



**EMPLOYMENT
PROJECTIONS**
for
INDUSTRIES
and
OCCUPATIONS

2016-2026

**MAUI
MSA**

July 2019





State of Hawaii
David Y. Ige, Governor

Department of Labor and Industrial Relations
Scott T. Murakami Director

Research and Statistics Office
Phyllis Dayao, Chief

Labor Market Research Section
Jeri Arucan, Research Statistician Supervisor
Melonie Ogata, Research Statistician

830 Punchbowl Street, Room 304
Honolulu, HI 96813
phone: (808) 587-5668
email: dlir.rs.hiwi@hawaii.gov



For more detailed projections data,
visit the HIWI website: www.hiwi.org



This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the recipient and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This product is copyrighted by the institution that created it. Internal use by an organization and/or personal use by an individual for non-commercial purposes is permissible. All other uses require the prior authorization of the copyright owner.

Table of Contents

Introduction.....	1
Methodology.....	2
Industry Employment Trends.....	4
Occupational Employment Trends.....	7
Appendix A: Education and Training Classification System Definitions.....	16
Appendix B: Industry Classification Code Definitions.....	17
Appendix C: Occupational Classification Code Definitions.....	18

List of Figures

Figure 1. Industry Employment and Growth, 2016-2026.....	4
Figure 2. Employment and Growth by Industry, 2016-2026.....	5
Figure 3. Occupational Employment and Growth, 2016-2026.....	7
Figure 4. Employment Growth by Major Occupational Group, 2016-2026.....	8
Figure 5. Projected Job Openings by Major Occupational Group, 2016-2026.....	9
Figure 6. Fastest Growing Occupations, 2016-2026.....	11
Figure 7. Occupations with the Most New Jobs Forecasted 2016-2026.....	12
Figure 8. Occupations with the Most Job Openings, 2016-2026.....	13
Figure 9. Largest Declining Occupations, 2016-2026.....	14
Figure 10. Job Openings, Work Experience, and Job Training Requirements by Education Level, 2016-2026.....	15

Introduction

Employment Projections for Industries and Occupations, 2016-2026 is produced biennially and provides long-term industry and occupational projections for Maui County. It uses actual 2016 employment as the base year and projects out ten years to 2026.

The first section of this report looks at employment projections by industry. Industries are classified by the North American Industry Classification System (NAICS) codes. The breakout of industries uses a more detailed list of industries instead of major industry divisions as in previous reports. The detailed industries are aligned with the Governor's targeted industries and economic priorities.

The second section of this report focuses on employment projections by occupation. Occupations are classified under Standard Occupational Classification (SOC) codes.

The data tables including detailed industries and occupations are no longer included in this report. They can be found on the Hawaii Workforce Infonet (HIWI) website in Excel format - <https://www.hiwi.org/gsipub/index.asp?docid=423>. The website also includes "Highlights" and a flyer on the "Best Job Opportunities".

Annual average job openings data are included in this report. Job openings are due to change, transfers, or exits. The openings due to transfers and exits are considered separations. Last year, the BLS introduced a new methodology to calculate job openings due

to separations. More information on this is included in the Methodology section.

Additionally, this report includes information on the education, related work experience, and on-the-job training requirements for each occupation as assigned by the Bureau of Labor Statistics (BLS). These determine the typical path for entry into an occupation.

The information contained within this report can be used by students and jobseekers who are making career decisions; education and training program planners who develop specific occupational training programs; job placement specialists who help people find employment; counselors who assist individuals in choosing careers; managers who design, evaluate, and direct employment and training programs; policy decision makers who develop short- to long-range personnel policies; and employers who need information to help them plan the expansion or relocation of their businesses.

Prior to using the employment projections in this publication, it is important to understand the methodology used and assumptions made in developing these projections, and to note the limitations of the data.

Methodology

Industry employment is obtained from the Hawaii State Department of Labor and Industrial Relations' Quarterly Census of Employment and Wages (QCEW) and the Current Employment Statistics (CES) program. Average annual employment was compiled from 1990 through 2016. The 2012 Census of Agriculture, conducted every five years, was used to estimate farming employment.

Industry employment projections were produced using the Long-Term Industry Projections software system. The system allows the analyst to choose from a variety of predefined, generally accepted projection models including shift-share, simple time-series extrapolation, and linear regression models. Some of the independent variables that may be used in the regression models were CPI, resident population, gross state product, total personal income, average visitor census, visitor occupancy rates, and the number of unemployed persons. After the initial projections were developed, they were reviewed for reasonableness. Adjustments to the projections were made based on current knowledge of the industries and the economy.

Staffing patterns were obtained from the 2016 Occupational Employment Statistics (OES) survey, using the 2010 Standard Occupational Classification (SOC) codes. The pattern was used to divide each industry's employment into different occupations, forming a matrix.

Occupational employment projections were produced using the Occupational Projections System software. The system applied occupational change factors developed by BLS to adjust the projected pattern of each industry to account for changes due to new technology and business practices. Using national self-employment staffing patterns provided by BLS, the system generated employment estimates and projections for the self-employed.

The new separations methodology developed by BLS captures a more accurate picture of the workforce and offers the ability to differentiate between workers who are leaving the labor force entirely and those who are changing jobs and leaving an occupation. There are three types of job openings:

1. Job openings due to **change** are created by employment expansion. It is the difference between projected year employment and base year employment divided ten.
2. Job openings due to **transfer** occur when someone moves from one type of occupation to a different type such as for a promotion or career change.
3. Job openings due to **exit** appear when someone leaves the workforce for at least four months, retires or dies.

The total job openings are the sum of job openings due to change, transfers, and exits.

What is the difference between the old *replacement* methodology and the new *separation* methodology? The old way reflected primarily people who left their job due to retirement or death. The new methodology accounts for different types of job changes such as changing careers, being promoted into management or completing a retraining program. Therefore, the *replacement* openings are not comparable to the *separations* openings. More information on this methodology change is available online at: https://www.bls.gov/emp/ep_separations.htm.

Assumptions:

1. The institutional framework of the national and local economies will not change radically.
2. Current social, technological, and scientific trends will continue, including values placed on work, education, income, and leisure.
3. No major events, such as widespread or long-lasting energy shortages or wars, will significantly alter the industrial structure of the economy or the rate of economic growth.
4. Changes in relative wages, technological changes, or other factors will not radically alter trends in the occupational pattern of the industries.

Data limitations:

1. The employment outlook for the various industries and occupations are based solely on an assessment of their projected demand. The supply of workers was not presented.
2. The employment projections were based on past trends and do not take into account any economic developments that may have occurred after the projections were completed. Projections should be viewed as indicators of relative magnitude and probable direction rather than as predictions of absolute occupational demand. Therefore, it is more important to look at the growth rate and projected total openings rather than the projected employment itself.
3. Cyclical, seasonal, and other factors, such as large plant openings or closings were considered only if the information was available.
4. Adjustments were not made for persons who held two or more jobs in different establishments. In the OES survey, a worker was counted in each job held at different places of work. Furthermore, no distinction was made if a worker did several jobs within one company. That employee was counted in only one occupation - the one with the highest skill level. If the worker did several jobs at the same skill level, the person was reported in the occupation that he/she spent the most time doing.

Industry Employment Trends

Maui's employment is projected to increase by 6,130 jobs or 7.3 percent from 84,180 in 2016 to 90,310 in 2026. Meanwhile, the state is forecasted to expand by 6.5 percent.

Although Maui's industry job growth from 2016 to 2026 will outpace the state, this will translate to only 13 percent of the total jobs added statewide. Maui's projected growth rate of 7.3 percent will surpass forecasted growth

for Oahu, but will be lower than both Hawaii and Kauai County. All industries, except three, are projected to expand. The following table (Figure 1) lists industry projections by 2016 employment, in descending order.

Figure 1

INDUSTRY EMPLOYMENT AND GROWTH, 2016-2026 (sorted by 2016 employment)

INDUSTRY	EMPLOYMENT		CHANGE (2016-2026)		ANNUAL PERCENT CHANGE
	2016	2026	NUMBER	PERCENT	
Total, All Industries	84,180	90,310	6,130	7.3%	0.7%
Accommodation	12,100	12,370	270	2.2%	0.2%
Retail Trade	9,770	10,090	320	3.3%	0.3%
Food Services & Drinking Places	9,750	10,530	780	8.0%	0.8%
Self Employed	8,150	8,660	510	6.2%	0.6%
Health Care & Social Assistance	7,170	8,630	1,460	20.3%	2.0%
Administrative & Support & Waste Management & Remediation Services	5,290	5,980	690	13.1%	1.3%
Government	5,080	5,290	210	4.1%	0.4%
Educational Services	4,460	4,840	380	8.4%	0.8%
Construction	3,910	4,460	540	13.9%	1.4%
Transportation & Warehousing	3,670	4,150	470	12.9%	1.3%
Other Services	2,980	3,290	310	10.4%	1.0%
Arts, Entertainment, & Recreation	2,180	2,460	280	12.8%	1.3%
Real Estate & Rental & Leasing	2,110	2,190	80	3.6%	0.4%
Wholesale Trade	1,500	1,620	120	8.0%	0.8%
Professional, Scientific, & Technical Services	1,500	1,560	70	4.4%	0.4%
Natural Resources & Mining	1,290	1,080	-210	-16.5%	-1.6%
Manufacturing	1,170	1,010	-150	-13.3%	-1.3%
Finance & Insurance	820	820	<10	0.1%	0.0%
Information	560	530	-30	-5.6%	-0.6%
Utilities	480	490	10	1.9%	0.2%
Management of Companies & Enterprises	240	280	40	17.6%	1.8%

Percent change is calculated based on raw data, before it is rounded to the nearest ten. Totals may not add due to rounding.

To view the complete long-term industry projections for Maui County, visit our website at: www.HIWI.org

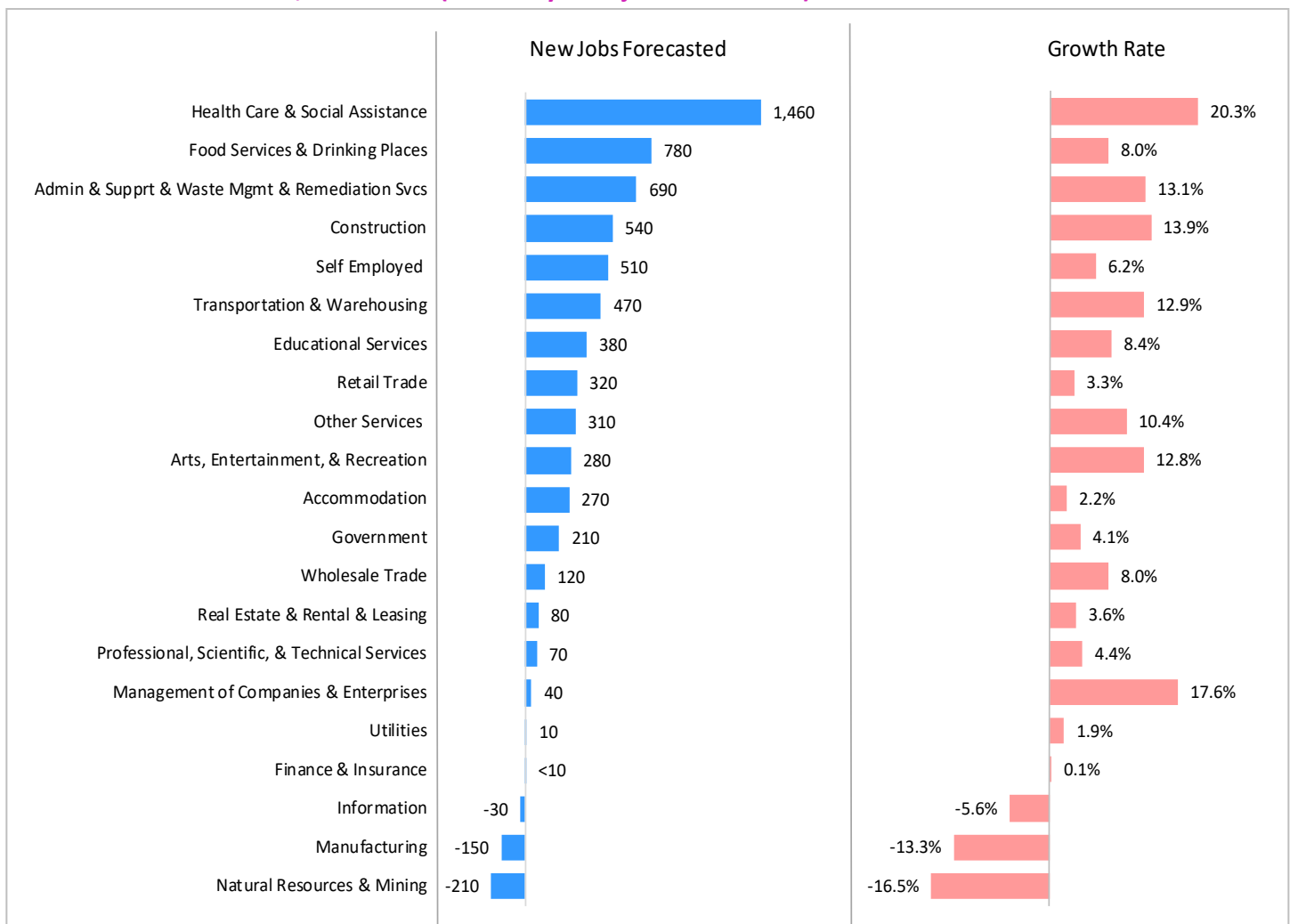
Health care and social assistance, with the addition of 1,460 positions, will create the most jobs by far, compared to the other industries (Figure 2). This industry alone will generate about one-fourth of the total jobs added in Maui. It will also post the fastest growth rate of 20.3 percent over the projected period. By 2026, employment is anticipated to reach 8,630, increasing its share of total employment from 9 to 10 percent over 10 years. Much of the growth can be attributed to the aging population, which will stimulate robust demand in ambulatory health care services. Social assistance will also boost this

industry. Among the various occupations employed in this sector, home health aides, personal care aides, and medical assistants in particular will report the most growth. Not surprisingly, registered nurses, the largest of the health-related occupations will also be needed.

Driven by population growth and consumer spending, food services and drinking places are anticipated to generate 780 new jobs for the second largest gain. The total job count will reach 10,530 in 2026, increasing by 8.0 percent from 2016. Openings for

Figure 2

INDUSTRY JOB GROWTH, 2016-2026 (sorted by new jobs forecasted)



combination food preparation and serving workers, together with restaurant cooks, and waiters and waitresses will account for over 70 percent of the projected advance.

With the pickup of 690 positions, administrative and support and waste management and remediation services will rise to 5,980, climbing by 13.1 percent. Administrative and support services, the largest subsector which employs 96 percent of the industry's workforce, will lift the job count upward by 660 positions. This will create numerous openings for landscaping and groundskeeping workers, and cleaning occupations such as janitors and maids.

Construction job growth from 2016 to 2026 is predicted to slow down versus the prior projection period, but an anticipated gain of 13.9 percent will be well above the county average of 7.3 percent. The addition of 540 slots will elevate construction jobs to the fourth highest gain. Of the three components, workers engaged in specialty trade construction will provide the most jobs, while heavy and civil engineering construction will expand by the fastest rate. Construction projects requiring a variety of specialties including carpenters, plumbers, pipefitters, and steamfitters, construction laborers, and electricians will offer the most opportunities.

Accommodations, an industry vital to the local economy, will rise to 12,370 for

an increase of 270 jobs. Even with the modest projected growth of 2.2 percent, accommodations workers will account for the largest share of the county's workforce, holding steady at 14 percent through 2026. Maids and housekeeping cleaners will be the occupation in most demand.

Employment in retail trade, the second largest industry, is anticipated to add 320 new positions for a modest gain of 3.3 percent. Industry job gains will consist of retail salespersons along with their supervisors, and stock clerks and order fillers.

Growth in the management of companies and enterprises will reach 17.6 percent, more than twice the industry-wide growth rate of 7.3 percent. However, since this is the smallest industry with less than one percent of the county's employment, this equates to a minimal gain of 40 jobs.

Job losses are projected to impact three industries with the natural resources and mining industry posting the biggest job reduction, followed by manufacturing. Most of the drop in natural resources and mining will occur in crop production with the decline of farm workers, while a contraction in food manufacturing employment will lead to the curtailment of manufacturing jobs. One of the smaller industries, information, will also edge downward.

Occupational Employment Trends

Maui's employment is projected to advance by 7.3 percent in 2016 to 90,310 in 2026, creating 6,130 new jobs. On an annual basis, this 0.7 percent increase equals 610 new jobs resulting from change. About 5,760 job openings are expected to arise due to transfers and another 4,650 due to exits. The total number of annual job openings is 11,020.

Figure 3

OCCUPATIONAL EMPLOYMENT AND GROWTH, 2016–2026 (sorted by 2016 employment)

OCCUPATIONAL GROUP	EMPLOYMENT		CHANGE		AVERAGE ANNUAL OPENINGS			2018 MEDIAN WAGE	
	2016	2026	#	%	CHANGE	TRNSFR	EXIT		TOTAL
Total, All Occupations	84,180	90,310	6,130	7.3%	610	5,760	4,650	11,020	\$41,350
Food Preparation & Serving Related	13,740	14,670	930	6.8%	90	1,350	1,060	2,500	\$37,530
Office & Administrative Support	10,380	10,570	190	1.9%	20	640	540	1,200	\$39,330
Sales & Related	9,950	10,280	330	3.3%	30	760	610	1,400	\$30,000
Building & Grounds Cleaning & Maintenance	7,830	8,590	770	9.8%	80	510	510	1,100	\$37,320
Management	7,250	7,620	370	5.2%	40	300	280	610	\$83,330
Transportation & Material Moving	5,240	5,740	500	9.6%	50	370	280	700	\$37,270
Construction & Extraction	4,350	4,850	510	11.6%	50	290	160	510	\$61,550
Education, Training, & Library	3,590	3,940	350	9.8%	40	160	170	360	\$48,470
Personal Care & Service	3,180	3,650	470	14.8%	50	280	260	590	\$29,780
Installation, Maintenance, & Repair	3,170	3,420	250	7.7%	20	190	120	330	\$53,890
Healthcare Practitioners & Technical	2,420	2,830	400	16.6%	40	60	70	170	\$77,040
Protective Service	2,090	2,180	100	4.6%	10	120	120	250	\$49,180
Healthcare Support	1,980	2,420	440	22.3%	40	120	130	290	\$35,960
Business & Financial Operations	1,920	2,120	200	10.5%	20	120	60	210	\$58,550
Production	1,890	1,880	-10	-0.7%	>-10	130	100	220	\$39,420
Arts, Design, Entertainment, Sports, & Media	1,470	1,540	70	4.9%	10	80	70	160	\$39,120
Community & Social Service	1,200	1,440	240	20.0%	20	90	50	170	\$48,140
Farming, Fishing, & Forestry	980	850	-130	-13.5%	-10	100	30	120	\$37,870
Architecture & Engineering	480	530	50	9.9%	10	20	10	40	\$71,230
Computer & Mathematical	440	500	60	12.4%	10	20	10	40	\$71,470
Life, Physical, & Social Science	400	430	30	7.8%	<10	30	10	40	\$52,360
Legal	240	260	20	7.1%	<10	10	10	20	\$66,750

Percent change is calculated based on raw data, before it is rounded to the nearest ten. Totals may not add due to rounding.

To view the complete long-term occupational projections for Maui County, visit our website at: www.HIWI.org

Major Occupational Groups

Twenty out of the 22 major occupational groups will experience positive growth.

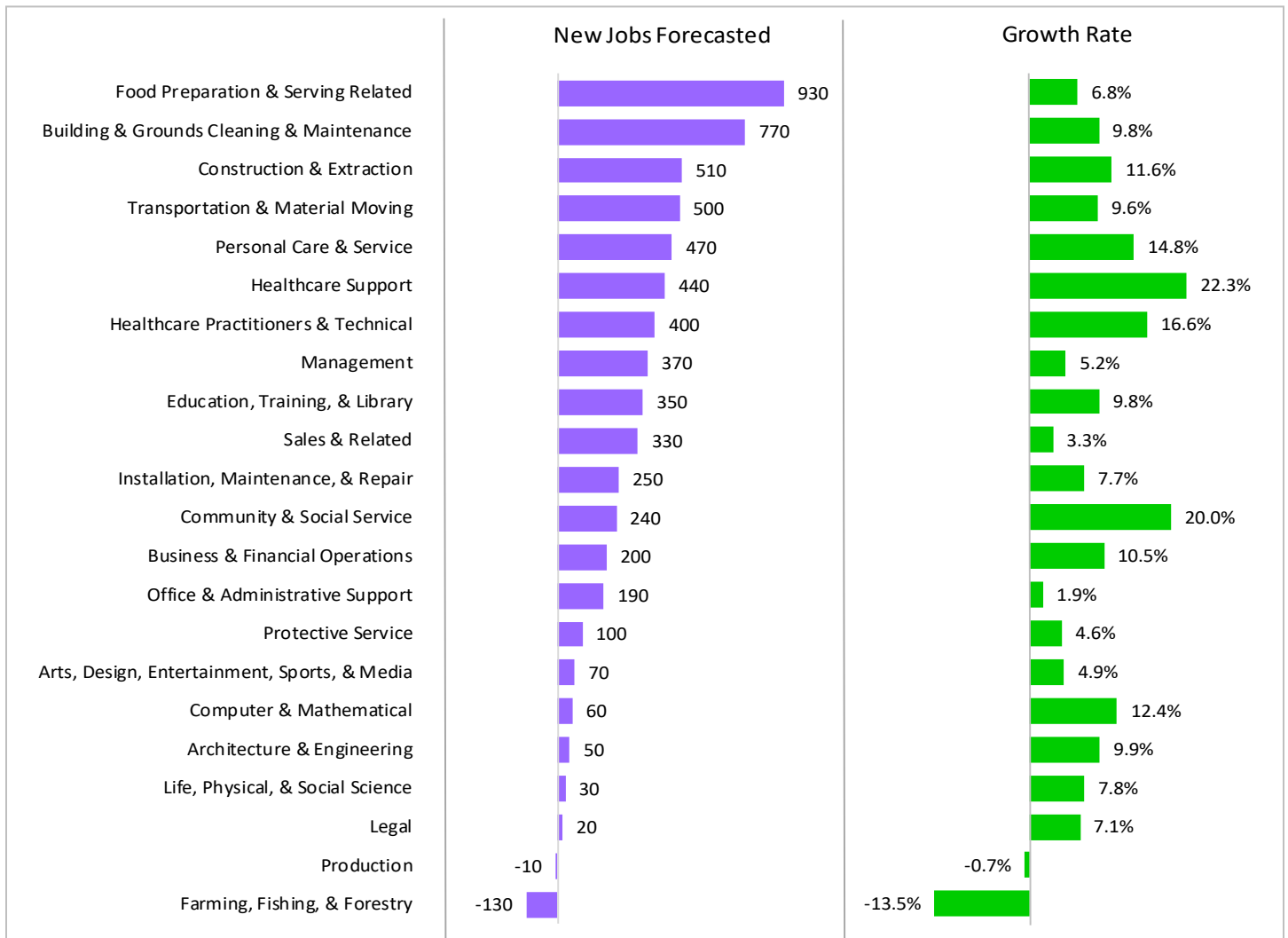
Maui's largest occupational group, food preparation and serving related occupations, will expand by 930 positions over 10 years, leading all other major groups. (Figure 4). Adding to that gain, openings generated by job transfers and workers exiting the labor force, will outpace all other occupational groups, for a combined total of 2,500 annual openings (Figure 5). Three of the larger-sized

occupations, waiters and waitresses, restaurant cooks, and combined food preparation and serving workers will produce more than half of the job openings. Since no work experience or formal educational credential is required for many of these positions, jobs in this field are typically considered entry level. The yearly median wage of \$37,530 for this group rank near the bottom of the pack.

Advances in building and grounds cleaning and maintenance occupations is predicted to total 770 jobs, representing the second highest increase. The collective gains of

Figure 4

JOB GROWTH BY MAJOR OCCUPATIONAL GROUP, 2016–2026 (sorted by new jobs forecasted)



the three largest occupations, maids and housekeeping cleaners, landscaping and groundskeeping workers, and janitors and cleaners, will significantly contribute to the overall advancement of 9.8 percent for this group. Average earnings at \$37,320 fall below the county median of \$41,350.

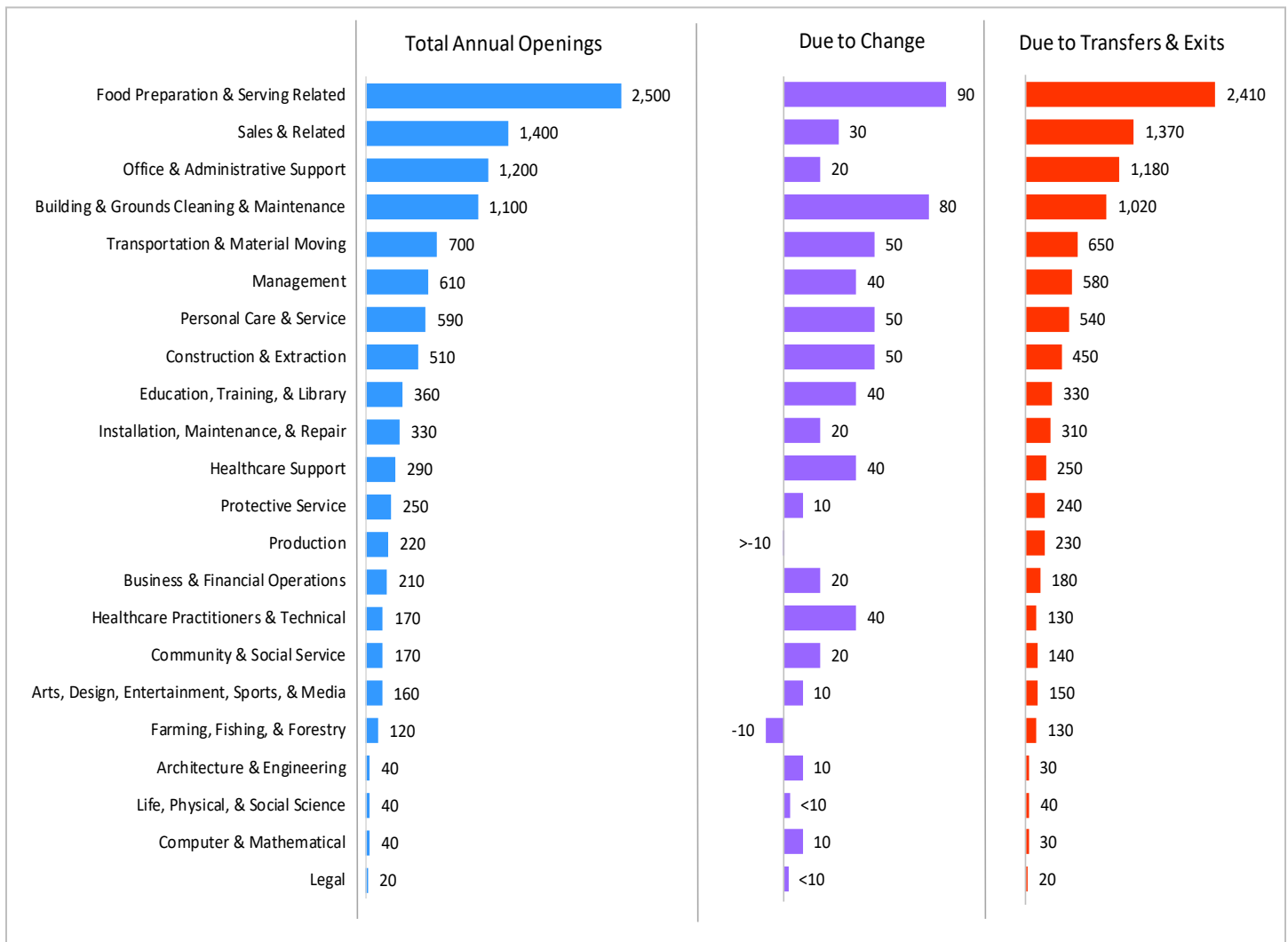
Construction and extraction occupations, with approximately five percent of the total employment count, will generate strong growth of 11.6 percent. With a net gain of 510 positions, this will supply the third most jobs amongst all groups. Demand

for carpenters, construction laborers, and plumbers, pipefitters and steamfitters will benefit from job gains predicted for the upcoming years. Although most positions can be filled with high school graduates, they require apprenticeship or on-the-job training, and offer average annual wages of \$61,550 which exceed the county average.

As the number of seniors living longer multiplies, healthcare support occupations will boast a projected expansion rate of 22.3 percent, higher than all other major groups. Since only two percent of Maui's

Figure 5

PROJECTED JOB OPENINGS BY MAJOR OCCUPATIONAL GROUP, 2016–2026



employment is classified in this group, the job gain represents just 440 of the 6,130 jobs predicted for the county. A 44.8 percent spike in home health aides, coupled with rising demand of 35.2 percent for medical assistants will account for the bulk of the increase. In spite of the high growth anticipated for workers in this field, the median annual wage of \$35,960 falls near the bottom compared to the other occupational groups.

Also reflective of the expanding healthcare sector, healthcare practitioners and technical occupations will increase by 16.6 percent, more than double Maui's advance of 7.3 percent. With the creation of 400 jobs, registered nurses will contribute 20 percent of the positions, while physician assistants, nurse practitioners, and physical therapists will benefit from rapid growth topping 40 percent. Annual salaries of \$77,040 ranks these occupations near the top.

Included among the fastest growing groups, community and social service occupations will rise by 20.0 percent. Notable advances will stem from a rise in social workers, counselors, and other social service specialists, which are related to healthcare as well. Median wages of \$48,140 remain near the middle of all major groups despite higher education standards of a bachelor's or master's degree to work in this field.

Although office and administrative support occupations will employ the second greatest percentage of workers, this sector will register the slowest growth of 1.9 percent. New

technology will continue to lessen demand for some of the functions performed by these workers. However, because of this group's large size, job prospects due to separations will provide a bright spot. The volume of workers transferring to another position or exiting the workforce will produce 1,200 openings annually, third highest among all groups. Even though nearly all positions in this sector require no more than a high school diploma, most workers will need to undergo some form of on-the-job training. Median annual wages averaged \$39,330 in 2018.

Despite the modest growth rate of 3.3 percent for the sales and related occupation group, the 1,400 annual total job openings projected, will rank second highest. Numerous employment opportunities will arise as workers change jobs or leave the labor force rather than through the creation of new openings. More than 60 percent of the vacant positions will be for retail salespersons and cashiers, two occupations which employ a sizable share of Maui workers. Wages of \$30,000 for this classification of workers are well below average.

Two major groups projected to lose employment include production and also farming, fishing, and forestry. Declines scattered among various production operations will negatively impact jobs by 0.7 percent. Within farming, fishing, and forestry, the largest occupation consisting of crop, nursery, and greenhouse farmworkers and laborers, will reduce this sector down by 13.5 percent.

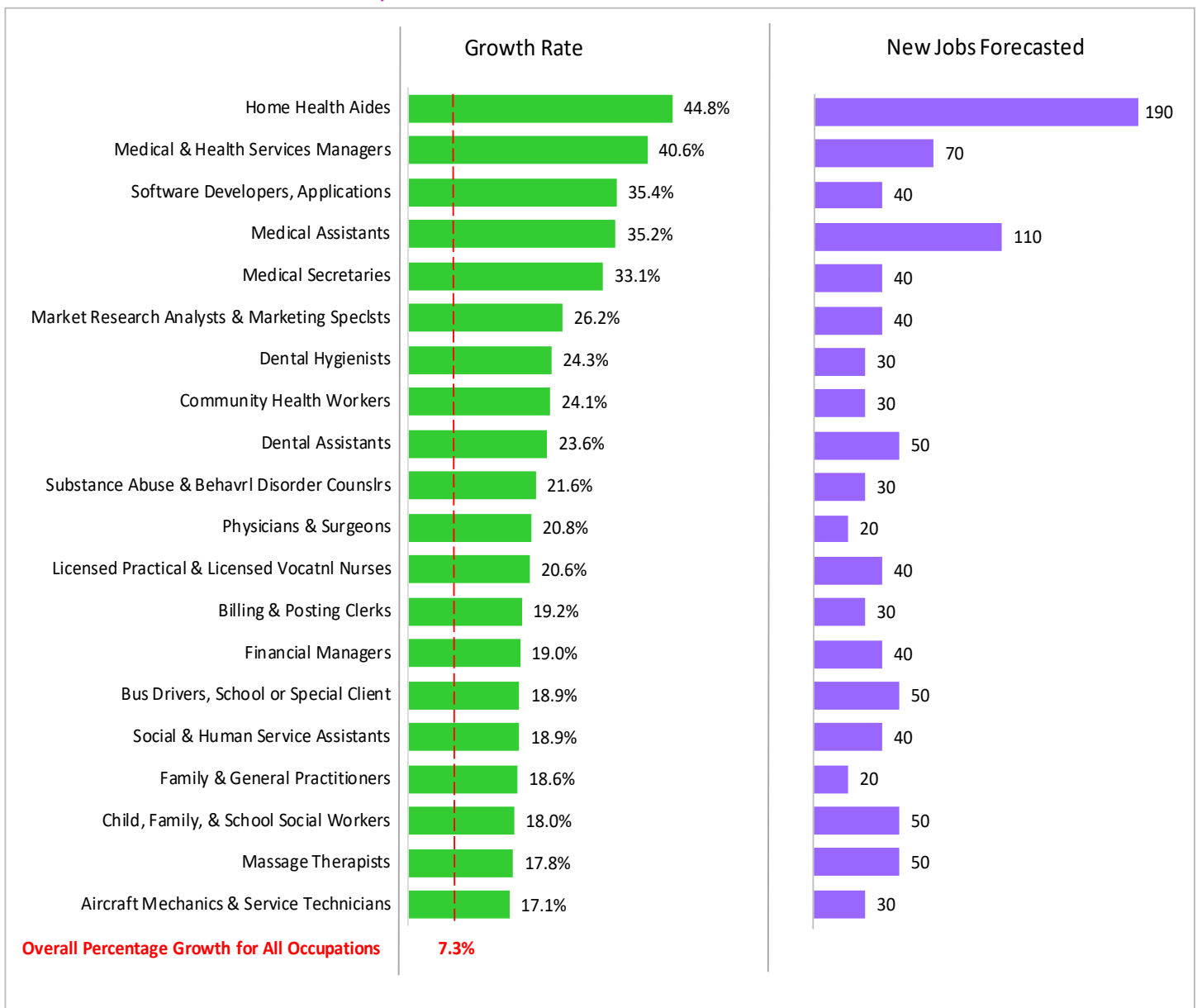
Detailed Occupational Projections

The growth rate of the 20 fastest expanding occupations are well above the average rate for all occupations which is 7.3 percent (Figure 6). As reflected by the increase in the healthcare occupational group, more than half of the occupations relate to the medical field.

These include: home health aides; medical and health services managers; medical assistants; medical secretaries; dental hygienists; community health workers; dental assistants; substance abuse and behavioral disorder counselors; physicians and surgeons, licensed practical and vocational nurses; family and general practitioners; and massage therapists.

Figure 6

FASTEST GROWING OCCUPATIONS, 2016–2026

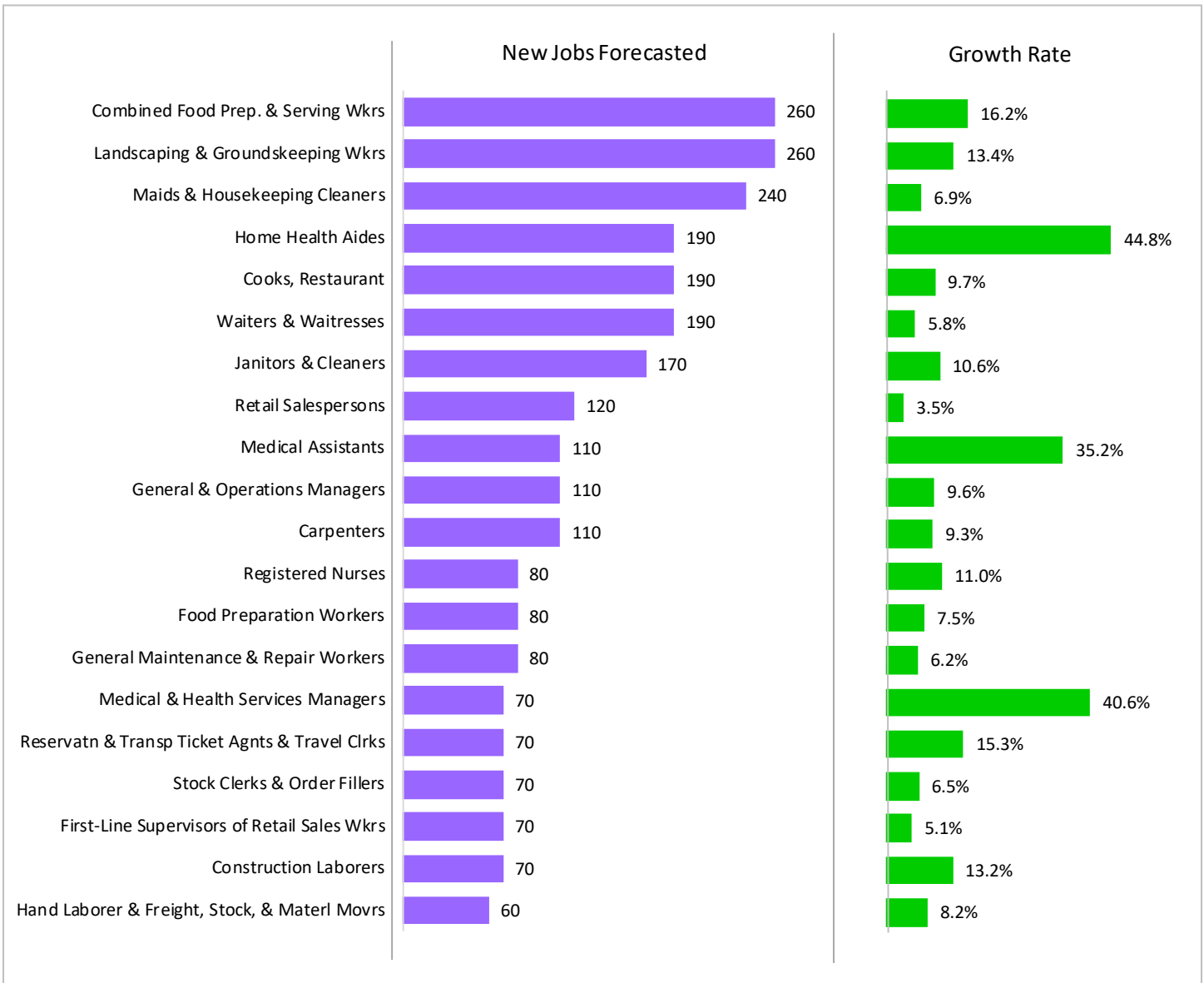


The 20 occupations adding the greatest number of positions during the decade will create a total of 2,600 new jobs or 42 percent of the overall total gains (Figure 7). Food preparation and serving related workers tied with landscaping and groundskeeping workers with 260 new jobs created. Three other food-

preparation and serving related jobs made the list: restaurant cooks; waiters and waitresses; and food preparation workers. Four are healthcare related: home health aides; medical assistants; registered nurses; and medical and health services managers.

Figure 7

OCCUPATIONS WITH THE MOST NEW JOBS FORECASTED, 2016–2026

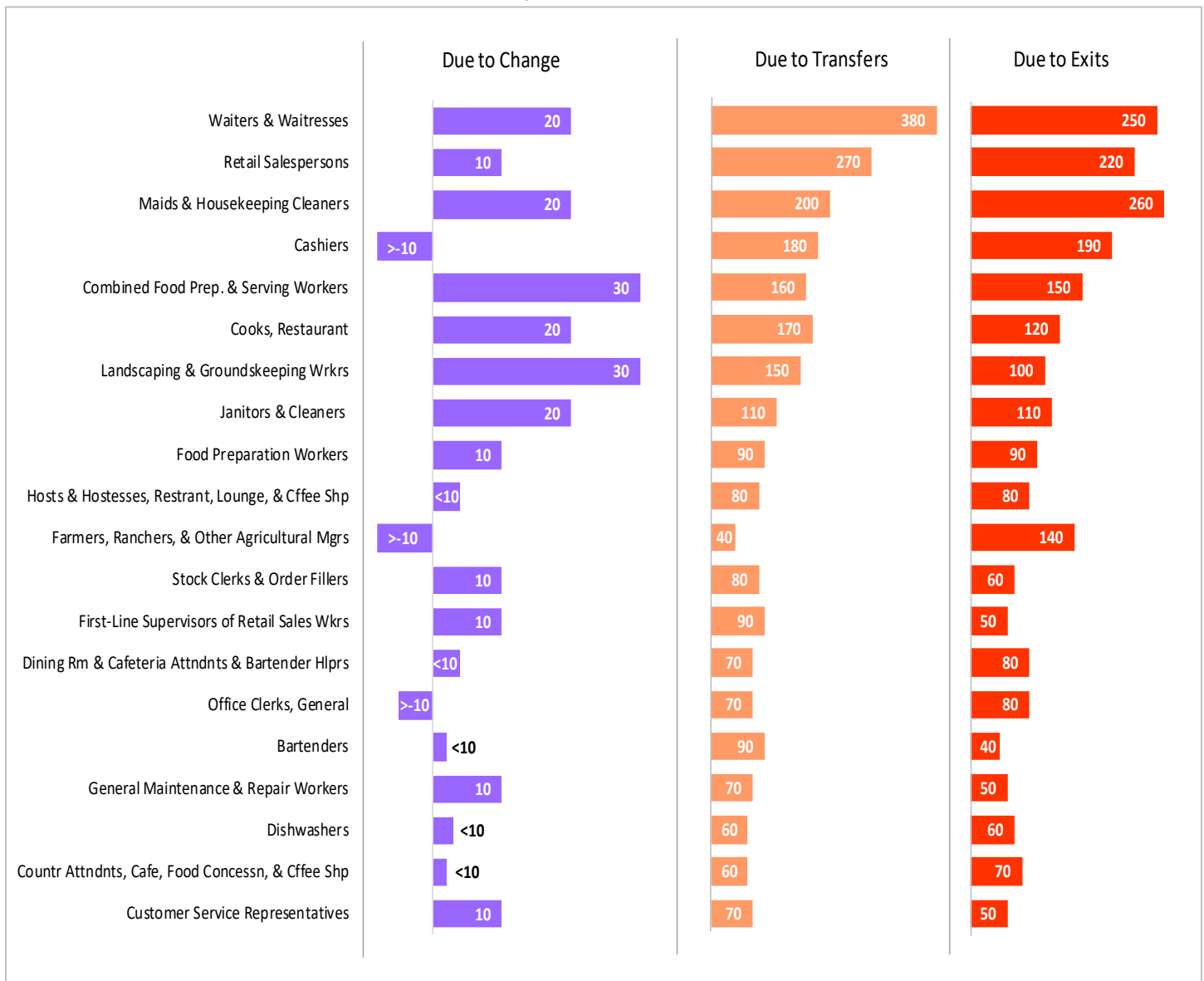


As for jobs with the most total openings (Figure 8), they are typically large-sized occupations with many of the openings created by separations rather than job growth. Occupations related to Maui’s strong tourism market continues to boost employment opportunities. Jobs in this field include: waiters and waitresses; retail salespersons; maids and housekeeping cleaners; cashiers; various food preparation and serving workers; restau-

rant cooks; landscaping and groundskeeping workers; janitors and cleaners; hosts and hostesses for restaurant, lounge, and coffee shops; first-line supervisors of retail sales workers, dining room and cafeteria attendants and bartender helpers; bartenders; dishwashers; counter attendants for cafeteria, food concession and coffee shops; and customer service representatives.

Figure 8

OCCUPATIONS WITH THE MOST JOB OPENINGS, 2016–2026

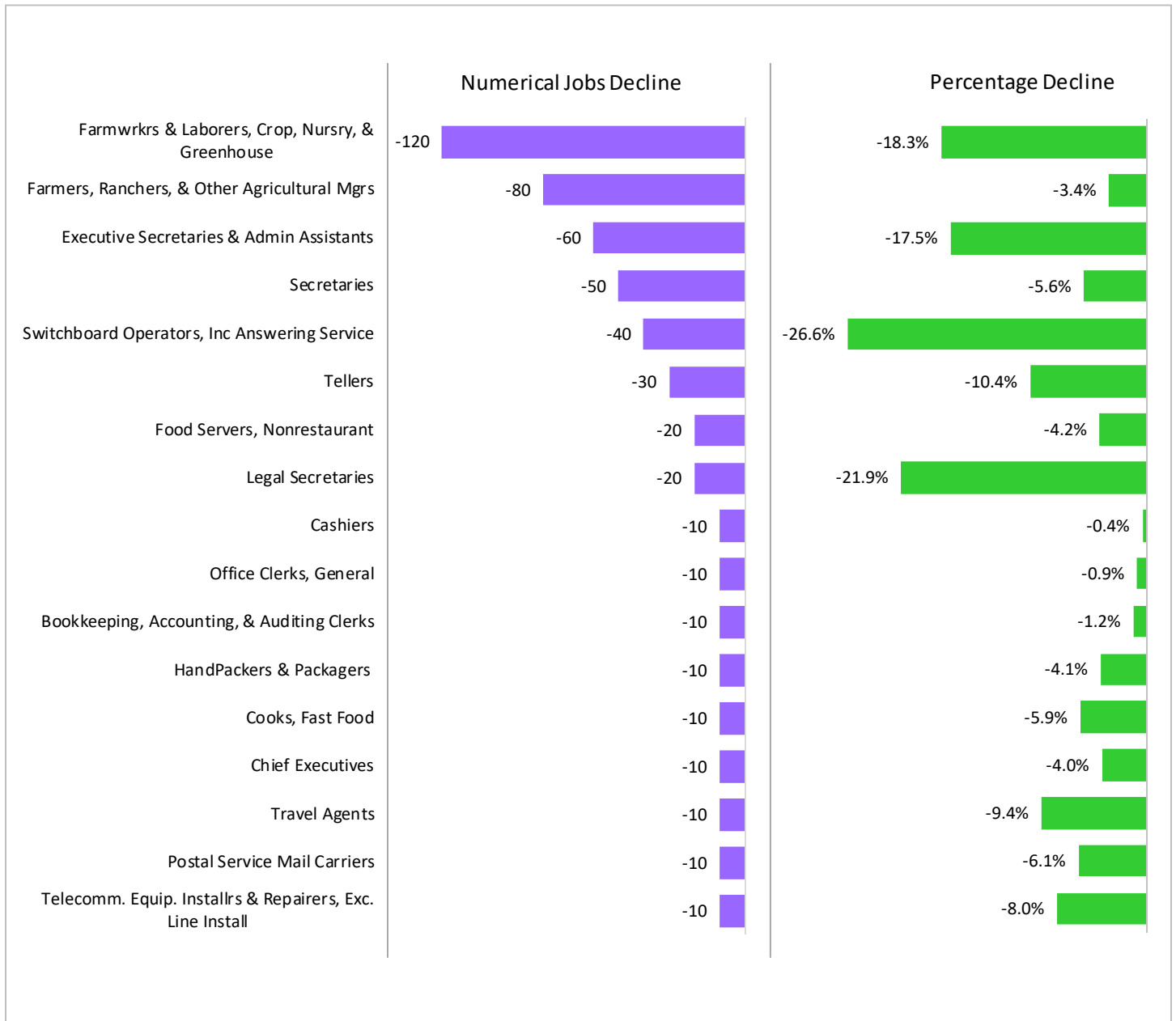


Heading the list of occupations losing jobs are farmworkers and farm managers, mainly employed in the agriculture industry (Figure 9). However, the majority of the remaining positions are classified under the office and administrative support sector, which is

also projected to decline. Although the total number of workers employed within each position will shrink, these occupations will still create openings as workers need to be replaced when they transfer, retire, or exit the workforce.

Figure 9

LARGEST DECLINING OCCUPATIONS, 2016–2026



Openings by Education Level

Jobs that have high school or no educational requirements will be the most prevalent, accounting for more than 80 percent of total projected job openings (Figure 10). Positions available to workers with education ranging from some college to a bachelor’s degree, will make up 16 percent of Maui’s total openings. Only about one percent of all openings fall under the highest education levels - a master’s degree or a doctoral or professional degrees.

In terms of jobs requiring work experience, the highest percentage will be for individuals with a bachelor’s degree at 33 percent, while at the lower end, prior work experience is necessary for one percent of those with an associate’s degree.

All workers without any formal educational credential, and 73 percent of those with a high school diploma will need to undergo on-the-job training.

Figure 10

JOB OPENINGS , WORK EXPERIENCE, & JOB TRAINING REQUIREMENTS BY EDUCATION LEVEL, 2016–2026



Appendix A

EDUCATION AND TRAINING CLASSIFICATION SYSTEM DEFINITIONS

U.S. Department of Labor, Bureau of Labor Statistics

EDUCATION	DEFINITION
Doctoral or professional degree	Requires at least 3 years of full-time academic work beyond a bachelor's degree
Master's degree	Requires 1 or 2 years of full-time academic study beyond Bachelor's
Bachelor's degree	Requires at least 4 years, but not more than 5 years, of full-time academic study
Associate's degree	Requires at least 2 years but not more than 4 years of full-time academic study beyond high school
Postsecondary non-degree award	Some programs may last a few weeks, while others may last 1 to 2 years and leads to a certificate or other award, but not a degree
Some college, no degree	Includes the completion of one or more postsecondary courses that did not result in a degree or award
High School or equivalent	Completion of high school or an equivalent program
No formal educational credential	No formal credential issued by an education institution such as a high school diploma or postsecondary certificate

RELATED WORK EXPERIENCE	DEFINITION
5 years or more experience (5+)	5 years or more of work experience in a related occupation may be a typical method of entry
Less than 5 years of experience (<5)	Workers typically need 1-4 years of work experience in related occupation
None	No work experience is needed in a related occupation

ON-THE-JOB TRAINING	DEFINITION
Internship/residency (Itn/Res)	Training that involves preparation in a field, generally under supervision, in a professional setting, paid or unpaid from 1-8 years
Apprenticeship (Appren)	Combines on-the-job training and related occupation-specific technical instruction which may last between 3 to 5 years
Long-term on-the-job training (LT OJT)	Lasts more than 12 months and includes either on-the-job training or combines work experience with formal instruction
Moderate-term on-the-job training (MT OJT)	Includes informal instruction and on-the-job training that lasts between 1 and 12 months
Short-term on-the-job training (ST OJT)	Informal on-the-job training or experience of 1 month or less

Appendix B

INDUSTRY CLASSIFICATION CODE DEFINITIONS

North American Industry Classification System (NAICS), 2017

NAICS	INDUSTRY AND DESCRIPTION
11	Agriculture, forestry, fishing, and hunting - growing crops, raising animals, harvesting timber, and harvesting fish and other animals from a farm, ranch, or their natural habitats.
21	Mining - activities of extracting naturally occurring mineral solids, liquid minerals, and gases.
22	Utilities - provision of utility services such as electric power, natural gas, water supply, sewage removal.
23	Construction - construction of buildings or engineering projects.
31-33	Manufacturing - mechanical, physical, or chemical transformation of materials, substances, or components into new products.
42	Wholesale trade - wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.
44-45	Retail trade - retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.
48-49	Transportation and warehousing - providing transportation of passengers & cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to transportation.
51	Information - producing and distributing information and cultural products; providing the means to transmit or distribute these products as well as data or communications; and processing data.
52	Finance and insurance - financial transactions involving the creation, liquidation, or change in ownership of financial assets and/or facilitating financial transactions.
53	Real estate and rental and leasing - renting, leasing, or otherwise allowing the use of tangible or intangible assets, and providing related services.
54	Professional, scientific, and technical - specialize in performing professional, scientific, and technical activities for others.
55	Management of companies and enterprises - holding of securities of companies and enterprises for the purpose of owning controlling interest or influencing management decisions; or administering, overseeing, and managing establishments of the company or enterprise and normally undertaking the strategic or organizational planning and decision-making role of the company or enterprise.
56	Administrative and support and waste management and remediation services - performing routine support activities for the day-to-day operations of other organizations.
61	Educational services - provide instruction and training in a wide variety of subjects.
62	Health care and social assistance - provide health care and social assistance for individuals.
71	Arts, entertainment, and recreation - operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of patrons.
721	Accommodation - provide lodging or short-term accommodations for travelers, vacationers, others.
722	Food services and drinking places - prepare meals, snacks, beverages for immediate consumption.
81	Other Services - provide non-governmental services not elsewhere specified..
90	Government - the administration, management, and oversight of public programs by Federal, State, and local governments.

Appendix C

OCCUPATIONAL CLASSIFICATION CODE DEFINITIONS

Standard Occupational Classification System (SOC), 2010

SOC	OCCUPATIONAL GROUP AND DESCRIPTION
11-0000	Management Occupations consist of managers responsible for the policy-making, planning, directing, or coordination of work activities of an establishment or organization. Examples include financial managers, construction managers, and engineering managers.
13-0000	Business and Financial Operations Occupations include business operations specialists such as business agents, buyers, claims adjusters, appraisers and examiners, compliance officers, cost estimators, emergency management specialists, human resources specialists, logisticians, management analysts, and meeting planners; and financial specialists like accountants and auditors, real estate appraisers, budget analysts, credit analysts, financial analysts, financial examiners, loan counselors, and tax examiners.
15-0000	Computer and Mathematical Occupations include computer specialists who perform computer research, programming, software development, provide technical assistance, database administration, and network administration. Mathematical science occupations develop and apply mathematical theory to analyze statistical data, which provides useful information that may assist in decision-making or policy formulation.
17-0000	Architecture and Engineering Occupations are primarily responsible for planning and designing structures, land areas, machines, and processes. Also included are drafters and engineering and mapping technicians.
19-0000	Life, Physical, and Social Science Occupations are comprised of life scientists including agriculture, biological, conservation, and medical scientists; physical scientists such as astronomers and physicists, atmospheric and space scientists, chemists, and environmental scientists and social scientists and related workers like economists, market researchers, psychologists, sociologists, and urban/regional planners.
21-0000	Community and Social Service Occupations provide services such as counseling, social services, and religious worship to various groups or individuals.
23-0000	Legal Occupations consists of lawyers, judges, arbitrators, mediators, magistrates, and legal support workers such as paralegals, law clerks, court reporters, and title examiners.
25-0000	Education, Training, and Library Occupations include postsecondary, primary, secondary, and special education teachers, adult literacy instructors, librarians, curators, archivists, library technicians and teacher assistants.
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations are comprised of art and design workers such as craft and multi-media artists, fashion, floral, graphic, and interior designers; entertainers and performers, sports and related workers, consisting of actors, athletes, dancers, and musicians; media and communication workers including announcers, reporters, public relations specialists, and writers; and media and communication equipment workers which includes broadcast technicians, radio operators, photographers, and camera operators.
29-0000	Healthcare Practitioner and Technical Occupations includes workers directly involved in the diagnosis and treatment of health-related matters. This occupational group includes physicians, chiropractors, dentists, pharmacists, physician assistants, registered nurses, therapists, veterinarians, and health technologists and technicians.

SOC	OCCUPATIONAL GROUP AND DESCRIPTION
31-0000	Healthcare Support Occupations perform healthcare duties under the direct supervision of medical staff. Those classified under this category include home health aides, physical therapist assistants, dental assistants, pharmacy aides, and massage therapists.
33-0000	Protective Service Occupations protect people and property. Workers in this group include law enforcement workers, fire fighters, animal control workers, and security guards.
35-0000	Food Preparation and Serving Related Occupations prepare, clean, and serve meals and beverages to patrons. Examples of workers in this group are cooks, bartenders, waiters and waitresses, dining room attendants, and hosts and hostesses.
37-0000	Building and Grounds Cleaning and Maintenance Occupations consists of building cleaning and pest control workers and grounds maintenance workers who clean and maintain the interior of buildings and property grounds. First-line supervisors are also included.
39-0000	Personal Care and Service Occupations include entertainment attendants, funeral service workers, personal appearance workers, transportation attendants, childcare workers, and recreation workers.
41-0000	Sales and Related Occupations influence or assist customers in the purchase of merchandise, real estate, services, or investments. This category includes retail salespersons, travel agents, cashiers, and insurance brokers.
43-0000	Office and Administrative Support Occupations perform office and clerical tasks such as typing, filing, computer operations, record keeping, mail preparation, and distribution. Examples include tellers, hotel desk clerks, and public safety dispatchers.
45-0000	Farming, Fishing, and Forestry Occupations include agriculture inspectors, graders and sorters, and forest and conservation workers. Also included are the first-line supervisors of these workers.
47-0000	Construction and Extraction Occupations construct, assemble, maintain, install, and perform repair work on structures and fixtures. This may involve the use of hand and power tools. Examples of jobs classified under this group include boilermakers, carpenters, electricians, painters, and construction trades helpers.
49-0000	Installation, Maintenance, and Repair Occupations primarily deal with electrical and electronic equipment or vehicle and mobile equipment. They repair, maintain, install, test, or make adjustments to the equipment using various power and hand tools. Examples of workers include telecommunications equipment installers, aircraft mechanics, and medical equipment repairers.
51-0000	Production Occupations include assemblers and fabricators, food processing workers, metal and plastic workers, printing workers, textile and apparel workers, woodworkers, and plant and system operators. Workers employed as bakers, machinists, printing machine operators, and cabinetmakers would be included in this occupational group.
53-0000	Transportation and Material Moving Occupations consist of air transportation workers which includes aircraft pilots and air traffic controllers; motor vehicle operators such as ambulance drivers and attendants, bus drivers, and delivery drivers; water transportation workers like sailors, boat captains, and ship engineers; other transportation workers including parking lot attendants, service station attendants, traffic technicians, and transportation inspectors; and material moving workers including conveyor operators, crane operators, dredging and excavating operators, hoist and winch operators, laborers, pumping station operators, refuse collectors, and truck and ship loaders.