



CENTER FOR A COMPETITIVE WORKFORCE



Essential Workers in Critical Infrastructure Industries at the time of COVID-19

IN THE LOS ANGELES BASIN



NOVEMBER 2020

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About CCW

Center for a Competitive Workforce



CCW

The Center for a Competitive Workforce (CCW)

was established in 2017 as a Strong Workforce Program regional project of the 19 community colleges in the Los Angeles region, in collaboration with the L.A./O.C. Center of Excellence for Labor Market Research (COE), hosted at Mt. San Antonio College, the Los Angeles County Economic Development Corporation (LAEDC) and its Institute for Applied Economics.

CCW is focused on institutionalizing the regular engagement of and partnerships between our 19 community colleges in the L.A. region and employers from high-growth industry sectors (i.e. those with productive advantages, deep labor concentrations and projected growth of middle skill jobs). It is through the development, institutionalization and activation of these productive partnerships and realtime feedback loops that colleges can adaptively attune their programs, courses and curricula to the workforce needs in a way that this truly responsive, demand-driven and future-forward, while also providing students with the very important real-world experiences that come from work-based learning opportunities such as internships.

CCW has published 15 regional labor market and occupational reports for L.A. and Orange County. These reports analyze labor supply and demand data for middle-skill occupations in high-growth industries to inform and influence the expansion of new or modified career education, and workforce development programs and curricula. CCW hosts regional program advisory meetings for faculty at multiple colleges with

regional employers to get feedback on curriculum and training programs, and get their insights on workplace trends, new technology and the in-demand skills that will make students even more competitive for employment and work-based learning opportunities. CCW supports quarterly convenings for faculty, workforce, nonprofit, government and industry leaders in three of the L.A. region's most highly concentrated and fastest growing industry sectors—advanced transportation, bioscience and digital media/entertainment— with the co-equal goals to strengthen industry engagement with faculty, and connect students to meaningful work-based learning opportunities and employment.

This is one of the best ways to prepare them for the 21st century jobs and careers, in the fast emerging and rapidly-changing knowledge-intensive industries that drive our regional economy. In partnership with the regional directors for employer engagement, CCW has hosted more than seven regional program advisory committee meetings to further strengthen regional alignment of, and ongoing connections between, faculty and industry. CCW has developed two online platforms: a Biosciences Industry Portal, and a regional Workforce and Education Partner Portal to increase the speed and richness of industry-college connections. The goal is to seamlessly access and deploy the economic intelligence gleaned through industry engagement, and to rapidly expand and scale the number of work-based learning and employment opportunities for career education students and graduates.

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In this report, the center:

- Analyzes the major trends occurring in frontline industries
- Projects regional employment in target occupations
- Identifies the jobs that have the brightest future for community college students in the region

The Los Angeles Basin's competitive and rapidly changing economic landscape has given rise to a job market in which highly specialized knowledge and skills often mean the difference between success and failure. To help meet this challenge, the Center for a Competitive Workforce (CCW) set out to study the demand for middle-skill occupations in the essential occupations set forth by the California State Public Health Office, with the intention of calibrating the region's talent development system.

This report is the latest in a series of reports by the Center for a Competitive Workforce, the LA/OC Center of Excellence for Labor Market Research and the Los Angeles County Economic Development Corporation, which focuses on the occupations of essential workers in critical infrastructure, or frontline, industries in the Los Angeles Basin (Los Angeles and Orange counties).

Why Focus on Essential Workers?

The emergence of the COVID-19 pandemic and its effect on workers both nationwide and in the Los Angeles Basin has demonstrated the critical importance of essential workers. Despite stay-at-home orders and widespread business closures that have impacted the lives and livelihoods of countless residents, workers in critical infrastructure industries have generally been able to maintain steady employment and incomes as their sectors were allowed to continue operating. Although sustained work throughout the pandemic has threatened many of these low-wage workers with higher exposure to the virus, it has also protected the financial stability of their households to a much higher degree than similar low-wage workers in non-essential industries forced to close. As frontline industries will operate no matter what economic shocks may arise, they can provide attractive career pathways for their lower-skill workers to progress and advance to higher-skill positions with training and skill development, all while remaining insulated from the employment and financial insecurity of unforeseen catastrophes like a global pandemic.

SUPPLY VS. DEMAND

The Center also assesses whether community college supply is meeting workforce demand. Based on regional community college completions, a looming workforce shortage appears to exist. There are 20,300 annual openings projected for the ten middle-skill and pathway target occupations studied for this report. However, community college completions in relevant programs only average about 5,670 awards from the three academic years between 2016 and 2019. This may be partially explained by the fact that some of these occupations can be filled without community college experience, but nevertheless there remains many opportunities for new workers to fill this shortage.

OCCUPATION PROFILES

This report identifies 10 promising occupations, a mix of middle-skill and high-skill occupations, within the frontline industries, which pay a living wage or higher.

Middle-Skill Occupations

Traditionally, the Center for a Competitive Workforce has selected target occupations that employ mostly middle-skill workers. These middle-skill opportunities typically have educational attainment levels that are higher than a high school diploma but less than a bachelor's degree. Within frontline industries, five middle-skill occupations for community college graduates to target are:

1. Bookkeeping, Accounting & Auditing Clerks
2. Computer User Support Specialists
3. Licensed Vocational and Licensed Practical Nurses
4. Paralegals & Legal Assistants
5. Social & Human Service Assistants

High-Skill Pathway Occupations

The Center for a Competitive Workforce also identified five target pathway occupations that typically stipulate a bachelor's degree but where at least 25 percent of incumbent workers in the United States have less than a bachelor's degree. The colleges have a significant number of programs that train students looking to further their education with a bachelor's degree in order to qualify for these pathway jobs. These five pathway occupations include:

1. Accountants & Auditors
2. Child, Family & School Social Workers
3. Financial Managers
4. Mkt Research Analysts & Marketing Specialists
5. Software Developers/ QA Analysts & Testers.

ESSENTIAL WORKERS IN FRONTLINE INDUSTRIES

Additional Key Findings

JOB SECURITY IS QUANTIFIED

In the Los Angeles Basin, 14% of jobs were lost between the first and second quarters of 2020 due to the pandemic and its economic impacts. However, while 23.6% of the workforce in non-essential industries was lost, in frontline industries employment dropped only 6.3%.

AVERAGE WAGES FOR MOST JOBS

Despite their essential functions, the low- and middle-skill occupations in frontline industries have average wages just slightly above the living wages for Los Angeles and Orange Counties. Entry level wages are usually below \$25/hour and in many cases below even \$20/hour.

OLDER WORKFORCE

In most essential industries, the majority of workers are above 35 years of age; in four out of the ten industries, over 50% of workers were aged 55 and above. There were just three frontline industries where the ages of 25-34 had the highest proportion of workers.

IMPORTANCE OF UPSKILLING

Our analysis of initial unemployment insurance claims in the Basin has showed that over 60% of the labor force with just a high school diploma as their highest educational attainment had filed for UI benefits during the COVID-19 crisis. In contrast, only 30% of those with an associate degree and 14% of those with a bachelor's degree filed for these benefits. Our takeaway is that upskilling through community college programs will provide workers with higher job security.

ADDITIONAL TRENDS

There are many developing trends in the above essential occupations that will assist workers as they perform their jobs in both frontline and non-frontline industries. The greatest focus remains on technology and its potential to either disrupt or augment these occupations.

For some, the automation of rote tasks and repetitive labor will make their occupations more obsolete; bookkeeping, accounting and auditing clerks is a good example of this. It remains to be seen whether this automation will free up time for these workers to expand into new, more specialized and human-oriented roles or if it will simply remove the usefulness of certain occupations completely and displace the workforce.

But for most of our highlighted occupations, technology is providing new ways to be effective and efficient while performing job tasks. Communication is one area this has become readily apparent; for licensed vocational and licensed practical nurses, social workers, market research analysts and others, getting connected with clients and consumers and providing critical services is now easier than ever.

Meanwhile, the fields of big data and advanced analytics are transforming how occupations operate based on massive amounts of actionable data and insights. Financial managers now have online tools for research and strategic planning down to minute details, paralegals and legal assistants can use electronic discovery resources to track down documents faster than ever, and even nurses can monitor the real-time measurements of their patients due to wearables and other instruments. As a result, many occupations may become less focused on obtaining results, which can now be done more efficiently by computers, and more focused on interpreting those results and communicating them to their clients, coworkers and other interested parties.

Unfortunately, many obvious trends have been overturned by the COVID-19 pandemic and its consequences for all metrics of life in the Los Angeles Basin and its workforce. It will take time to determine how the region recovers, and which industries will be at the forefront of the rebuilding process. Essential workers have had, and will continue to have, a major role in this process, and their future prospects are likely brighter than even the same occupations in non-essential industries, which may soon find that the market and business environment have changed irreversibly due to the adaptation of the Basin to a new way of living.

RECOMMENDATIONS

There are many ways in which policymakers, community colleges and labor associations can come together to improve the outlook of essential workers, particularly in such a challenging time. As these workers have been on the frontlines of the pandemic since its beginning, dealing with the threat of infection and providing the critical labor to ensure that life and business can continue, there are recommendations to support them while benefitting critical infrastructure industries as well.

First and foremost, safety and protection must be a priority. Essential workers, especially those in healthcare, have the greatest chance of contracting the virus due to their work. Turning recommended safety guidelines into stricter policies and expanding access to personal protective equipment is a necessity. Businesses in these industries should also be encouraged to consider stronger social distancing, flexible worksite and workforce scheduling mechanisms and mask-wearing requirements.

Other recommendations include increasing awareness about career pathways in essential industries and boosting compensation for essential workers to benefit both their households and the regional economy. Occupations in critical infrastructure industries have proven themselves incredibly important during unforeseen economic shocks, and making every effort to support these industries and their essential workers is key for ensuring the health of the regional economy in the Los Angeles Basin.

Essential Critical Infrastructure



At the onset of 2020, the Los Angeles Basin was enjoying a long and unprecedented expansionary period where economic fundamentals were strong, and the chance of a recession was low. But circumstances changed rapidly and overturned all forecasts of growth and stability.

First appearing in California in late February, the COVID-19 pandemic brought business and life to a grinding halt. At the writing of this report, over 363,000 cases of COVID-19 have been confirmed in the Los Angeles Basin, with 302,000 cases in Los Angeles County alone (10/27/2020).

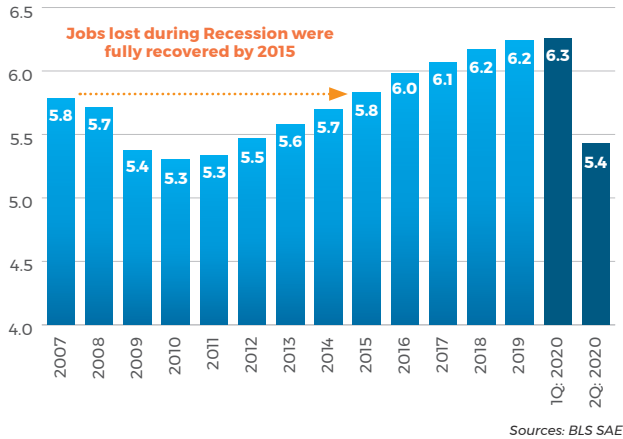
On March 19, 2020, California Governor Gavin Newsom issued a “Stay-at-Home Order” (Executive Order N-33-20), which required all individuals statewide to remain at their place of residence and shuttered all forms of public gathering. Social distancing measures were enacted across the state, which remain in effect at the writing of this report.

All non-essential businesses, which are generally defined as recreational and not critical to maintaining personal well-being, were mandated to close. The shutdown of restaurants, hair and nail salons, theaters, retail stores and countless other non-essential institutions left many workers in the LA Basin stuck at home without a means of providing for themselves and their families, giving rise to widespread economic hardship.

In a typical recession, the contraction may take place over several quarters or months, but this economic disruption was almost instantaneous and hit in just a matter of weeks. While COVID-19 is an exogenous, single event-driven economic shock, and some indicators may soon begin to return to their pre-crisis trend, the effects of the pandemic have been crucial in developing a deeper understanding on how shocks impact industries here in the Los Angeles Basin.

Governor Gavin Newsom’s original stay-at-home order exempted individuals working in critical industries. In concordance with this order, on March 19 the California Department of Public Health issued a list of the industries considered “essential.” The majority of workers in these essential sectors have continued to work throughout the pandemic, allowing them to maintain their pre-recession level of income. However, as these workers must still be physically present to do their work, they have been forced to balance their ongoing work with the risk of exposing themselves, as well as those with whom they share their homes, to the virus.

EXHIBIT 1-1:
NONFARM EMPLOYMENT IN THE LOS ANGELES BASIN
(millions of jobs)

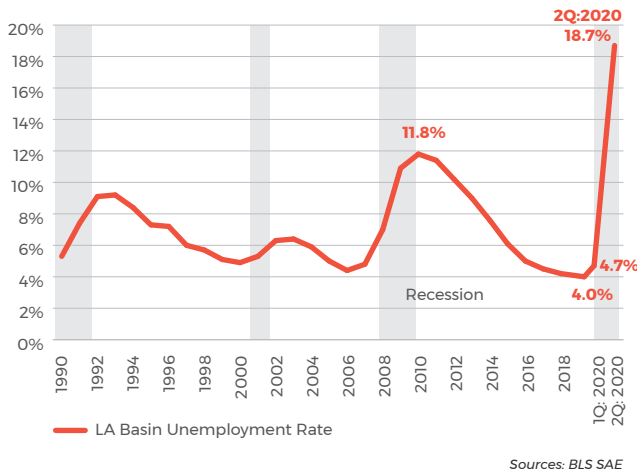


Nonfarm Employment

The measures taken to mitigate the spread of the COVID-19 virus throughout the pandemic have had a dramatic effect on employment across the Los Angeles Basin (Los Angeles County and Orange County combined). The Basin accounted for 6.2 million nonfarm jobs spread across the entire spectrum of industry sectors in 2019, roughly 36 percent of all jobs in the state.

Employment opportunities depend on the health of the regional economy. While recovery from the Great Recession saw anemic employment initially, by 2015 the LA Basin had regained the number of jobs it lost to the downturn and by 2019, nonfarm employment exceeded the pre-recession employment peak in 2007 by more than 458,000 jobs (7.9%). Prior to the pandemic, nonfarm employment had been growing in the Basin for nine consecutive years, a trend that continued into first quarter of 2020. But due to the COVID-19 crisis and resulting stay-at-home order, nonfarm employment fell by 827,600 jobs (13%) in the second quarter of the year (Exhibit 1-1).

EXHIBIT 1-2:
UNEMPLOYMENT IN THE LA BASIN
1990 to 1st Half 2020



Unemployment

In 2019, the Los Angeles Basin had a tight labor market with a 4 percent annual unemployment rate, its lowest in decades (Exhibit 1-2). This year, the Basin experienced not only its highest rate of unemployment since the 1990s, but also its highest recorded monthly unemployment spike; a jump of 12.9 percentage points between March and April when initial closures went into effect. Even at the peak of the Great Recession, the unemployment rate in the LA Basin reached only 11.8 percent, well below the 18.7 percent seen in quarter two of 2020. At the state level, California has had its highest monthly unemployment rates (from March through July) since 1976, over forty years prior.

Education and COVID-19

The economic effects of COVID-19 have not been equally distributed. Higher-income workers in professional services, management, and computer and mathematical occupations were able to make the transition to remote work more smoothly than others. Along with their jobs being somewhat inoculated, if not protected over the short-term due to the nature of their work and ability to remain productive at a distance, workers in these occupations are likely to have higher savings to fall back on. In stark contrast, a significant portion of jobs that require a lower degree of education are concentrated in non-essential businesses forced to close under stay-at-home orders.

Traditional labor force and industry employment data obtained via monthly survey has significant lag. Due to the fast-moving nature of the pandemic's economic

impact, we looked to unemployment insurance claims filing data as a supplement, for they can act as an early indicator of what may transpire in the labor market while we wait for more reliable monthly and quarterly figures to be released. This data is not subject to the rigorous quality controls applied to official statistics (as they were originally intended for administrative purposes), but they still provide additional insight into how the pandemic has affected our economy; in particular, they shed light on the magnitude of COVID-19's labor market impacts and how different types of workers feel these effects.

We examine the number of unique initial claims for regular unemployment insurance benefits filed by educational attainment to identify how individuals with varying levels of education have had their employment status affected by COVID-19.

Since mid-March through the end of August, close to 6.8 million unique California claimants (close to 29% of the state's workforce), have filed unique initial claims for regular unemployment insurance benefits related to the pandemic; 42.5 percent (just over 2.9 million) of those unique claims were filed in the Los Angeles Basin (Exhibit 1-3).

Of these initial claims filed in California, close to 3.2 million were submitted by those with a high school education or less, accounting for over half (56.9 percent) of the total unique initial claims filed for unemployment benefits during this period.

After breaking down the labor force in California according to the educational attainment of workers and examining the number of unique, regular initial UI claims filed as a share of each cohort, the data shows workers with lower levels of education have experienced unemployment at higher rates than those with a postsecondary education (Exhibit 1-4); unique claimants who have filed an initial UI claim with a high school diploma or equivalent account for close to 61 percent of those in the labor force with that same level of education, about one and three quarter times the share of claims filed by those with an associate degree or some college and more than three and a half times the share of claims filed by those with a bachelor's degree.

This is important because in the Los Angeles Basin, 38.6 percent of the resident population, age 25 years and over, have a high school education or less (Exhibit 1-5).

Workers with low educational attainment who lose their jobs during this global health crisis will find it much more difficult to find new ones in similar sectors that have been damaged by the secondary economic effects of the pandemic. As such, for those who are unable or lack the resources to attain higher levels of education, finding employment in stable industries with pathways to higher-paying jobs will be critical moving forward. Essential industries and the protection they afford to workers therefore represent an enticing opportunity.

EXHIBIT 1-3:
INITIAL UI CLAIMS IN CA DURING THE COVID-19 CRISIS*
By educational attainment

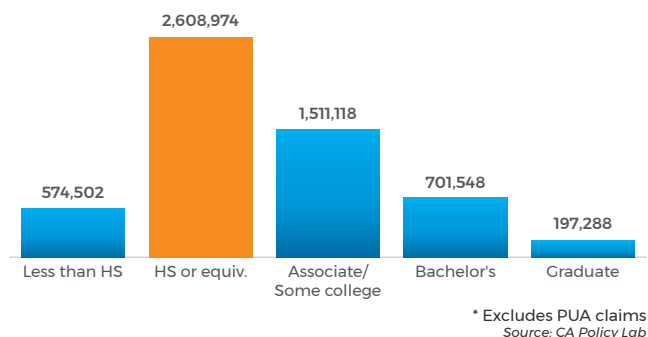


EXHIBIT 1-4:
INITIAL UI CLAIMS IN CA BY EDUCATION*
As a share of labor force

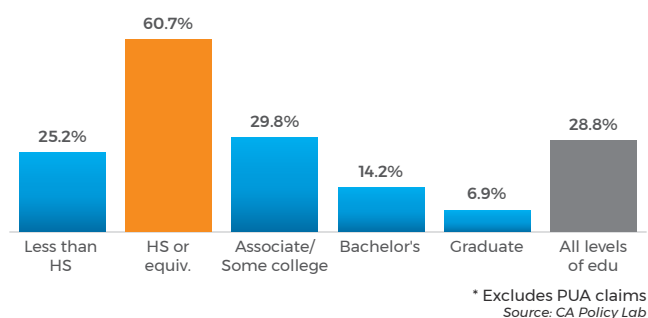


EXHIBIT 1-5:
EDUCATIONAL ATTAINMENT
Population 25 years and over

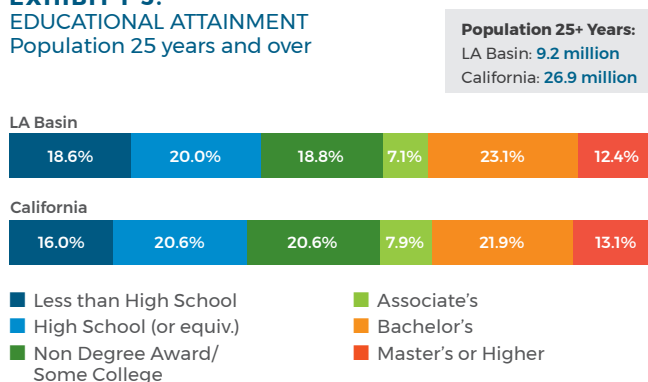


EXHIBIT 1-6:
COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



In This Report...

This report focuses exclusively on workers in critical infrastructure, or “essential”, industries, which were allowed to remain open while all non-essential businesses were forced to close as a result of the pandemic.

In continuing the success of its industry reports, the Center for a Competitive Workforce once again joined forces with the LAEDC’s Institute for Applied Economics to look deeper into the role essential workers have played during the COVID-19 crisis. This report aims to identify potential opportunities within the LA Basin, not only for current community college students looking to ensure stability amidst economic uncertainty, but also for essential workers looking to move up their respective career ladders to obtain better opportunities in critical infrastructure industries. Although working in these essential sectors may require them to be physically present at their place of work while public health threats persist, their employment status and incomes have proved much more stable than those working in non-essential industries.

This occupational overview and other industry reports are intended to encourage the Center and the region’s community colleges to develop partnerships with industry in order to amplify their understanding about the region’s labor markets and workforce gaps, as gauged by industry needs and community college completions.

This report identifies five middle-skill and five pathway target occupations in the Los Angeles Basin that present well-paying, consistent job opportunities for the region’s community college students.

In 2019, about 363,320 workers in the Los Angeles Basin were employed in the ten target occupations identified in this report, with 159,640 working in critical infrastructure or frontline industries. Bookkeeping, accounting and auditing clerks account for the greatest number of jobs amongst the targeted occupations.

There are 28 community colleges in the Los Angeles Basin (19 in Los Angeles County and ten in Orange County) offering programs relevant to the target occupations identified in this report, as mapped in Exhibit 1-6. Details about individual community colleges and their programs are provided in the supply-side analysis of this report.

Frontline industries are industries identified as essential to meeting basic human needs and safety requirements in times of crisis; this includes pandemics, terrorist attacks, natural disasters including earthquakes and fires and more. During these situations, workers in critical infrastructure industries are expected to continue working in-person, regardless of the challenges they may be facing personally, due to the indispensable nature of their work.

The general public relies heavily on workers in these frontline industries, also referred to as essential workers, to provide crucial services that keep their communities functioning including healthcare, utilities, public safety, food security, communications, transportation and a range of public services provided by the local, state and federal government, along with others. These workers represent a large portion of the economy in the Los Angeles Basin, accounting for close to 2.6 million jobs — over 40% of the Basin's total employment (Exhibit 2-1).

Based on the State of California's definition of critical infrastructure industries, the LAEDC identified frontline industries in the Los Angeles Basin (Exhibit 2-2).

EXHIBIT 2-1:
WORKERS IN ESSENTIAL INDUSTRIES IN THE LA BASIN

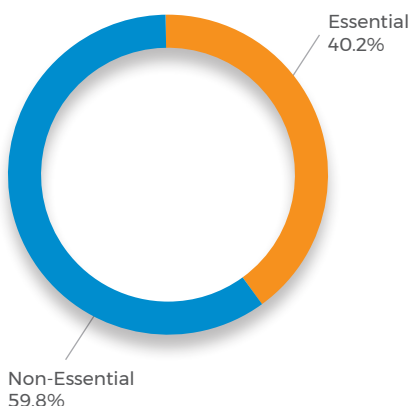


EXHIBIT 2-2:
THE FRONTLINE:
CRITICAL INFRASTRUCTURE
INDUSTRIES

Frontline Industries

Health Care and
Related

Transportation,
Logistics and
eCommerce

Grocery, Convenience
and Drug Stores

Social and
Community Services

Energy, Water and
Waste Management

Communications
and IT

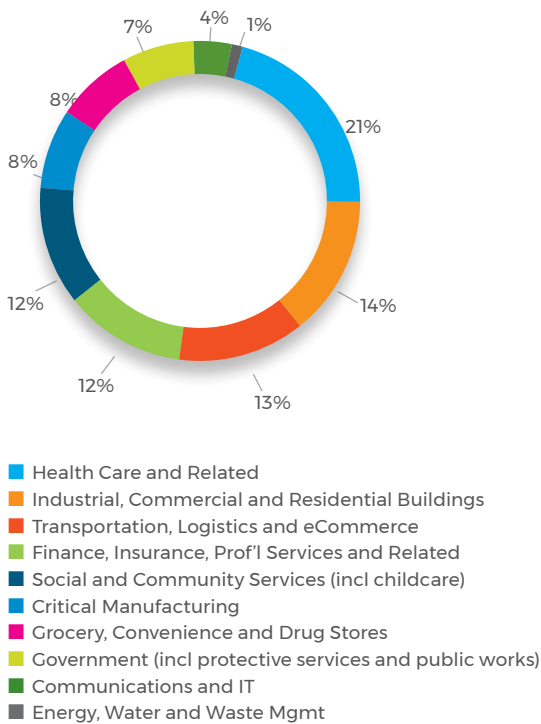
Industrial,
Commercial and
Residential Buildings

Critical
Manufacturing

Finance, Insurance,
Professional Services
and Related

Government

EXHIBIT 2-3:
EMPLOYMENT DISTRIBUTION OF FRONTLINE INDUSTRIES

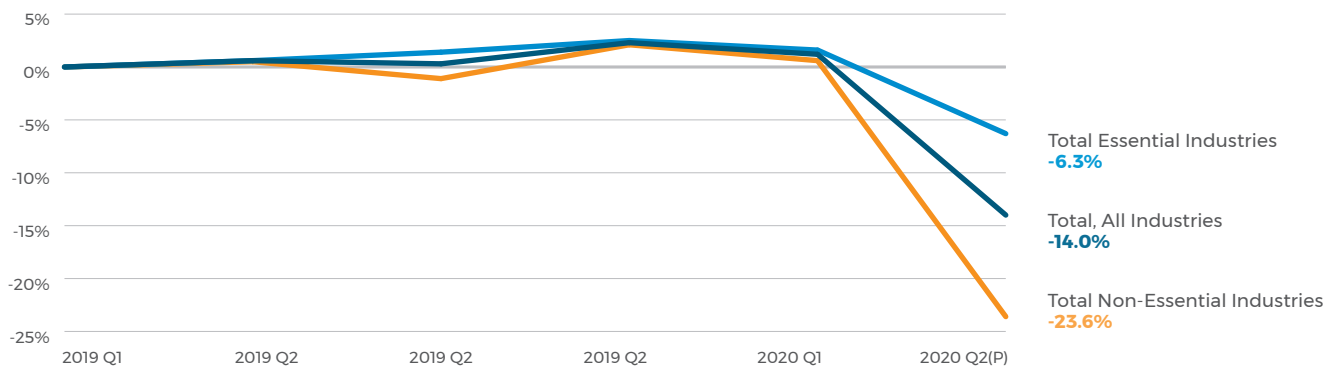


The workers in these industries have been required to work outside of their residence during the COVID-19 pandemic despite stay-at-home orders, putting themselves and their loved ones at increased risk of exposure to the virus. They include hospital workers, first responders (police officers, firefighters, EMTs and more), grocery workers, telecommunication workers, pharmacy workers, utility workers, veterinarians and their staff, and workers tasked with providing transportation services for essential goods.

Essential workers are employed across all of the frontline industries; however, health care and related industries employs the largest share, accounting for approximately 21 percent of employment (Exhibit 2-3). Businesses related to industrial, commercial and residential buildings rank second for employing the most essential workers, driven primarily by high figures in the construction industry (NAICS 23).

Frontline industries have exhibited more job stability compared to non-essential industries, as their continued operations have insulated them from the layoffs and downsizing that non-essential workers have experienced. We estimate that in the second quarter of 2020, while payroll employment in non-essential industries decreased in the LA Basin by 23.6%, essential industries lost just 6.3% of their workforce, a dramatic difference (Exhibit 2-4).

EXHIBIT 2-4:
LOS ANGELES BASIN QUARTERLY EMPLOYMENT GROWTH
(2019 Q1 - 2020 Q2)



Looking Ahead

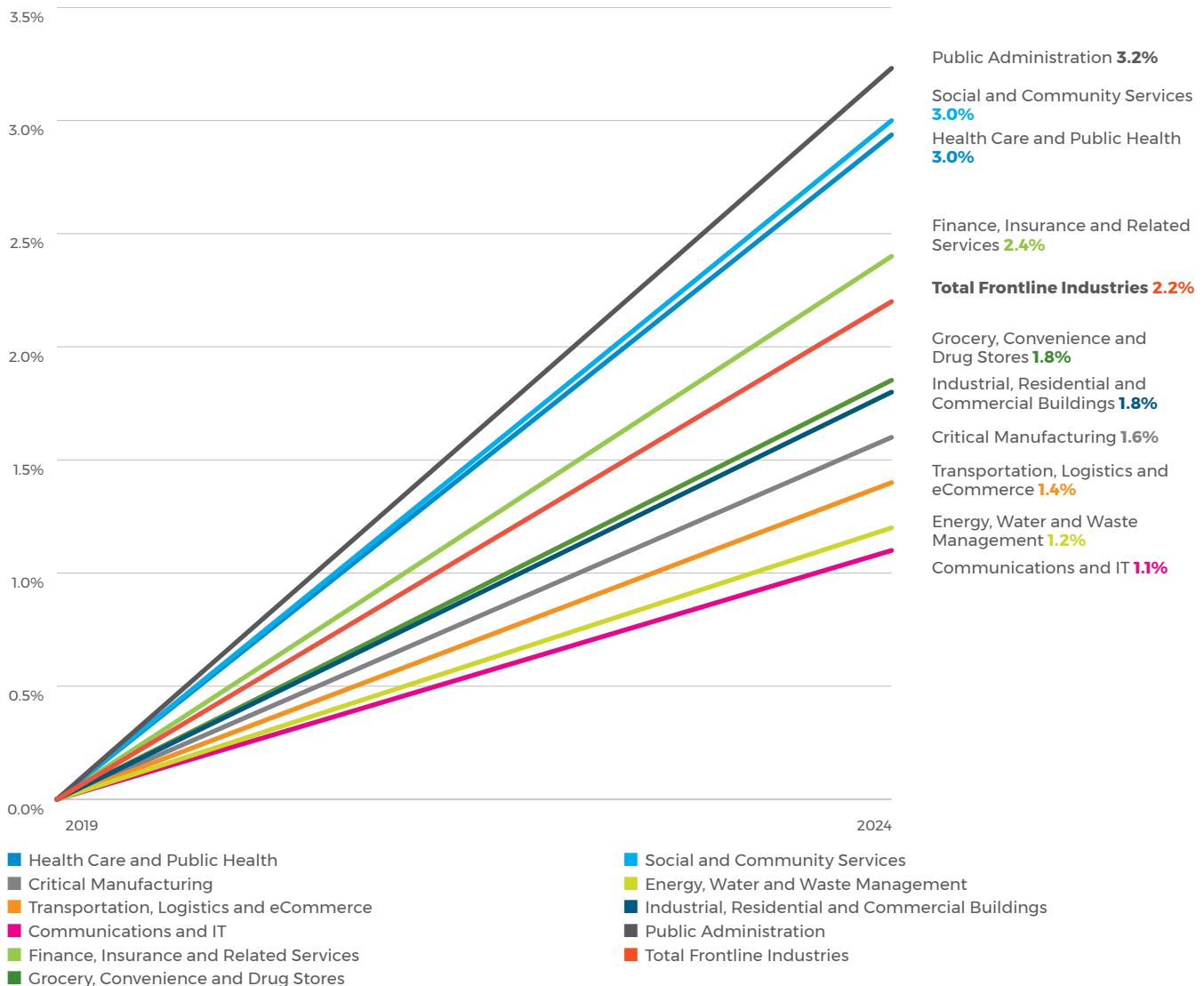
Over the next five years we project frontline industries to grow by 2.2 percent overall, adding nearly 51,000 net new jobs across the ten groupings Exhibit 2-5).

However, these projections are based on the current situation as of September 2020. All of the uncertainties and changing conditions in terms of job losses, containing the virus, length of stay-at-home orders and business restrictions, consumption levels, supply changes and more, have meant that projections and forecasts made in the midst of this crisis could vary from real outcomes. For example, we have chosen to base our forecast on the assumption that the phased reopening will continue going forward without a third spike in

cases related to the cold and flu season. In the event that the number of cases spike to levels high enough to warrant increased restrictions or subsequent rounds of mandated closures to mitigate the spread of the virus, then our projections for this entire year and beyond, would be overly optimistic.

The 2.6 million workers in frontline industries are employed in occupations across a number of diverse industries in the Los Angeles Basin, with a wide range of skills and capabilities. As such, we examine the demographic characteristics of essential workers compared to the overall LA Basin. Workforce characteristics for each of the ten groupings are presented in the appendix.

EXHIBIT 2-5:
LOS ANGELES BASIN QUARTERLY EMPLOYMENT GROWTH
(2019 - 2024)



Workforce Characteristics of Frontline Industries

Age Distribution

The age distribution of essential workers is quite similar to that of all workers, with the majority between twenty-five and sixty-four years which denotes typical working ages. However, older cohorts account for larger shares of employment in frontline industries, and essential workers below the age of twenty-five account for just 6.6 percent of employees in essential industries.

Educational Attainment

Larger shares of essential workers have lower levels of educational attainment; approximately 39 percent have a high school education or less; compared to 37 percent of all workers. However, a higher proportion of essential workers have an associate degree or some college completion; over 53 percent have some college experience, and 25 percent received a bachelor's degree or higher.

Race and Ethnicity

There is a slightly higher proportion of Black, Asian and Hispanic workers in essential industries.

Distribution of Gender

In terms of gender, just over fifty percent of essential workers are female, only slightly higher than the 48.9% in the overall working population.

EXHIBIT 3-1:
AGE OF WORKERS IN LA BASIN

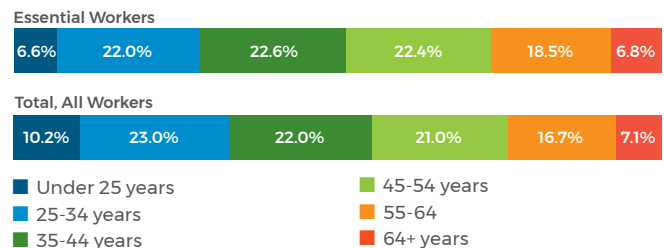


EXHIBIT 3-2:
EDUCATIONAL ATTAINMENT OF WORKERS IN LA BASIN

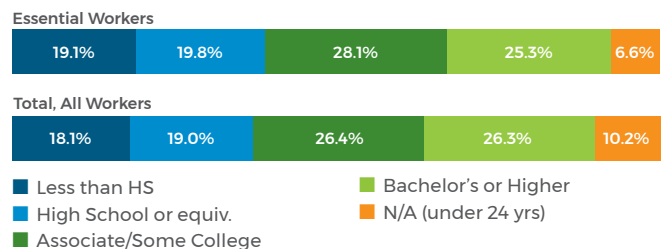


EXHIBIT 3-3:
RACE/ETHNICITY OF WORKERS IN LA BASIN

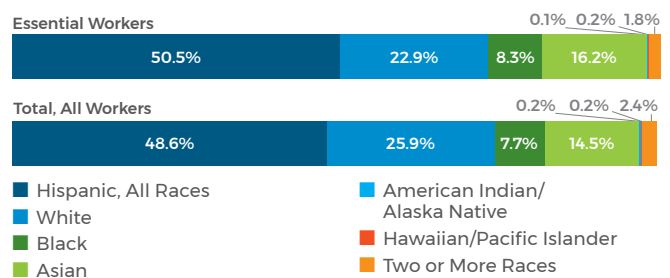


EXHIBIT 3-4:
GENDER OF WORKERS IN LA BASIN



Essential Workers in the LA Basin

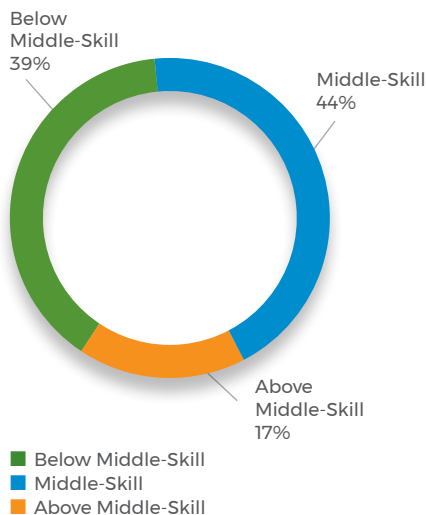
Based on the State of California's definition of critical infrastructure industries, the LAEDC identified types of essential workers in these industries according to the Standard Occupation Classification System (SOC). These occupations range from below middle-skill jobs that require only a high school degree or no formal education, to above middle-skill jobs that expect completion of a bachelor's or even graduate degree. Wages, employment numbers and worker characteristics vary greatly amongst these detailed occupations.

39 percent of jobs in frontline industries are below middle-skill occupations, 44 percent are middle-skill occupations and the remaining 17 percent are above middle-skill occupations (Exhibit 4-1).

Many of these occupations found in frontline industries earn wages below the living wage. The living wage is defined as the hourly rate an individual must earn, working full-time, to support themselves and their family. In Los Angeles County and Orange County, for a single person without children, this wage is \$15.04 and \$17.36 respectively.



EXHIBIT 4-1:
SKILLS DISTRIBUTION OF ESSENTIAL WORKERS



Occupations in Frontline Industries

Detailed occupations in these frontline industries that have the highest levels of employment show a mix of different skill levels, from personal care aides (below middle-skill) to bookkeeping, accounting and auditing clerks (middle-skill), to general and operations managers (above-middle skill). A significant number of these occupations, and the workers within, are associated with lower wages; the occupations in Exhibit 4-2 with wages below the median are shaded orange.

Workers in frontline industries have many opportunities to advance their careers in their respective sectors through upskilling or continuing education. There are a variety of programs at community colleges in the Los Angeles Basin which offer training programs that can upskill workers in a year or less. Additionally, for current middle-skill workers in these critical industries, community college programs are available to help students transfer to a bachelor's degree track at a four-year institution. In the following section, we identify several career ladders for workers interested in construction, nursing and accounting and auditing, identifying career pathways from low-skill to high-skill positions in frontline industries.

EXHIBIT 4-2:

TOP 15 OCCUPATIONS IN FRONTLINE INDUSTRIES BY EMPLOYMENT IN THE LOS ANGELES BASIN All skill levels (orange indicates lower wages than median)

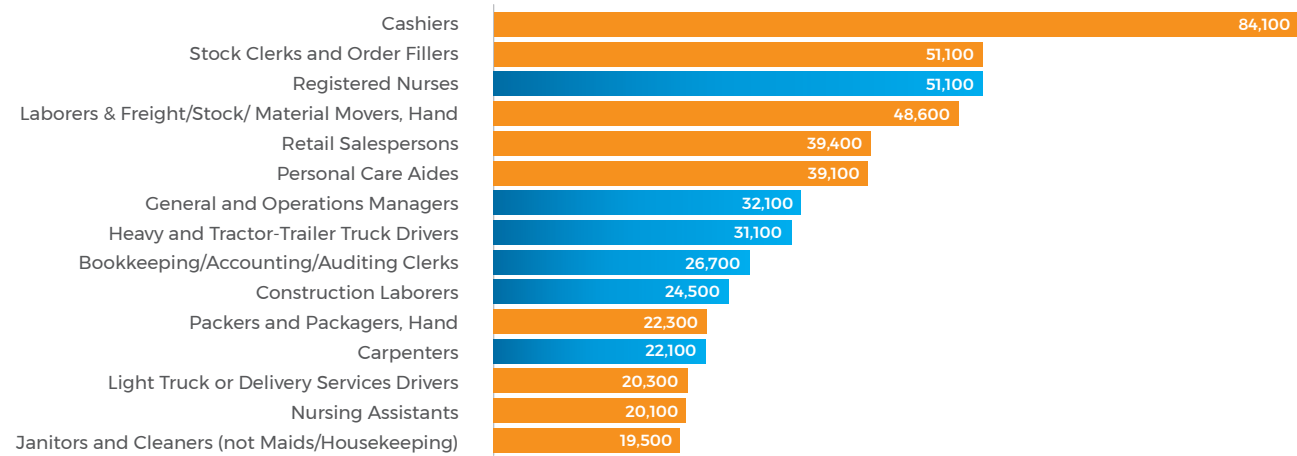
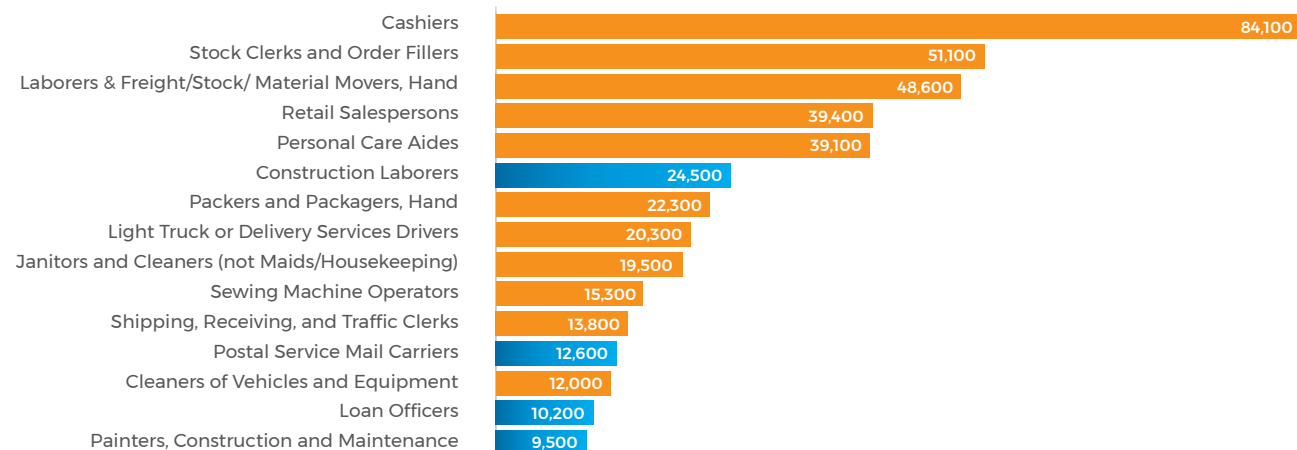


EXHIBIT 4-3:

TOP 15 OCCUPATIONS BY EMPLOYMENT Below Middle-Skill Occupations



This report has identified five middle-skill and five pathway target occupations in the Los Angeles Basin that present well-paying, consistent job opportunities for the region's community college students; in 2019, approximately 363,320 workers were employed in the ten target occupations identified in this report, with 43.9 percent of that total in frontline industries. Bookkeeping, accounting and auditing clerks account for the greatest number of jobs amongst the targeted occupations.

In the next section of this report, we examine several potential career paths for workers in frontline industries who currently work in below middle-skill occupations with lower wages, as well as for those in middle-skill occupations that are looking to move into higher-skill occupations.

occupations

EXHIBIT 4-4:
TOP 15 OCCUPATIONS BY EMPLOYMENT
Middle-Skill Occupations

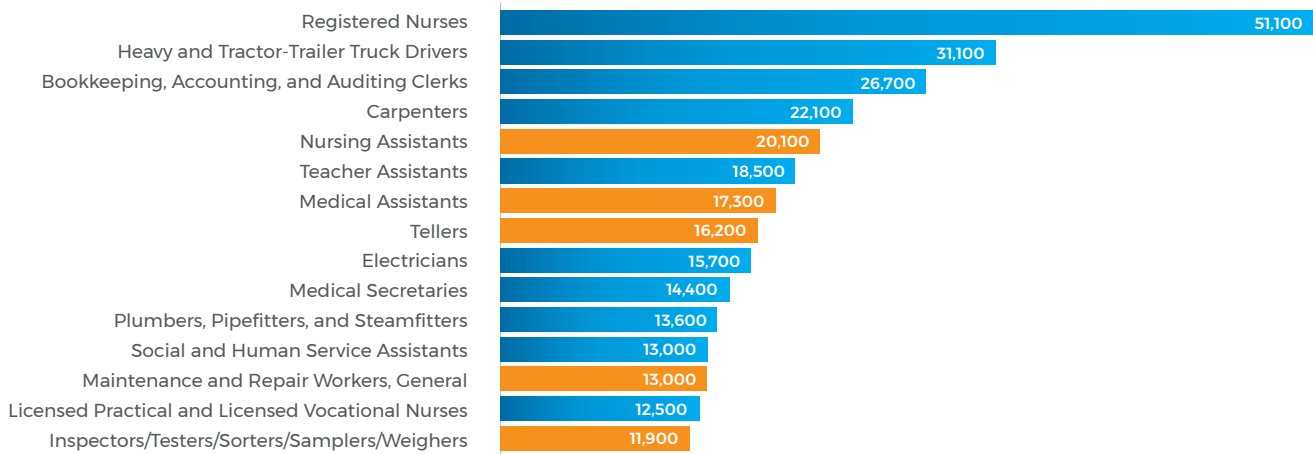
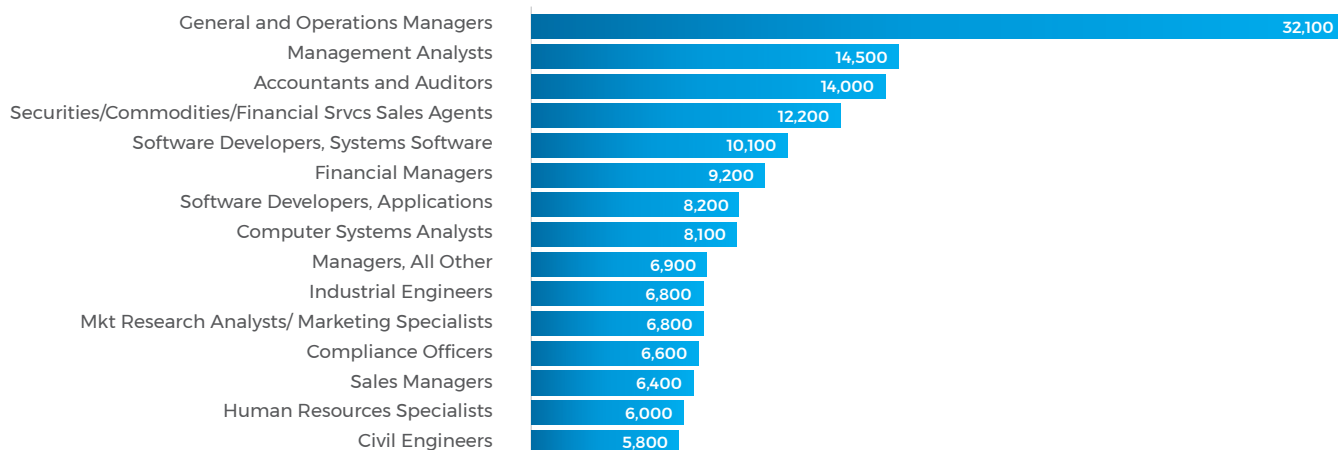


EXHIBIT 4-5:
TOP 15 OCCUPATIONS BY EMPLOYMENT
Above Middle-Skill Occupations



Construction Professional Services Social Assistance Health Care

Career Pathways for Essential Workers

Although occupations in essential industries offer relatively stable employment for workers, they are not necessarily the “best” jobs in the economy. Many are low-skill, low wage jobs that fall at or below the living wage (\$15.04 and \$17.36 for Los Angeles County and Orange County respectively). However, there are many pathways for advancement within the industries where low-skill workers, through training and further education, can develop the knowledge and technical expertise to move into middle-skill and eventually high-skill jobs that offer higher salaries and better benefits.

Oftentimes the lower steps of these career ladders require only a high school diploma, while higher positions require associate degrees, apprenticeships or even a full bachelor’s degree. There are also skills and technology that workers can learn and gain experience with while they hold lower positions that will benefit them later in their careers, though they will often be required to add on further skills as they progress.

The key to these chosen pathways is that workers are able to develop their careers while remaining within essential industries, sheltered from the closures and layoffs that the economy can experience as a result of unforeseen shocks. This section highlights a selection of these verticals, specifically ones for construction, nursing and accounting, that represent plausible career pathways with training and assistance from community college programs. Additional career ladders, including pharmacy and social work are in the appendix.



Follow the green arrows to see pathways to higher skill occupations



Construction Pathways

Helpers – Carpenters (SOC 47-3012)

Help carpenters by performing duties requiring less skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

Helpers of Carpenters have responsibilities such as cleaning work areas, machines or equipment, fastening timbers or lumber and installing hardware, transporting tools and equipment to work sites and drilling holes in timber or lumber. There is no formal education required for this occupation, and a knowledge of machines and tools, as well as buildings and construction can be gained on the job. Helpers of Carpenters often learn the necessary expertise to become full carpenters while in this low-skill occupation, which forms a natural pathway to higher-paying opportunities.

REQUIRED KNOWLEDGE

Building and Construction
Mathematics
Mechanical
Transportation

REQUIRED SKILLS

Coordination
Critical Thinking
Monitoring
Active Listening

TOOLS USED

Power Saws
Levels
Screwdrivers
Sawing Machines

OR

Construction Laborers (SOC 47-2061)

Perform tasks involving physical labor at construction sites. May clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, and clean up rubble, debris and other waste materials. May assist other craft workers.

Construction Laborers tend pumps, compressors, or generators to provide power for tools and machinery, clean or repair equipment and work alongside equipment operators in the construction site. There is no formal education required for this job, although tools such as computer-aided design software and project management software are important to learn; proficiency and experience with construction equipment is developed over time. This occupation has pathways to attain supervisor and manager roles over time, though greater education is necessary.

REQUIRED KNOWLEDGE

Building and Construction
Public Safety and Security
Mechanical

REQUIRED SKILLS

Coordination
Operation and Control
Operation Monitoring
Active Listening

TOOLS USED

Power Saws
Blow Torches
Plaster or Mortar Mixers
Boring or Sinking Machinery

BELOW MIDDLE-SKILL

Annual Median Wage : **\$33,629**

LA County Living Wage: \$31,767

Education: **No Formal Required**

Job Training: **Short-Term**

Top Essential Industries:

236 – Construction Of Buildings (535 Jobs)

238 – Specialty Trade Contractors (466 Jobs)

237 – Heavy & Civil Engineering Construction (21 Jobs)

BELOW MIDDLE-SKILL

Annual Median Wage : **\$39,630**

LA County Living Wage: \$31,767

Education: **No Formal Required**

Job Training: **Short-Term**

Top Essential Industries:

238 – Specialty Trade Contractors (9,816 Jobs)

236 – Construction Of Buildings (8,608 Jobs)

237 – Heavy & Civil Engineering Construction (5,331 Jobs)



Carpenters (SOC 47-2031)

Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; and wood stairways, window and door frames, and hardwood floors.

Carpenters install structures or fixtures such as windows, frames, flooring, trim or hardware using hand or power tools; they follow specifications from blueprints and building plans and shape or cut materials to specified measurements. Carpenters only need a high school diploma, and their on-the-job training comes in the form of an apprenticeship. Necessary education includes design principles as well as an understanding of mechanics, building and construction. Carpenters also use project management and accounting software in their work.

REQUIRED KNOWLEDGE

Building and Construction
Mathematics
Mechanical
Design

REQUIRED SKILLS

Active Learning
Coordination
Monitoring
Active Listening

TOOLS USED

Power Saws
Jacks
Ladders
Guide Jigs



First-Line Supervisors of Construction Trades & Extraction Workers (SOC 47-1011)

Directly supervise and coordinate activities of construction or extraction workers.

First-Line Supervisors of Construction Trades and Extraction Workers are the front-line overseers at the construction site. They direct Construction Laborers and inspect work progress, coordinate construction project activities, and use specifications like blueprints to determine construction requirements and plan procedures. Supervisors need to use project management software to ensure their construction sites remain on schedule and must possess a knowledge of both construction and building methods and management principles. Supervisors often require a high school diploma for employment.

REQUIRED KNOWLEDGE

Building and Construction
Administration and Management
Engineering and Technology
Customer and Personal Service

REQUIRED SKILLS

Coordination
Management of Personnel Resources
Monitoring
Speaking

TOOLS USED

Personal Computers
Airships and Drones
Digital Cameras
Infrared Cameras

MIDDLE-SKILL

Annual Median Wage : **\$52,364**
LA County Living Wage: \$31,767

Education: **High School Diploma**

Job Training: **Apprenticeship**

Top Essential Industries:

- 236 - Construction Of Buildings (10,631 Jobs)
- 238 - Specialty Trade Contractors (10,009 Jobs)
- 237 - Heavy & Civil Engineering Construction (593 Jobs)

MIDDLE-SKILL

Annual Median Wage : **\$77,713**
LA County Living Wage: \$31,767

Education: **High School Diploma**

Job Training: **None**

Top Essential Industries:

- 236 - Construction Of Buildings (5,378 Jobs)
- 238 - Specialty Trade Contractors (5,010 Jobs)
- 237 - Heavy & Civil Engineering Construction (1,807 Jobs)



Construction Managers (SOC 11-9021)

Plan, direct, or coordinate, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in conceptual development and implementation of a construction project.

Construction Managers plan, schedule and coordinate construction project activities, prepare and submit budget estimates and direct and supervise construction workers. This is a middle-skill occupation that requires a bachelor's degree and moderate-term job training. Database query tools and graphics software are necessary tools; education in engineering and technology as well as strategic planning and resource allocation is important. This position comes with highly increased wages from lower-skill positions like Construction Laborers.

MIDDLE-SKILL / ABOVE MIDDLE-SKILL

Annual Median Wage : \$97,395
LA County Living Wage: \$31,767

Education: Bachelor's Degree

Job Training: Moderate-Term

Top Essential Industries:

236 - Construction Of Buildings (4,829 Jobs)

238 - Specialty Trade Contractors (3,587 Jobs)

237 - Heavy & Civil Engineering Construction (1,060 Jobs)

REQUIRED KNOWLEDGE

Building and Construction
Administration and Management
Engineering and Technology
Customer and Personal Service

REQUIRED SKILLS

Coordination
Management of Personnel Resources
Monitoring
Speaking

TOOLS USED

Personal Computers
Airships and Drones
Digital Cameras
Infrared Cameras

Nursing Pathways

Personal Care Aides (SOC 39-9021)

Assist the elderly, convalescents, or persons with disabilities with daily living activities at the person's home or in a care facility. Duties performed at a place of residence may include keeping house and preparing meals.

Personal Care Aides often have job titles like Caregiver, Certified Nursing Assistant or Home Care Aide. They administer personal care, maintain records of client progress and perform healthcare related tasks such as monitoring vital signs and medication. This job requires only a high school diploma, but knowledge of scheduling and database software, as well as medical software like MEDITECH, is important. With further education and training, Personal Care Aides can move into higher-skill roles like LVNs, LPNs, Nursing Assistants and more.

BELOW MIDDLE-SKILL

Annual Median Wage : **\$23,760**
LA County Living Wage: \$31,767

Education: **High School Diploma**
Job Training: **Short-Term**

Top Essential Industries:

- 624 – Social Assistance (31,217 Jobs)
- 623 – Nursing And Residential Care Facilities (4,275 Jobs)
- 621 – Ambulatory Health Care Services (3,559 Jobs)

REQUIRED KNOWLEDGE

Customer and Personal Services
English Language
Psychology

REQUIRED SKILLS

Service Orientation
Social Perceptiveness
Active Listening
Monitoring

TOOLS USED

Patient Lifts or Accessories
Glucose Monitors or Meters
Blood Pressure Cuff Kits
Electronic Medical Thermometers



Home Health Aides (SOC 31-1011)

Provide routine individualized healthcare such as changing bandages and dressing wounds, and applying topical medications to the elderly or persons with disabilities at the patient's home or in a care facility. Monitor or report changes in health status.

Home Health Aides perform many functions for the disabled or elderly at their homes, including caretaking, help with mobility and bathing, keeping records of patient care and condition, and interacting with patients. This occupation requires only a high school diploma, but often software skills – particularly in medical software like AIG OASIS. In this role the emphasis is on personal service, communication and monitoring to ensure that patients receive the best possible care.

BELOW MIDDLE-SKILL

Annual Median Wage : **\$25,433**
LA County Living Wage: \$31,767

Education: **High School Diploma**
Job Training: **Short-Term**

Top Essential Industries:

- 623 – Nursing And Residential Care Facilities (2,687 Jobs)
- 621 – Ambulatory Health Care Services (1,336 Jobs)
- 624 – Social Assistance (725 Jobs)

REQUIRED KNOWLEDGE

Customer and Personal Services
English Language

REQUIRED SKILLS

Service Orientation
Social Perceptiveness
Active Listening
Monitoring

TOOLS USED

Patient Lifts or Accessories
Glucose Monitors or Meters
Prosthetic Devices
Wheelchairs



Nursing Assistants (SOC 31-1014)

Provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, or move patients, or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides, and nursing attendants.

Nursing Assistants provide support for nursing staff in residential care facilities and hospitals, which include tasks like answering patient requests, assisting patients with eating or drinking and providing physical support for patients during activities like walking, bathing, dressing and more. Nursing Assistants require certification in order to gain employment and must be familiar with a range of skills such as medicine, personal service and public safety and security. This job does not offer high wages but has pathways to higher-skill occupations.

REQUIRED KNOWLEDGE

Medicine and Dentistry
Customer and Personal Service
English Language
Public Safety and Security

REQUIRED SKILLS

Service Orientation
Active Listening
Coordination
Monitoring

MIDDLE-SKILL

Annual Median Wage : **\$29,400**

LA County Living Wage: \$31,767

Education: **Postsecondary Non-Degree Award**

Job Training: **None**

Top Essential Industries:

623 - Nursing And Residential Care Facilities (13,599 Jobs)

622 - Hospitals (4,094 Jobs)

621 - Ambulatory Health Care Services (775 Jobs)



Licensed Practical & Vocational Nurses (SOC 29-2061)

Care for ill, injured, or convalescing patients or persons with disabilities in hospitals, nursing homes, clinics, private homes, group homes, and similar institutions. May work under the supervision of a registered nurse. Licensing required.

Licensed Practical and Licensed Vocational Nurses administer prescribed medications, provide basic care or treatments, measure and record patients vital signs and answer patient calls, among other tasks. They must be experienced in medical software and spreadsheet software, as well as medicine and /or dentistry, and need a postsecondary non-degree award (license) for the role. Proficiency with medicine and medical procedures and a comfort with providing personal service and therapy or counseling are all critical skills for LVNs and LPNs.

REQUIRED KNOWLEDGE

Medicine and Dentistry
Customer and Personal Service
Psychology
Therapy and Counseling

REQUIRED SKILLS

Service Orientation
Active Listening
Coordination
Monitoring

MIDDLE-SKILL

Annual Median Wage : **\$51,284**

LA County Living Wage: \$31,767

Education: **Postsecondary Non-Degree Award**

Job Training: **None**

Top Essential Industries:

623 - Nursing And Residential Care Facilities (4,956 Jobs)

621 - Ambulatory Health Care Services (4,028 Jobs)

622 - Hospitals (2,760 Jobs)

TOOLS USED

Patient Care Beds
Intravenous/Arterial Extension Tubing
Cardiac Output Monitoring Units
Hypodermic Needles



Registered Nurses (SOC 29-1141)

Assess patient health problems and needs, develop and implement nursing care plans, and maintain medical records. Administer nursing care to ill, injured, convalescent, or disabled patients. Advise patients on health maintenance and disease prevention.

Registered Nurses monitor patients and record their medical information and vital signs, plan and implement patient care plans and administer medications to patients. They can work as Operating Room RNs, Emergency Department RNs, Oncology RNs, School Nurses and more. Bachelor's degrees are usually necessary to become a Registered Nurse, and licensing or certification is also required. RNs need familiarity with medical software and project management software, as well as strengths in personal service, medicine and patient care.

MIDDLE-SKILL / ABOVE MIDDLE-SKILL

Annual Median Wage : \$94,360
LA County Living Wage: \$31,767

Education: Bachelor's Degree
Job Training: None

Top Essential Industries:

622 - Hospitals (33,983 Jobs)

621 - Ambulatory Health Care Services (11,977 Jobs)

623 - Nursing And Residential Care Facilities (3,358 Jobs)

REQUIRED KNOWLEDGE

Medicine and Dentistry
Customer and Personal Service
Psychology
Education and Training

REQUIRED SKILLS

Service Orientation
Active Listening
Coordination
Social Perceptiveness

TOOLS USED

Electrosurgery Equipment
Flexible Endoscopes
Medical Oxygen Masks
Reflex Hammers or Mallets



Nurse Practitioners (SOC 29-1171)

Diagnose and treat acute, episodic, or chronic illness, independently or as part of a healthcare team. May focus on health promotion and disease prevention. May order, perform, or interpret diagnostic tests such as lab work and x rays. May prescribe medication.

Nurse Practitioners must be Registered Nurses who have specialized graduate education. They can analyze and interpret patients' histories or symptoms to develop appropriate diagnoses, treat acute health care problems, prescribe medications, recommend diagnostic or therapeutic interventions and educate patients about self-management of acute or chronic illnesses. A deep, masters-level education in medicine, therapy, injury and illness, health promotion and disease prevention is necessary for this occupation.

ABOVE MIDDLE-SKILL

Annual Median Wage : \$123,812
LA County Living Wage: \$31,767

Education: Master's Degree
Job Training: None

Top Essential Industries:

621 - Ambulatory Health Care Services (1,564 Jobs)

622 - Hospitals (552 Jobs)

624 - Social Assistance (40 Jobs)

REQUIRED KNOWLEDGE

Medicine and Dentistry
Customer and Personal Service
Biology
Therapy and Counseling

REQUIRED SKILLS

Active Learning
Active Listening
Critical Thinking
Complex Problem-Solving

TOOLS USED

Electrocardiography Units
Electronic Blood Pressure Units
Ophthalmoscopes
Surgical Lasers or Accessories

Accounting Pathways

Billing and Posting Clerks (SOC 43-3021)

Compile, compute, and record billing, accounting, statistical, and other numerical data for billing purposes. Prepare billing invoices for services rendered or for delivery or shipment of goods.

Billing and Posting Clerks often have jobs titles such as Account Services Representative, Bookkeeping Assistant or Data Processor. They post stop-payment notices to prevent payment of protested checks, verify signatures and required information on checks and route statements for mailing or over-the-counter delivery to customers. With proper education and training, Billing and Posting Clerks can move from this low-skill occupation to higher-skill opportunities as Accountants and Auditors.

BELOW MIDDLE-SKILL

Annual Median Wage : **\$39,984**
LA County Living Wage: \$31,767

Education: **High School Diploma**
Job Training: **Moderate-Term**

Top Essential Industries:

- 621 – Ambulatory Health Care Services (4,793 Jobs)
- 622 – Hospitals (1,790 Jobs)
- 624 – Social Assistance (859 Jobs)

REQUIRED KNOWLEDGE

Customer and Personal Services
Clerical
English Language
Computer and Electronics

REQUIRED SKILLS

Active Listening
Reading Comprehension
Critical Thinking
Speaking

TOOLS USED

Check Endorsing Machines
Digital Image Printers
Filing Cabinets or Accessories
Franking or Postage Machines



Bookkeeping, Accounting and Auditing Clerks (SOC 43-3031)

Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records.

Bookkeeping, Accounting and Auditing Clerks provide a variety of functions including using accounting software to record, store and analyze information. They often require some college education (though a full degree is not necessary) and have moderate-term on-the-job training. This occupation uses a variety of tools such as accounting software like Intuit QuickBooks, enterprise resource planning software and financial planning software. These clerks need an economics and accounting background as well as clerical skills.

MIDDLE-SKILL

Annual Median Wage : **\$45,090**
LA County Living Wage: \$31,767

Education: **Some College, No Degree**
Job Training: **Moderate-Term**

Top Essential Industries:

- 624 – Social Assistance (4,464 Jobs)
- 621 – Ambulatory Health Care Services (4,093 Jobs)
- 238 – Specialty Trade Contractors (2,930 Jobs)

REQUIRED KNOWLEDGE

Customer and Personal Service
Clerical
Mathematics
Economics and Accounting

REQUIRED SKILLS

Active Listening
Reading Comprehension
Critical Thinking
Speaking

TOOLS USED

Desktop Computers
Accounting Software
Financial Planning Software
Scanners



Accountants and Auditors (SOC 13-2011)

Examine, analyze, and interpret accounting records to prepare financial statements, give advice, or audit and evaluate statements prepared by others. Install or advise on systems of recording costs or other financial and budgetary data.

Accountants and Auditors can have job titles like Accountant or Business Analyst, and perform functions such as maintaining and analyzing budgets, preparing financial statements and reviewing accounts. This occupation requires a bachelor's degree and also needs familiarity with accounting software, database query software and enterprise resource planning software. Accountants and Auditors should have education in mathematics, economics and accounting, as well as laws and legal codes.

ABOVE MIDDLE-SKILL

Annual Median Wage : **\$74,122**
LA County Living Wage: \$31,767

Education: **Bachelor's Degree**

Job Training: **None**

Top Essential Industries:

92 - Public Administration (5,229 Jobs)
624 - Social Assistance (1,916 Jobs)
621 - Ambulatory Health Care Services (816 Jobs)

REQUIRED KNOWLEDGE

Economics and Accounting
Mathematics
Law and Government
Clerical

REQUIRED SKILLS

Active Listening
Critical Thinking
Mathematics
Reading Comprehension

TOOLS USED

Desktop Computers
Laser Fax Machines
Accounting Software
ERP Software

Target Essential Occupations

As stated earlier, this report has identified five middle-skill and five higher-skill pathway target occupations in the Los Angeles Basin that present well-paying, consistent job opportunities for the region's community college students looking for the stability in employment and career ladders that frontline industries provide; these target occupations are presented in Exhibit 6-1.

In 2019, an estimated 363,320 workers in the Los Angeles Basin were employed in the ten target occupations identified in this report, with 159,640 (43.9 percent) of these workers employed in frontline industries. Bookkeeping, accounting, and auditing clerks account for the greatest number of jobs amongst the targeted occupations.

In previous reports produced before the COVID-19 global health crisis, five-year employment projections were given for the identified target occupations. However, as we forecast further into the future, the range of possible outcomes becomes increasingly wider. While we do provide these occupational projections in this report, we still find ourselves in the midst of the pandemic with considerable uncertainty due to ongoing job losses, virus containment measures, stay-at-home orders, varying consumption levels, supply changes and more. With all these factors in play, the spread of COVID-19 and the duration of the reopening process are still unknowns. As such, projections and forecasts developed for this report reflect the conditions as of September 2020 but could quickly change depending on how our situation evolves in the LA Basin.

EXHIBIT 6-1:
TARGET OCCUPATION

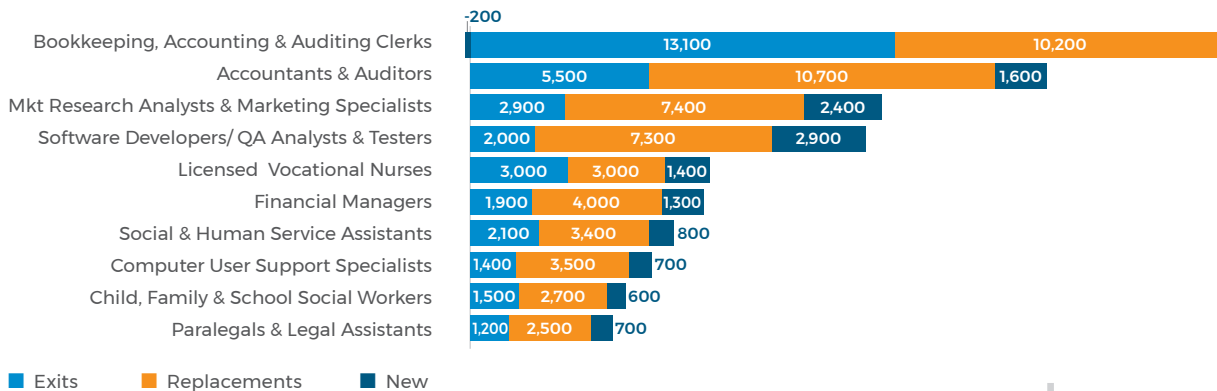
EXHIBIT 6-1:

TARGET OCCUPATION

		FRONTLINE INDUSTRIES		ACROSS ALL INDUSTRIES		Median Hourly Wage
SOC	Occupation	2019 Employment	Share of Total	2019 Employment	5-Year Ttl Openings	
MIDDLE-SKILL OCCUPATIONS						
43-3031	Bookkeeping, Accounting, and Auditing Clerks	28,870	40.6%	71,110	23,100	\$22.73
21-1093	Social and Human Service Assistants	13,590	66.6%	20,390	6,300	\$19.25
29-2061	Licensed Vocational Nurses	17,150	65.3%	26,250	7,400	\$27.74
15-1232	Computer User Support Specialists	5,750	23.9%	24,030	5,600	\$26.99
23-2011	Paralegals and Legal Assistants	11,070	65.6%	16,870	4,400	\$25.42
HIGH-SKILL "PATHWAY" OCCUPATIONS						
13-2011	Accountants and Auditors	28,140	46.4%	60,610	17,800	\$34.89
15-1256	Software Developers/QA Analysts and Testers	21,830	38.8%	56,260	12,200	\$57.90
13-1161	Market Research Analysts and Marketing Specialists	10,970	30.0%	36,520	12,700	\$31.48
11-3031	Financial Managers	17,070	47.3%	36,120	7,200	\$66.55
21-1021	Child, Family, and School Social Workers	5,200	34.3%	15,160	4,800	\$28.63
Total Employment		159,640	43.9%	363,320	93,600	

EXHIBIT 6-2:

PROJECTED TOTAL OPENINGS FOR TARGET OCCUPATIONS ACROSS ALL INDUSTRIES 2019 TO 2024



trends

Workforce & Technology Trends

The essential occupations outlined in this report, which provide a wide range of services and critical expertise to our frontline industries, are being constantly reshaped and improved by technological advancements. These can not only have an impact on the occupation as a whole by improving productivity and effectiveness, but directly impact how workers perform their jobs in the context of frontline industries and essential labor.

This can be clearly demonstrated for **bookkeeping, accounting and auditing clerks** (43-3031) and **accountants and auditors** (13-2011), who have already witnessed the transformation of their occupation over the years through the development of accounting and bookkeeping software like QuickBooks, Quicken and much more. These technologies have made entering and tracking invoices, expenses, payments and reimbursements, the development of financial reports and much more extremely efficient for clerks in this occupation – which is often critical for ensuring that frontline industries can operate at their most effective with up-to-date and readily available financial data. Accounting and bookkeeping clerks do face some risk posed by automation, as they often perform routine tasks that can be easily transferred to machines over time. However, this can also provide new opportunities for these workers to provide actionable insights for frontline industries, through the creation and interpretation of dashboards that deliver critical information about how their firms are providing value in challenging times.

Similarly, **paralegals and legal assistants** (23-2011) are being pushed into a more tech-focused role, often-times performing tech support for their firms. There is a wide range of software paralegals and legal assistants are developing familiarity with, which may rapidly become requirements for employment: legal research platforms like Westlaw and Casemaker; practice and litigation management software; cloud computing and data storage; and more. Another growing field of importance is e-discovery, the process of discovery in civil litigation that is carried out in electronic formats. Those with familiarity or experience in e-discovery software can have a major impact on their firm's efficiency. In the context of frontline industries, paralegals and legal assistants can harness software and technology to expedite cases and claims in times where many individuals are demanding service.

Technology is also changing the way social work is performed, which can have an impact on two essential occupations we cover in our report: **social and human service assistants** (21-1093) and **child, family and school social workers** (21-1021). Of particular importance is the growing practice of telehealth, where social assistants and workers no longer need to travel to their patients and clients in potentially compromising situations but can instead communicate easier and more efficiently over platforms such as Zoom, Google Hangouts or Skype. The ability for social workers to remain in touch with their clients, and vice versa, from long distances or at any time, provides another measure of safety and security for members of the community that may require rapid assistance. Technology also provides social workers with a massive online database of resources to help them find effective solutions for the communities and families that they serve, while also being able to manage large amounts of client data securely.

The health care industry has been the beneficiary of many new developments in technology which have impacted **licensed vocational nurses** (29-2061). This begins with data collection and querying, where LVNs can store patient data efficiently and also draw on a large collection of established knowledge to use in their day-to-day activities through point-of-care technology and electronic health records (EHRs). Recent developments in big data are also making an important impact; for example, smart beds work with other point-of-care technology to obtain patient measurements like temperature and weight, and keep medical staff constantly updated. Mobile workstations are also becoming more prevalent, as they allow nurses to bring everything necessary to the bedside of their patients including equipment, health records and medicine. Huge advances in the field of wearables are helping as well, doing everything from providing a safe form of identification, keeping hospitals secure, to transmitting vital measurements for medical staff to monitor. In situations like pandemics where frontline industries become critical for keeping the county population healthy, technology has provided nurses many more tools to succeed.

Perhaps no field has been subject to greater change than technology itself, and occupations within this industry have evolved along with it. For **software developers** (15-1132) and **computer user support specialists** (15-1232), the most current trends involve working with artificial intelligence and robotics to integrate these platforms into their development cycles. Robotic process automation is helping to supplement the speed and volume of work performed by developers, while AI is becoming dominant in assisting with prediction services and creating personalized experiences for users. Meanwhile, the usage of edge and cloud computing is predicted to increase as companies search for decentralized, secure infrastructure solutions.

The world of big data has also transformed how companies are able to market and reach their consumers, which has been a major breakthrough for **market research analysts and marketing specialists** (13-1161). Tools for data collection and analysis have never been more prevalent, and there is a massive array of methods with which market researchers can reach their target audience. These tools are ever more important in a world impacted by a pandemic, as companies can find new ways to reach their clients and make potentially business-saving relationships and interactions online rather than in person.

In the financial sector, technology has changed the way that **financial managers** (11-3031) operate as well. The opportunities provided by financial technology have made things more competitive for traditional brick-and-mortar institutions, as smaller enterprises and online companies have been able to challenge the market. Technology has made the ability to make payments more flexible than ever for consumers, and cloud-based applications have allowed companies to link all their finances under a single platform, leading to greater accountability and accuracy. In the lending business, online lending services have been able to speed up the credit evaluation and loan application process, and in some cases forced financial institutions to partner with them rather than be undercut. Overall, the ability of technology to streamline certain tasks in the financial industry will allow financial managers to focus on client needs and interpersonal relationships, prioritizing the human element of their job over the computer-based element.

Technology will continue to influence the way frontline industries grow, and the essential occupations within them. In some cases, this may serve to displace essential workers through automation and force them out of their chosen career paths. But for most, the ability to work with and integrate technology into their daily routines, as well as develop new cutting-edge expertise, will allow workers in essential occupations to perform their jobs more effectively and build towards higher-skill positions in their industries.

Supply-Side Analysis:

PROGRAMS TO UPSKILL ESSENTIAL WORKERS

Although the Los Angeles Basin remains in the midst of a global pandemic, sectors of the economy remain a significant source of well-paying middle-skill jobs for the next five years. With a few years of postsecondary education, specialized training or a transfer program, residents are able to obtain a higher position that does not require a significant investment of time or finances. Community colleges (CC) in the region offer non-credit awards, certificates and associate degrees in many areas that provide the necessary training for these occupations and more. In the LA Basin, 28 community colleges offer a combined 22 unique certificate and degree programs related to these five middle-skill and five pathway (above middle-skill) occupations.

These occupations were selected based on their involvement in one or more of the chosen essential industries, high number of annual job openings, and

ability to pay entry-level wages (25th percentile) that are above the living wage threshold for an adult in LA County (\$15.04/hour).

The top five programs providing pathways into these occupations, by average number of completions over the last three academic years, appear below:

PROGRAM	2016-19 AVG. CC COMPLETIONS
Accounting	1,547
Paralegal	460
Alcohol and Controlled Substances	342
Computer Networking	276
Computer Programming	270

EXHIBIT 7-1:

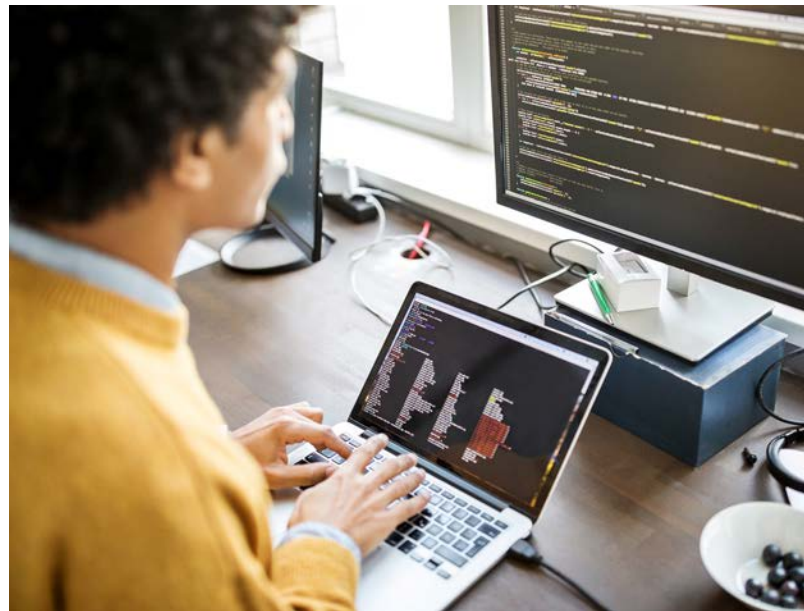
PROJECTED ANNUAL JOB OPENINGS COMPARED TO COMMUNITY COLLEGE (CC) COMPLETIONS IN THE LA BASIN

SOC	Occupation	Annual Job Openings	Community College Program	2016-2019 Avg. Annual CC Completions
TARGET MIDDLE-SKILL OCCUPATIONS				
43-3031	Bookkeeping, Accounting, and Auditing Clerks	4,620	Accounting	1,547
			Community Health Care Worker	1
			Family and Consumer Sciences, General	1
			Parenting and Family Education	7
			Foster and Kinship Care	-
21-1093	Social and Human Service Assistants	1,260	Family Studies	1
			Human Services	182
			Alcohol and Controlled Substances	342
			Disability Services	4
29-2061	Licensed Practical and Licensed Vocational Nurses	1,480	Licensed Vocational Nursing	192
			Computer Information Systems	123
			Software Applications	71
15-1232	Computer User Support Specialists	1,120	Computer Infrastructure and Support	93
			Computer Networking	276
			Computer Support	30
23-2011	Paralegals and Legal Assistants		Paralegal	460
TARGET PATHWAY OCCUPATIONS				
13-2011	Accountants and Auditors	3,560	Accounting	1,547
			Banking and Finance	52
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	2,440	Electronic Game Design	2
			Computer Software Development	20
			Computer Programming	270
13-1161	Market Research Analysts and Marketing Specialists	2,540	Marketing and Distribution	216
			E-Commerce (technology emphasis)	2
11-3031	Financial Managers	1,440	Banking and Finance	52
21-1021	Child, Family, and School Social Workers	960	Human Services	182

Target Middle-Skill Occupations in Frontline Industries

Community college data in this supply section comes from two primary sources. The first is the Chancellor's Office Management Information Systems Data Mart. This database contains state, district, and college-level information about community college students and programs. The second is Cal-PASS Plus LaunchBoard, which is a statewide data system that provides information on progress, employment, and earnings outcomes of community college students. These two data systems contain a lot of the same metrics, but due different intended uses and how each metric is calculated, values can vary between systems.

Given the uncertainty in the labor market caused by the current COVID-19 health pandemic, these five middle-skill occupations represent some of the strongest employment prospects for displaced workers. With numerous annual job openings, students can obtain training for the majority of these occupations in approximately one year and expect to earn entry-level wages above the living wage threshold in Los Angeles County (\$15.04/hour).



Bookkeeping, Accounting, and Auditing Clerks

Bookkeeping, accounting, and auditing clerks work across a wide range of industries. Among their varied responsibilities, they record all financial transactions (e.g. expenditure and incoming money), verify accuracy of numerical data, and work with accounts payable and receivable. Regional community colleges offer accounting programs that teach students how to verify the accuracy of data for any business. Programs focus on creating, maintaining, and auditing detailed financial records.

In 2019, the region employed 71,110 workers in this occupation, which is projected to lose over 200 net jobs over the next five years. Workers have entry-level hourly wages (25th percentile) of \$17.81, translating to \$37,050 per year. Nevertheless, projections show that over the next five years, there will be 4,620 annual openings for bookkeeping, accounting, and auditing clerks due to replacements (transfers and exits). This occupation is an ideal way to gain work experience for a career ladder aimed at the occupation of accountants and auditors (see page 28).

Over the last three years, an annual average of 1,547 community college completions were reported by 28 community colleges. According to LaunchBoard, the statewide data system for progress, success, employment, and earnings outcomes for California community college students, there were 1,669 awards issued to 585 completers in accounting programs in the 2018-19 academic year, and 4,216 transferred to a four-year college or university in 2017-18.

ACCOUNTING PROGRAM STUDENT OUTCOMES

73% working in field of study (2016-17)

\$39,762 Median Annual Earnings (2017-18)

33% Median Change in Earnings (2017-18)

60% Attained a Living Wage (2017-18)

REGIONAL COLLEGES ISSUING AWARDS

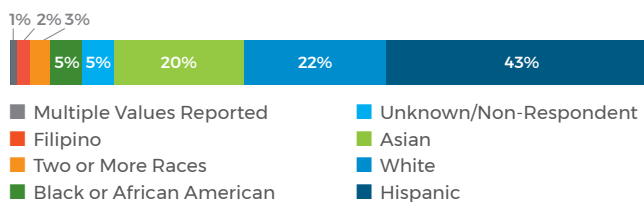
Cerritos	Irvine Valley	Orange Coast
Citrus	LA City	Pasadena
Coastline	LA Harbor	Rio Hondo
Compton	LA Mission	Saddleback
Cypress	LA Pierce	Santa Ana
East LA	LA Southwest	Santa Monica
El Camino	LA Trade	Santiago Canyon
Fullerton	LA Valley	West LA
Glendale	Long Beach	
Golden West	Mt San Antonio	

35,525 students took accounting courses at 28 LA/OC community colleges in 2018-19. Demographic data for these students appear below.

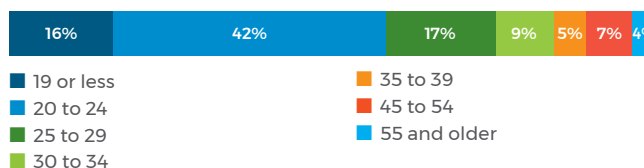
GENDER



RACE/ETHNICITY



AGE



Licensed Vocational Nurses

Licensed vocational nurses observe patients, record changes in their health, and may administer medications as needed. Typically, these nurses work with patients in hospitals, nursing homes, clinics, private homes, or group homes. Licensed vocational nursing programs teach students the technical and manual nursing skills necessary to be licensed by the Board of Vocational Nursing and Psychiatric Technicians. Programs teach how to perform basic patient care and be a safe care giver under the direction of a registered nurse or physician.

In 2019, the region employed 26,250 workers in this occupation, which is projected to gain over 1,600 net new jobs over the next five years. Workers have entry-level hourly wages of \$23.88, translating to over \$49,000 per year. There are 1,480 annual average job openings projected for licensed vocational nurses (LVNs) in the region through 2024, when including new and replacement roles. Community colleges conferred 230 awards in the 2018-19 academic year. When these completions are taken into account, the supply gap is 1,250 annually. Currently, four LA community colleges have LVN programs. These programs typically require one calendar year to complete, and each community college generally accepts between 24 and 30 students each semester. Because each community college program can only accommodate a small number of students, this is believed to be contributing to the shortage of qualified LVNs. There are also LVN-to-RN career ladder programs offered at eight LA/OC community colleges. These programs provide currently LVNs with a direct path to moving up to a Registered Nursing job.

According to LaunchBoard, there were 166 awards issued to 140 completers of LVN programs in the 2018-19 academic year.

Licensed Vocational Nursing Program Student Outcomes

Licensed Vocational Nursing Program Student Outcomes

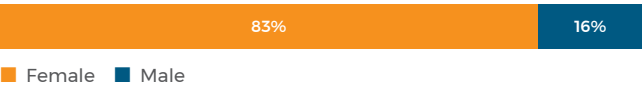
- 80% working in field of study (2016-17)
- \$33,392 Median Annual Earnings (2017-18)
- 57% Median Change in Earnings (2017-18)
- 52% Attained a Living Wage (2017-18)

Regional Colleges Issuing Awards

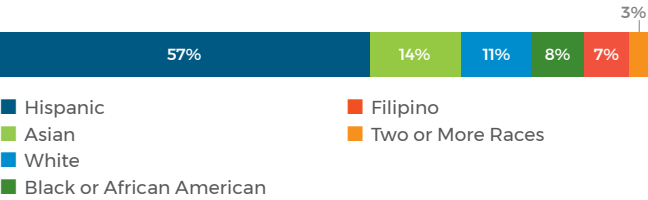
Citrus Long Beach	Pasadena Rio Hondo
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394 students took LVN courses at LA/OC community colleges in 2018-19. Demographic data for these students appear below.

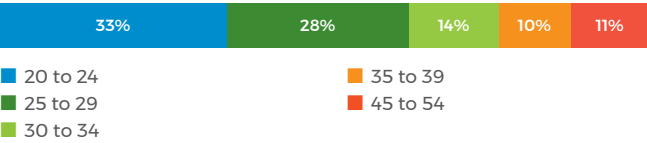
Gender



Race/Ethnicity



Age



Social and Human Service Assistants

Social and human service assistants serve their clients by finding appropriate social and community services that aide in substance abuse, human relationships, and rehabilitation. Relevant community college programs prepare students to work with families and individuals in need of these services. Training is offered on assisting people experiencing alcohol and drug abuse, strengthening individual and family relationships, as well as helping those with developmental and other disabilities make progress towards goals. Gaining experience as a social and human service assistant is a great first step towards becoming a licensed social worker.

In 2019, the region employed 20,390 workers in this occupation, which is projected to gain 800 net new jobs over the next five years. Workers have entry-level hourly wages of \$16.16, translating to just over \$33,600 per year. There are 1,260 average annual openings for social and human service assistants over the next five years when including new and replacement roles. Over the last three years, an average of 538 community college completions were reported by 17 community colleges.

According to LaunchBoard, there were 410 awards issued to 315 completers during the 2018-19 academic year across three programs: human services, alcohol and controlled substances, and disability services. There were 384 students that transferred to a four-year college or university from related programs in 2017-18.¹

The number of students taking courses related to social and human service assistants in 2018-19 appear below:

Alcohol and Controlled Substances
2,895 students

Human Services
2,207 students

Parenting and Family Education
1,305 students

Family Studies
962 students

Family and Consumer Sciences, General
66 students

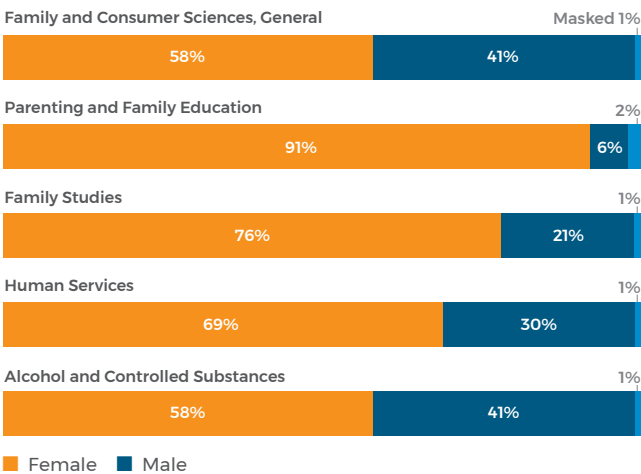
Disability Services
24 students

REGIONAL COLLEGES ISSUING AWARDS

Cerritos	LA Mission	Orange Coast
Coastline	LA Pierce	Rio Hondo
Cypress	LA Southwest	Saddleback
East LA	Long Beach	Santa Ana
Glendale	Mt San Antonio	West LA
LA City	North Orange	
	Adult	

Demographic data for these students, by program, appear below.

GENDER



1. Transfer numbers are for the following programs: family and consumer sciences, general; parenting and family education; family studies; human services; and alcohol and controlled substances

RACE/ETHNICITY

Family and Consumer Sciences, General



Parenting and Family Education



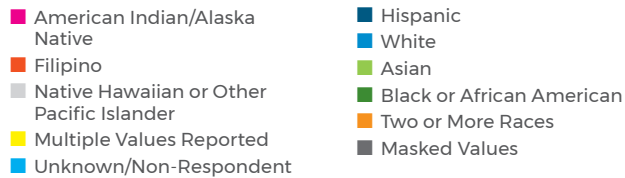
Family Studies



Human Services



Alcohol and Controlled Substances



AGE

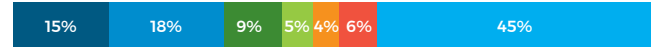
Family and Consumer Sciences, General



Parenting and Family Education



Family Studies



Human Services



Alcohol and Controlled Substances



STUDENT OUTCOMES FOR PROGRAMS RELATED TO SOCIAL AND HUMAN SERVICE ASSISTANTS

Program	% Working in Field of Study, 2016-17	\$ Median Annual Earnings, 2017-18	% Median Change in Earnings, 2017-18	% Attained a Living Wage, 2017-18
Family and Consumer Sciences, General	67%*	\$22,360	25%	38%
Parenting and Family Education	39%	\$26,600	11%	42%
Family Studies	89%	\$32,084	30%	50%
Human Services	62%	\$28,912	21%	37%
Alcohol and Controlled Substances	67%	\$30,120	23%	43%
Disability Services	-	\$50,132**	9%**	-

* Data from 2014-15 (most recent)
** Data from 2015-16 (most recent)

Computer User Support Specialists

Computer user support specialists provide IT assistance across every industry to computer users. Workers set up and maintain equipment, develop training materials, answer questions about software or hardware, and identify and resolve computer problems. Depending on the company for which they work, these professionals may provide assistance in person or in alternate ways such as phone or internet. Given the responsibilities that computer user support specialists have, there are a wide range of programs that teach students about information storage and processing, hardware and software installation, providing technical assistance to users, troubleshooting, and operation systems (OS) design and administration.

In 2019, the region employed 24,030 workers in this occupation, which is projected to gain over 700 net new jobs in the next five years. Workers have entry-level hourly wages of \$21.59, translating to \$44,900 per year. There will be 1,120 annual average openings for computer user support specialists through 2024 when including new and replacement roles. Over the last three years, an average of 593 community college completions were reported by a total of 27 community colleges.

According to LaunchBoard, there were 555 awards issued to 334 completers in five IT-related programs during the 2018-19 academic year, and 1,187 transferred to a four-year college or university in 2017-18. There will be 1,120 annual average openings for computer user support specialists through 2024. Over the last three years, an average of 593 community college completions were reported by 27 community colleges.

In 2018-19, 18,004 students took courses that provide training for the occupation, computer user support specialists. The number of students, by program, appear below along with demographic data.

Computer Information Systems
8,269 students

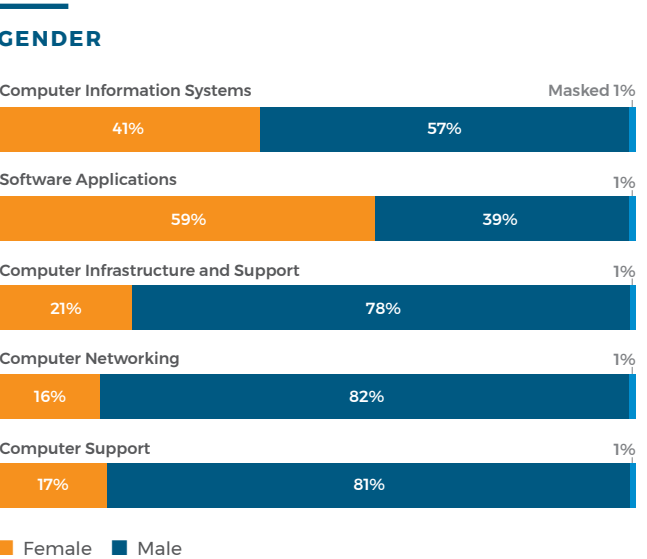
Software Applications
5,844 students

Computer Networking
1,699 students

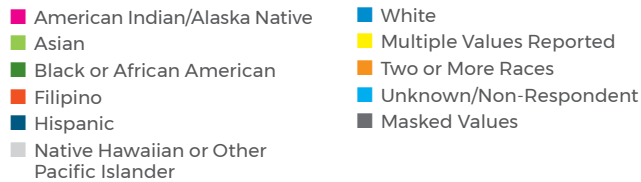
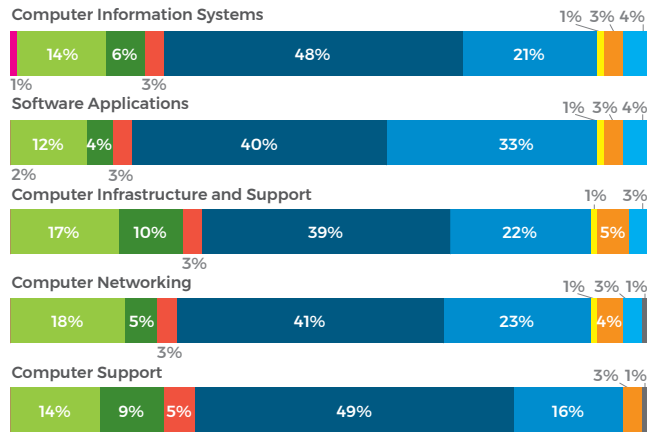
Computer Infrastructure and Support
1,676 students

Computer Support
516 students

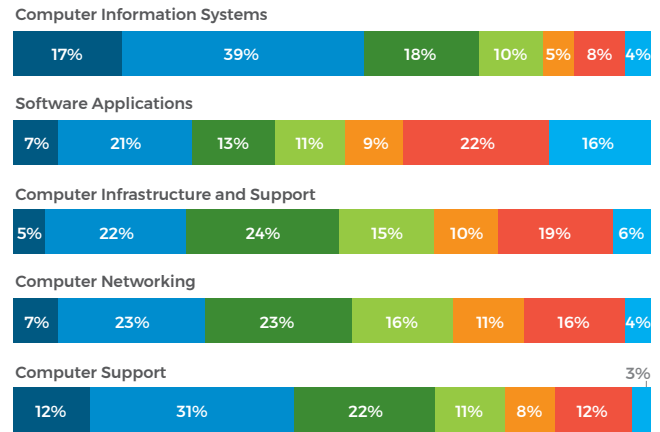
REGIONAL COLLEGES ISSUING AWARDS		
Cerritos	Irvine Valley	Mt San Antonio
Citrus	LA City	Orange Coast
Coastline	LA Harbor	Pasadena
Compton	LA Mission	Rio Hondo
Cypress	LA Pierce	Saddleback
East LA	LA Southwest	Santa Ana
El Camino	LA Trade	Santa Monica
Fullerton	LA Valley	Santiago Canyon
Glendale	Long Beach	West LA



RACE/ETHNICITY



AGE



STUDENT OUTCOMES FOR PROGRAMS RELATED TO COMPUTER USER SUPPORT SPECIALISTS

Program	% Working in Field of Study, 2016-17	\$ Median Annual Earnings, 2017-18	% Median Change in Earnings, 2017-18	% Attained a Living Wage, 2017-18
Computer Information Systems	56%	\$30,516	27%	44%
Computer Infrastructure and Support	63%	\$44,262	18%	65%
Computer Networking	66%	\$44,280	14%	63%
Computer Support	86%*	\$33,644	20%	51%
Software Applications	64%	\$34,950	13%	51%

* Data from 2015-16 (most recent)

Paralegals and Legal Assistants

Paralegals and legal assistants support lawyers with daily office activities. Workers may gather and analyze legal research, prepare legal documents, and conduct initial client meetings. Much of their work is investigating facts via public records and internet sources, as well as researching legal precedents that will assist lawyers to be successful in their cases. Today, paralegals and legal assistants work at employers such as banks, government offices, and health companies. Paralegal programs teach students about legal concepts, precedents, and terminology, as well as how to conduct legal research for attorneys, judges, and others. Paralegals can gain invaluable experience working for seasoned attorneys and judges, and their career path can blossom under that guidance and mentorship.

In 2019, the region employed 16,870 workers in this occupation, which is projected to gain nearly 700 net new jobs over the next five years. Workers have entry-level hourly wages of \$18.30, translating to \$38,070 per year. Over the next five years, there will be a projected 880 annual average openings for paralegals and legal assistants when including new and replacement roles. Over the last three years, an average of 460 community college completions were reported by a total of 14 community colleges.

PARALEGAL PROGRAM STUDENT OUTCOMES

65% working in field of study (2016-17)

\$35,702 Median Annual Earnings (2017-18)

35% Median Change in Earnings (2017-18)

55% Attained a Living Wage (2017-18)

REGIONAL COLLEGES ISSUING AWARDS

Cerritos	Irvine Valley	Mt San Antonio
Coastline	LA City	Pasadena
Compton	LA Mission	Santa Ana
El Camino	LA Southwest	West LA
Fullerton	LA Trade	

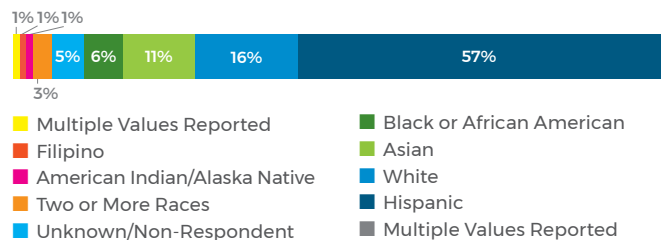
According to LaunchBoard, there were 420 awards issued to 342 completers in paralegal programs during the 2018-19 academic year, and 319 transferred to a four-year college or university in 2017-18.

5,021 students took paralegal courses at LA/OC community colleges in 2018-19. Demographic data for these students appear below.

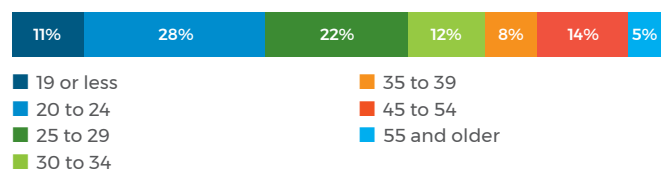
GENDER



RACE/ETHNICITY



AGE



Target “Pathway” Occupations in Frontline Industries

These five pathway occupations represent higher-level employment opportunities for students who are already working in one of the aforementioned middle-skill occupations and looking to continue their studies at a four-year college or university. These occupations typically require a bachelor’s degree for employment, but reward workers with higher pay.

Accountants and Auditors

REGIONAL COLLEGES ISSUING AWARDS

Cerritos	Irvine Valley	Orange Coast
Citrus	LA City	Pasadena
Coastline	LA Harbor	Rio Hondo
Compton	LA Mission	Saddleback
Cypress	LA Pierce	Santa Ana
East LA	LA Southwest	Santa Monica
El Camino	LA Trade	Santiago Canyon
Fullerton	LA Valley	West LA
Glendale	Long Beach	
Golden West	Mt San Antonio	

Accountants and auditors develop, maintain and analyze budgets showing how an organization is doing financially. Accounts are reviewed for accuracy and any discrepancies found are reconciled. Reports produced include assets, liabilities, profits and losses. Audits are done to ensure accounts are balanced – if they are not, recommendations are made. Regional community colleges offer accounting programs that teach students how to verify the accuracy of data for any business. Programs may focus on creating, maintaining and auditing detailed financial records. These programs help students land a career in bank management, investments and loan analysis and management.

In 2019, the region employed 60,610 workers in this occupation, which is projected to gain nearly 1,600 net new jobs over the next five years. Workers have entry-level hourly wages of \$26.71, translating to about \$55,560 per year. Through 2024, 3,560 annual average openings are projected for accountants and auditors when including new and replacement roles. Over the last three years, there was an annual average of 1,599 community college completions reported by 28 community colleges; and an annual average of 1,056 additional awards across four non-community college programs.

According to LaunchBoard, there were 1,718 awards issued to 625 completers in accounting and banking and finance programs in the 2018-19 academic year, and 4,627 transferred to a four-year college or university in 2017-18. When these students transfer to a related four-year program, they are essentially two years away from meeting the typical entry-level education requirement for accountants and auditors.

Software Developers and Software Quality Assurance Analysts and Testers

REGIONAL COLLEGES ISSUING AWARDS		
Cerritos	LA Pierce	Santa Monica
Cypress	LA Southwest	Santiago Canyon
East LA	LA Valley	West LA
Fullerton	Long Beach	
Glendale	Mt San Antonio	
Golden West	Orange Coast	
Irvine Valley	Pasadena	
LA City	Saddleback	
LA Mission	Santa Ana	

These workers develop, create, and modify computer applications software or specialized programs based on an analysis of user needs. They modify existing software to maximize efficiency and may work with a programming team to conduct system testing and validation procedures. Community college programs teach students how to design computer-based applications. One of the ways students accomplish this is via programming. Students write code to instruct computers or software to perform tasks and solve problems. All web pages were created by using code – meaning the effect of programming is pervasive.

In 2019, the region employed 56,260 workers in this occupation, which is projected to gain 2,900 net new jobs over the next five years. Workers have entry-level hourly wages of \$44.75, translating to just over \$93,000 per year. There are 2,440 annual openings for software developers and software quality assurance analysts and testers, when including new and replacement roles. Over the last three years, an annual average of 292 community college completions were reported by 21 community colleges; and an annual average of 2,188 additional awards across 10 non-community college programs.

According to LaunchBoard, there were 274 awards issued to 146 completers in programs that have historically trained students as software developers and software quality assurance analysts and testers during the 2018-19 academic year, and 1,121 transferred to a four-year college or university in 2017-18. By transferring to a related program, these students are putting themselves in an optimal position for a career as a software developer.

Market Research Analysts and Marketing Specialists

REGIONAL COLLEGES ISSUING AWARDS		
Cerritos	LA Harbor	Rio Hondo
Compton	LA Mission	Saddleback
Cypress	LA Pierce	Santa Ana
East LA	LA Trade	Santa Monica
El Camino	LA Valley	Santiago Canyon
Fullerton	Long Beach	West LA
Glendale	Mt San Antonio	
Golden West	Orange Coast	
LA City	Pasadena	

Workers in this occupation analyze market conditions in local, regional, or national areas to determine potential sales of a product or service. Marketing campaigns are created to be competitive in process, sales, and distribution against similar companies. Community college programs students with foundational knowledge on how to facilitate the flow of goods and services to existing customers and potential customers. Programs help train students in setting sales goals and build a strong customer base – more customers equal more sales. With technology being so pervasive, programs also help students combine traditional marketing efforts with online technologies (e.g. social media, search engine optimization and marketing analytics to measure engagement). Topics taught within these programs may include advertising, purchasing, and sales practices.

In 2019, the region employed 36,520 workers in this occupation, which is projected to gain nearly 2,400 net new jobs over the next five years. Workers have entry-level hourly wages of \$23.86, translating to \$49,620 per year. There are 2,540 annual openings for market research analysts and marketing specialists, when including new and replacement roles; and 218 community college completions reported by 24 community colleges; and an annual average of 724 awards across four non-community college programs.

According to LaunchBoard, there were 247 awards issued to 146 completers in marketing and distribution and e-commerce programs during the 2018-19 academic year, and 363 transferred to a four-year college or university in 2017-18.

Financial Managers

REGIONAL COLLEGES ISSUING AWARDS		
Citrus	LA Mission	LA Valley
Glendale	LA Pierce	Pasadena
LA City	LA Southwest	

Financial managers have experience in financial data analysis. Since they are responsible for the overall financial health of an organization, professionals create financial reports, monitor all financial activities, and provide ideas on how to maximize profits via investments. Community college programs prepare students for a career in bank management, investments, and loan analysis and management by offering guidance in how to track income and expenses, as well as evaluate the performance of businesses.

In 2019, the region employed 36,120 workers in this occupation, which is projected to gain nearly 1,300 net new jobs over the next five years. Workers have entry-level hourly wages of \$47.18, translating to \$98,140 per year. There are 1,440 annual openings for financial managers, when including new and replacement roles; and 52 community college completions reported by eight community colleges; and an annual average of 676 awards across four non-community college programs.

According to LaunchBoard, there were 49 awards issued to 40 completers in banking and finance programs during the 2018-19 academic year, and 411 transferred to a four-year college or university in 2017-18.

Child, Family, and School Social Workers

REGIONAL COLLEGES ISSUING AWARDS		
Cerritos	East LA	Orange Coast
Coastline	LA City	Saddleback
Cypress	Long Beach	Santa Ana

Child, family, and school social workers provide social services and assistance to children and families in need. Workers interview clients and assess their situation for safety and other issues of concern. Once this is done, they may act as a liaison between students, homes, schools, and courts in order to achieve optimal treatment outcomes for their clients. Community college programs prepare students to work with families and individuals in need of human and social services. Programs focus on improving the well-being of people’s everyday lives at both an individual and community level.

In 2019, the region employed 15,160 workers in this occupation, which is projected to gain nearly 600 new jobs over the next five years. Workers have entry-level hourly wages of \$21.56, translating to just over \$44,800 per year. There are 960 annual openings for child, family, and school social workers, when including new and replacement roles; and 182 community college completions reported by nine community colleges; and an annual average of 386 additional awards across three non-community college programs.

According to LaunchBoard, there were 145 awards issued to 130 completers in human services programs during the 2018-19 academic year, and 178 transferred to a four-year college or university in 2017-18.

LA Basin Regional Profiles

EXHIBIT 8-1: REGIONS IN THE LOS ANGELES BASIN



Source: LAEDC, Esri; COE

LA BASIN SUB-REGIONS

1. Gateway Cities
2. Los Angeles Central City
3. San Fernando Valley
4. San Gabriel Valley
5. South Bay
6. Westside Cities
7. Orange County
8. Antelope Valley
9. Santa Clarita Valley

The Los Angeles Basin stretches across a geographic land area of 4,857 square miles in Southern California and is home to over 13.3 million residents. The Basin has a rich and diverse population with a wide range of skills and a multi-faceted industry base. The Basin's amenities include beaches, national forests, the San Gabriel Mountains, Catalina Island, the Mojave Desert and numerous tourist destinations such as Disneyland and Knott's Berry Farm, museums, theaters and sports venues. It is composed of dense urban areas such as the City of Los Angeles, to the deserts north of the San Gabriel Mountains, to the widespread suburbs across Orange County.

To better understand regional differences that exist across the Basin and provide additional insight into the strengths and challenges of its communities, we present several key social and economic characteristics of the residents in nine regions across the Los Angeles Basin. For each, we provide information regarding our target occupations on a regional level, including projected employment, community college programs training for these occupations, and the number of program completions, which can be used by community colleges to target outreach programs and other types of development efforts.

Each Regional Profile Contains:

- Socioeconomic indicators for the region including, population, households, income, unemployment rate, and
- The class of resident workers (white collar, blue collar and services);
- The educational attainment of the resident population ages 25 years and over;
- Metrics for the target occupations including the number of projected openings; and
- The number of program completions at community colleges in the region training for target occupations.

Gateway Cities

DETAILS

Population:
1,968,199

Households:
570,814

Median HH income:
\$64,517

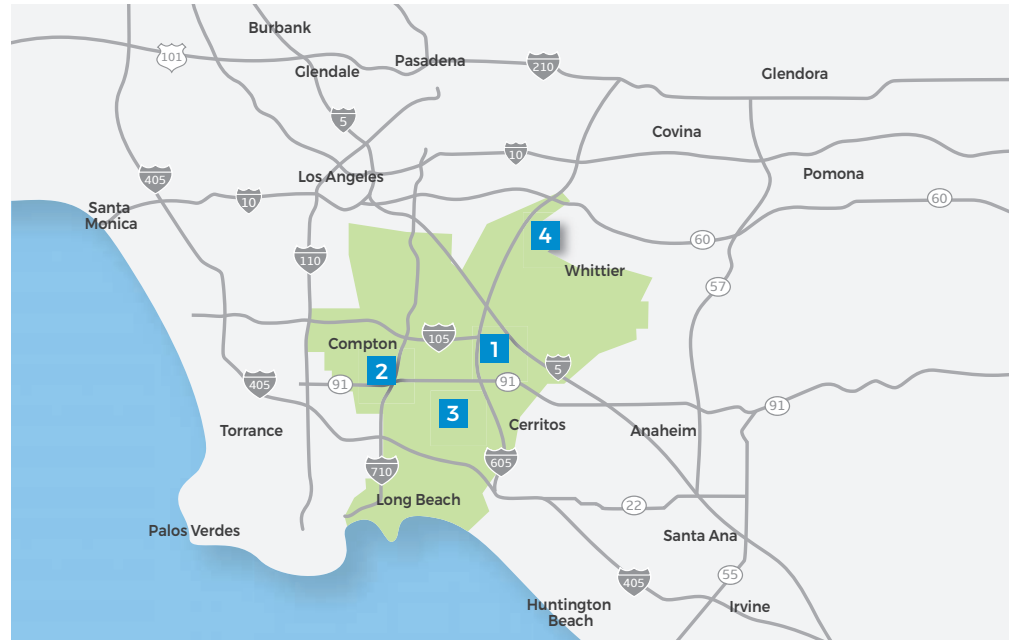
Per capita income:
\$24,998

Unemployment Rate
(2020):
16.7%

Colleges:

1. Cerritos
2. Compton
3. Long Beach
4. Rio Hondo

EXHIBIT 8-2:
COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-3:
EDUCATIONAL ATTAINMENT OF RESIDENTS



EXHIBIT 8-4:
CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

Gateway Cities

EXHIBIT 8-5:
TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	2,408	14%	Accounting	1,013	77	8%
					Community Health Care Worker	1	-	-
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	7	100%
					Foster and Kinship Care	-	-	-
					Family Studies	1	-	-
					Human Services	55	41	75%
					Alcohol and Controlled Substances	290	61	21%
					Disability Services	-	-	-
21-1093	Social and Human Service Assistants	5,500	770	14%	Total Programs	355	109	31%
29-2061	Licensed Vocational Nurses	5,500	935	17%	Licensed Vocational Nursing	192	77	40%
					Computer Information Systems	89	17	19%
					Software Applications	29	5	17%
					Computer Infrastructure and Support	31	2	6%
					Computer Networking	171	47	27%
					Computer Support	21	3	14%
15-1232	Computer User Support Specialists	3,800	418	11%	Total Programs	341	74	22%
23-2011	Paralegals & Legal Assistants	3,100	217	7%	Paralegal	288	57	20%
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	77	8%
					Banking and Finance	52	-	-
13-2011	Accountants & Auditors	13,000	1,430	11%	Total Programs	1,065	77	7%
					Electronic Game Design	2	-	-
					Computer Software Development	2	-	-
					Computer Programming	184	4	2%
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	592	8%	Total Programs	188	4	2%
					Marketing and Distribution	116	30	26%
					E-Commerce (technology emphasis)	-	-	-
13-1161	Market Research Analysts and Marketing Specialists	8,700	957	11%	Total Programs	116	30	26%
11-3031	Financial Managers	4,900	588	12%	Banking and Finance	52	-	-
21-1021	Child, Family, and School Social Workers	3,800	608	16%	Human Services	55	41	75%

Los Angeles Central City

DETAILS

Population:
1,623,969

Households:
514,172

Median HH income:
\$42,146

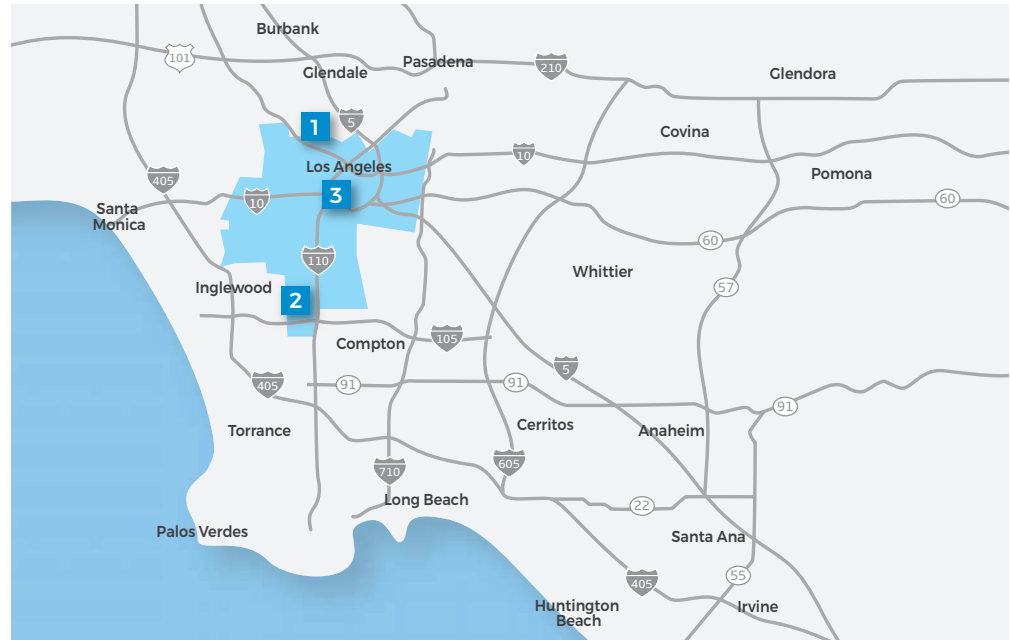
Per capita income:
\$20,268

Unemployment Rate
(2020):
19.1%

Colleges:

1. LA City
2. LA Southwest
3. LA Trade Tech

EXHIBIT 8-6:
COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-7:
EDUCATIONAL ATTAINMENT OF RESIDENTS

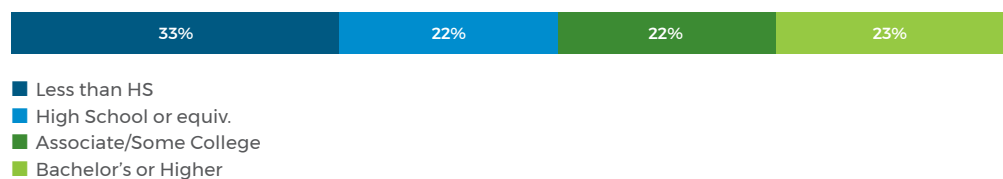


EXHIBIT 8-8:
CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

Los Angeles Central City

EXHIBIT 8-9:
TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	4,816	28%	Accounting	1,013	38	4%
					Community Health Care Worker	1		-
					Family and Consumer Sciences, General	1		-
					Parenting and Family Education	7		-
					Foster and Kinship Care	-		-
					Family Studies	1		-
					Human Services	55	13	24%
					Alcohol and Controlled Substances	290	56	19%
					Disability Services	-		-
21-1093	Social and Human Service Assistants	5,500	1,430	26%	Total Programs	355	69	19%
29-2061	Licensed Vocational Nurses	5,500	1,210	22%	Licensed Vocational Nursing	192		-
					Computer Information Systems	89	18	20%
					Software Applications	29	2	7%
					Computer Infrastructure and Support	31		-
					Computer Networking	171	23	13%
					Computer Support	21		
15-1232	Computer User Support Specialists	3,800	1,026	27%	Total Programs	341	43	13%
23-2011	Paralegals & Legal Assistants	3,100	1,581	51%	Paralegal	288	39	14%
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	53	5%
					Banking and Finance	52	7	13%
13-2011	Accountants & Auditors	13,000	3,900	30%	Total Programs	1,065	60	6%
					Electronic Game Design	2		-
					Computer Software Development	2		-
					Computer Programming	184	15	8%
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	1,554	21%	Total Programs	188	15	8%
					Marketing and Distribution	116	18	16%
					E-Commerce (technology emphasis)	-		-
13-1161	Market Research Analysts and Marketing Specialists	8,700	2,523	29%	Total Programs	116	18	16%
11-3031	Financial Managers	4,900	1,421	29%	Banking and Finance	52	7	13%
21-1021	Child, Family, and School Social Workers	3,800	1,140	30%	Human Services	55	13	24%

San Fernando Valley

DETAILS

Population:
2,129,638

Households:
730,026

Median HH income:
\$75,008

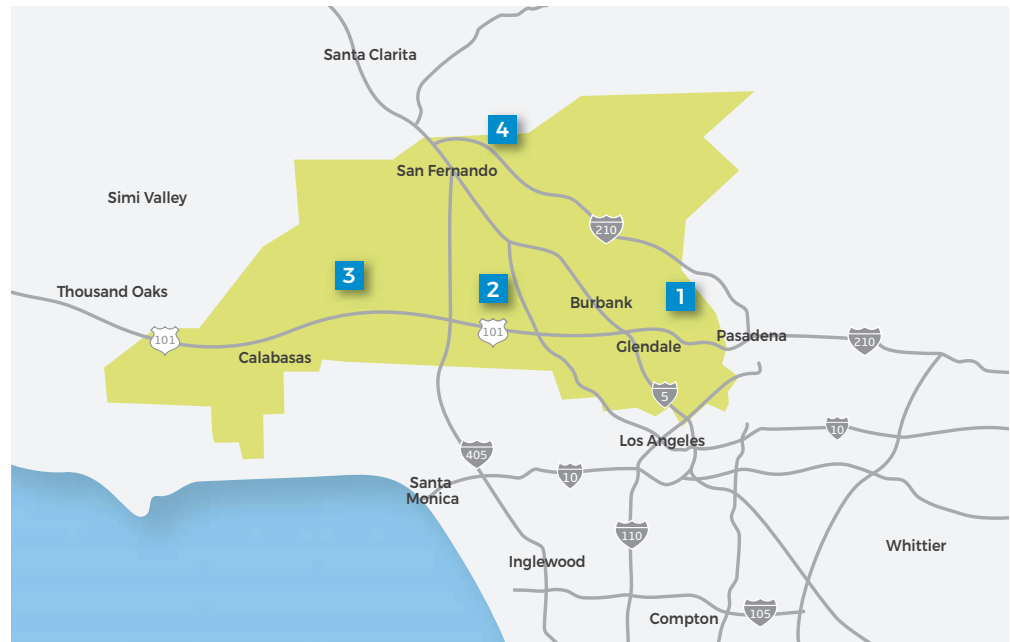
Per capita income:
\$36,706

Unemployment Rate
(2020):
16.6%

Colleges:

1. Glendale
2. LA Valley
3. LA Mission
4. LA Pierce

EXHIBIT 8-10:
COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-11:
EDUCATIONAL ATTAINMENT OF RESIDENTS

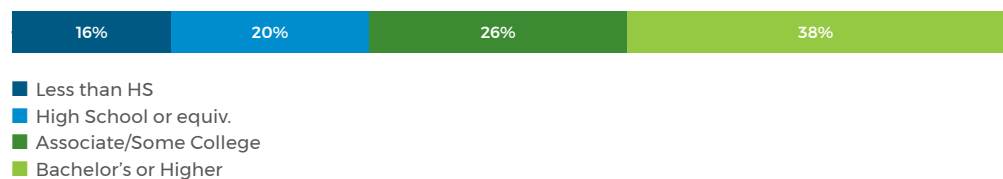


EXHIBIT 8-12:
CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

San Fernando Valley

EXHIBIT 8-13:
TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	3,612	21%	Accounting	1,013	133	13%
					Community Health Care Worker	1	-	-
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	-	-
					Foster and Kinship Care	-	-	-
					Family Studies	1	1	100%
					Human Services	55	-	-
					Alcohol and Controlled Substances	290	52	18%
					Disability Services	-	-	-
21-1093	Social and Human Service Assistants	5,500	1,210	22%	Total Programs	355	53	15%
29-2061	Licensed Vocational Nurses	5,500	1,210	22%	Licensed Vocational Nursing	192	-	-
					Computer Information Systems	89	6	7%
					Software Applications	29	4	14%
					Computer Infrastructure and Support	31	77	248%
					Computer Networking	171	36	21%
					Computer Support	21	15	71%
15-1232	Computer User Support Specialists	3,800	722	19%	Total Programs	341	138	40%
23-2011	Paralegals & Legal Assistants	3,100	589	19%	Paralegal	288	33	11%
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	118	12%
					Banking and Finance	52	35	67%
13-2011	Accountants & Auditors	13,000	3,120	24%	Total Programs	1,065	153	14%
					Electronic Game Design	2	-	-
					Computer Software Development	2	-	-
					Computer Programming	184	31	17%
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	1,554	21%	Total Programs	188	31	16%
					Marketing and Distribution	116	25	22%
					E-Commerce (technology emphasis)	-	-	-
13-1161	Market Research Analysts and Marketing Specialists	8,700	1,740	20%	Total Programs	116	25	22%
11-3031	Financial Managers	4,900	1,078	22%	Banking and Finance	52	35	67%
21-1021	Child, Family, and School Social Workers	3,800	684	18%	Human Services	55	-	-

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DETAILS

Population:
1,950,181

Households:
591,237

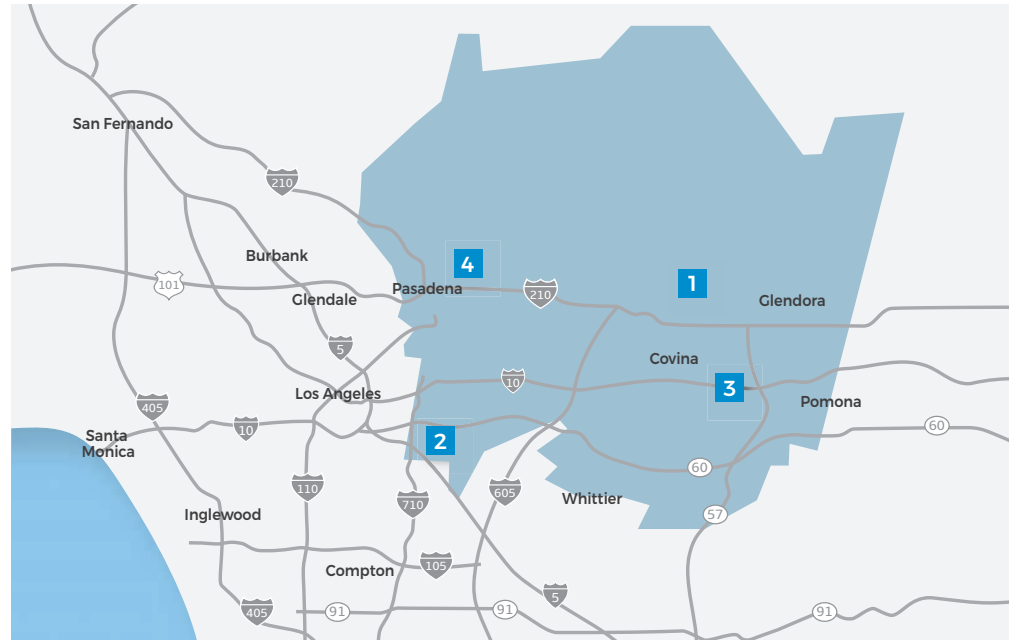
Median HH income:
\$76,637

Per capita income:
\$31,887

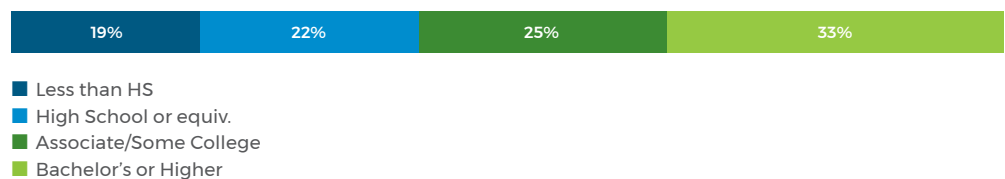
**Unemployment Rate
(2020):
15.9%**

Colleges:

1. Citrus
2. East LA
3. Mt. San Antonio
4. Pasadena



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.





Sources: LAEDC; esri, COE

San Gabriel Valley

EXHIBIT 8-17:
TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	2,752	16%	Accounting	1,013	632	62%
					Community Health Care Worker	1	1	100%
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	-	-
					Foster and Kinship Care	-	-	-
					Family Studies	1	-	-
					Human Services	55	-	-
					Alcohol and Controlled Substances	290	111	38%
					Disability Services	-	-	-
21-1093	Social and Human Service Assistants	5,500	935	17%	Total Programs	355	112	32%
29-2061	Licensed Vocational Nurses	5,500	1,100	20%	Licensed Vocational Nursing	192	115	60%
					Computer Information Systems	89	23	26%
					Software Applications	29	3	10%
					Computer Infrastructure and Support	31	20	65%
					Computer Networking	171	6	4%
					Computer Support	21	4	19%
15-1232	Computer User Support Specialists	3,800	570	15%	Total Programs	341	56	16%
23-2011	Paralegals & Legal Assistants	3,100	310	10%	Paralegal	288	102	35%
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	632	62%
					Banking and Finance	52	10	19%
13-2011	Accountants & Auditors	13,000	1,950	15%	Total Programs	1,065	642	60%
					Electronic Game Design	2	-	-
					Computer Software Development	2	1	50%
					Computer Programming	184	96	52%
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	814	11%	Total Programs	188	97	52%
					Marketing and Distribution	116	10	9%
					E-Commerce (technology emphasis)	-	-	-
13-1161	Market Research Analysts and Marketing Specialists	8,700	1,131	13%	Total Programs	116	10	9%
11-3031	Financial Managers	4,900	784	16%	Banking and Finance	52	10	19%
21-1021	Child, Family, and School Social Workers	3,800	646	17%	Human Services	55	-	-

South Bay

DETAILS

Population:
1,189,456

Households:
409,682

Median HH income:
\$78,572

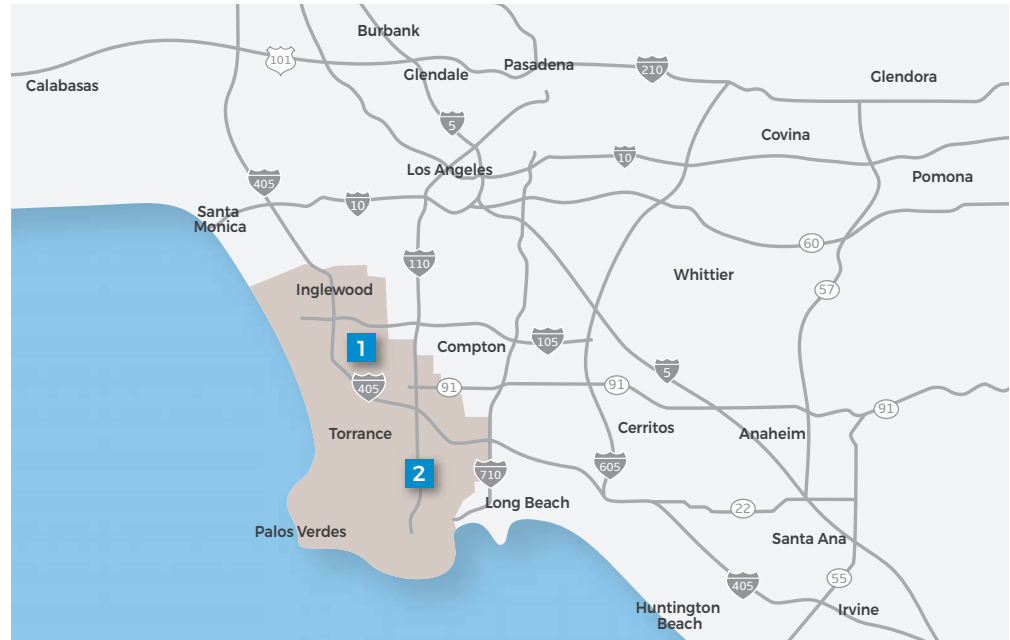
Per capita income:
\$39,628

Unemployment Rate
(2020):
16.9%

Colleges:

1. El Camino
2. LA Harbor

EXHIBIT 8-18:
COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-19:
EDUCATIONAL ATTAINMENT OF RESIDENTS

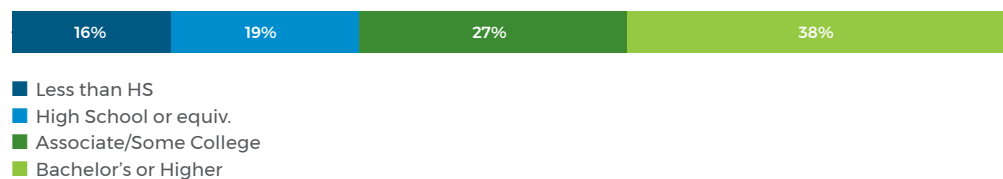


EXHIBIT 8-20:
CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

South Bay

EXHIBIT 8-21: TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	1,892	11%	Accounting	1,013	20	2%
					Community Health Care Worker	1	-	-
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	-	-
					Foster and Kinship Care	-	-	-
					Family Studies	1	-	-
					Human Services	55	-	-
					Alcohol and Controlled Substances	290	-	-
					Disability Services	-	-	-
21-1093	Social and Human Service Assistants	5,500	495	9%	Total Programs	355	0	-
29-2061	Licensed Vocational Nurses	5,500	605	11%	Licensed Vocational Nursing	192	-	-
					Computer Information Systems	89	16	18%
					Software Applications	29	-	-
					Computer Infrastructure and Support	31	1	3%
					Computer Networking	171	-	-
					Computer Support	21	-	-
15-1232	Computer User Support Specialists	3,800	532	14%	Total Programs	341	17	5%
23-2011	Paralegals & Legal Assistants	3,100	155	5%	Paralegal	288	29	10%
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	20	2%
					Banking and Finance	52	-	-
13-2011	Accountants & Auditors	13,000	1,300	10%	Total Programs	1,065	20	2%
					Electronic Game Design	2	-	-
					Computer Software Development	2	-	-
					Computer Programming	184	-	-
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	1,554	21%	Total Programs	188	0	0%
					Marketing and Distribution	116	16	14%
					E-Commerce (technology emphasis)	-	-	-
13-1161	Market Research Analysts and Marketing Specialists	8,700	1,044	12%	Total Programs	116	16	14%
11-3031	Financial Managers	4,900	539	11%	Banking and Finance	52	-	-
21-1021	Child, Family, and School Social Workers	3,800	342	9%	Human Services	55	-	-

Westside Cities

DETAILS

Population:

742,593

Households:

349,044

Median HH income:

\$98,798

Per capita income:

\$69,956

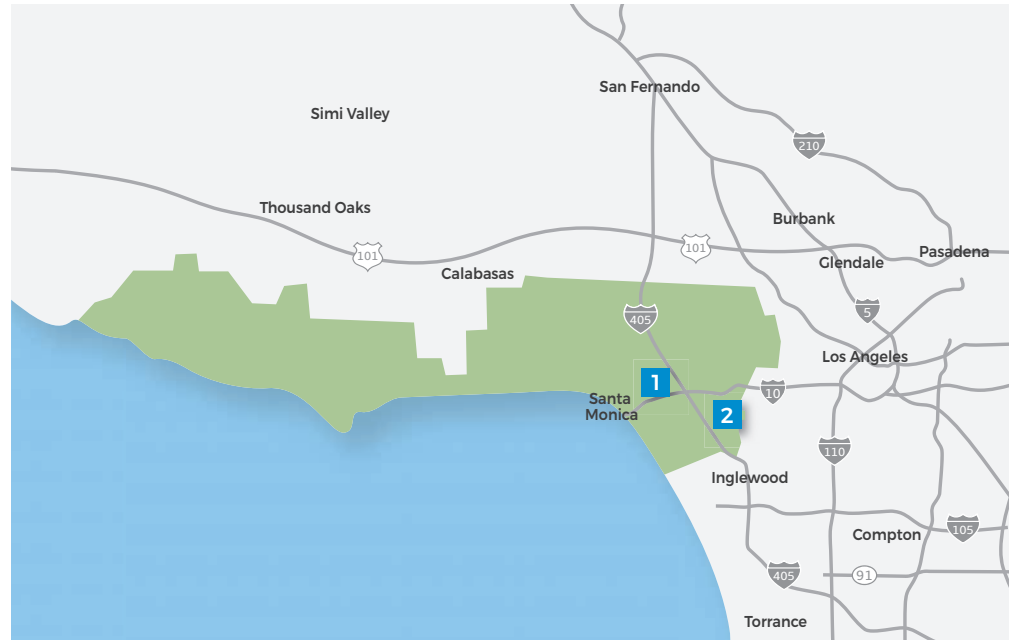
Unemployment Rate
(2020):

15.6%

Colleges:

1. Santa Monica
2. West LA

EXHIBIT 8-22:
COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-23:
EDUCATIONAL ATTAINMENT OF RESIDENTS

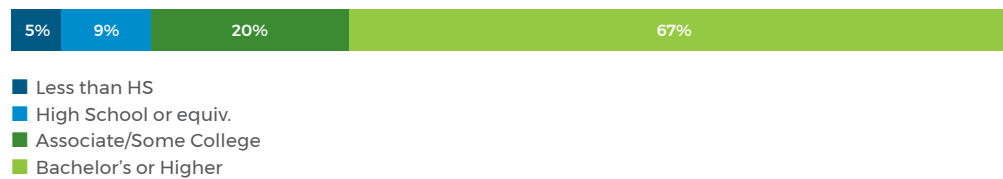
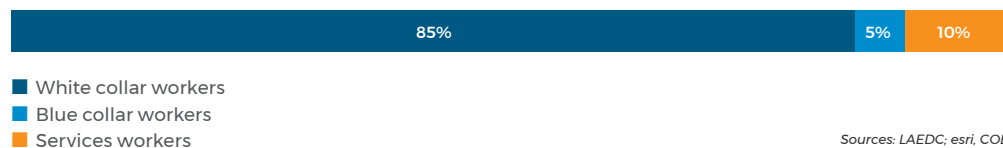


EXHIBIT 8-24:
CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

Westside Cities

EXHIBIT 8-25: TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	1,204	7%	Accounting	1,013	113	11%
					Community Health Care Worker	1	-	-
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	-	-
					Foster and Kinship Care	-	-	-
					Family Studies	1	-	-
					Human Services	55	-	-
					Alcohol and Controlled Substances	290	10	3%
					Disability Services	-	-	-
21-1093	Social and Human Service Assistants	5,500	330	6%	Total Programs	355	10	3%
29-2061	Licensed Vocational Nurses	5,500	275	5%	Licensed Vocational Nursing	192	-	-
					Computer Information Systems	89	9	10%
					Software Applications	29	15	52%
					Computer Infrastructure and Support	31	1	3%
					Computer Networking	171	57	33%
					Computer Support	21	-	-
15-1232	Computer User Support Specialists	3,800	418	11%	Total Programs	341	82	24%
23-2011	Paralegals & Legal Assistants	3,100	248	8%	Paralegal	288	29	10%
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	113	11%
					Banking and Finance	52	-	-
13-2011	Accountants & Auditors	13,000	1,040	8%	Total Programs	1,065	113	11%
					Electronic Game Design	2	-	-
					Computer Software Development	2	-	-
					Computer Programming	184	37	20%
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	1,036	14%	Total Programs	188	37	20%
					Marketing and Distribution	116	17	15%
					E-Commerce (technology emphasis)	-	-	-
13-1161	Market Research Analysts and Marketing Specialists	8,700	1,044	12%	Total Programs	116	17	15%
11-3031	Financial Managers	4,900	392	8%	Banking and Finance	52	-	-
21-1021	Child, Family, and School Social Workers	3,800	152	4%	Human Services	55	-	-

Orange County

DETAILS

Population:
3,230,429

Households:
1,054,907

Median HH income:
\$92,081

Per capita income:
\$41,226

Unemployment Rate
(2020):
14.7%

Colleges:

1. Coastline
2. Cypress
3. Fullerton
4. Golden West
5. Irvine Valley
6. Orange Coast
7. Saddleback
8. Santa Ana
9. Santiago
10. North Orange Adult

EXHIBIT 8-26:
COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-27:
EDUCATIONAL ATTAINMENT OF RESIDENTS

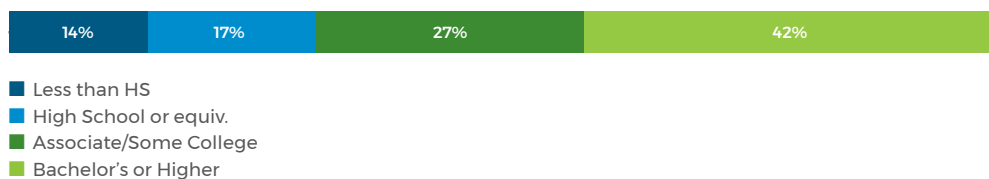


EXHIBIT 8-28:
CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

Orange County

EXHIBIT 8-29: TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	23,100	6,468	28%	Accounting	1,547	534	35%
					Community Health Care Worker	1	-	-
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	-	-
					Foster and Kinship Care	-	-	-
					Family Studies	1	-	-
					Human Services	182	127	70%
					Alcohol and Controlled Substances	342	52	15%
					Disability Services	4	4	100%
21-1093	Social and Human Service Assistants	6,300	1,134	18%	Total Programs	538	183	34%
29-2061	Licensed Vocational Nurses	7,400	1,702	23%	Licensed Vocational Nursing	192	-	-
					Computer Information Systems	123	34	28%
					Software Applications	71	42	59%
					Computer Infrastructure and Support	93	62	67%
					Computer Networking	276	105	38%
					Computer Support	30	9	30%
15-1232	Computer User Support Specialists	5,600	1,680	30%	Total Programs	593	252	42%
23-2011	Paralegals & Legal Assistants	4,400	1,056	24%	Paralegal	460	172	37%
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,547	534	35%
					Banking and Finance	52	-	-
13-2011	Accountants & Auditors	17,800	4,984	28%	Total Programs	1,599	534	33%
					Electronic Game Design	2	2	100%
					Computer Software Development	20	18	90%
					Computer Programming	270	86	32%
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	4,300	1,419	33%	Total Programs	292	106	36%
					Marketing and Distribution	216	100	46%
					E-Commerce (technology emphasis)	2	2	100%
13-1161	Market Research Analysts and Marketing Specialists	12,700	3,683	29%	Total Programs	218	102	47%
11-3031	Financial Managers	7,200	2,304	32%	Banking and Finance	52	-	-
21-1021	Child, Family, and School Social Workers	4,800	960	20%	Human Services	182	127	70%

Antelope Valley

DETAILS

Population

401,717

Households:

116,415

Median HH income:

\$60,221

Per capita income:

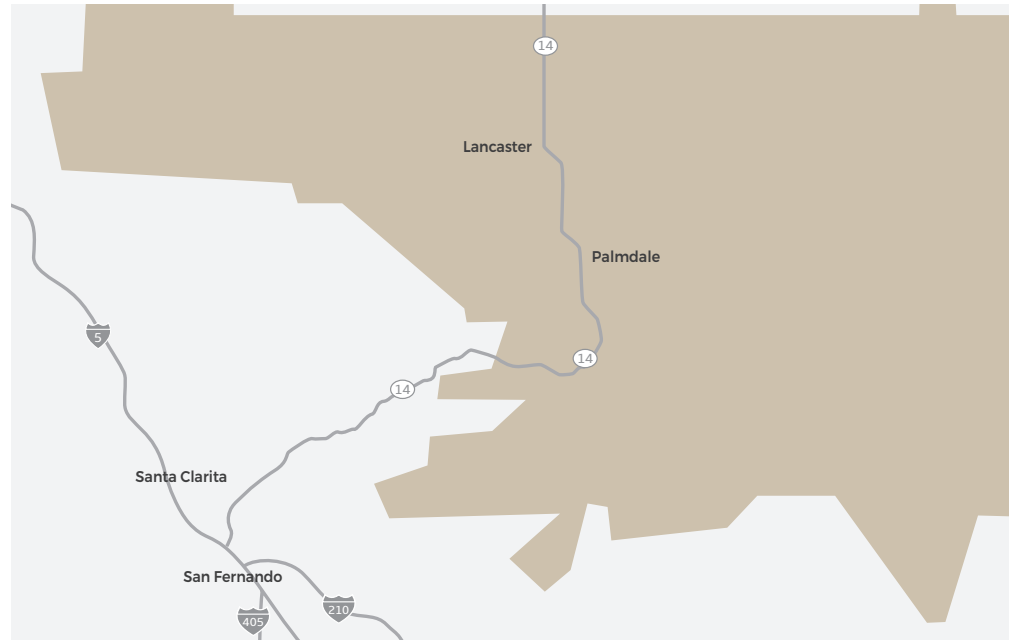
\$23,683

Unemployment Rate
(2020):

16.7%

EXHIBIT 8-30:

COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-31:

EDUCATIONAL ATTAINMENT OF RESIDENTS



EXHIBIT 8-32:

CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

Antelope Valley

EXHIBIT 8-33: TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	344	2%	Accounting	1,013	-	-
					Community Health Care Worker	1	-	-
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	-	-
					Foster and Kinship Care	-	-	-
					Family Studies	1	-	-
					Human Services	55	-	-
					Alcohol and Controlled Substances	290	-	-
					Disability Services	-	-	-
21-1093	Social and Human Service Assistants	5,500	165	3%	Total Programs	355	-	-
29-2061	Licensed Vocational Nurses	5,500	165	3%	Licensed Vocational Nursing	192	-	-
					Computer Information Systems	89	-	-
					Software Applications	29	-	-
					Computer Infrastructure and Support	31	-	-
					Computer Networking	171	-	-
					Computer Support	21	-	-
15-1232	Computer User Support Specialists	3,800	76	2%	Total Programs	341	-	-
23-2011	Paralegals & Legal Assistants	3,100	31	1%	Paralegal	288	-	-
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	-	-
					Banking and Finance	52	-	-
13-2011	Accountants & Auditors	13,000	130	1%	Total Programs	1,065	-	-
					Electronic Game Design	2	-	-
					Computer Software Development	2	-	-
					Computer Programming	184	-	-
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	148	2%	Total Programs	188	-	-
					Marketing and Distribution	116	-	-
					E-Commerce (technology emphasis)	-	-	-
13-1161	Market Research Analysts and Marketing Specialists	8,700	87	1%	Total Programs	116	-	-
11-3031	Financial Managers	4,900	49	1%	Banking and Finance	52	-	-
21-1021	Child, Family, and School Social Workers	3,800	152	4%	Human Services	55	-	-

Santa Clarita Valley

DETAILS

Population:

292,731

Households:

95,588

Median HH income:

\$107,282

Per capita income:

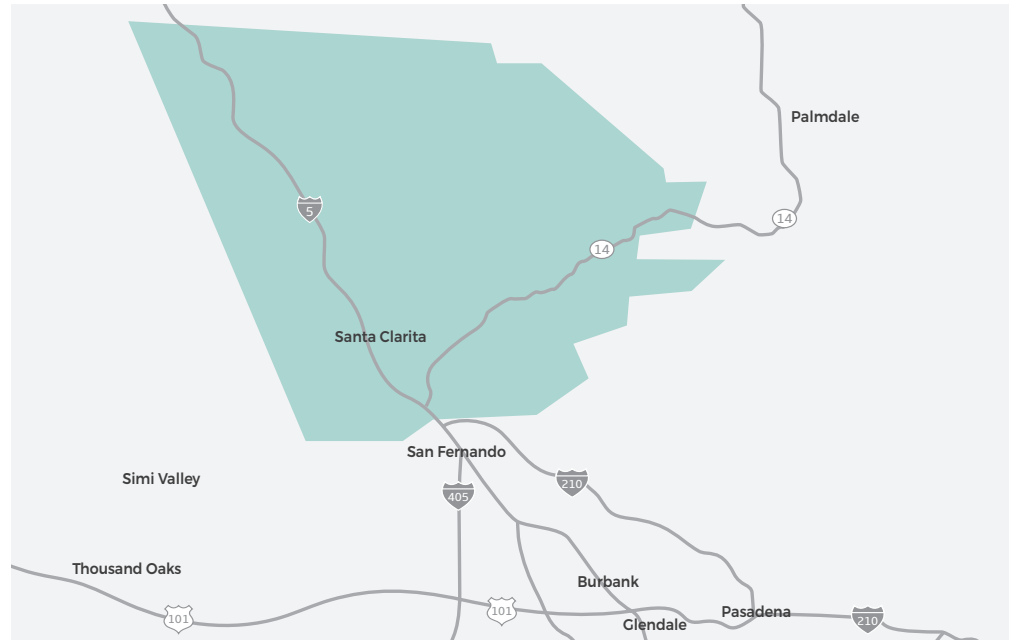
\$43,296

Unemployment Rate
(2020):

15.8%

EXHIBIT 8-34:

COMMUNITY COLLEGES OFFERING PROGRAMS FOR ESSENTIAL OCCUPATIONS



Educational attainment is a key element in understanding challenges and opportunities present in the available workforce. For an individual, it is a factor in unemployment, earnings potential and poverty status, while from a business perspective, educational attainment of the resident population represents the characteristics of their labor pool. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives. Employers and colleges also have the opportunity to address equity and positively impact opportunity in historically disadvantaged communities by seeking out applicants from disadvantaged regions.

EXHIBIT 8-35:

EDUCATIONAL ATTAINMENT OF RESIDENTS

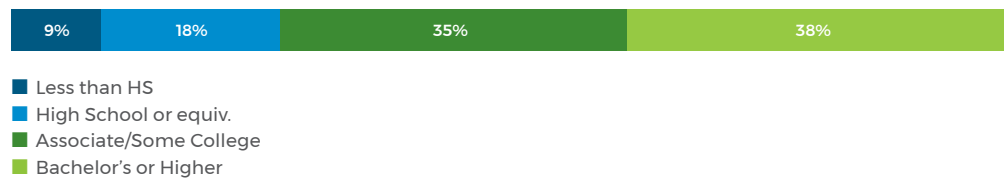


EXHIBIT 8-36:

CLASS OF RESIDENT WORKERS



Sources: LAEDC; esri, COE

Santa Clarita Valley

EXHIBIT 8-37: TOTAL OPENINGS AND PROGRAM COMPLETIONS IN THE REGION

		Total Openings 2019-2024			Annual Program Completions (2016-2019 Average)			
SOC	Detailed Occupation	LA County	Region	Regional Share	Community College Program	LA County	Region	Regional Share
TARGET MIDDLE-SKILL OCCUPATIONS								
43-3031	Bookkeeping, Accounting, and Auditing Clerks	17,200	344	2%	Accounting	1,013	-	-
					Community Health Care Worker	1	-	-
					Family and Consumer Sciences, General	1	-	-
					Parenting and Family Education	7	-	-
					Foster and Kinship Care	-	--	-
					Family Studies	1	-	-
					Human Services	55	-	-
					Alcohol and Controlled Substances	290	-	-
					Disability Services	-	-	-
21-1093	Social and Human Service Assistants	5,500	165	3%	Total Programs	355	-	-
29-2061	Licensed Vocational Nurses	5,500	55	1%	Licensed Vocational Nursing	192	-	-
					Computer Information Systems	89	-	-
					Software Applications	29	-	-
					Computer Infrastructure and Support	31	-	-
					Computer Networking	171	-	-
					Computer Support	21	-	-
15-1232	Computer User Support Specialists	3,800	76	2%	Total Programs	341	-	-
23-2011	Paralegals & Legal Assistants	3,100	31	1%	Paralegal	288	-	-
TARGET PATHWAY OCCUPATIONS								
					Accounting	1,013	-	-
					Banking and Finance	52	-	-
13-2011	Accountants & Auditors	13,000	260	2%	Total Programs	1,065	-	-
					Electronic Game Design	2	-	-
					Computer Software Development	2	-	-
					Computer Programming	184	-	-
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	7,400	148	2%	Total Programs	188	-	-
					Marketing and Distribution	116	-	-
					E-Commerce (technology emphasis)	-	-	-
13-1161	Market Research Analysts and Marketing Specialists	8,700	174	2%	Total Programs	116	-	-
11-3031	Financial Managers	4,900	98	2%	Banking and Finance	52	-	-
21-1021	Child, Family, and School Social Workers	3,800	114	3%	Human Services	55	-	-

Conclusion/Recommendations

In the Los Angeles Basin, essential workers make up the backbone of the regional economy, performing critical labor that allows life and business to continue operating even in the most challenging of circumstances. From our analysis of occupations, community college opportunities and completions, demographics and employment trends it is clear that while many essential workers enter the workforce in low-skill, low-wage positions, there are ample opportunities to upskill and move up career ladders into middle-skill and even above middle-skill occupations that pay entry-level wages well above living wages in the Basin. These pathways exist across the entire spectrum of critical infrastructure industries, from billing and posting clerks upskilling to become accountants and auditors in the financial field, to eligibility interviewers for government programs becoming child, family and school social workers in the sphere of social work.

Most importantly, these career trajectories have been disrupted by the COVID-19 pandemic to a much smaller degree than if these workers had been in non-essential industries. Critical infrastructure industries represent an attractive opportunity because of the employment stability they afford; while workers in these industries may face a higher risk of being affected by the virus, they are also able to protect themselves and their households from the financial insecurity that has rocked the Los Angeles Basin and the nation.

To ensure that we can serve essential workers to the best degree possible, there are key points to focus on as the pandemic continues, as well as during the eventual recovery process.

The first, and most essential, of these recommendations is to strengthen protections surrounding worker health and wellness. As protecting the health of essential workers is crucial for protecting the health of the public, recommended safety policies should become more comprehensive mandates. Suggestions include requiring every worker to wear a mask on the job at all times, regardless of company policies or guidelines, experimenting with flexible scheduling and worksites to minimize crowded workplaces, installing vapor barriers to protect workers from asymptomatic customers, air filtration effective at filtering microdroplets and promoting practices such as social distancing and frequent sanitization. More information on this is available via the Safer at Work campaign in LA County.

Another easy way to protect essential workers is to ensure that personal protective equipment is readily available to all that need it, something that has been difficult to accomplish. Because workers getting sick from the pandemic can have extremely negative implications for their health and ability to perform their jobs over a span of weeks and even months, doing everything possible to keep our essential workforce safe must be the first step.

Another recommendation for policymakers is to consider appropriate compensation for lower income workers that have borne the brunt of essential work during the pandemic. Options to increase pay, through payroll tax cuts, wage increases or other devices, such as hazard pay, would go a long way towards ensuring that essential workers and their households remain stable. Putting more money into the hands of those on the front lines during the pandemic, would have a ripple effect in the regional economy as they inject these funds back into struggling local businesses and more through their household spending.

It is also imperative to spread awareness about career pathways in essential industries, which can be enticing for community college students and new entrants into the workforce. Our analysis of annual openings versus community college completions has shown that there will be many more open positions in our target essential occupations than appropriately skilled graduates to fill them. This represents an opportunity for lower-skill workers and those working outside of essential industries to begin building skills and eventually target these middle-skill and above middle-skill jobs that will be open for them in the future.

Essential workers have demonstrated their importance to the Los Angeles Basin during the COVID-19 pandemic. With their protection from economic shocks and ability to upskill from low-skill positions into higher-skill jobs with higher incomes, these occupations should be prioritized to ensure that workers and community college graduates are able to take advantage of the benefits they provide while also shoring up employment in critical infrastructure industries in the Los Angeles Basin.

Frontline Industry Snapshots

Health Care and Public Health

Health care and public health industries span the public and private sectors, for the delivery of care and the storage of large amounts of public health data.

These industries include: ambulatory health care services; hospitals; nursing and residential care facilities; drugs and druggists' sundries merchant wholesalers; medical, dental and hospital equipment and supplies merchant wholesalers; research and development in the physical, engineering and life sciences; and veterinary services. (Exhibit 9-1).

Since 2007, employment in health care and public health grew by 31.8 percent, well above the growth rate of 7.9% across all industries in the LA Basin (Exhibit 9-2). Employment in ambulatory health care, drugs and druggists' wholesalers, veterinary services and nursing and residential care facilities all grew by more than 40% between 2007 and 2019.

The change in wages, adjusted for inflation (real wages) in these industries has been fairly positive. Real wages in hospitals, nursing and residential care facilities, veterinary services and research and development in the physical, engineering and life sciences all grew over 10%, though the wages of drugs and druggists' wholesalers declined by 7%. Real wages grew overall in this industry by 2.2% across the timeframe, below the LA Basin's wage growth of 6.3%. (Exhibit 9-3)

Health Care & Public Health

EXHIBIT 9-1

Ambulatory Health Care Services
(NAICS 621)

Hospitals
(NAICS 622)

Nursing and Residential Care Facilities
(NAICS 623)

Drugs and Druggists' Sundries Wholesalers
(NAICS 4242)

Medical/Dental/Hospital Equipment and Supplies Wholesalers
(NAICS 42345)

R&D in the Physical, Engineering and Life Sciences
(NAICS 54171)

Veterinary Services
(NAICS 54194)

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Registered Nurses
2. Home Health and Personal Care Aides
3. Nursing Assistants
4. Medical Assistants
5. Medical Secretaries and Administrative Assistants

EXHIBIT 9-2:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

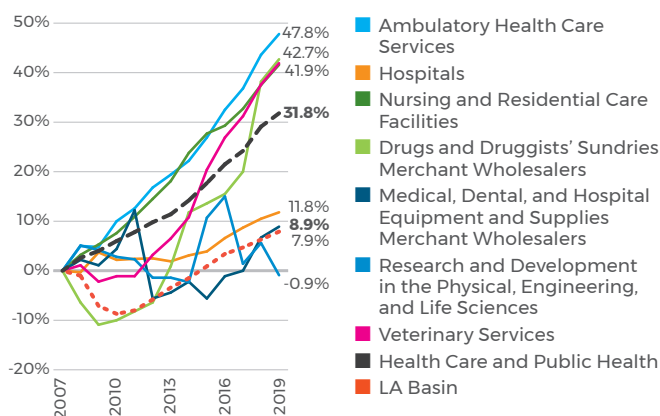
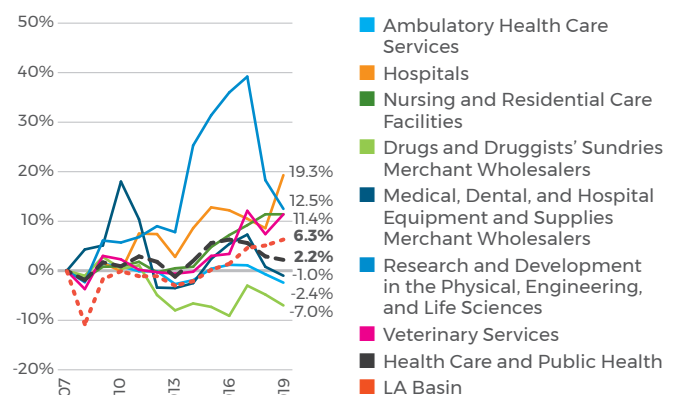


EXHIBIT 9-3:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Transportation, Logistics and eCommerce

Transportation, Logistics and eCommerce industries are critical for maintaining routes of transportation (private and public), freight delivery and online commerce, mail systems, pipelines and more.

The most comprehensive of the frontline industries, it includes: air, rail, water and truck transportation; urban and interurban transit systems; taxi services; pipeline transportation; the postal service and couriers; warehousing; eCommerce; automobile repair and rental; and motor vehicles and parts dealers. (Exhibit 9-4).

Since 2007, overall employment in these industries has risen gradually, growing 14% over a twelve-year period (Exhibit 9-5). Electronic shopping and mail-order houses (eCommerce) has been a notable mover, rising from 9,400 jobs in 2007 to nearly 20,000 by 2019. Employment in air and water transportation have also grown significantly, while taxis and limousines and the postal service have declined in employment.

Real wages have risen in the transportation, logistics and eCommerce sector by 10% from 2007 to 2019, higher than the Basin's overall real wage growth of 6.3% (Exhibit 9-6). In particular, air transportation's wages have increased by 38%; this coupled with its growth in employment show the importance of this industry in the LA Basin. Some industries have lost ground in wages however, as competition with newer replacements has risen; the postal service, couriers and messengers and taxi service have all witnessed declining wages since 2007.

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Heavy and Tractor-Trailer Truck Drivers
2. Laborers and Freight, Stock and Material Movers, Hand
3. Light Truck Drivers
4. Automotive Service Technicians and Mechanics
5. Cleaners of Vehicles and Equipment

EXHIBIT 9-5:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

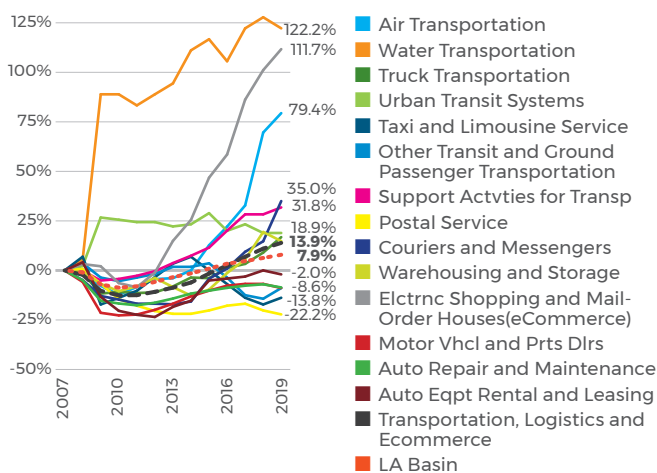


EXHIBIT 9-6:
CHANGE IN REAL WAGE FROM 2007 TO 2019

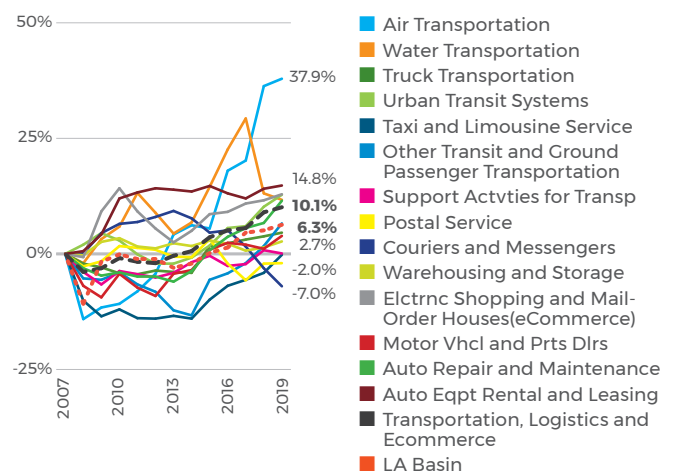


EXHIBIT 9-4

Air Transportation (NAICS 481)
Other Transit and Ground Passenger Transp. (NAICS 4859)
Rail Transportation (NAICS 482)
Water Transportation (NAICS 483)
Truck Transportation (NAICS 484)
Urban Transit Systems (NAICS 4851)
Interurban/Rural Bus Transp. (NAICS 4852)
Taxi and Limousine Service (NAICS 4853)
Pipeline Transportation (NAICS 486)
Support Activities for Transp. (NAICS 488)
Postal Service (NAICS 491)
Couriers and Messengers (NAICS 492)
Warehousing and Storage (NAICS 493)
eCommerce (NAICS 4541)
Motor Vehicles and Parts Dealers (NAICS 441)
Auto Repair and Maintenance (NAICS 8111)
Automotive Equipment Rental and Leasing (NAICS 5321)

Grocery, Convenience and Drug Stores

Grocery, convenience and drug store industries are critical for maintaining the health and livelihood of the county population by supplying food, medicine and more.

These industries include: grocery and related product wholesalers; beer, wine and distilled alcoholic beverage merchant wholesalers; food and beverage stores; beer, wine and liquor stores; pharmacies and drug stores; general merchandise stores, including warehouse clubs and supercenters; pet and pet supplies stores; and direct selling establishments (Exhibit 9-7).

From 2007 to 2019, payroll employment in these industries grew by 6.4% overall, slightly below the LA Basin's total employment growth of 7.9% (Exhibit 9-8). Employment in beer, wine and liquor stores, as well as in grocery and related product wholesalers, increased their employment by over 20%. However, direct selling establishments, which are businesses in which selling is primarily done door-to-door in-person, have struggled heavily.

Real wages have been stagnant overall for these industries, with no particular industry experiencing over ten percent wage growth across the timeframe (Exhibit 9-9). Wages for general merchandise stores have been trending downwards, with a decline of 17.2% since 2007.

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Cashiers
2. Stockers and Order Fillers
3. First-Line Supervisors of Retail Sales Workers
4. Pharmacy Technicians
5. Fast Food and Counter Workers

EXHIBIT 9-7

Grocery and Related Product Wholesalers
(NAICS 4244)

Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
(NAICS 4248)

Food and Beverage Stores
(NAICS 445)

Beer, Wine, and Liquor Stores
(NAICS 4453)

Pharmacies and Drug Stores
(NAICS 44611)

General Merchandise Stores, Including Warehouse Clubs and Supercenters
(NAICS 4523)

Pet and Pet Supplies Stores
(NAICS 45391)

Direct Selling Establishments
(NAICS 4543)

EXHIBIT 9-8:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

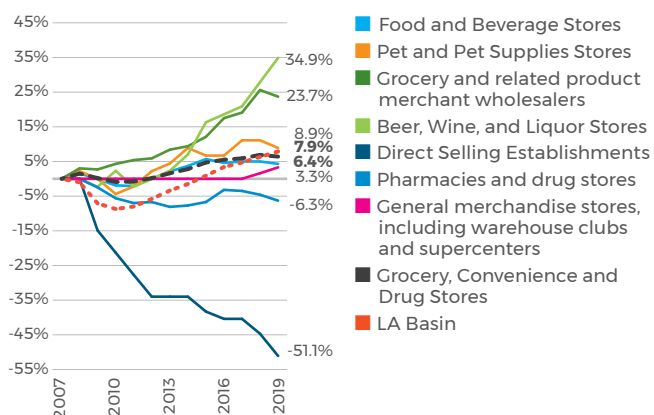
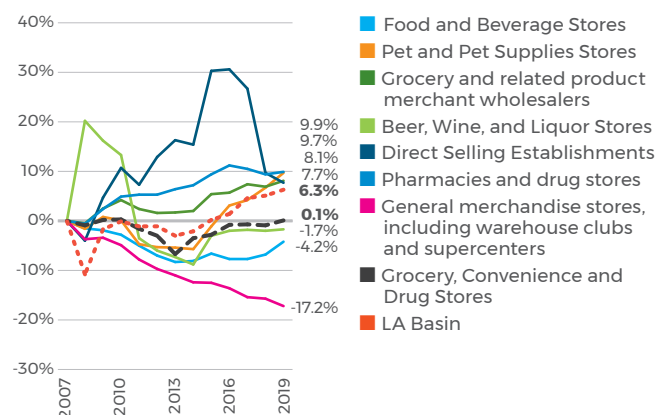


EXHIBIT 9-9:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Energy, Water and Waste Management

Energy, water and waste management industries supply fuels to the transportation industry, power to households and businesses, maintain water and wastewater services and provide a foundation for all other essential industries to run.

These industries include: utilities; waste management and remediation services; gasoline stations; oil and gas extraction; and support activities for mining (Exhibit 10-1).

Payroll employment in these industries has not changed much between 2007 and 2019, with an overall growth rate of just 2.5% (Exhibit 10-2). Waste management and remediation services has added another 30% to its workforce across this span, though oil and gas extraction has struggled heavily; all the rest of the component industries here have changed less than ten percent.

Similarly, real wages in these industries did not change substantially, though they have declined by seven percent since 2007 (Exhibit 10-3). This has been driven by real wage declines near 30% in gasoline stations and oil and gas extraction. Waste management and remediation has witnessed a real wage increase of 10%, the top performer of these industries. When compared to the LA Basin's growth of 6.3% in real wages since 2007, the lack of growth here may be concerning.

Energy, Water & Waste Management

EXHIBIT 10-1

Utilities
(NAICS 22)

Waste Management
and Remediation
Services
(NAICS 562)

Gasoline Stations
(NAICS 447)

Oil and Gas Extraction
(NAICS 211)

Support Activities for
Mining
(NAICS 213)

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Cashiers
2. Refuse and Recyclable Material Collectors
3. Laborers and Freight, Stock and Material Movers, Hand
4. First-Line Supervisors of Retail Sales Workers
5. Heavy and Tractor-Trailer Truck Drivers

EXHIBIT 10-2:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

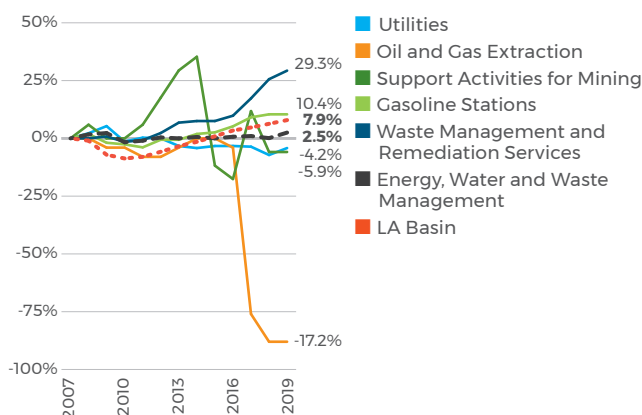
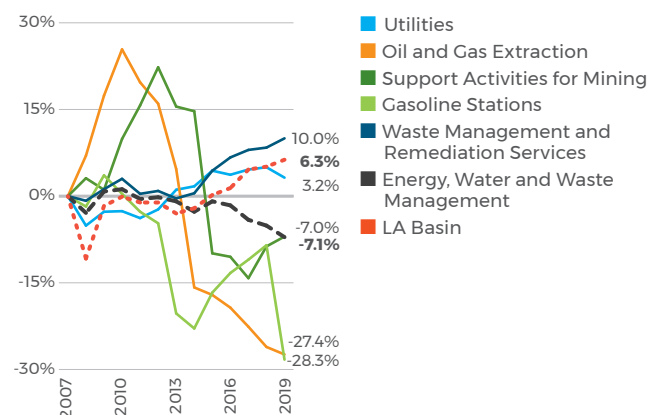


EXHIBIT 10-3:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Critical Manufacturing

Critical manufacturing industries provide essential inputs and services for a variety of other essential industries.

These industries include: food manufacturing; apparel manufacturing; petroleum and coal products manufacturing; chemical manufacturing; primary metal manufacturing; machinery manufacturing; computer and electronic product manufacturing; electrical equipment, appliance and component manufacturing; transportation equipment manufacturing; and medical equipment and supplies manufacturing. (Exhibit 10-4).

Between 2007 and 2019, payroll employment in critical manufacturing has declined 17.5 percent (Exhibit 10-5). Apparel manufacturing in particular has struggled massively, losing 54.3% of employment, while primary metal manufacturing, computer and electronic product manufacturing and machinery manufacturing have lost more than a quarter of jobs. Medical equipment and supplies manufacturing has been a bright spot, adding 36.5% to employment. A related impact of the pandemic is that many apparel manufacturers have pivoted to manufacture of masks which has provided some new revenue which supports jobs.

One positive point is that real wages in these industries have increased overall by 16.3% since 2007, as most industries have shown growth in wages (Exhibit 10-6). Only one industry, food manufacturing, has not seen a growth in wages, and its decline was just 1.5%.

Critical Manufacturing

EXHIBIT 10-4

Food
(NAICS 311)

Apparel
(NAICS 315)

Petroleum and Coal
Products
(NAICS 324)

Chemical
(NAICS 325)

Primary Metal
(NAICS 331)

Machinery
(NAICS 333)

Computer and
Electronic Product
(NAICS 334)

Electrical Equipmt,
Appliance and
Component
(NAICS 335)

Transportation
Equipment
(NAICS 336)

Medical Equipment and
Supplies
(NAICS 3391)

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Miscellaneous Assemblers and Fabricators
2. Sewing Machine Operators
3. Software Developers and Software Quality Assurance Analysts and Testers
4. Electrical, Electronic and Electromechanical Assemblers
5. Inspectors, Testers, Sorters, Samplers and Weighers

EXHIBIT 10-5:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

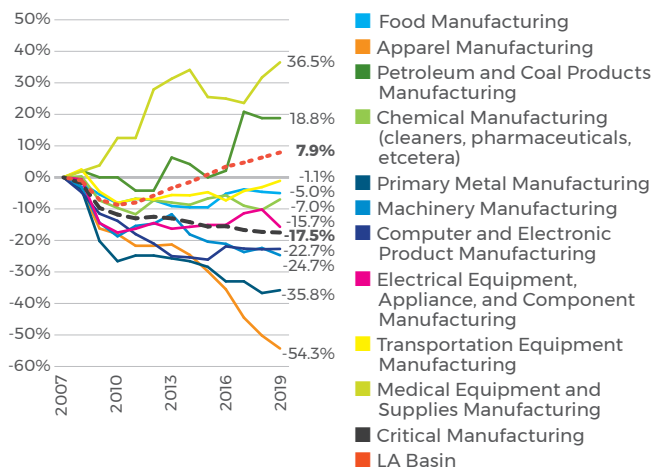
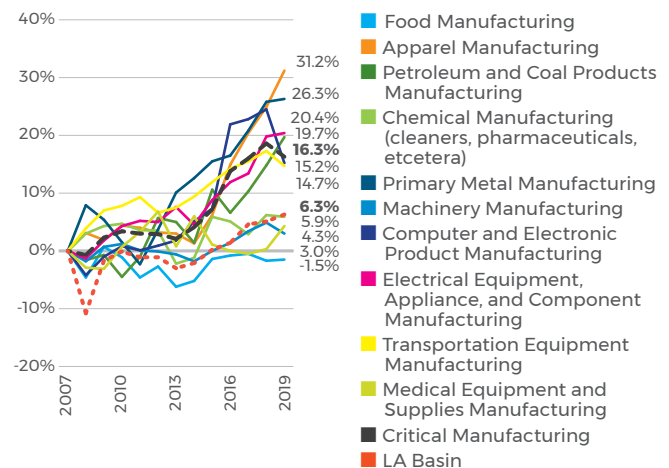


EXHIBIT 10-6:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Social and Community Services

Social and community services industries are on the front lines of working with and assisting local communities, providing important services to ease the burdens of everyday life.

These industries include: social services (including childcare); death care services; dry-cleaning and laundry services; grantmaking and giving services; and social advocacy organizations (Exhibit 10-7).

Payroll employment overall in these industries has trended upwards quite rapidly, boosted by massive workforce growth in social services (the individual NAICS code 624). In total, social and community services has grown 60.4% since 2007, and social services itself has grown 70.7% (Exhibit 10-8). Other industries have shown growth as well, with the exception of dry-cleaning and laundry services which has lost 20.7% of employment.

Real wages have slightly dropped however, again influenced by the decrease in wages for social services workers. All other industries under this heading have grown over 10% between 2007 and 2019 (Exhibit 10-9).

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Home Health and Personal Care Aides
2. Preschool Teachers, Except Special Education
3. Social and Community Service Managers
4. Secretaries and Administrative Assistants, Except Legal, Medical and Executive
5. Office Clerks

EXHIBIT 10-7

Social Services
(NAICS 624)

Death Care Services
(NAICS 8122)

Drycleaning and Laundry Services
(NAICS 8123)

Grantmaking and Giving Services
(NAICS 8132)

Social Advocacy Organizations
(NAICS 8133)

Social & Community Services

EXHIBIT 10-8:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

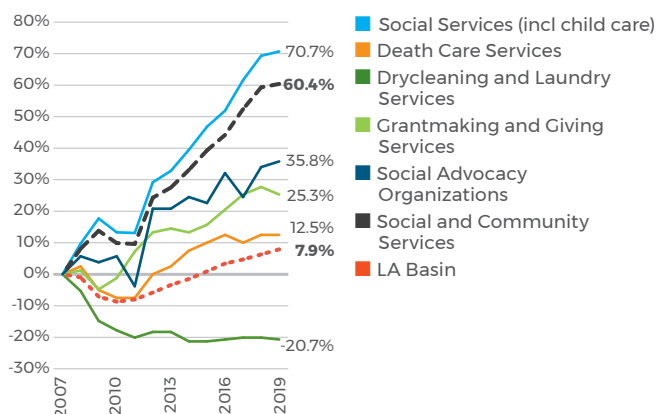
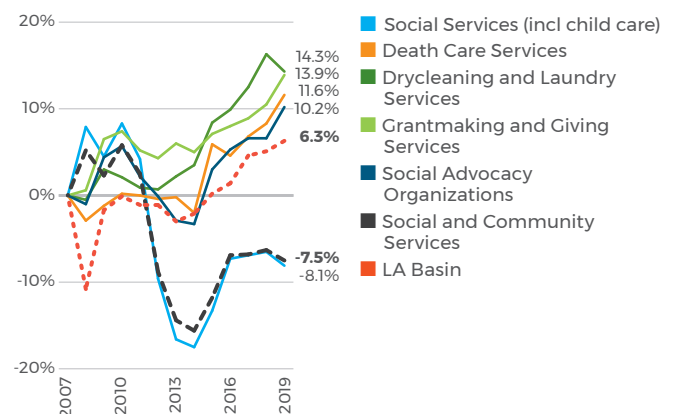


EXHIBIT 10-9:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Communications and Information Technology

Communications and information technology industries support the efficient operation of today's global information-based society. They allow for communication, contact and information access from even remote locations; they also allow businesses to operate from home.

These industries include: broadcasting (except internet); software publishers; electronics and appliance stores; office supplies and stationary stores; computer systems design and related services; telecommunications; and internet publishing, broadcasting and web search portals. (Exhibit 11-1).

Since 2007, payroll employment in communications and information technology has decreased by 6.7% overall (Exhibit 11-2). Internet publishing and broadcasting and web search portals, as well as software publishers, have expanded dramatically, but industries like telecommunications, office supplies and stationary stores and electronics and appliance stores have offset these gains with their double-digit losses.

The change in wages, adjusted for inflation (real wages) in these industries has been almost completely positive, as wages have increased by 28.8% overall (Exhibit 11-3). This figure has been boosted by the aforementioned booming industries, but wage growth has been positive across the board except for electronics and appliance stores.

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Telecommunications Equipment Installers and Repairers, Except Line Installers
2. Sales Representatives of Services, Except Advertising, Insurance, Financial Services and Travel
3. Retail Salespersons
4. Telecommunications Line Installers and Repairers
5. Software Developers and Software Quality Assurance Analysts and Testers

EXHIBIT 11-1

Broadcasting
(except internet)
(NAICS 515)

Software Publishers
(NAICS 5112)

Electronics and
Appliance Stores
(NAICS 443)

Office Supplies and
Stationary Stores
(NAICS 45321)

Computer Systems
Design and Related
Services
(NAICS 5414)

Telecommunications
(NAICS 517)

Internet Publishing,
Broadcasting and Web
Search Portals
(NAICS 51913)

EXHIBIT 11-2:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

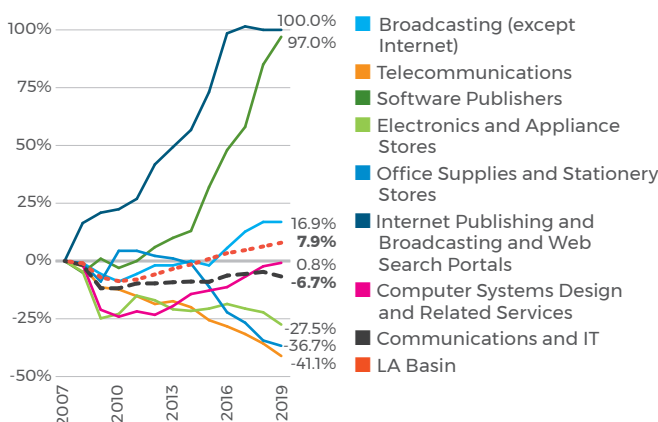
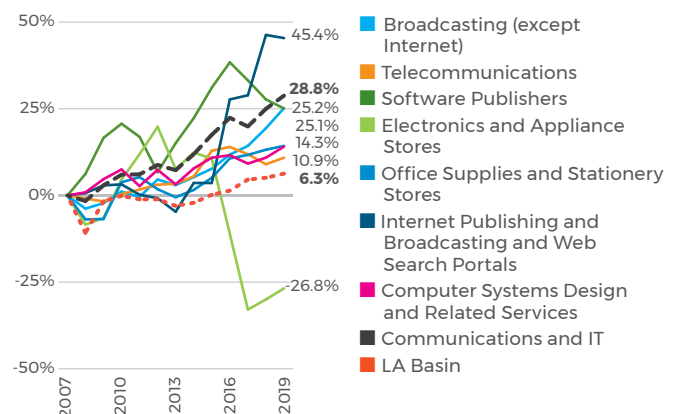


EXHIBIT 11-3:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Communications & Information Tech

Industrial, Commercial and Residential Buildings

Industrial, commercial and residential buildings industry ensure that buildings continue being built, sold and maintained.

These industries include: construction; real estate; facilities support services; building material and garden equipment and supplies dealers; investigation and security services; and cleaning services to buildings and dwellings (Exhibit 11-4).

Since 2007, although all industries in this category dipped in employment following the great recession, jobs have grown by 3.4% overall (Exhibit 11-5). Real estate and cleaning services to buildings and dwellings both grew over ten percent, and though facilities support services lost 20% of employment, this was a rebound from 2010 where it had lost nearly 40% of the workforce.

The change in real wages has been largely positive as well; these industries have increased real wages overall by above 13%, which is double the LA Basin's average of 6.3% (Exhibit 11-6). Top performers have been real estate and investigation and security services, which saw wage growth of 22.9% and 18.8%, respectively. Facilities support services has struggled on this front as well however, with a 20.8% decline in wages since 2007.

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Security Guards
2. Janitors and Cleaners, Except Maids and Housekeeping Cleaners
3. Counter and Rental Clerks
4. Maintenance and Repair Workers, General
5. Property, Real Estate and Community Management Association Managers

EXHIBIT 11-4

Construction
(NAICS 23)

Real Estate
(NAICS 531)

Facilities Support Services
(NAICS 5612)

Building Material and Garden Equipment and Supplies Dealers
(NAICS 444)

Investigation and Security Services
(NAICS 5616)

Cleaning Services to Buildings and Dwellings
(NAICS 5617)

Industrial, Commercial & Residential Buildings

EXHIBIT 11-5:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

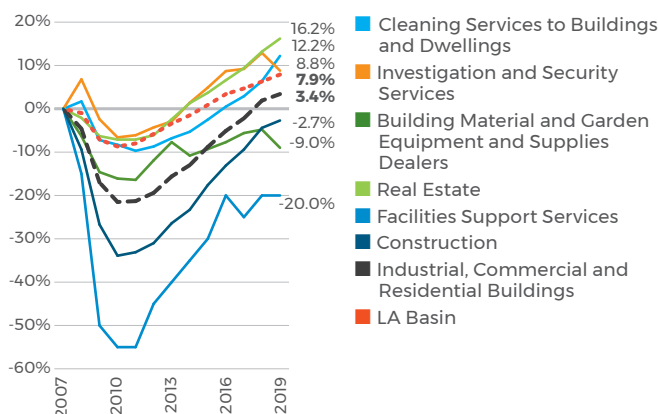
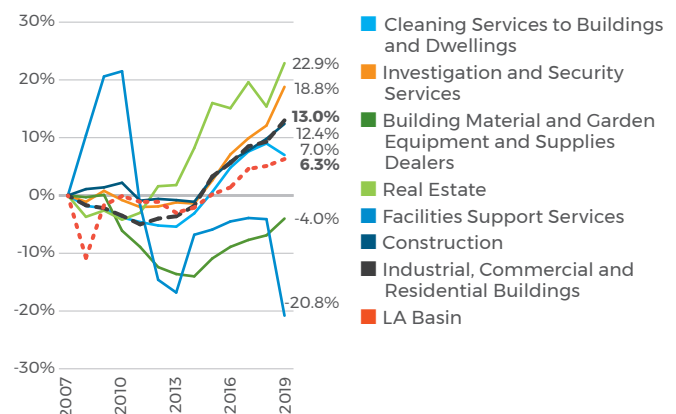


EXHIBIT 11-6:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Government

Government industries are a backbone for the rest of the workforce in frontline industries, which provide guidance and support in a wide variety of ways.

These industries include public administration, which encompasses: executive, legislative and other general government support; justice, public order and safety activities; administration of human resource programs; administration of environmental quality programs; administration of housing programs; administration of economic programs; and more (Exhibit 11-7).

Over the last twelve years, employment in public administration has grown by about 7.1%, which is similar to the LA Basin's overall growth in payroll employment of 7.9% (Exhibit 11-8).

Real wages have also grown by 8.6% between 2007 and 2019, slightly above the Basin's average of 6.3% (Exhibit 11-9).

Government

EXHIBIT 11-7

Public Administration
(NAICS 92-99)

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Police and Sheriff's Patrol Officers
2. Office Clerks, General
3. Management Analysts
4. Correctional Officers and Jailers
5. Firefighters

EXHIBIT 11-8:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

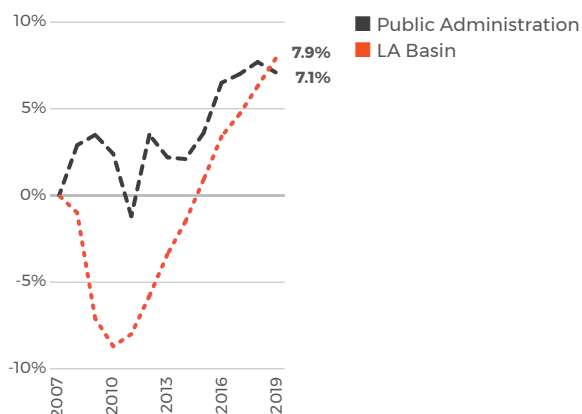
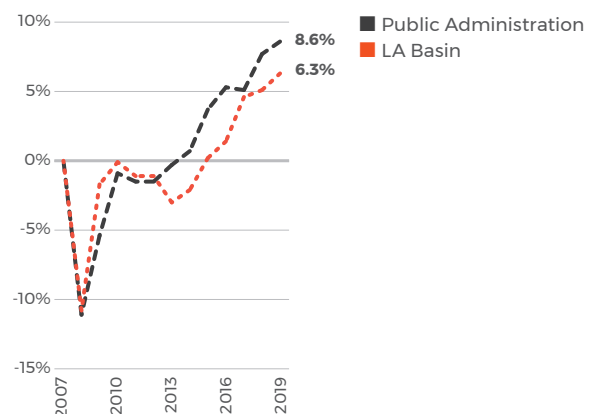


EXHIBIT 11-9:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Finance, Insurance, Professional Services and Related

Finance, insurance professional services and related industries ensure that the county population can deposit funds and make payments, access credit and invest funds.

These industries include: finance and insurance; lessors of nonfinancial intangible assets; legal services; accounting, tax preparation, bookkeeping and payroll services; and management of companies and enterprises. (Exhibit 12-1).

From 2007 to 2019, employment in finance, insurance, professional services and related slightly declined, with a growth of -5% in 2019 (Exhibit 12-2). While industries like legal services and management of companies and enterprises saw job growth rates in the double digits, the other industries witnessed declines in workers.

The change in wages, adjusted for inflation (real wages) in these industries has been positive, with growth overall of 12.1% (Exhibit 12-3). Accounting, tax preparation, bookkeeping and payroll services has been a driving force behind this at 54% growth, but all industries have experienced some degree of growth in their real wages.

TOP FIVE ESSENTIAL OCCUPATIONS RANKED BY FRONTLINE EMPLOYMENT

1. Lawyers
2. Accountants and Auditors
3. Securities, Commodities and Financial Services Sales Agents
4. Financial Managers
5. Paralegals and Legal Assistants

EXHIBIT 12-1

Finance and Insurance
(NAICS 52)

Lessors of Nonfinancial
Intangible Assets
(NAICS 533)

Legal Services
(NAICS 5411)

Accounting,
Tax Preparation,
Bookkeeping & Payroll
Services
(NAICS 5412)

Management of
Companies and
Enterprises
(NAICS 55)

EXHIBIT 12-2:
CHANGE IN PAYROLL EMPLOYMENT FROM 2007 TO 2019

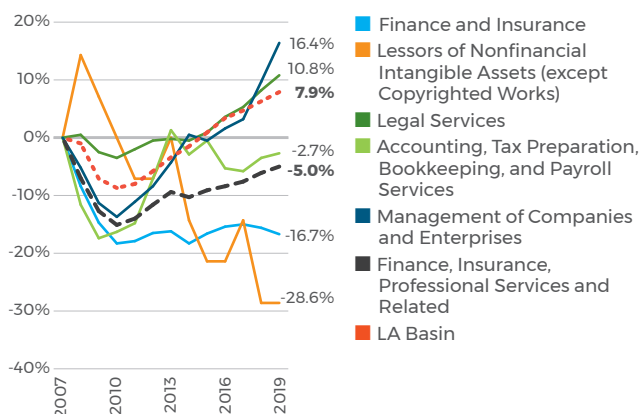
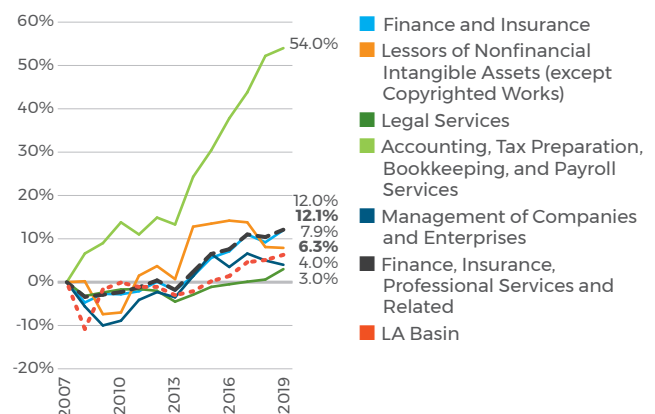


EXHIBIT 12-3:
CHANGE IN REAL WAGE FROM 2007 TO 2019



Employment Numbers & Worker Characteristics

Detailed information has been compiled for five middle-skill and five above middle-skill occupations in essential industries. Data from 2019 was used to determine wages and employment figures for the charts included within each profile. Data from 2017, the most recent available, was used to determine worker characteristics.

Information regarding top industries employing these occupations, current and projected employment, wages and demographics can be used by community colleges to tailor existing programs and to guide outreach to potential students. The occupational analyses that follow may even inspire new program development or new approaches in attracting students to promising career paths.

TARGET MIDDLE-SKILL OCCUPATIONS

1. Bookkeeping, Accounting and Auditing Clerks
2. Social and Human Service Assistants
3. Licensed Vocational Nurses
4. Computer User Support Specialists
5. Paralegals and Legal Assistants

TARGET ABOVE MIDDLE-SKILL OCCUPATIONS

6. Accountants and Auditors
7. Market Research Analysts and Marketing Specialists
8. Financial Managers
9. Child, Family and School Social Workers
10. Software Developers

profiles

Each occupational profile contains:

- Hourly wages paid in 2019 for workers in Los Angeles and Orange counties compared to the living wage.
- Metrics for the occupation including the number of current jobs and projected openings
- Worker characteristics, such as educational attainment, age distribution, race and ethnicity, and gender

Bookkeeping, Accounting and Auditing Clerks (SOC 33-2011)

Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers.

SIZING THINGS UP

In 2019, 71,110 workers were employed as bookkeeping, accounting and auditing clerks in the LA Basin, representing the largest share of employment across the occupations identified in this report. This occupation offers an entry-level wage of \$17.81 for middle-skill workers, only slightly above living wages.

This occupation is projected to lose 200 jobs by 2024 (-0.3%). The number of projected new jobs, combined with job openings from replacements and retirements, provides an overall estimate of employer hiring needs. Overall, the bookkeeping, accounting and auditing clerks occupation is projected to have 23,100 openings, new and replacement, in the Los Angeles Basin between 2019 and 2024.

WORKER CHARACTERISTICS

The composition of the workforce in this occupation in the Los Angeles Basin varies according to educational attainment, age, race and ethnicity, and gender.

The largest share of workers in this occupation in 2018 were above 55 years old (33.8%), representing a significantly older workforce than the regional average, across all occupations. Another third of the workforce is between the ages of 40 and 54.

Just over 40 percent of bookkeeping, accounting and auditing clerks in the Los Angeles Basin are White, while just under a third identify as Hispanic (29 percent), another 22 percent as Asian, and Black workers accounted for just 4.7 percent.

The majority of workers in this occupation have an associate degree or some college experience (52.3 percent), further emphasizing this occupation as suitable for community college students.

The occupation is largely dominated by females, as 81.9% of workers are female.

TOTAL PROJECTED OPENINGS 2024

23,100 Total Openings (5-Yr)
4,620 Annual Openings
28 Colleges **1,547** Annual Program Completion

71,110

Jobs in Los Angeles & Orange Counties in 2019

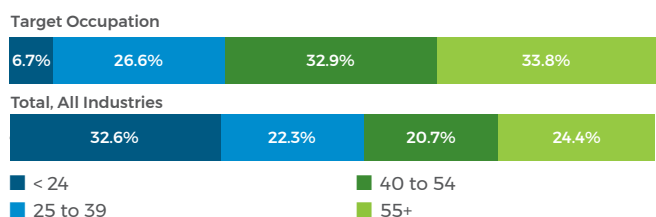
2019 HOURLY WAGES IN LA BASIN



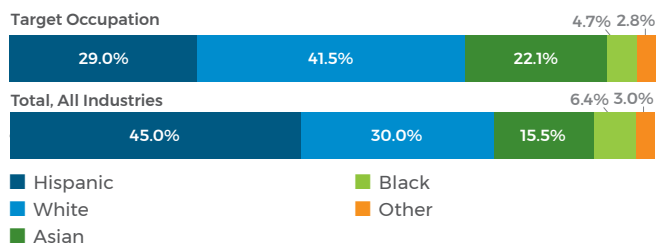
■ Entry-Level Hourly Wage
 ■ Living Wage (1 adult*) Los Angeles
 ■ Living Wage (1 adult*) Orange County

**Insight Center's Family Needs*

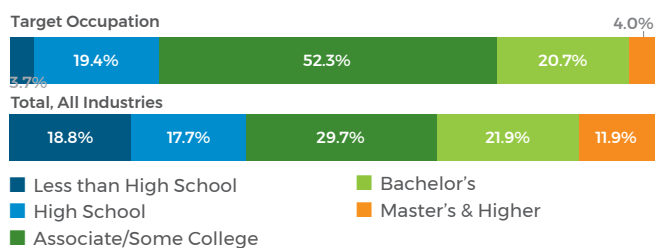
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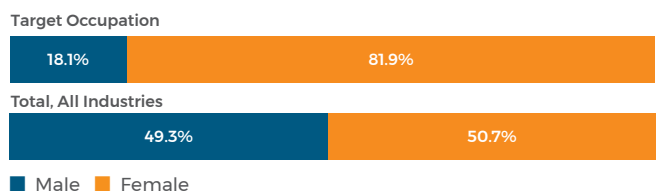
RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Social and Human Service Assistants (SOC 21-1093)

Assist in providing client services in a wide variety of fields, such as psychology, rehabilitation, or social work, including support for families. May assist clients in identifying and obtaining available benefits and social and community services. May assist social workers with developing, organizing, and conducting programs to prevent and resolve problems relevant to substance abuse, human relationships, rehabilitation, or dependent care.

SIZING THINGS UP

In 2019, social and human service assistants employed 20,390 payroll workers in the Los Angeles Basin. This occupation offers very low pay for middle-skill workers, paying \$16.16 for entry-level wages in 2019, just slightly over living wages in Los Angeles County and below the living wage in Orange County.

Projections indicate this occupation will experience job growth of 4 percent (800 jobs) between 2019 and 2024. The number of projected new jobs, combined with job openings from replacements and retirements, provides an overall estimate of employer hiring needs. Overall, social and human service assistants are projected to have 6,300 openings, new and replacement, in the Basin across this timeframe.

WORKER CHARACTERISTICS

The composition of the workforce in this occupation in the Los Angeles Basin varies according to educational attainment, age, race and ethnicity, and gender.

The largest share of workers in this occupation were between the ages of 25 and 39 years old (37.6 percent) in 2018. Just above fifty percent of the workforce was above the age of 40, while only 11 percent of the was under the age of 25, much less than the average across all occupations of 32.6 percent.

The majority of social and human service assistants in the Los Angeles Basin are Hispanic (all races), representing 48.6 percent of the workforce. 21.2 percent are White, while 15.2 percent of the workforce is Black, representing a much larger share than the regional average of 6.4 percent across all occupations. The share of Asian workers in this profession is less than the regional average, at 11.5 percent versus 15.2 percent. 39.8 percent of the workforce had some college attainment, while another third (33.7 percent) held a bachelor's degree. Just over three quarters of employees in this occupation reported their gender as female in 2017 (75.6 percent).

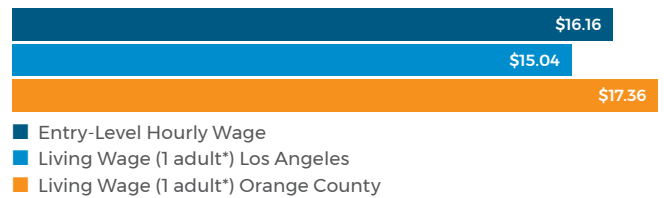
TOTAL PROJECTED OPENINGS 2024

6,300 Total Openings (5-Yr)
1,260 Annual Openings
17 Colleges **538** Annual Program Completion

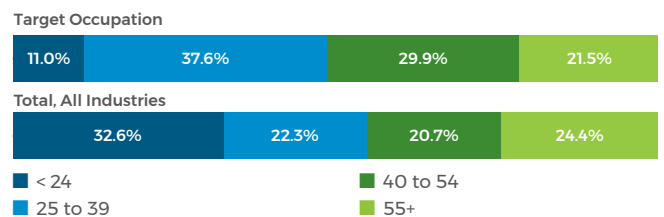
20,390

Jobs in Los Angeles & Orange Counties in 2019

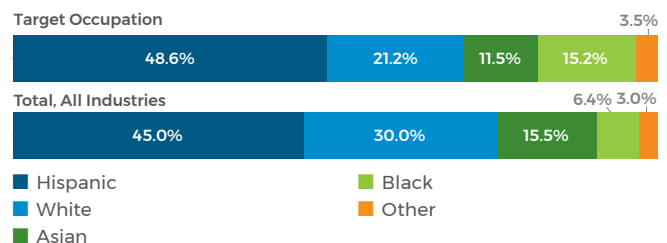
2019 HOURLY WAGES IN LA BASIN



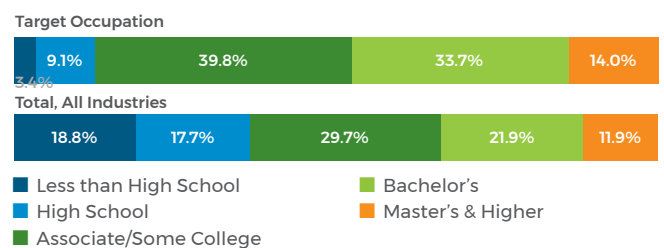
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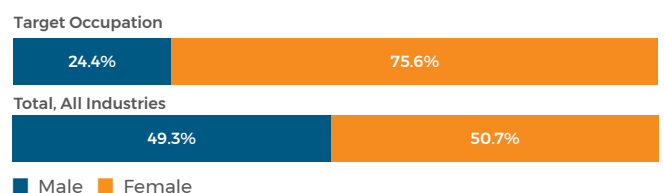
RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Licensed Vocational Nurses (SOC 29-2061)

Care for ill, injured, or convalescing patients or persons with disabilities in hospitals, nursing homes, clinics, private homes, group homes, and similar institutions. May work under the supervision of a registered nurse. Licensing required.

SIZING THINGS UP

In 2019, 26,250 licensed vocational nurses were working in the LA Basin. This is a fairly low-paying middle-skill job, as workers earned an entry-level wage of \$23.88 in 2019.

Projections indicate that this occupation can anticipate roughly 3,430 additional jobs by 2024, representing a 12 percent increase in employment. The number of projected new jobs, combined with job openings from replacements and retirements, provides an overall estimate of employer hiring needs. Overall, the licensed vocational nurses are projected to have 7,400 openings, new and replacement, in the Basin between 2019 and 2024.

WORKER CHARACTERISTICS

The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

The largest share of workers in this occupation were between the ages of 25 and 39 years old (41.2 percent). 22.4 percent of workers are over the age of 55, while 30 percent of workers are between 40 and 54, which is about ten percent above regional average for all occupations (20.7 percent), thereby indicating a slightly older workforce in this occupation.

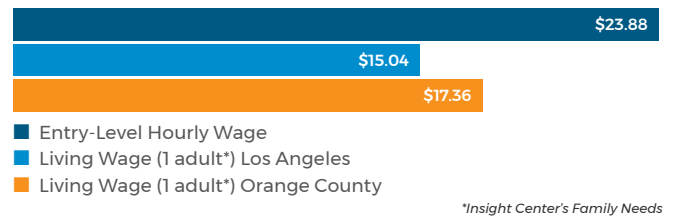
68.9 percent of licensed vocational nurses have some college experience or an associate degree, as well as additional licenses for their occupation. Only 10 percent have a bachelor's degree or higher, emphasizing this is a middle-skill occupation where community college students may seek entry-level employment. In the LA Basin in 2018, only 16.3 percent of workers in this occupation were White while 37 percent identified as Hispanic. Asian and Black workers made up 26.1 and 18.5 percent of this occupation's workforce, respectively; this is much higher than their respective regional averages of 15.5 and 6.4 percent. 79.2 percent of employees reported their gender as female in 2017.

TOTAL PROJECTED OPENINGS 2024

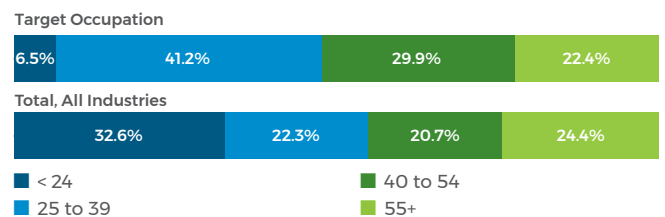
7,400 Total Openings (5-Yr)
1,480 Annual Openings
4 Colleges **192** Annual Program Completion

26,250
Jobs in Los Angeles & Orange Counties in 2019

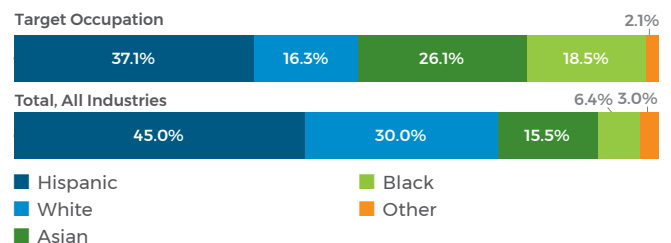
2019 HOURLY WAGES IN LA BASIN



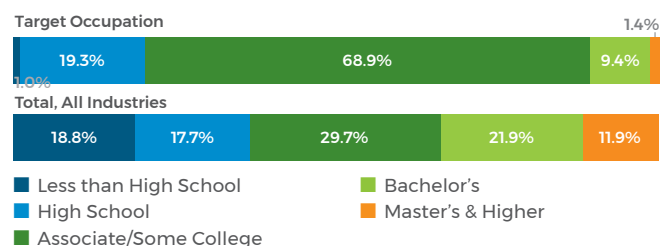
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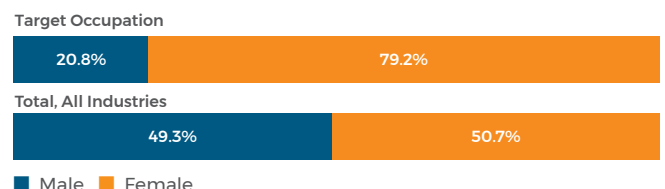
RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Computer User Support Specialists (SOC 15-1232)

Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.

SIZING THINGS UP

In 2019, 24,030 workers were employed as computer user support specialists in the LA Basin. This occupation paid an entry-level wage of \$21.59 in 2019, slightly above the LA Basin's living wages.

Projections indicate that this occupation will experience growth of 7 percent by 2024, representing an increase of 1,842 jobs. The number of projected new jobs, combined with job openings from replacements and retirements, provides an overall estimate of employer hiring needs. Overall, computer user support specialists is projected to have 5,600 openings, new and replacement, in the Los Angeles Basin between 2019 and 2024.

WORKER CHARACTERISTICS

The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

The largest share of workers in this occupation are between the ages of 25 and 39 and 40 and 54 years old (42.8 and 30.3 percent, respectively). This is well above the regional average of these two age groups, which combined only accounted for 43 percent of employment across all industries. Just 10.2 percent of workers are below the age of 24, and 16.7 percent were above 55 years old in 2017.

The largest share of computer user support specialists in the Los Angeles reported their ethnicity as White in 2017, accounting for 41.1 percent of the workforce. Those who identified as Hispanic accounted for 22.2 percent of the workforce, while Asian and Black workers made up 26.2 and 6.5 percent of the workforce, respectively. The highest proportion of workers in this occupation hold an associate degree or have had some college experience (43 percent), indicating this is an appropriate target occupation for community college students. However, about half have a bachelor's degree or higher. Women made up just 21 percent of this occupation's workforce in 2017.

TOTAL PROJECTED OPENINGS 2024

5,600 Total Openings (5-Yr)
1,120 Annual Openings
27 Colleges **593** Annual Program Completion

24,030

Jobs in Los Angeles & Orange Counties in 2019

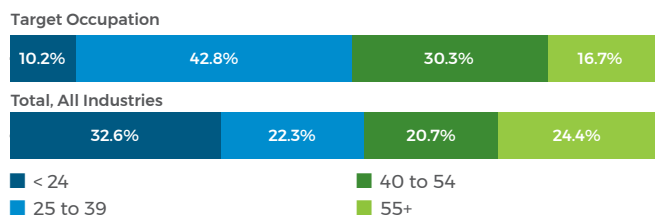
2019 HOURLY WAGES IN LA BASIN



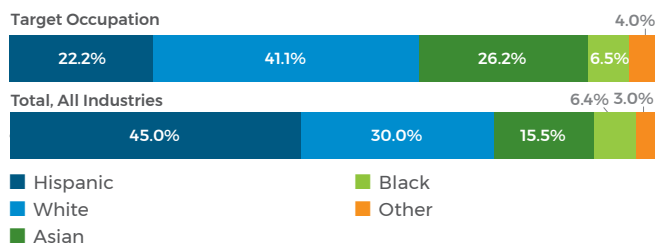
■ Entry-Level Hourly Wage
 ■ Living Wage (1 adult*) Los Angeles
 ■ Living Wage (1 adult*) Orange County

*Insight Center's Family Needs

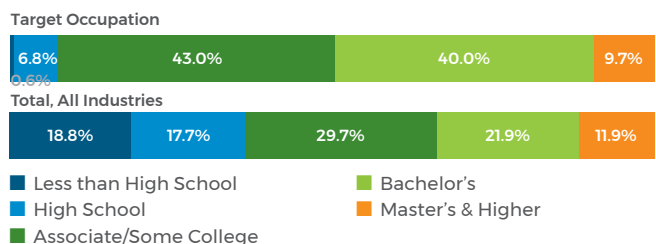
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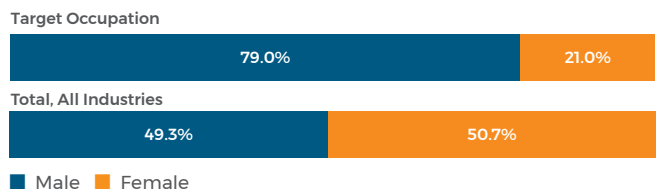
RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Paralegals and Legal Assistants
(SOC 23-2011)

Assist lawyers by investigating facts, preparing legal documents, or researching legal precedent. Conduct research to support a legal proceeding, to formulate a defense, or to initiate legal action.

SIZING THINGS UP

In 2019, 16,870 workers were employed as paralegals and legal assistants in the Los Angeles Basin. Paralegals and legal assistants earned an entry-level wage of \$18.30 in 2019, just slightly above living wages.

Projections indicate that this occupation is anticipated to experience a high growth rate of 11% between 2019 and 2024, adding just under 2,000 jobs in the next five years. The number of projected new jobs, combined with job openings from replacements and retirements, provides an overall estimate of employer hiring needs. Overall, paralegals and legal assistants are projected to have 4,400 openings, new and replacement, in the Los Angeles Basin between from 2019 until 2024.

WORKER CHARACTERISTICS

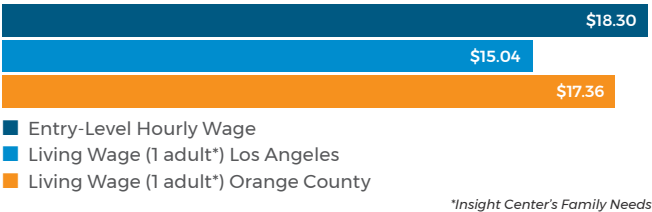
The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

The paralegals and legal assistants occupation has a relatively young workforce, with half of employees (50.5%) under the age of 39. 28.9 percent are between 40 and 54, and 20.6 percent are above 55.

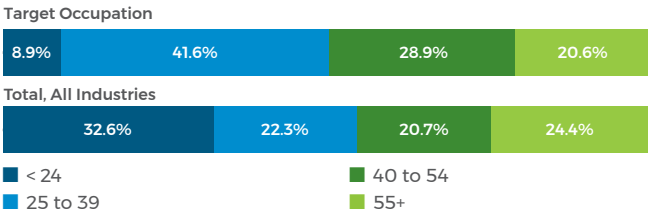
The majority of workers in this occupation have a college degree, with 45.1 percent holding a bachelor's and 12.7 percent with a master's or above. However, this occupation also has a large share of workers with an associate degree or some college experience (35.1%). This occupation also has a high share of workers who identified as White (46.1 percent) compared to the regional average across all industries of 30 percent. Nearly a third of paralegals and legal assistants in the LA Basin identified as Hispanic (32.3 percent), while 12.9 percent were Asian, and 6.5 percent were Black. This occupation also has a high share of females, accounting for 73.3 percent of the workforce in 2017.



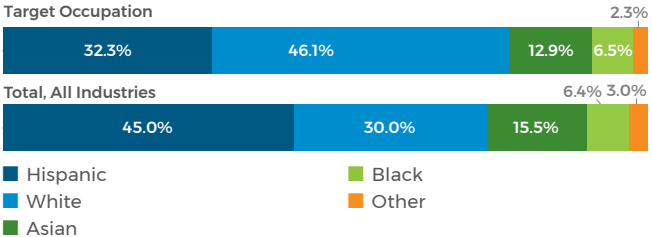
2019 HOURLY WAGES IN LA BASIN



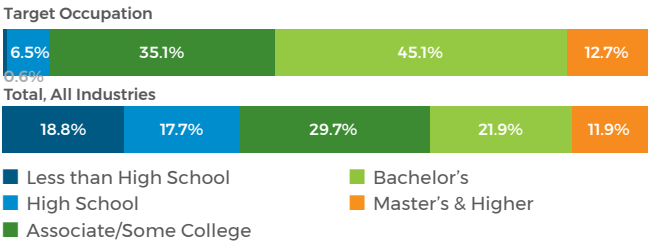
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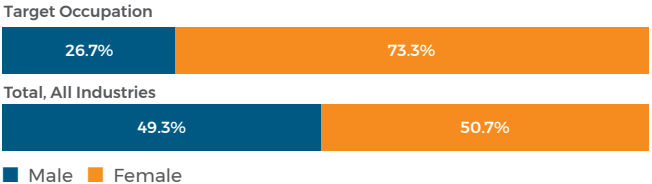
RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Accountants and Auditors
(SOC 13-2011)

Examine, analyze, and interpret accounting records to prepare financial statements, give advice, or audit and evaluate statements prepared by others. Install or advise on systems of recording costs or other financial and budgetary data.

SIZING THINGS UP

In 2019, 60,610 payroll workers were employed as accountants and auditors in the LA Basin. Accountants and auditors earned \$26.71 in entry-level hourly wages in 2019.

Projections indicate that this occupation can anticipate stable growth between 2019 and 2024, adding 2,200 additional jobs (3% growth). The number of projected new jobs, combined with job openings from replacements and retirements, provides an overall estimate of employer hiring needs. Overall, the accountants and auditors occupation is projected to have 17,800 openings, new and replacement, in the Los Angeles Basin between 2019 and 2024.

WORKER CHARACTERISTICS

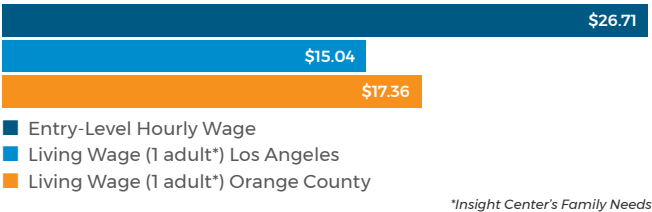
The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

The largest share of workers in this occupation are between the ages of 25 and 39 years old (34.4 percent), though another 33.8 percent were between 40 and 54 in 2017. Only 4.9 percent of workers are under 25, indicating that it may be difficult for younger workers to get straight into this occupation.

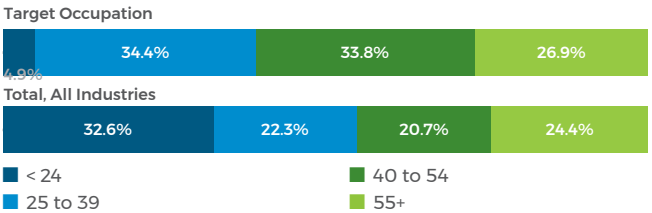
This is also clear from the educational attainment distribution, where the vast majority of accountants and auditors have a bachelor's degree (61.3 percent) or a master's and higher (20.8%). Just 14.6% of workers had an associate degree or some college, so community college workers may struggle to find opportunities here unless they continue on to a bachelor's degree. This occupation has a very high share of Asian payroll workers, which make up the greatest proportion of employees at 39.2%; White workers accounted for 36.7 percent of the workforce while those identifying as Hispanic and Black represented 16.9 and 4.5 percent of workers, respectively. Nearly two thirds of workers were female (62.2%).



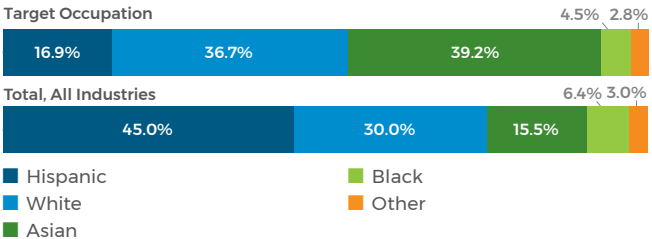
2019 HOURLY WAGES IN LA BASIN



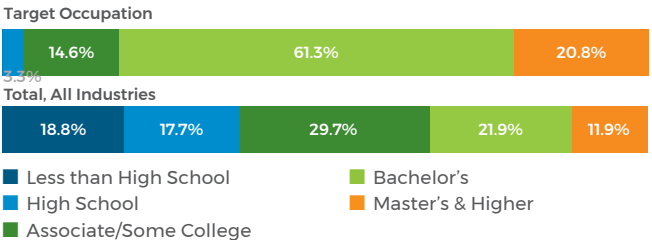
AGE DISTRIBUTION



RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Market Research Analysts and Marketing Specialists (SOC 13-1161)

Research market conditions in local, regional, or national areas, or gather information to determine potential sales of a product or service, or create a marketing campaign. May gather information on competitors, prices, sales, and methods of marketing and distribution.

SIZING THINGS UP

In 2019, market research analysts and marketing specialists employed 36,520 payroll workers in the L.A. Basin. This occupation offered an entry-level hourly wage of \$23.86 for workers in 2019.

Projections indicate that this occupation can anticipate the addition of 3,829 jobs by 2024, representing a 9 percent increase in employment. The number of projected new jobs, combined with job openings from replacements and retirements, provide an overall estimate of employer hiring needs. Overall, the market research analysts and marketing specialists occupation is projected to have 12,700 openings, new and replacement, in the Los Angeles Basin between 2019 and 2024.

WORKER CHARACTERISTICS

The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

About half of workers in this occupation are between the ages of 25 and 39 years old (49.2 percent). Nearly one third of workers are between 40 and 54, while just 12.2 percent were over 55 years old and 8.7 percent were under 25.

Market research analysts and marketing specialists identified predominantly as White in 2017 (55.8 percent). 21.2 percent of the workforce was Asian, while Hispanic and Black workers accounted for 15.6 and 3.6 percent, respectively. The majority of workers employed in this occupation have a bachelor's degree (55.1%) or higher (24.5%), indicating that this may be a more difficult job to target for community college workers until they progress to a bachelor's degree. Those with an associate degree or some college represent just 15.8 percent of workers. There was a fairly even distribution of gender in 2017, with 44.8% of workers identifying as male and 55.2% as female.

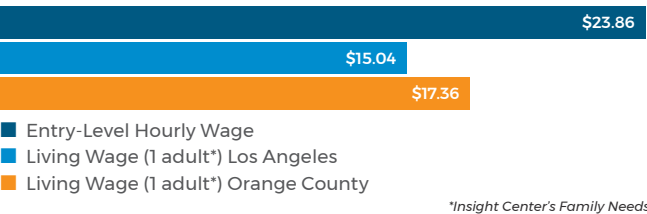
TOTAL PROJECTED OPENINGS 2024

12,700 Total Openings (5-Yr)
2,540 Annual Openings
24 Colleges 218 Annual Program Completion

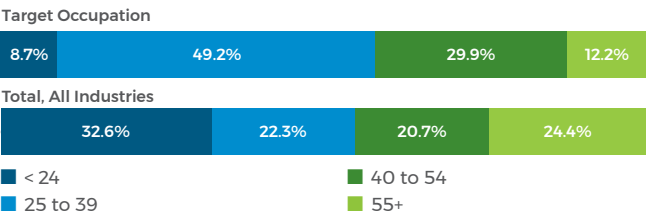
36,520

Jobs in Los Angeles & Orange Counties in 2019

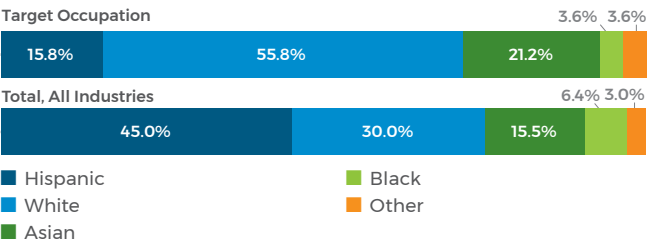
2019 HOURLY WAGES IN LA BASIN



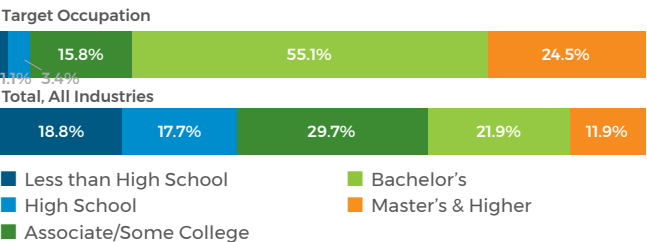
AGE DISTRIBUTION



RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Financial Managers
(11-3031)

Plan, direct, or coordinate accounting, investing, banking, insurance, securities, and other financial activities of a branch, office, or department of an establishment.

SIZING THINGS UP

In 2019, financial managers employed 36,120 payroll workers in the L.A. Basin. Workers employed as financial managers had high salaries, with \$47.18 as the entry-level hourly wage in 2019.

By 2024, the occupation is expected to add 2,290 jobs (6 percent growth). The number of projected new jobs, combined with job openings from replacements and retirements, provide an overall estimate of employer hiring needs. Overall, the financial managers occupation is projected to have 7,200 openings, new and replacement, in the Los Angeles Basin between 2019 and 2024.

WORKER CHARACTERISTICS

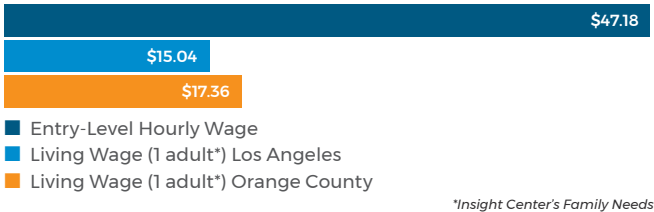
The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

In this occupation, 37.9 percent of workers are between 25 and 39 years of age, while 35.1 percent are between 40 and 54. 23.5 percent are above 55, but just 3.4 percent of workers are under the age of 25; as the regional average of workers under 25 across all industries is 32.6%, this indicates that prospective employees coming straight out of college are generally not working in this occupation.

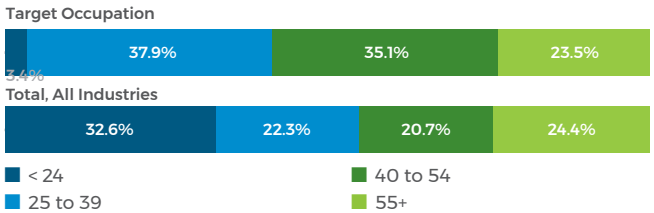
While the greatest proportion of workers in this occupation have a bachelor's degree (44.4 percent), an additional 25.9 percent have been employed with some college attainment or an associate degree. One fifth of the workforce has a master's degree or higher (21.8%). 45.1 percent of this workforce identified as White and 23.1 percent identified as Hispanic. Asian and Black workers accounted for 23.4 percent and 5 percent of the financial managers in the L.A. Basin, respectively. This occupation had fairly equal representation between male and female workers, with females accounting for 52.3 percent of the workforce.



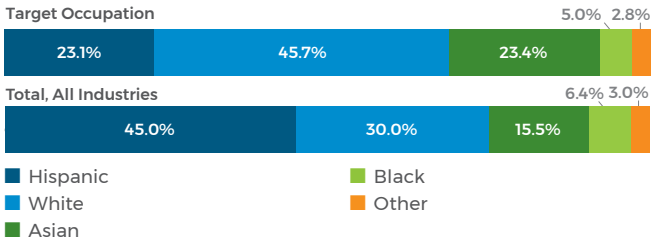
2019 HOURLY WAGES IN LA BASIN



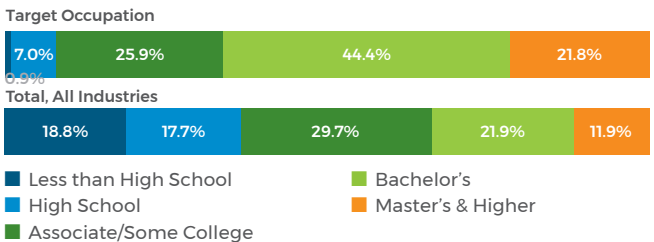
AGE DISTRIBUTION



RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Child, Family and School Social Workers (SOC 21-1021)

Provide social services and assistance to improve the social and psychological functioning of children and their families and to maximize the family well-being and the academic functioning of children. May assist parents, arrange adoptions, and find foster homes for abandoned or abused children.

SIZING THINGS UP

In 2019, child, family and school social workers employed 15,160 payroll workers in the L.A. Basin. This occupation earned \$21.56 as an entry-level hourly wage in 2019.

Projections indicate that this occupation is expected to add 1,291 additional jobs by 2024, representing a growth rate of 8 percent. The number of projected new jobs, combined with job openings from replacements and retirements, provide an overall estimate of employer hiring needs. Overall, child, family and school social workers are projected to have 4,800 openings, new and replacement, in the Los Angeles Basin between 2019 and 2024.

WORKER CHARACTERISTICS

The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

The largest share of workers in this occupation were between the ages of 25 and 39 years old (44 percent) in 2017. 31.5 percent were between 40 and 54 while 22 percent was above 55. Just 2.5 percent of workers were below the age of 25 which is much less than the regional average for all occupations (32.6 percent across all occupations).

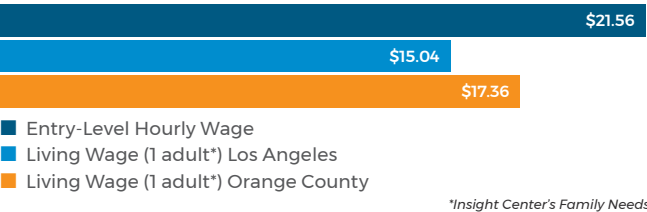
Child, family and school social workers are also predominantly Hispanic (41.5 percent), and female (79 percent). 28.1 percent identified as White, 12.4 percent as Asian, and 15.1% as Black – much higher than the regional average across all occupations for Black workers (6.4%). Most workers in this occupation have either a bachelor's or master's degree (37.6 percent and 40.6 percent, respectively), but 17.5% had an associate degree or some college, so this is still a potential occupation for community college students.

TOTAL PROJECTED OPENINGS 2024

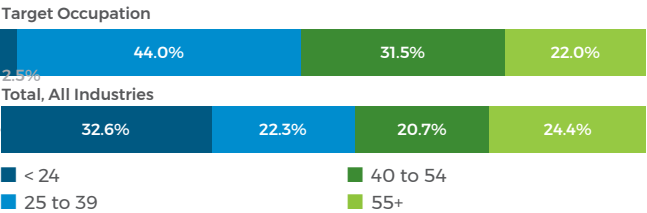
4,800 Total Openings (5-Yr)
960 Annual Openings
9 Colleges **182** Annual Program Completion

15,160
Jobs in Los Angeles & Orange Counties in 2019

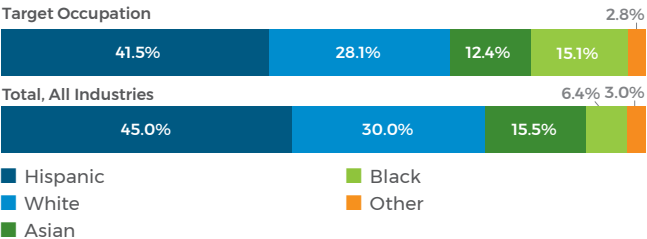
2019 HOURLY WAGES IN LA BASIN



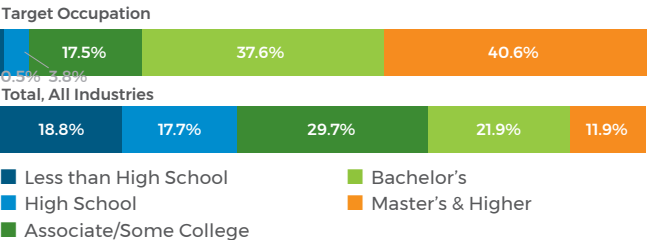
AGE DISTRIBUTION



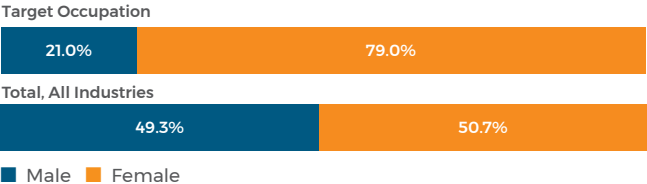
RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Software Developers/
QA Analysts and Testers
(SOC 15-1132)

Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team.

SIZING THINGS UP

In 2019, software developers and software quality assurance analysts and testers employed 56,620 payroll workers in the L.A. Basin. This occupation earned \$44.75 in entry-level hourly wages in 2019, significantly higher compared to most other target occupations profiled.

This occupation is projected to add 5,328 additional jobs by 2024, representing a growth rate of 9 percent. The number of projected new jobs, combined with job openings from replacements and retirements, provide an overall estimate of employer hiring needs. Overall, software developers are projected to have 12,200 openings, new and replacement, in the Basin between 2019 and 2024.

WORKER CHARACTERISTICS

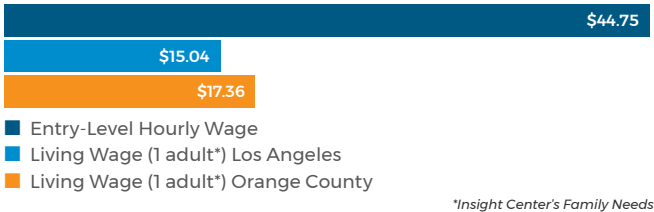
The composition of the workforce in this occupation in the Los Angeles Basin in 2019 varies according to educational attainment, age, race and ethnicity, and gender.

The largest share of workers in this occupation were between the ages of 25 and 39 years old (49.1 percent) in 2018. 30.6 percent were between 40 and 54 while 15.1 percent were above 55. Only 5.2 percent of workers were below the age of 25. The average age of workers may decrease over time as educational opportunities in computer science and software development continue to expand.

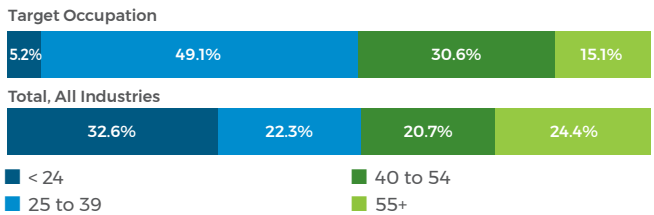
Software developers are mostly White (41.7 percent) or Asian (43.7%). Hispanic and Black workers only account for 8.9% and 1.8% of the workforce, respectively. The majority of workers in this occupation have a bachelor's degree (53.9%) or a master's degree (33.6%) and only 12.5% of the workforce has less than a bachelor's degree. The occupation is predominantly male currently, with females only representing 19.5% of workers.



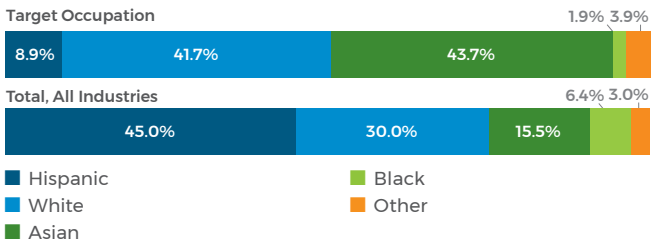
2019 HOURLY WAGES IN LA BASIN



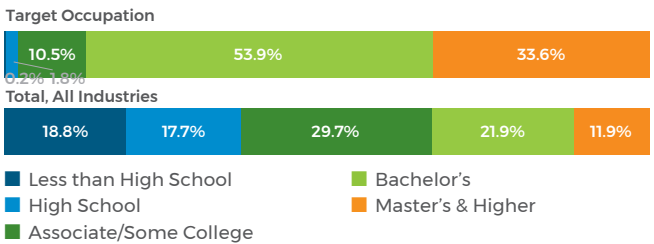
AGE DISTRIBUTION



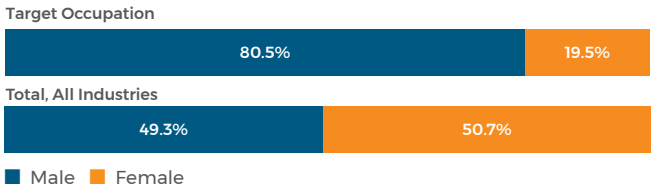
RACE/ETHNICITY



EDUCATIONAL ATTAINMENT



GENDER



Appendix A:

Three-year average number of awards issued
by regional community colleges
(academic years 2016-17, 2017-18 & 2018-19)

Program - TOP / College	3-Yr Average
Accounting-050200	1,547
Cerritos	27
Citrus	18
Coastline	52
Compton	2
Cypress	6
East LA	459
El Camino	13
Fullerton	16
Glendale	57
Golden West	24
Irvine Valley	171
LA City	13
LA Harbor	7
LA Mission	9
LA Pierce	15
LA Southwest	1
LA Trade	24
LA Valley	53
Long Beach	35
Mt San Antonio	130
Orange Coast	79
Pasadena	24
Rio Hondo	14
Saddleback	37
Santa Ana	126
Santa Monica	100
Santiago Canyon	23
West LA	13
Alcohol and Controlled Substances-210440	342
Cypress	17
East LA	39
Glendale	16

Program - TOP / College	3-Yr Average
LA City	19
LA Pierce	36
LA Southwest	37
Long Beach	43
Mt San Antonio	72
Rio Hondo	18
Saddleback	35
West LA	10
Banking and Finance-050400	52
Citrus	5
Glendale	2
LA City	6
LA Mission	1
LA Pierce	0
LA Southwest	1
LA Valley	32
Pasadena	5
Community Health Care Worker-126100	1
East LA	1
Computer Information Systems-070200	123
Citrus	6
Compton	1
Cypress	6
East LA	16
El Camino	16
Fullerton	14
Glendale	1
LA City	3
LA Mission	6
LA Trade	15
Orange Coast	2
Pasadena	1
Rio Hondo	17

Program - TOP / College	3-Yr Average
Santa Ana	9
Santiago Canyon	2
West LA	9
Computer Infrastructure and Support-070800	93
Coastline	60
Cypress	1
LA Harbor	1
LA Mission	1
LA Valley	6
Long Beach	2
Mt San Antonio	20
Pasadena	0
West LA	1
Computer Networking-070810	276
Cerritos	10
Coastline	23
Cypress	45
Glendale	3
Irvine Valley	14
LA City	24
LA Pierce	33
Long Beach	36
Mt San Antonio	6
Rio Hondo	2
Saddleback	16
Santa Ana	7
West LA	57
Computer Programming-070710	270
Cerritos	2
Cypress	22
East LA	6
Fullerton	5
Glendale	2

Program - TOP / College	3-Yr Average
Irvine Valley	11
LA City	14
LA Mission	4
LA Pierce	11
LA Southwest	1
LA Valley	14
Long Beach	2
Mt San Antonio	83
Orange Coast	30
Pasadena	7
Santa Ana	5
Santa Monica	37
Santiago Canyon	13
West LA	0
Computer Software Development-070700	20
Cypress	1
Golden West	5
LA City	0
Orange Coast	6
Pasadena	1
Saddleback	6
Computer Support-070820	30
Cypress	2
Glendale	5
LA Pierce	10
Long Beach	3
Pasadena	4
Santa Ana	6
Disability Services-210450	4
North Orange Adult	4
E-Commerce (Technology emphasis)-070910	2
East LA	0
Saddleback	2

Program - TOP / College	3-Yr Average
Electronic Game Design-061420	2
Golden West	2
Family and Consumer Sciences, General-130100	1
Long Beach	0
Orange Coast	0
Family Studies-130800	1
LA Mission	1
Saddleback	0
Human Services-210400	182
Cerritos	12
Coastline	24
Cypress	29
East LA	0
LA City	13
Long Beach	30
Orange Coast	2
Saddleback	18
Santa Ana	53
Licensed Vocational Nursing-123020	192
Citrus	98
Long Beach	53
Pasadena	17
Rio Hondo	24
Marketing and Distribution-050900	216
Cerritos	12
Compton	2
Cypress	4
East LA	5
El Camino	15
Fullerton	1
Glendale	1
Golden West	2
LA City	12
LA Harbor	1
LA Mission	1
LA Pierce	5
LA Trade	6
LA Valley	18
Long Beach	11

Program - TOP / College	3-Yr Average
Mt San Antonio	4
Orange Coast	66
Pasadena	1
Rio Hondo	5
Saddleback	10
Santa Ana	1
Santa Monica	15
Santiago Canyon	16
West LA	2
Paralegal-140200	460
Cerritos	55
Coastline	69
Compton	3
El Camino	29
Fullerton	32
Irvine Valley	21
LA City	27
LA Mission	33
LA Southwest	1
LA Trade	10
Mt San Antonio	34
Pasadena	67
Santa Ana	50
West LA	29
Parenting and Family Education-130560	7
Long Beach	7
Software Applications-070210	71
Cerritos	5
Coastline	7
Fullerton	0
Irvine Valley	30
LA City	1
LA Mission	4
LA Southwest	2
Mt San Antonio	2
Pasadena	1
Saddleback	5
Santa Monica	15

Appendix B: Career Ladders



There are many pathways through these essential industries where low-skill workers, through training and further education, can develop the knowledge and technical expertise to advance into middle-skill and eventually high-skill employment opportunities that offer higher salaries and better benefits.

Oftentimes the lower steps of these career ladders require only a high school diploma, while higher positions make associate degrees, apprenticeships or even a full bachelor's degree necessary. There are also skills classifications and technology that workers can learn and gain experience with while they hold lower positions, though they will often have to add on further skills, knowledge and/or industry certificates as they progress along their career trajectory.

The key to these pathways is that workers are able to develop their careers while remaining within essential industries, sheltered from the closures and layoffs that the economy can experience as a result of unforeseen shocks. This section of the appendix highlights the remaining verticals, specifically pharmacy and social work for, that represent plausible career pathways with training and assistance from community college programs. Career ladders, including construction, nursing and accounting are in the Section 5 of the report.



Follow the green arrows to see pathways to higher skill occupations

Pharmacy Pathways

Pharmacy Aides (SOC 31-9095)

Record drugs delivered to the pharmacy, store incoming merchandise, and inform the supervisor of stock needs. May operate cash register and accept prescriptions for filling.

Pharmacy Aides can have job titles such as Pharmacy Assistant or Front Counter Clerk and perform tasks like storing and inventorying pharmaceutical supplies and filling prescriptions and medications. This occupation only requires a high school diploma along with spreadsheet software knowledge, but employees must possess administrative and clerical knowledge, sales and marketing tactics and strong customer service skills to be successful. Though this is a low-skill position, Pharmacy Aides have pathways to a wide variety of higher-skill jobs with further education.

REQUIRED KNOWLEDGE

Customer and Personal Service
English Language
Clerical
Sales and Marketing

REQUIRED SKILLS

Active Listening
Service Orientation
Speaking
Social Perceptiveness

TOOLS USED

Filling or Sealing Machines
Cash Registers
Tablet Counters
Label Making Machines



Pharmacy Technicians (SOC 29-2052)

Prepare medications under the direction of a pharmacist. May measure, mix, count out, label, and record amounts and dosages of medications according to prescription orders.

Pharmacy Technicians prepack bulk medicines and fill bottles with prescribed medications, maintain proper storage and security for drugs and verify prescription requests. This occupation requires knowledge of enterprise resource planning software and medical software such as MEDITECH. It is also useful to have a background in medicine, which can be developed in high school or through college courses. The Pharmacy Technician occupation is a step higher than the low-skilled Pharmacy Aide position and provides a base where further education and training can lead workers towards becoming Pharmacists.

REQUIRED KNOWLEDGE

Customer and Personal Service
Clerical
Medicine and Dentistry
English Language

REQUIRED SKILLS

Active Listening
Speaking
Monitoring
Critical Thinking

TOOLS USED

Sterile Filling Machines
Laboratory Blenders
Petri Dishes
Gas Burners

BELOW MIDDLE-SKILL

Annual Median Wage : **\$33,168**
LA County Living Wage: \$31,767

Education: **High School Diploma**
Job Training: **Moderate-Term**

Top Essential Industries:

621 – Ambulatory Health Care Services (537 Jobs)
622 – Hospitals (350 Jobs)
452 – General Merchandise Stores (117 Jobs)

MIDDLE-SKILL

Annual Median Wage : **\$38,313**
LA County Living Wage: \$31,767

Education: **High School Diploma**
Job Training: **Moderate-Term**

Top Essential Industries:

622 – Hospitals (2,644 Jobs)
621 – Ambulatory Health Care Services (898 Jobs)
452 – General Merchandise Stores (527 Jobs)



Medical/Pharmaceutical Sales (SOC 41-4011)

(Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products)

Sell goods for wholesalers or manufacturers where technical or scientific knowledge is required in such areas as biology, engineering, chemistry, and electronics, normally obtained from at least 2 years of post-secondary education.

This occupation can have job titles like Distribution Sales Manager, Marketing Representative and more. It involves promoting product or service sales, negotiating prices or terms of sales and submitting sales contracts for orders. Sales Representatives must have a bachelor's degree usually and use both analytical software like SAS or Stata and customer relationship management software like Salesforce. A background in sales and marketing, with customer service and management proficiencies will help those in this occupation succeed.

ABOVE MIDDLE-SKILL

Annual Median Wage : **\$75,464**

LA County Living Wage: \$31,767

Education: **Bachelor's Degree**

Job Training: **Moderate-Term**

Top Essential Industries:

3345 – Navigational, Measuring, Electromedical and Control Instruments Manufacturing (692 Jobs)

3391 – Medical Equipment and Supplies Manufacturing (501 Jobs)

3344 – Semiconductor and Other Electronic Component Manufacturing (429 Jobs)

REQUIRED KNOWLEDGE

Customer and Personal Service
English Language
Administration and Management
Sales and Marketing

REQUIRED SKILLS

Active Listening
Persuasion
Speaking
Negotiation

TOOLS USED

Personal Computers
Personal Digital Assistants
Tablet Computers



Pharmacists (SOC 29-1051)

Dispense drugs prescribed by physicians and other health practitioners and provide information to patients about medications and their use. May advise physicians and other health practitioners on the selection, dosage and side effects of medications.

Pharmacists are a high-skill occupation that provide information and advice regarding drug interactions, side effects and dosage and review the suitability of prescriptions. This occupation requires a doctoral or professional degree, as it involves the usage of high-level analytical or scientific software such as TTP LabTech and a background in chemistry and biology. Pharmacists have an extremely high annual median wage and are at the high end of the pharmacy pathway. There are many opportunities for pharmacists within the county's essential industries.

ABOVE MIDDLE-SKILL

Annual Median Wage : **\$140,292**

LA County Living Wage: \$31,767

Education: **Doctoral Degree**

Job Training: **None**

Top Essential Industries:

622 - Hospitals (2,248 Jobs)

621 – Ambulatory Health Care Services (1,044 Jobs)

452 – General Merchandise Stores (414 Jobs)

REQUIRED KNOWLEDGE

Medicine and Dentistry
Chemistry
Biology
Mathematics

REQUIRED SKILLS

Instructing
Critical Thinking
Monitoring
Reading Comprehension

TOOLS USED

Laminar Flow Cabinets or Stations
Glucose Monitors or Meters
Liquid Scintillation Counters
Electronic Top-Loading Balances

Social Work Pathways

Eligibility Interviewers, Government Programs (SOC 43-4061)

Determine eligibility of persons applying to receive assistance from government programs and agency resources, such as welfare, unemployment benefits, social security, and public housing.

Eligibility Interviewers, Government Programs is an occupation that pays fairly high wages given that it is classified as a low-skill job. They interview benefits recipients to determine continued eligibility, compile and evaluate personal and financial data, answer applicants' questions about benefits and claims procedures and keep records of assigned cases. This occupation uses data entry, spreadsheet and document management software primarily, and required an understanding of computer and clerical work.

REQUIRED KNOWLEDGE

English Language
Customer and Personal Service
Clerical
Computers and Electronics

REQUIRED SKILLS

Active Listening
Speaking
Critical Thinking
Service Orientation

BELOW MIDDLE-SKILL

Annual Median Wage : **\$50,316**
LA County Living Wage: \$31,767

Education: **High School Diploma**
Job Training: **Moderate-Term**

Top Essential Industries:

92 – Public Administration (4,273 jobs)
624 – Social Assistance (124 Jobs)
621 – Ambulatory Health Care Services (83 Jobs)



Social and Human Service Assistants (SOC 21-1093)

Assist in providing client services in a wide variety of fields, such as psychology, rehabilitation, or social work, including support for families. May assist clients in identifying and obtaining available benefits and social and community services.

Social and Human Service Assistants are known as Outreach Specialists, Social Work Assistants and more. They develop and implement behavioral management and care plans for clients and assess physical and emotional needs. To succeed in this occupation, workers must understand database querying and spreadsheet software. They only require a high school diploma but should have a knowledge of social work and rehabilitation principles along with strong interpersonal skills.

REQUIRED KNOWLEDGE

Customer and Personal Service
Psychology
Therapy and Counseling
English Language

REQUIRED SKILLS

Active Listening
Social Perceptiveness
Speaking
Service Orientation

TOOLS USED

Laptop Computers
Database and Query Software
Laser Printers
Photocopiers

BELOW MIDDLE-SKILL / MIDDLE-SKILL

Annual Median Wage : **\$44,167**
LA County Living Wage: \$31,767

Education: **High School Diploma**
Job Training: **Short-Term**

Top Essential Industries:

624 – Social Assistance (11,670 Jobs)
623 – Nursing & Residential Care Facilities (570 Jobs)
621 – Ambulatory Health Care Services (411 Jobs)



Child, Family and School Social Workers (SOC 21-1021)

Provide social services and assistance to improve the social and psychological functioning of children and their families. May assist parents, arrange adoptions, and find foster homes for abandoned or abused children. May also advise teachers in schools.

Child, Family and School Social Workers serve as liaisons between students, homes, schools and family services. This high-skill occupation requires most of the same database and medical software knowledge of its middle-skill counterparts, but a bachelor's degree with further education in therapy, counseling and psychology is also necessary. These social workers must also have strong interpersonal skills and the temperament to form relationships with their subjects while remaining service oriented.

REQUIRED KNOWLEDGE

Customer and Personal Service
Psychology
Therapy and Counseling
Education and Training

REQUIRED SKILLS

Active Listening
Judgement and Decision-Making
Social Perceptiveness
Critical Thinking

TOOLS USED

Desktop Computers
Database and Query Software
Photocopiers



Healthcare Social Workers (SOC 21-1022)

Provide individuals, families, and groups with the psychosocial support needed to cope with chronic, acute, or terminal illnesses. Services include advising family care givers, providing patient education and counseling, and making referrals for other services.

Healthcare Social Workers can provide care and case management, or interventions designed to promote health, prevent disease and address barriers to access to healthcare. They collaborate with other professionals to evaluate patients' physical or medical condition and can refer clients to community resources and services like financial assistance, legal aid, housing or job placement. This occupation requires a master's degree and often an internship or residency for job training. Workers need prior training in therapy and counseling as well as sociology.

REQUIRED KNOWLEDGE

Therapy and Counseling
Psychology
Customer and Personal Service
Sociology and Anthropology

REQUIRED SKILLS

Active Listening
Coordination
Social Perceptiveness
Critical Thinking

TOOLS USED

Desktop Computers
Personal Computers
Medical Software
Database and Query Software

ABOVE MIDDLE-SKILL

Annual Median Wage : **\$55,554**
LA County Living Wage: \$31,767

Education: **Bachelor's Degree**

Job Training: **None**

Top Essential Industries:

624 – Social Assistance (4,700 Jobs)
623 – Nursing & Residential Care Facilities (245 Jobs)
621 – Ambulatory Health Care Services (186 Jobs)

ABOVE MIDDLE-SKILL

Annual Median Wage : **\$71,638**
LA County Living Wage: \$31,767

Education: **Master's Degree**

Job Training: **Internship/Residency**

Top Essential Industries:

624 – Social Assistance (1,118 Jobs)
622 – Hospitals (1,049 Jobs)
621 – Ambulatory Health Care Services (678 Jobs)

Appendix C: Methodology

Industry Forecast

An economic forecast is created to project employment by industry over the next five years using statistical analysis of historical data paired with the most recent qualitative information impacting a set of 151 industries in the Los Angeles Basin. The industries configured for this forecast are defined through the North American Industry Classification System (NAICS) and comprise industries denoted with 2-digit, 3-digit and 4-digit codes through the NAICS hierarchical classification system. A key input for the regional forecast is projected population growth in Los Angeles and Orange counties, provided by the California Department of Finance. State and national trends concerning production methods, consumer behavior, construction and property values that correspond to each industry are a few of the inputs used for the economic forecast model.

Occupations and Projections

Occupations are commonly classified using the Standard Occupational Classification (SOC) System, developed by the Bureau of Labor Statistics. This system classifies workers into 840 detailed occupations that share similar job duties, skills, education and training. These occupations are not industry-specific but are common to many industries. For example, retail salespersons are employed in a full spectrum of industries, from department and discount stores to computer systems design.

The economic forecast for employment by industry is used to guide a projection of net new jobs for each occupation, calculated by applying the industry occupational composition to the detailed industry employment forecast; occupational forecasts are aggregated across industries.

The United States Census Bureau estimates replacement needs by industry and occupation through detailed surveys of employers and households. These take into account industry changes, the age of the current workforce within each industry and occupation, and the nature of the career path. These estimates are an important component of occupational job openings and workforce development needs, since the retirement and promotion of individuals leave openings for new entrants and those moving up the career ladder. Total openings are the sum of projected five-year replacement needs and positive net new jobs forecast over the period.

Target Industries and Occupations

Target occupations are selected in a two-step process. First, all occupations identified as middle-skill (jobs that require education and training beyond a high school diploma but less than a bachelor's degree) are isolated from each target industry. Then, a variety of metrics are used to select target occupations: 2019 employment; projected net job change; replacement rate; number of projected replacement jobs from 2019 to 2024; number of projected total job openings from 2019 to 2024; and entry-level wages that meet or exceed the region's living wage.

Supply

Community colleges and other non-community college educational institutions provide education and training relevant to middle-skill occupations. Comparing occupations with related training programs provides information for supply-and-demand analysis. The number of awards conferred by community colleges reflects the most recent data available from the 2018-19 academic year. Award data for other two-year education institutions is from the 2017-18 academic year. Due to data and timing limitations, training gap forecasts approximate unmet labor demand and do not represent an absolute oversupply or undersupply of available talent. In addition, a one-to-one relationship between program completions and occupational demand does not exist because some programs train for multiple occupations. Consequently, awards for some education and training programs overlap with multiple occupations.

Data Sources

All data was obtained from the Bureau of Labor Statistics and the Census Bureau. Annual employment and payroll data are from the Quarterly Census of Employment and Wages series. Estimates for non-disclosed employment and payroll data were produced using proportional shares of the prior year's data or using mid-point estimates from the Census Bureau's County Business Patterns dataset. Occupational data are from the Occupational Employment Statistics program. Unless noted otherwise, all data is for the 2017 calendar year.

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