



State of Hawai'i

**EMPLOYMENT
FORECASTS**
for the
**SHORT-TERM
FUTURE**

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*For more detailed projections data,
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Table of Contents

Introduction.....	1
Methodology.....	2
Highlights.....	3
Industry Forecasts.....	4
Occupational Forecasts.....	8
Job Openings by Education and Training.....	13

Introduction

Employment Forecasts for the Short-Term Future is produced annually and provides short-term industry and occupational forecasts for the State of Hawai'i. The projections use actual first quarter 2016 employment as the base year and employment is forecasted to the first quarter of 2018.

This report presents employment forecasts for industries and occupations beginning with highlights that reveal an overall snapshot of the economy at a broad level. Both industry and occupational forecasts are discussed at the broad and a more detailed level. The charts illustrate the amount and percent of growth, as well as projected job openings.

Job openings are categorized by the U.S. Department of Labor's Bureau of Labor Statistics (BLS) in terms of education, experience, and training levels. New this year is a table of "20 Hot Jobs" featuring occupations with the best overall outlook using a combined

average ranking of job growth and openings. Average annual wages from the BLS are also included.

The information in this report may 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 selecting careers; managers who design, evaluate, and direct employment and training programs; policy decision makers who develop short-range 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 forecasts in this publication, it is important to understand the methodology used to develop these projections and note the limitations of the data.

Methodology

These are the general steps used to forecast employment and estimate job openings in Hawai'i:

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

Industry employment forecasts were produced using the Short-term Industry Projections software system. The system uses a state leading index, a combination of selected variables that helps predict changes in employment. National economic variables were provided with the system and state variables included civilian labor force, unemployment rate, average weekly hours and earnings, general fund revenues, transient accommodations tax, building permits, visitor arrivals, and retail sales. The system uses a series of statistical models to project employment and a forecast is chosen based on established statistical methodology. The forecasts were adjusted based on current industry employment trends and near future economic events.

Staffing patterns were derived from the May 2015 Occupational Employment Statistics (OES) survey, using Standard Occupational Classification (SOC 2010) codes. The pattern was used to divide each industry's employment into different occupations for that industry, forming a matrix. Occupational forecasts were generated by the Occupational Projections System software. The system applies occupational change factors to the projected patterns to form a projected matrix. Using Bureau of Labor Statistics (BLS)-provided national self-employment and Census Bureau-derived unpaid family worker staffing patterns, the system generated employment estimates and projections for self-employed and unpaid family workers.

Job openings are divided into two categories:

- 1) job openings due to growth; and
- 2) job openings due to replacement needs.

Annual job openings due to growth are created by employment expansion. It is the difference between projected year employment and base year employment divided by the number of years in the forecast period. For occupations where employment is projected to decline, a zero is used for openings due to growth, instead of posting a negative job opening.

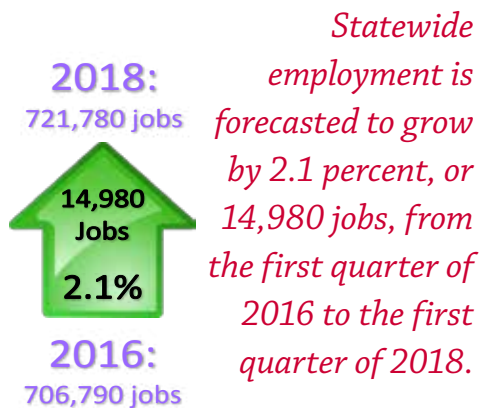
- Job openings due to replacement needs reflect net replacement needs and estimates the number of workers leaving jobs that need to be replaced by other workers. Generally, this counts openings that occur when workers leave their jobs to work in a different type of occupation, retire or permanently leave the job for other reasons, or die. BLS estimates net replacement needs for occupations based on Current Population Survey (CPS) employment changes in 13 age cohorts over a 5-year period.
- The total job openings count is equal to the sum of job openings due to growth and job openings due to replacements. This number estimates the number of openings for workers entering/re-entering an occupation. It may be used to assess the number of workers who will need to receive training for a particular occupation.

Education and training levels are assigned by the Bureau of Labor Statistics. Each detailed occupation is designated with an education, work experience, and on-the-job training level.

Data limitations:

These forecasts are based on historical employment trends and do not take into account any economic events that occurred after January 2017. Projections should be viewed as indicators of relative magnitude and direction rather than as forecasts of absolute occupational demand. Therefore, it is more important to look at the growth rate and projected job openings rather than the projected employment for the first quarter of 2018.

Highlights



Statewide employment is forecasted to grow by 2.1 percent, or 14,980 jobs, from the first quarter of 2016 to the first quarter of 2018.

The state's economy will be led by three key industries: construction; leisure and hospitality; and education and health services.

Service occupations will dominate job creation in terms of high volume and pace of expansion.

All major industries and occupational groups will experience positive job growth, except for agriculture.

An estimated 24,750 total job openings are projected for each year between 2016 to 2018. Of these, 7,550 jobs will be generated by economic growth, and the other 17,200 will be a result of replacement needs.

FROM AN INDUSTRY PERSPECTIVE . . .

- The **construction** industry is expected to settle down into a more modest rate of growth of 3.6 percent as compared to the past several years, creating 1,340 additional jobs. The construction of buildings sector will account for nearly three-quarters of the new jobs and also will increase at the fastest pace of 8.8 percent.
- **Leisure and hospitality** is also poised to expand by 3.6 percent while leading all industries in job creation with 4,170 positions. Over 90 percent of these jobs will be in the accommodations and food services sector.
- The state's largest industry, **education and health services**, will post 3,470 new jobs as it is projected to increase by 2.5 percent. The health care and social assistance sector will contribute about 63 percent of these new positions.
- Hawai'i's other key industry - **trade, transportation, and utilities** - will provide 1,930 new jobs, although growing at a slower-than-average rate of 1.6 percent. Sixty percent of these jobs will be in retail trade, while transportation and warehousing will contribute 34 percent.

FROM AN OCCUPATIONAL PERSPECTIVE . . .

- Hawai'i's largest broad occupational group, **services**, will be the leading job creator with 8,670 annual job openings, rising 2.9 percent. About 60 percent of these jobs will be food preparation and serving related: waiters and waitresses; combined food preparation and serving workers; counter attendants; food preparation workers; and hosts and hostesses.
- **Construction and extraction** occupations are anticipated to experience above-average growth of 2.7 percent while generating 1,170 annual job openings. Fastest growing jobs include: carpenters; plasterers and stucco masons; drywall and ceiling tile installers; and cement masons and concrete finishers.
- The **healthcare practitioners and technical** occupations will also post higher than average growth of 2.4 percent. This translates to 1,030 job openings, primarily for diagnosing and treating practitioners such as registered nurses.

Industry Forecasts

Statewide employment is forecasted to expand by 14,980 jobs from 706,790 in the first quarter of 2016 to 721,780 in the first quarter of 2018. This 2.1 percent growth rate over two years equates to 1.1 percent annual growth.

Broad Industry Trends

The projected 2.1 percent growth rate is more conservative than last year's forecast of 2.9 percent, signaling a period of more measured growth. While, construction will continue to hold its own, leisure and hospitality will establish itself as the biggest job creator. All but one of the 12 major industry divisions are expected to move in a positive direction during the 2016-2018 period (Figure 1). Like last year, the natural resources and mining industry is expected to decline.

Construction has been on an upswing for the past several years, and although growth will still be positive, the pace will slow down some. This medium-sized industry is predicted to tie for the lead as fastest growing. The forecasted 3.6 percent increase in employment will translate into 1,340 more jobs. Building construction will account for nearly three-quarters of the new jobs. Another 16 percent will occur in specialty trade contractors, while the remaining 10 percent of new jobs will appear in the heavy and civil engineering sector.

Construction: ↑ 1,340 jobs, 3.6%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Building Construction	11,290	12,280	990	8.8%
Specialty Trade	21,270	21,500	220	1.0%
Heavy & Civil Engineering	4,830	4,950	130	2.7%

Tourism is still enjoying a tremendous boom and **leisure and hospitality** will lead the state with 4,170 new jobs for a boost of 3.6 percent. Over 90 percent of the job gains will come in the accommodation and food services sector of which restaurants will contribute over two-thirds and hotels will provide one-third. Meanwhile, the arts, entertain-

ment, and recreation sector will produce less than 10 percent of the industry growth (360 jobs).

Leisure & Hospitality: ↑ 4,170 jobs, 3.6%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Accommodation & Food Services	104,900	108,710	3,810	3.6%
Accommodation	39,950	41,160	1,210	3.0%
Food Svc/Drinks	64,950	67,550	2,590	4.0%
Arts, Entertainment, Recreation	11,750	12,110	360	3.1%

The state's largest industry, **education and health services**, is anticipated to expand by 2.5 percent while creating 3,470 new jobs. The health care and social assistance sector will be responsible for almost 63 percent of the new jobs with 2,170. Many of these jobs will be in ambulatory health care, social assistance, and hospitals. The remaining 37 percent of industry job growth will occur in educational services with 1,300 new jobs.

Education & Health Services: ↑ 3,470 jobs, 2.5%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Health Care & Social Assistance	72,870	75,040	2,170	3.0%
Ambulatory Health	27,410	28,140	730	2.7%
Hospitals	20,750	21,260	510	2.4%
Nursing/Resident Care	8,360	8,640	290	3.4%
Social Assistance	16,350	17,000	650	4.0%
Educational Services	65,550	66,850	1,300	2.0%

Professional and business services will manage to generate nearly 1,660 new positions even as it experiences less than average growth of around 2.0 percent. The largest sector, administrative and support and waste management and

remediation services, will account for about 68 percent of the job growth (1,120 positions) mostly concentrated in administrative and support services. The professional, scientific, and technical services sector is expected to generate nearly 20 percent of the industry's growth - 330 jobs. The smallest sector, management of companies and enterprises, will add about 210 more jobs.

Professional & Business Svcs: ↑ 1,660 jobs, 2.0%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Admin & Support & Waste Mgmt & Remediation	49,780	50,890	1,120	2.2%
Admin & Support	47,710	48,780	1,070	2.2%
Waste & Remediation	2,060	2,110	50	2.5%
Prof, Sci, Tech	24,800	25,120	330	1.3%
Mgmt of Companies & Enterprises	8,520	8,730	210	2.5%

The number of **self-employed and unpaid family workers** could increase by 1,030, or 1.8 percent. Self-employment alone is estimated to rise by 910

jobs, or 1.7 percent. Meanwhile, unpaid family workers may increase by 130, or 5.4 percent.

Self-Employed & Unpaid Family: ↑ 1,030 jobs, 1.8%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Self Employed	53,950	54,850	910	1.7%
Unpaid Family Workers	2,340	2,460	130	5.4%

Trade, transportation, and utilities, Hawai'i's second largest industry, will grow at a rate of 1.6 percent, while adding 1,930 jobs. The biggest sector in this group, retail trade, will be responsible for 60 percent of the industry job growth while producing 1,160 jobs. Food and beverage, along with general merchandise stores will bolster this sector. Also contributing to the industry's growth are: clothing and accessories stores; motor vehicle and parts dealers; and health and personal care stores. The transportation and warehousing sector will account for 34 percent of the industry job gains. Areas of greatest growth include support activities for transportation, truck transportation, and air transportation. The

Figure 1

INDUSTRY EMPLOYMENT AND GROWTH, 2016-2018

INDUSTRY	EMPLOYMENT		CHANGE (2016-2018)		ANNUAL PERCENT CHANGE
	2016 Q1	2018 Q1	NUMBER	PERCENT	
Construction	37,390	38,730	1,340	3.6%	1.8%
Leisure and Hospitality	116,650	120,820	4,170	3.6%	1.8%
Education and Health Services	138,420	141,890	3,470	2.5%	1.2%
Total, All Industries	706,790	721,780	14,980	2.1%	1.1%
Professional and Business Services	83,090	84,750	1,660	2.0%	1.0%
Self Employed and Unpaid Family Workers	56,280	57,310	1,030	1.8%	0.9%
Trade, Transportation, and Utilities	119,110	121,030	1,930	1.6%	0.8%
Financial Activities	27,540	27,940	400	1.4%	0.7%
Other Services	25,440	25,760	320	1.3%	0.6%
Government	73,960	74,830	870	1.2%	0.6%
Information	8,370	8,370	10	0.1%	0.0%
Manufacturing	14,080	14,080	0	0.0%	0.0%
Natural Resources and Mining	6,470	6,280	-200	-3.1%	-1.5%

Employment total may not add due to rounding to the nearest ten. Number and percent change is calculated before employment is rounded.

wholesale trade sector is expected to create only 100 new jobs, mainly in nondurable goods. Utilities, being a very small sector in this industry, could see only 10 new positions.

Trade, Transportation, Utilities: ↑ 1,930 jobs, 1.6%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Retail Trade	70,370	71,530	1,160	1.6%
Food & Beverage	14,830	15,270	440	3.0%
General Merchandise	14,400	14,770	380	2.6%
Clothing & Accessories	10,990	11,180	190	1.7%
Motor Vehicle & Parts	6,840	7,000	150	2.3%
Health & Personal Care	5,490	5,580	100	1.7%
Transportation & Warehousing	27,280	27,940	660	2.4%
Transportation Support	4,550	4,730	180	3.9%
Truck Transportation	3,280	3,450	170	5.1%
Air Transportation	8,690	8,830	140	1.6%
Scenic/Sightseeing Trans	4,180	4,280	100	2.4%
Wholesale Trade	17,670	17,770	100	0.6%
Durable Goods	6,090	6,100	10	0.2%
Nondurable Goods	9,790	9,880	90	0.9%
Utilities	3,790	3,800	10	0.2%

The **financial activities** industry will generate 400 new positions at a modest growth rate of 1.4 percent. About 65 percent of the job gains (260 jobs)

will occur in finance and insurance as the insurance sector will experience resilience. Meanwhile, the real estate and rental and leasing services sector will add 140 jobs, predominantly in real estate.

Financial Activities: ↑ 400 jobs, 1.4%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Finance and Insurance	15,450	15,700	260	1.7%
Insurance Carriers	7,070	7,280	210	3.0%
Credit Intermediation	7,250	7,280	30	0.4%
Real Estate,Rental, Leasing	12,090	12,240	140	1.2%
Real Estate	7,720	7,840	130	1.6%
Rental and Leasing	4,360	4,380	20	0.3%

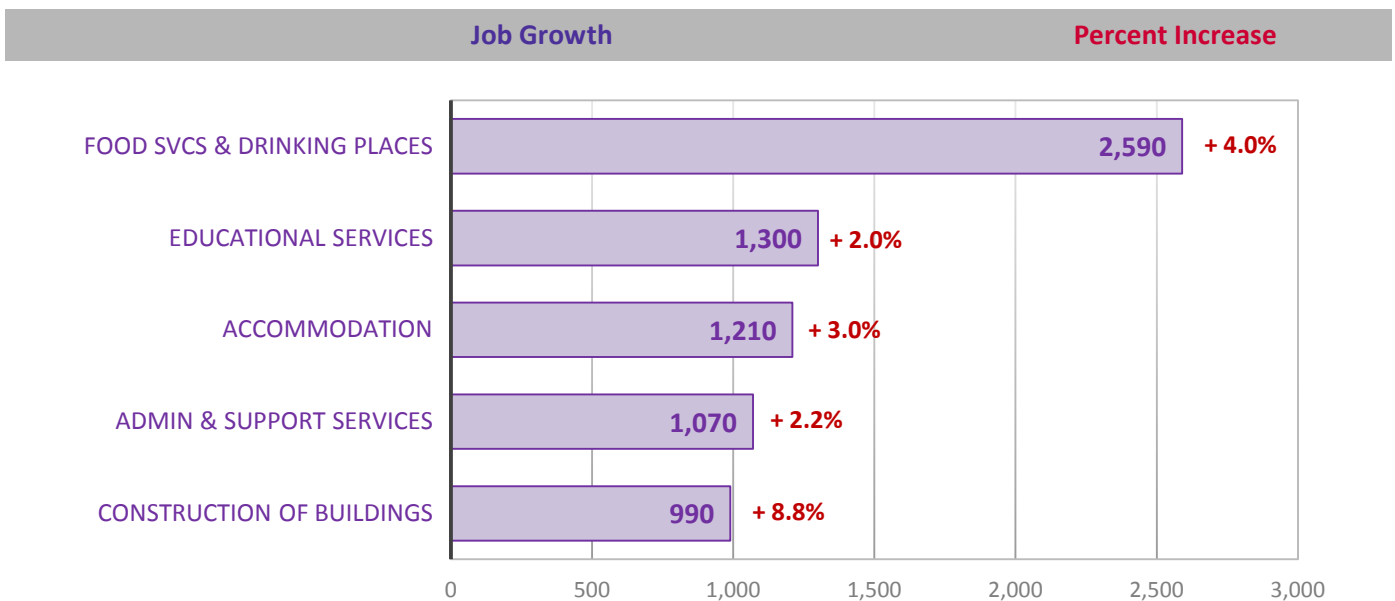
Meanwhile, **other services** may produce 320 jobs, for a 1.3 percent increase. Sustaining this industry will be personal and laundry services with new 150 jobs and repair and maintenance with another 110 jobs. The other 70 jobs are expected in religious, grantmaking, civic, professional, and similar organizations.

Other Services: ↑ 320 jobs, 1.3%

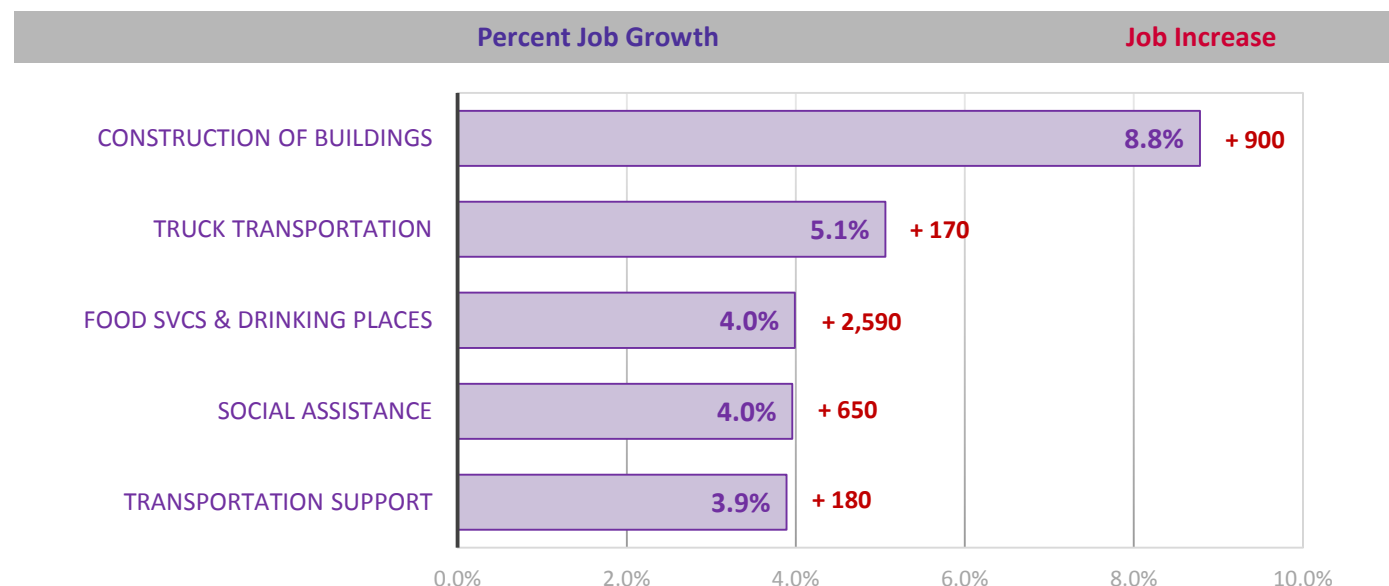
Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Personal & Laundry	8,380	8,530	150	1.8%
Repair & Maintenance	3,840	3,950	110	2.9%
Religious, Similar Orgs	12,840	12,910	70	0.6%

Figure 2

INDUSTRY SUB-SECTORS WITH THE MOST JOB GROWTH, 2016-2018



FASTEST GROWING INDUSTRY SUB-SECTORS, 2016–2018



Government, though being a large industry in Hawai'i, will not play a major role in job creation with only 870 new positions at a 1.2 percent rate of growth. Local government (the smallest branch of government) will demonstrate the most strength, with 560 new jobs for a 3.0 percent increase. The state branch of government will add 270 jobs, good for a 1.2 percent gain. However, federal government (the largest branch) may realize only 40 new jobs (0.1 percent improvement).

Government: ↑ 870 jobs, 1.2%

Sector	2016 Emp	2018 Emp	New Jobs	Growth Rate
Local Government	18,760	19,320	560	3.0%
State Government	22,310	22,580	270	1.2%
Federal Government	32,890	32,940	40	0.1%

Information is slated to add only 10 new positions for a 0.1 percent increase. Job gains in telecommunications and motion picture and sound recording industries will be offset by job losses in broadcasting, data processing, and publishing industries.

There may be no change in **manufacturing**. Small job increases in food, as well as beverage and tobacco product manufacturing will be cancelled out by losses in printing.

Natural resources and mining will be the only industry to contract as 200 jobs are forecasted to be eliminated for a decrease of 3.1 percent. Most of the weakness is expected in crop production as it will account for 180 of the job cuts.

Detailed Industry Trends

The industry sector poised to generate the greatest number of jobs during the 2016 to 2018 period is food services and drinking places (2,590 jobs) by a mile (Figure 2). Educational services is a distant second with 1,300 new jobs, followed closely by accommodation with 1,210 jobs. Rounding out the top five are administrative and support services (1,070 jobs) and construction of buildings (990 jobs).

Building construction is also the fastest growing industry sector with 8.8 percent growth during 2016 to 2018 (Figure 3). Truck transportation came in second with 5.1 percent. The remaining sectors in the top five are: food services and drinking places (4.0 percent); social assistance (4.0 percent); and transportation support activities (3.9 percent).

Occupational Forecasts

Statewide employment is forecasted to grow by 2.1 percent from 706,790 in the first quarter of 2016 to 721,780 in the first quarter of 2018, creating 14,980 new jobs. On an annual basis, this 1.1 percent increase equals 7,550 new jobs resulting from growth. About 17,200 job openings are expected to arise due to replacement needs, bringing the total annual projected job openings to 24,750.

Broad Occupational Trends

All but one of the major occupational groups are forecasted to experience positive growth between 2016 and 2018 (Figure 4). Service jobs will grow at the fastest rate of 2.9 percent over the 2-year period and generate the largest number of job openings with 8,670 annually. The only group with a negative forecast is farming, fishing, and forestry with a 1.7 percent decline.

The **service** occupational group is by far the largest in the state and therefore it is no surprise that it will be the leading job creator. Nearly 6-out-of-10 job openings will be food preparation and serving related workers such as: food and beverage serving; cooks and food preparation; and other food preparation and serving related. About 15 percent of openings will occur in building and grounds cleaning and maintenance, especially within building cleaning and pest control, as well as grounds maintenance. Personal care and service occupations will account for another 10 percent of openings. The remainder of openings will be split almost equally between health-care support and protective service occupations.

Service: ↑ 2.9%, 8,670 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Food Preparation & Serving Related	81,200	84,130	3.6%	5,130
Personal Care & Service	23,310	23,960	2.8%	860
Healthcare Support	20,820	21,400	2.8%	690
Building & Grounds Cleaning & Maintenance	43,250	44,230	2.3%	1,320
Protective Service	22,050	22,500	2.1%	670

The construction industry will continue to perform solidly, spurring above average growth of 2.7 percent in **construction and extraction** occupations while generating 1,170 job openings. While the supervisors of these workers will boost the quickest expansion, the construction trades workers themselves will enjoy the bulk of these job openings with 1,020.

Construction & Extraction: ↑ 2.7%, 1,170 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Supervisors	2,690	2,790	3.6%	70
Construction Workers	35,830	36,790	2.7%	1,020
Construction Helpers,	750	770	2.7%	20
Extraction Workers	220	230	2.2%	10
Other Construction	1,590	1,620	1.8%	50

The **healthcare practitioners and technical** occupational group will also post above average job growth with 2.4 percent and 1,030 annual job openings. Nearly 70 percent of these job openings can be found in diagnosing and treating practitioners which features registered nurses as a dominant player in this field. Meanwhile, the technologists and technicians field will create about 28 percent of job openings, with licensed practical nurses being a strong contributor.

Healthcare Practitioners/Technical: ↑ 2.4%, 1,030 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Other Practitioners/Tech	1,030	1,060	3.1%	30
Diagnosing & Treating Practitioners	20,860	21,370	2.4%	710
Technologists & Technicians	10,220	10,470	2.4%	290

OCCUPATIONAL EMPLOYMENT AND GROWTH, 2016–2018

OCCUPATIONAL GROUP	EMPLOYMENT		CHANGE		ANNUAL	AVG. ANNUAL OPENINGS		
	2016 Q1	2018 Q1	#	%	% CHG.	GROWTH	REPL	TOTAL
Service	190,630	196,230	5,600	2.9%	1.5%	2,800	5,870	8,670
Construction & Extraction	41,080	42,190	1,110	2.7%	1.4%	560	610	1,170
Healthcare Practitioners & Technical	32,110	32,890	790	2.4%	1.2%	390	640	1,030
Total	706,790	721,780	14,980	2.1%	1.1%	7,550	17,200	24,750
Transportation & Material Moving	42,160	42,990	830	2.0%	1.0%	420	1,060	1,480
Education, Legal, Community Service, Arts, Media	76,190	77,690	1,500	2.0%	1.0%	760	1,550	2,300
Office & Administrative Support	95,940	97,760	1,830	1.9%	1.0%	920	1,940	2,860
Installation, Maintenance, Repair	25,870	26,310	430	1.7%	0.8%	220	570	790
Management, Business, Financial	88,390	89,850	1,460	1.7%	0.8%	730	1,730	2,450
Sales & Related	66,160	67,100	940	1.4%	0.7%	470	2,230	2,700
Computer, Engineering, Science	27,880	28,260	380	1.4%	0.7%	190	560	750
Production	16,620	16,810	190	1.1%	0.6%	110	350	460
Farming, Fishing, Forestry	3,780	3,710	-60	-1.7%	-0.9%	0	100	100

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

The **transportation and material moving** occupations is projected to grow at a slower than average pace of 2.0 percent and create 1,480 job openings. Many of the openings will be for material moving workers (38 percent) and motor vehicle operators (28 percent). Another 18 percent of job openings will occur in other transportation worker occupations.

Transportation/Material Moving: ↑ 2.0%, 1,480 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Motor Vehicle Operators	16,100	16,440	2.1%	420
Other Transp. Workers	4,580	4,670	2.1%	260
Material Moving Workers	13,980	14,260	2.0%	560
Supervisors	1,820	1,860	1.9%	70
Air Transp. Workers	3,580	3,640	1.6%	100
Water Transp. Workers	2,090	2,110	1.1%	70

Also pegged to grow 2.0 percent over the 2-year period is **education, legal, community service, arts, and media** occupations with annual openings of 2,300. About 65 percent of the job openings will be in education, training, and library with the emphasis on preschool, primary, secondary, and special education school teachers. Other teachers and instructors like substitute teachers are also expected to expand. Community and social service occupations will contribute about 16 percent of the job openings in areas such as counselors, social workers, and other community and social service specialists. Another 15 percent of job openings will be produced in the field of arts, design, entertainment, sports, and media in occupations such as entertainers and performers, sports, and related workers. Legal occupations will generate only minimal openings.

Educ., Legal, Comm. Svc, Arts, Media: ↑ 2.0%, 2,300 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Community & Social Svc.	11,150	11,410	2.4%	360
Education, Training, Library	49,020	50,050	2.1%	1,490
Legal	4,730	4,790	1.3%	110
Arts, Design, Entertainment, Sports, Media	11,300	11,440	1.2%	340

Because of its large size, **office and administrative support** will have many job openings in spite of a slower than average growth rate of 1.9 percent. About 28 percent of the 2,860 openings will be for information and record clerks such as customer service representatives. One-fifth of the openings will be represented by other office and administrative support workers including general office clerks, which is the largest occupation in this group. Material recording, scheduling, dispatching, and distributing workers will account for another fifth of the job openings and the most notable occupation will be stock clerks and order fillers. Other areas with any significant job openings include: financial clerks; secretaries and administrative assistants; and supervisors of office and administrative support workers.

Office and Admin Support: ↑ 1.9%, 2,860 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Communications Equipment Operators	940	970	2.4%	30
Secretaries & Admin. Assts.	15,660	15,980	2.1%	330
Financial Clerks	13,840	14,120	2.0%	390
Information & Record Clerks	23,530	23,970	1.9%	790
Other Office & Admin. Support Workers	19,310	19,680	1.9%	580
Supervisors	6,870	7,000	1.9%	170
Material Recording, Scheduling, Dispatching, Distributing Workers	15,780	16,060	1.8%	580

The **installation, maintenance, and repair** group will increase at a slower than average pace of 1.7 percent and produce only 790 annual job openings. Slightly more than half of the job openings are classified as ‘other’ installation, maintenance, and repair occupations, of which the general maintenance and repair workers are expected to display the most job

openings. About 34 percent of the openings will be seen in vehicle and mobile equipment mechanics, installers, and repair occupations - especially the automotive service technicians and mechanics.

Installation, Maint, Repair: ↑ 1.7%, 790 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Vehicle & Mobile Equipment	7,730	7,890	2.1%	270
Other Installation, Maintenance, Repair	13,240	13,460	1.6%	410
Supervisors	2,430	2,460	1.2%	60
Electrical & Electronic Equipment	2,470	2,500	1.1%	50

The **management, business, and financial** occupational group is also forecasted to undergo slower than average job growth of 1.7 percent while still creating 2,450 job openings. About 68 percent of these openings will fall in the management field. Top executives like general and operations managers will be a strong player in terms of job creation. As for the business and financial operations side, accountants and auditors will generate quite a lot of job openings.

Management, Business, Financial: ↑ 1.7%, 2,450 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Management	59,280	60,270	1.7%	1,670
Business & Financial Operations	29,110	29,580	1.6%	790

With a forecast for 1.4 percent growth, the **sales and related** occupational group, is poised to generate 2,700 openings. Retail sales workers will dominate this group by providing more than three-fourths of the job openings, including strength in both retail salespersons and cashiers. The supervisors will also display a moderate number of openings.

Sales & Related: ↑ 1.4%, 2,700 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Sales Reps, Services	6,160	6,250	1.5%	180
Retail Sales Workers	42,620	43,260	1.5%	2,080
Supervisors	9,970	10,110	1.4%	270
Other Sales & Related	3,230	3,270	1.3%	70
Sales Reps, Wholesale/Mfg	4,190	4,210	0.5%	90

Also pegged for 1.4 percent job growth is the **computer, engineering, and science** occupational group along with the addition of 750 openings. About 4-out-of-10 openings will be in architecture and engineering with engineers forecasted to produce many openings, primarily in the civil engineering field. Another 35 percent of openings will be in the area of life, physical, and social sciences. The remaining quarter of openings are predicted to be in computer and mathematical occupations with an emphasis on computer jobs.

Computer, Engineering, Science: ↑ 1.4%, 750 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Life, Physical, Social Science	7,690	7,810	1.5%	260
Computer & Mathematical	9,970	10,100	1.3%	190
Architecture & Engineering	10,220	10,350	1.3%	300

Production jobs may rise by a mere 1.1 percent and create only 460 job openings. Food processing workers such as bakers will benefit the most from this increase, along with “other” production workers.

Production: ↑ 1.1%, 460 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Food Processing Workers	3,900	3,980	2.0%	120
Textile, Apparel, Furnishings	3,080	3,130	1.6%	80
Supervisors	1,450	1,460	1.2%	30
Plant & System Operators	970	980	1.2%	30
Metal Workers & Plastic	1,620	1,630	1.1%	50
Other Production	3,850	3,880	0.7%	120
Woodworkers	480	480	0.6%	10
Assemblers & Fabricators	890	890	0.3%	20
Printing Workers	390	370	-4.9%	10

The smallest group, **farming, fishing, and forestry**, will contract by 1.7 percent but still manage to provide minimal job openings as a result of replacement needs.

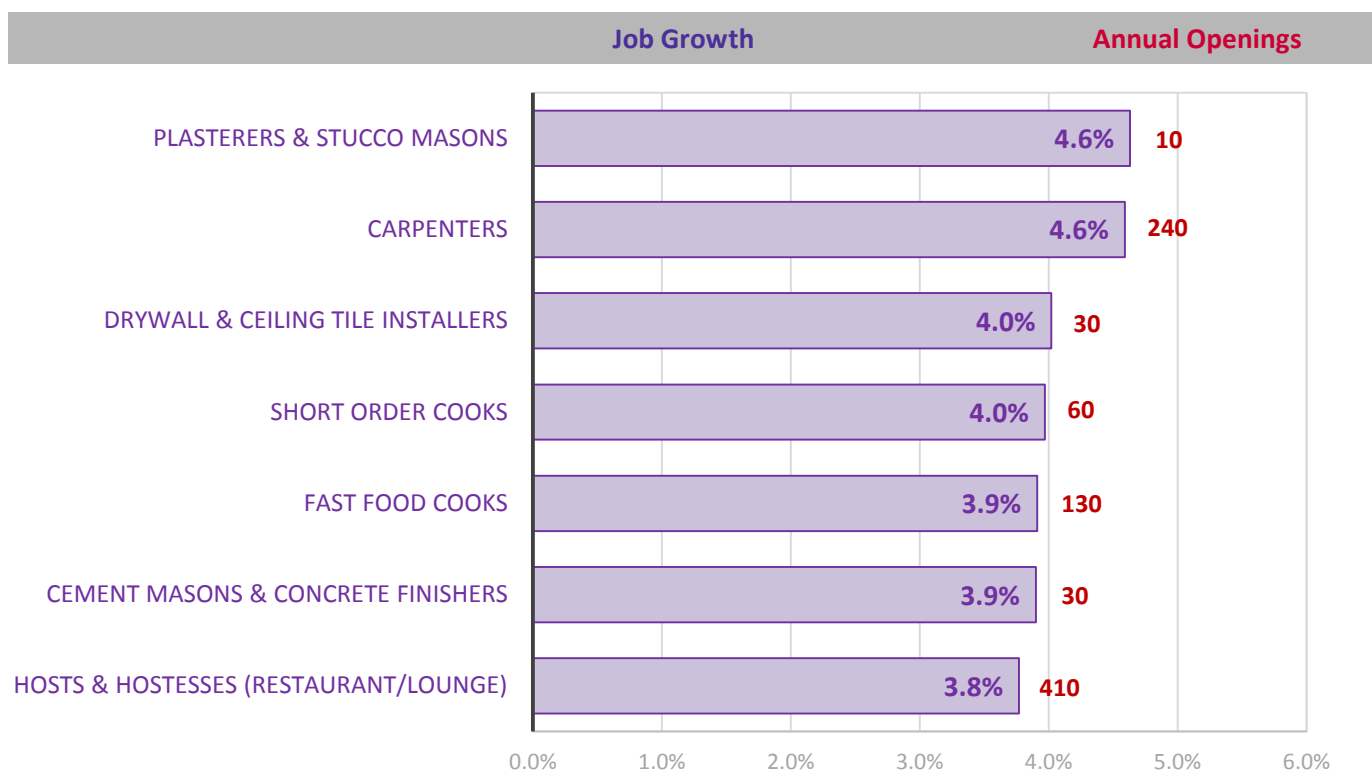
Farming, Fishing, Forestry: ↑ -1.7%, 100 openings

Group	2016 Emp	2018 Emp	Growth Rate	Job Openings
Supervisors	300	300	-1.7%	10
Agricultural Workers	3,280	3,220	-1.8%	90

Figure 5

FASTEST GROWING OCCUPATIONS, 2016–2018

(includes occupations with 300+ employment)



Detailed Occupational Forecasts

The fastest growing occupations are usually smaller in size and therefore, have fewer job openings. The top seven forecasted to expand the most rapidly are categorized into two occupational groups: construction and extraction; and food preparation and serving related (Figure 5).

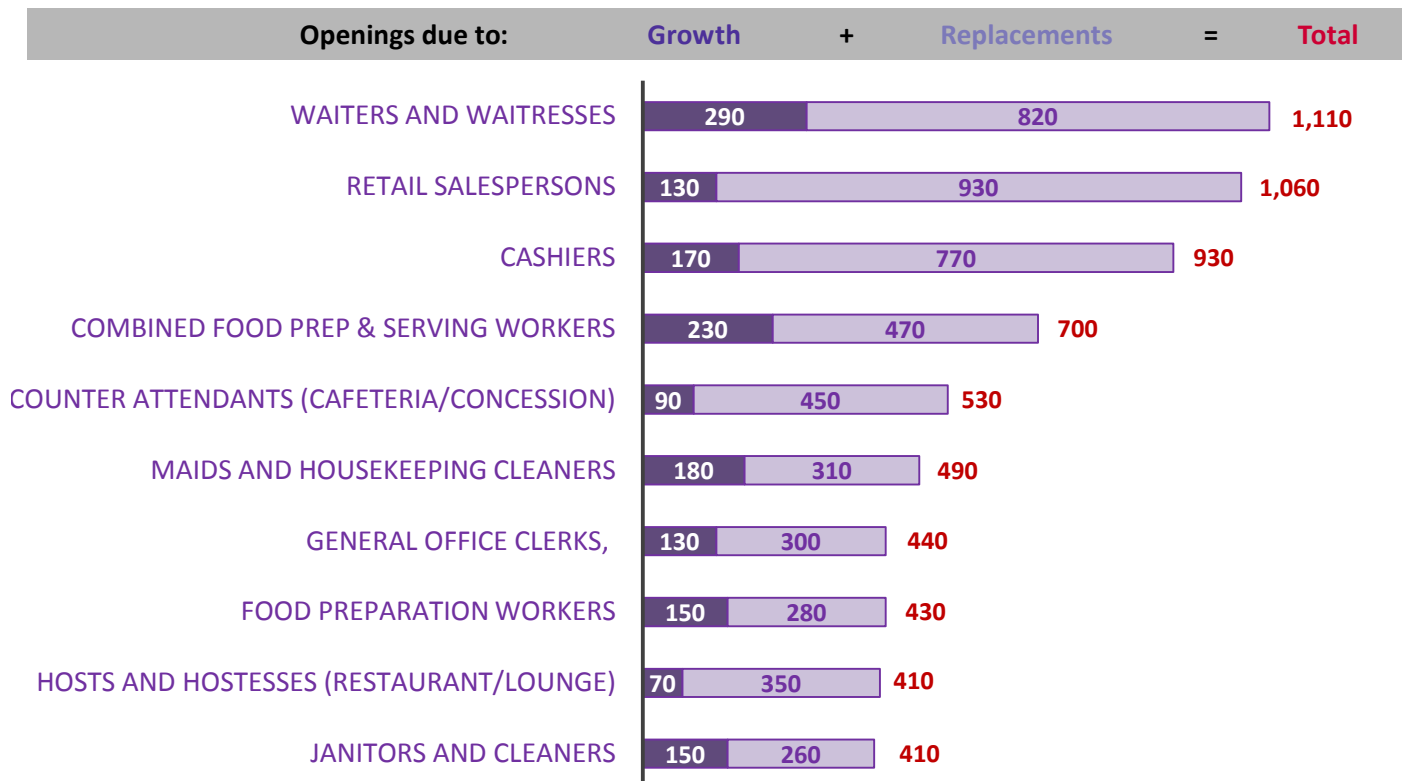
Topping the list with 4.6 percent projected job growth are **plasterers/stucco masons** and **carpenters**. While both have the same expectant rate of growth, carpenters will benefit from many more openings, 240 for the latter compared to 10 for the former. **Drywall and ceiling tile installers** is third on the list with 4.0 percent forecasted growth. **Short order cooks** and **fast food cooks** rank 4th and 5th on the list with 4.0 and 3.9 percent growth, respectively. Coming in sixth place is **cement masons and concrete finishers** with 3.9 percent growth and rounding out the top seven is **hosts and hostesses** with 3.8 percent, which has the greatest number of openings with 410.

Because faster growth doesn't always come with significant job openings, it is also wise to look at occupations projected to have the most annual openings. These jobs tend to be larger in size but have slower growth rates. Job openings can result from growth and also from replacement needs that arise when someone leaves a job. The top ten jobs expected to yield the most openings are dominated by service occupations in food preparation and serving related as well as building and grounds cleaning and maintenance. (Figure 6).

Waiters and waitresses tops the list with 1,110 projected total annual openings. **Retail salespersons**, the largest occupation in the state, came in second with 1,060 openings. **Cashiers** will account for 930 job openings, followed by **food preparation and serving workers** with 700 openings. Ranking fifth on the list is **counter attendants** with 530 job openings. Rounding out the bottom half of the top ten are: **maids and housekeeping cleaners** (490 openings); **general office clerks** (440 openings); **food preparation workers** (430 openings); **hosts and hostesses** (410 openings); and **janitors and cleaners** (410 openings).

Figure 6

OCCUPATIONS WITH THE MOST JOB OPENINGS, 2016–2018



Job Openings by Education and Training

The Bureau of Labor Statistics (BLS) developed a system of education and training classifications. Each occupation is assigned to three categories of preparation based on education, work experience in a related occupation, and on-the-job training. This presents a complete picture of the requirements needed to enter a particular job and to become competent in it. Here are the three dimensions of this classification system:

Education - *typical education needed to enter an occupation.*

- Doctoral or professional degree
- Master's degree
- Bachelor's degree
- Associate's degree
- Postsecondary non-degree award
- Some college, no degree
- High school diploma or equivalent
- No formal educational credential

Work experience in a related occupation

- *indicates if work experience in a related occupation may be a typical method of entry to an occupation.*

- 5 years or more
- Less than 5 years
- None

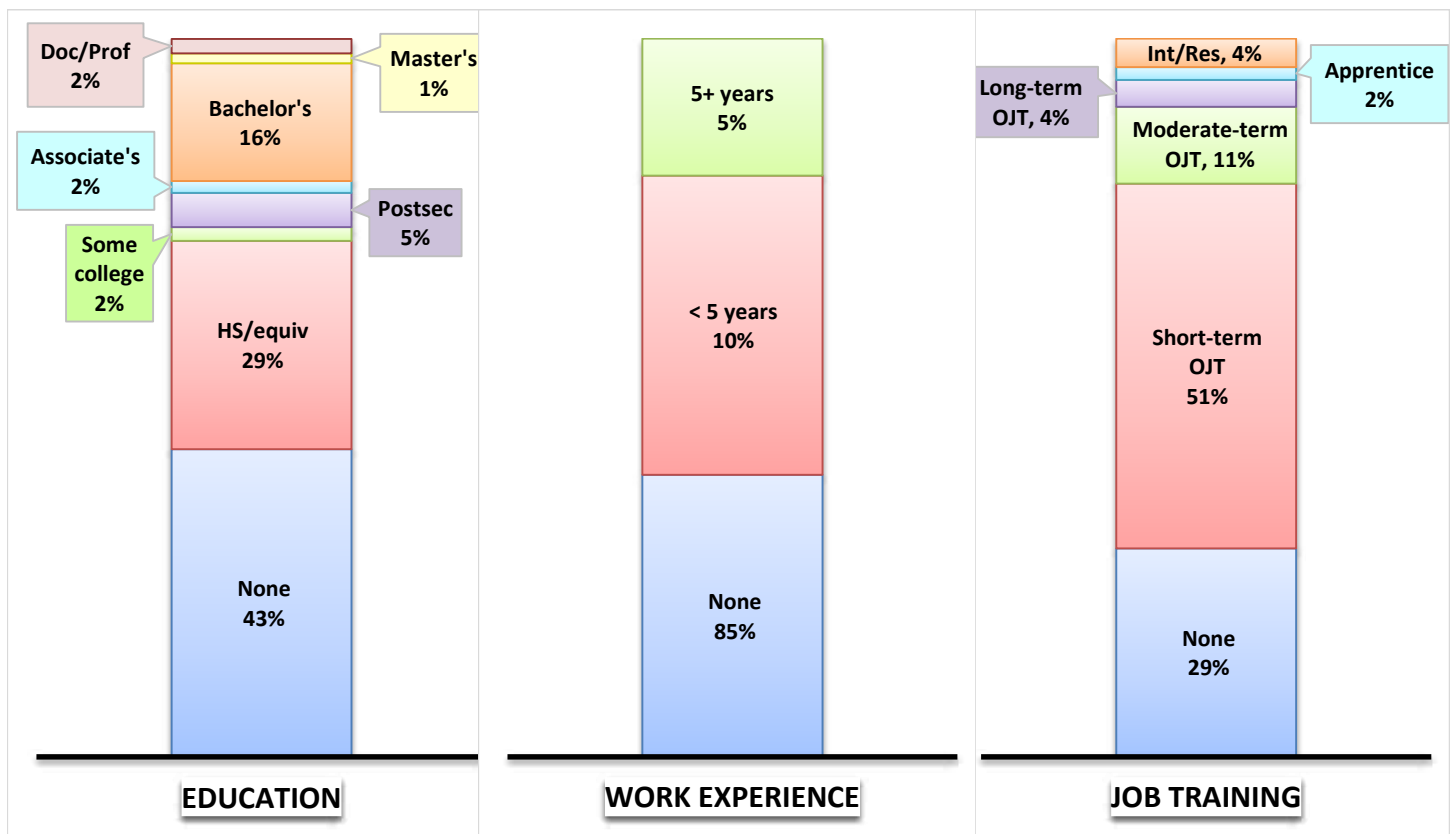
On-the-Job training - *indicates typical on-the-job training needed to attain competency in the skills needed in the occupation.*

- Internship/residency
- Apprenticeship
- Long-term on-the-job training
- Moderate-term on-the-job training
- Short-term on-the-job training
- None

Below is a chart of the annual job openings by education, work experience, and job training (Figure 7).

Figure 7

JOB OPENINGS BY EDUCATION AND TRAINING LEVELS, 2016-2018



Of the 24,750 forecasted annual job openings between 2016 and 2018, about 21 percent require some kind of college degree. Many jobs, 43 percent, don't have any formal education requirement, and 29 percent requires only the minimum high school diploma or equivalency. Approximately 5 percent require a non-degree postsecondary award, while the remaining 2 percent need to complete some college courses.

In addition to the educational qualifications, some of the job openings will require related work experience. Only 5 percent will require five or more years of work experience in a related job and another 10 percent need less than five years experience. However, 85 percent of future job openings do not require any related work experience at all.

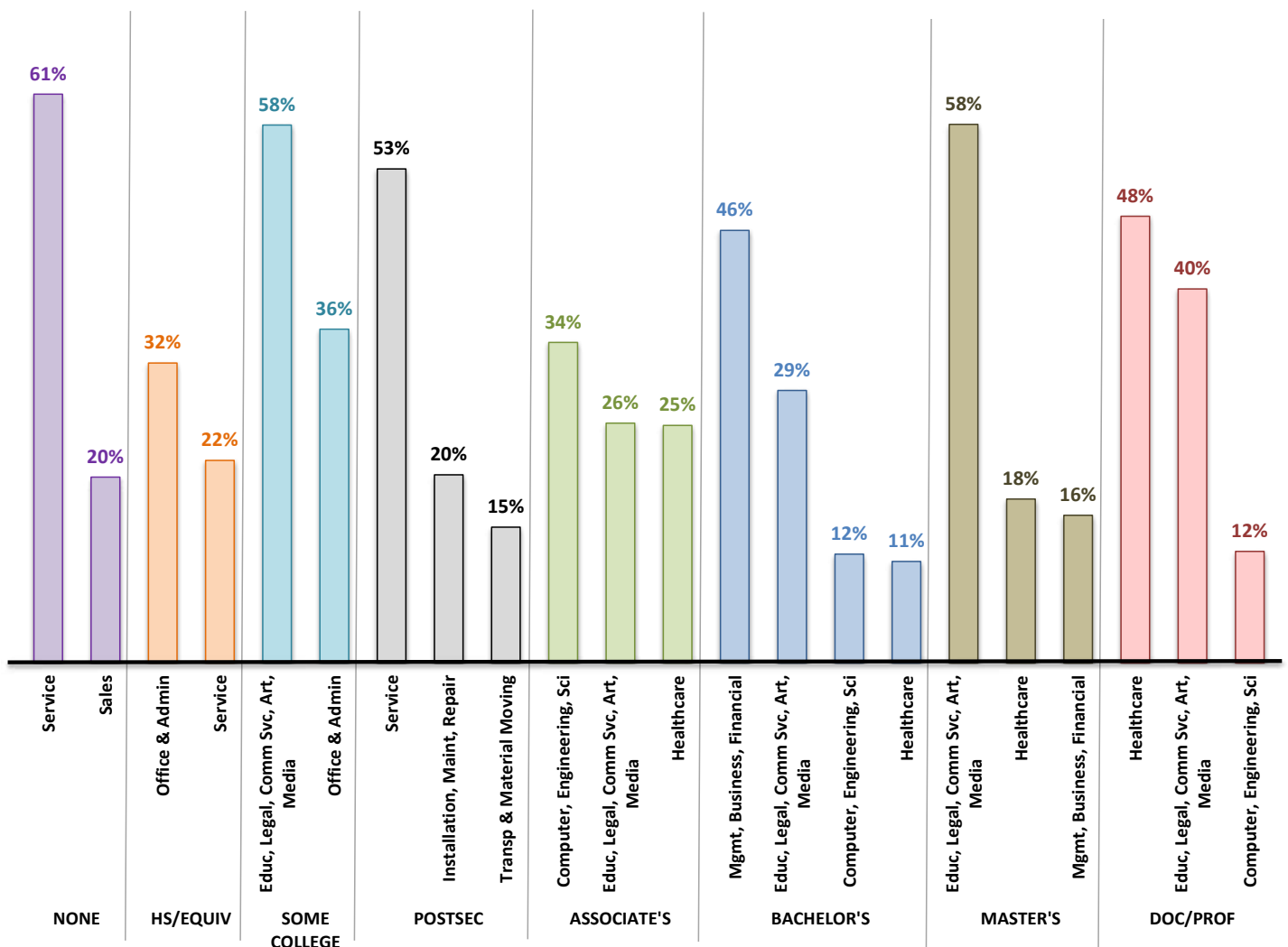
Besides education and experience requirements, there may be on-the-job training that is needed to become competent in a particular occupation. An estimated 51 percent of the job openings will typically need only short-term on-the-job training. Another 11 percent are looking at moderate-term on-the-job training. A smaller percentage of jobs require long-term on-the-job training, 4 percent; apprenticeship, 2 percent; or internship/residency, 4 percent. Meanwhile, 29 percent of openings have no job training requirements.

Broad Occupational Groups

In order to see what types of job openings are prevalent for a particular level of education, the accompanying chart (Figure 8) tallies the job openings

Figure 8

TOP OCCUPATIONAL GROUPS OF JOB OPENINGS BY EDUCATION LEVEL, 2016-2018



by occupational groups within each education level. With a college degree, there are many openings in the following fields: education, legal, community service, arts, media; healthcare; management, business and financial; and computer, engineering, and science. The education occupational group is prevalent among those with some college work, but none of the other professional fields mentioned above are heavily represented among the lower level educational requirements. Instead, the occupational groups that have a substantial amount of openings for those with no college degree are: service; sales; office and administrative support; installation, maintenance, and repair; and transportation and material moving.

As for the job openings by level of work experience, those jobs that require 5 or more years of related work experience are dominated by management, business,

Figure 9

TOP OCCUPATIONAL GROUPS OF JOB OPENINGS BY WORK EXPERIENCE LEVEL, 2016-2018

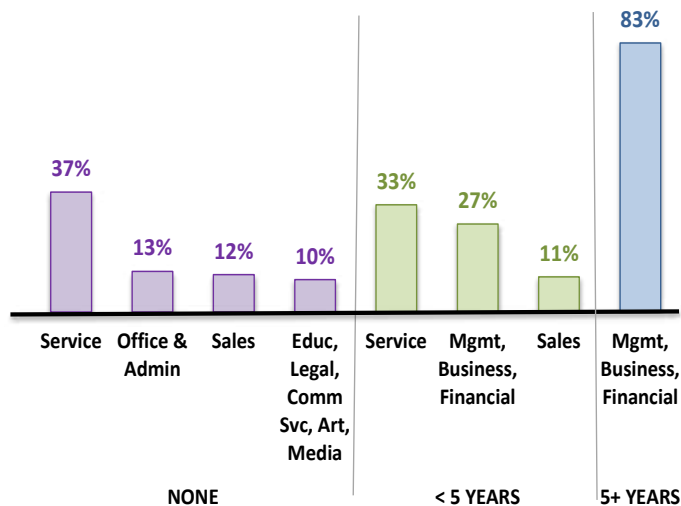
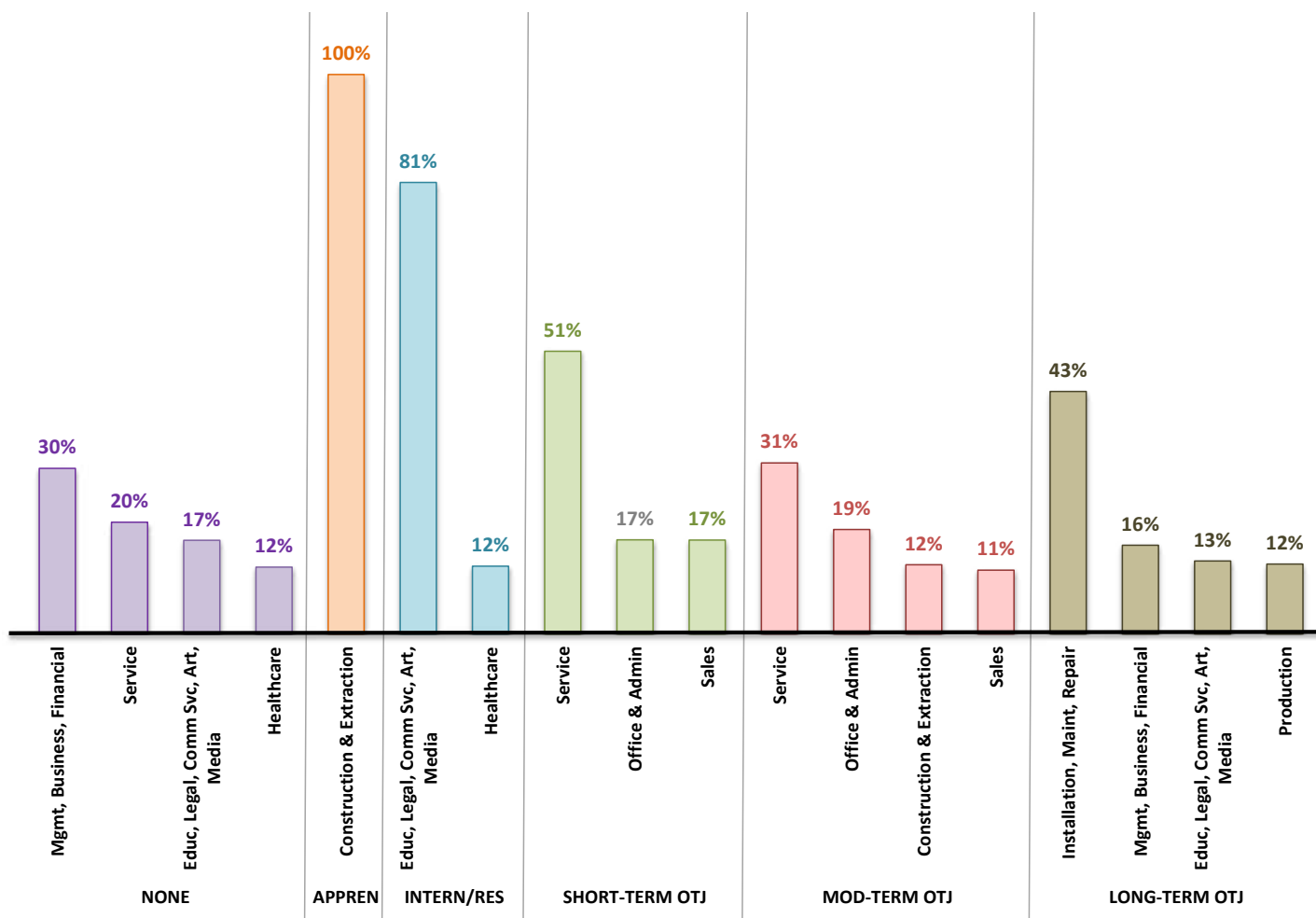


Figure 10

TOP OCCUPATIONAL GROUPS OF JOB OPENINGS BY JOB TRAINING LEVEL, 2016-2018



and financial occupations (Figure 9). In job openings that required less than 5 years work experience, three occupational groups are primarily represented: service; management, business, and financial; and sales. For jobs that have no required work experience the following occupational groups are significant: service; office and administrative support; sales; and education, legal, community service, art, and media.

Job openings that require an apprenticeship program are virtually all in the construction and extraction occupational group. Meanwhile, job openings that need

an internship or residency program are concentrated in the education, legal, community service, art, and media group with a lesser proportion in healthcare. Long-term on-the-job training requirements are significant in the installation, maintenance, and repair occupational group. As for the short- and moderate term on-the-job training requirements, many job openings are in the service group of occupations. When it comes to jobs that have no job training requirement, management, business, and financial occupations have the biggest share.

Figure 11

20 HOT JOBS BY GROWTH RATE AND OPENINGS, 2016–2018

OCCUPATION TITLE	2016 EMP.	ANNUAL OPENINGS	PERCENT GROWTH	EDUC.	WORK EXPER.	JOB TRAINING	2016 ANNUAL WAGE
Waiters & Waitresses	15,670	1,110	3.7%	None	None	Short OJT	\$37,100
Food Preparation & Serving Workers	12,150	700	3.7%	None	None	Short OJT	\$23,030
Carpenters	6,870	240	4.6%	HS/equiv	None	Apprent	\$68,960
Hosts & Hostesses (Restaurant, Lounge)	3,510	410	3.8%	None	None	None	\$24,900
Restaurant Cooks	8,360	380	3.7%	None	< 5 yrs.	Mod OJT	\$33,740
Counter Attendants (Cafeteria, Concession)	4,790	530	3.6%	None	None	Short OJT	\$23,570
Dining Rm/Cafeteria Attnd, Bartender Helprs	4,550	370	3.6%	None	None	Short OJT	\$30,170
Supervisors of Food Prep & Serving Workers	5,110	260	3.6%	HS/equiv	< 5 yrs.	None	\$38,150
Dishwashers	4,410	320	3.6%	None	None	Short OJT	\$26,610
Food Preparation Workers	9,070	430	3.4%	None	None	Short OJT	\$25,590
Bartenders	3,560	200	3.7%	None	None	Short OJT	\$41,160
Fast Food Cooks	2,730	130	3.9%	None	None	Short OJT	\$25,850
Construction Laborers	6,770	250	3.5%	None	None	Short OJT	\$56,180
Personal Care Aides	4,760	120	3.6%	None	None	Short OJT	\$24,910
Home Health Aides	4,100	150	3.2%	None	None	Short OJT	\$26,590
Construction Managers	2,780	90	3.6%	Bachelor's	None	Mod OJT	\$102,290
Nursing Assistants	5,380	200	3.1%	Postsec.	None	None	\$31,990
Supervisors of Constr Trades & Extraction Wrkrs	2,690	70	3.6%	HS/equiv	5+ yrs.	None	\$77,470
Short Order Cooks	1,160	60	4.0%	None	None	Short OJT	\$26,630
Amusement & Recreation Attendants	1,320	90	3.2%	None	None	Short OJT	\$27,820

Jobs are listed by the average ranking of highest annual openings combined with fastest percent growth. Wage data is from the BLS OES survey.

Detailed Occupational Openings

It is important to know which occupations have the best overall outlook, not just having the most openings but also possessing strong growth potential. To capture both the growth rate and annual job openings for a occupation, we calculated a combined ranking. First, the occupations are ranked by greatest number of job openings. Second, the occupations are ranked by fastest percent growth. Third, the average of the two ranks become the combined ranking. Using this average to sort the list of occupations gave us the Top 20 'hot jobs' with the best combined ranking (Figure 11). In theory, we can look at these occupations and say they have many job openings as well as strong growth opportunities.

The list of hot jobs are dominated by food preparation and serving related occupations which account for 12 of the 20 jobs. At the top of the list is **waiters and waitresses**, which boasts the greatest number of job openings with 1,110. **Food preparation and serving workers** ranked number two on the list with 700 job openings. The other occupations with notably high

numbers of job openings are: **hosts and hostesses** (410 openings); **counter attendants** (530 openings); and **food preparation workers** (430 openings).

There are four occupations that have relatively rapid growth rates: **carpenters** (4.6 percent); **hosts and hostesses** (3.8 percent); **fast food cooks** (3.9 percent); and **short order cooks** (4.0 percent).

The occupations on the list don't require much education or related work experience. The exceptions include **construction managers** (Bachelor's degree) and **supervisors of construction trades and extraction workers** (5+ years work experience). Required on-the-job training varies, though most occupations require just a short-term of on-the-job training or none at all.

Average wages are included here to show the earning potential of the hot jobs. With the statewide average wage being \$49,430 in 2016, only four occupations have higher than average wages and they are all in the construction field: carpenters (\$68,960); construction laborers (\$56,180); construction managers (\$102,290); and supervisors of construction trades and extraction workers (\$77,470).