have a significant gap above the 1,000-openings level of significance. Three programs at this level have a significant surplus of program completions. With regards to specific programmatic results, the following transfer-track degree programs should be considered for expansion due to their gap and median hourly wage: Business Administration; Dramatic Arts; Journalism; Music; and American Sign Language (ASL). The three largest transfer-track degree programs offered by PCC in terms of average annual completions are Natural Sciences, Business Administration, and Psychology. Los Angeles County is a unique county in that the arts programs show promising employment opportunities for students. Specifically the Theatre Arts program, consistently has high wages across multiple award levels and has a sizeable gap across both the associate and transfer-track degree levels. In terms of PCC’s highest completion programs, similar to the associate degree level, two of the three top completions programs have substantial surpluses. These programs, while providing an important skillset to completers that can yield them wages above the county living wage of \$30.15, leave completers entering a saturated county market;

however these students may find employment outside of the county or in an occupation more removed from the scope of their field of study. It is important that PCC connect with county employers to ensure their completers have a more streamlined experience finding employment in the county. The college should always consider what education profile best supports students' efforts to meet their desired employment outcomes. Lastly, the success of transfer-track programs is also highly dependent on the ease with which students can transfer to a four-year institution. Therefore, it is important that PCC continues to work with the four-year institutions in the county to streamline this process.

- Four programs at the transfer-track level have a significant gap above the 1,000 openings level of significance.
- Consider expanding Business Administration; Theatre Arts; Journalism; and American Sign Language (ASL) programs due to their large gap and high median hourly wage.
- Similar to the associate level analysis, two of the three top completions programs at PCC have a significant surplus, and so it is important to determine where these completers are finding employment.

Figure 10: Top 10 Transfer-Track Degree Level Gaps



Source: Lightcast program demand gap model.

Liberal Arts Analysis

A liberal arts and humanities program expansion is not recommended at this time, but PCC should be aware that students can find success in a variety of business-related occupations. Using Lightcast's Profile Analytics database, many liberal arts program completers are currently employed in a broad range of occupations and make median hourly wages of \$40.43. There are a considerable number of job openings for these completers in Los Angeles County. The college's liberal arts program, therefore, serves as a starting point to students' career goals beyond an associate degree level of education.

- Liberal arts program expansion is not recommended.
- Completers in liberal arts programs find employment in a large range of industries.
- PCC's liberal arts program serves as a valuable starting point to student's career goals beyond and associate degree level of education.