

Employment outlook: 2006–16

Occupational employment projections to 2016

A projected slowdown in labor force growth is expected to generate fewer new jobs during 2006–16 than in 1996–2006; replacement needs are anticipated to produce almost twice as many job openings as growth in the economy will, and occupations that provide services to the elderly are expected to be among the fastest growing

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Changes to the U.S. population and economy through 2016 will affect both employment in general and employment by occupation. During 2006–16, the civilian noninstitutional population aged 16 years or older is projected to increase by about 22 million, from 229 million to 251 million.¹ As the baby-boom generation ages, the segment of that population aged 55 years and older is expected to increase by 20 million—nearly as much as the increase in the total population—reaching 87 million by 2016. The swell in the 55-years-and-older group will lead to an increase in the proportion of the population in older age groups, with the share of those 55 years and older rising from 29.3 percent in 2006 to 34.8 percent in 2016. The latter age group is anticipated to be the fastest growing segment of the population between 2006 and 2016, with an annual growth rate of 2.7 percent, compared with 0.9 percent for the population 16 years and older.

Over the 2006–16 projection period, growth in the labor force is projected to slow significantly, for two reasons: the baby-boom generation is aging and retiring, and the labor force participation rates of women have peaked.² The labor force is expected to grow at an annual rate of 0.8 percent during 2006–16, compared with a rate of 1.2 percent in 1996–2006. Although the labor force participation rate for those aged 55 years and older is anticipated to jump from 38.0 percent to 42.8 percent during the coming decade, a large number of persons aged 55 years and older are expected to retire and leave the labor force.

The retirements of baby boomers will have a substantial impact on job openings over the coming decade. Net replacement needs are defined as job openings generated due to the necessity of replacing workers who permanently leave an occupation. Except in occupations that employ large numbers of young workers, such as waiters and waitresses, a large number of the job openings due to net replacement needs are expected to come from occupations that will lose workers to retirement.³ Replacement needs are anticipated to generate 33.4 million job openings. In contrast,

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economic growth is projected to generate 17.4 million job openings.⁴

The sizes of the labor force and population have an effect on the overall magnitude of the economy. Gross domestic product (GDP) is projected to rise at an average annual rate of 2.8 percent over 2006–16, reflecting increasing demand for goods and services.⁵ Globalization is expected to lead to increases in both imports and exports. Although the rising demand for goods and services will continue to boost overall employment, a slowdown in both labor force and productivity growth will constrain employment growth.⁶

The Bureau of Labor Statistics (BLS) projects that total employment will increase from 150.6 million in 2006 to 166.2 million by 2016.⁷ This increase of 15.6 million jobs is slightly less than the 15.9 million increase over the previous 10-year period and represents a slightly slower 10-year growth rate (10 percent, as opposed to 12 percent) than the rate registered over the 1996–2006 period.

In 2006, almost 92 percent of all jobs were held by wage and salary workers, while about 8 percent of all jobs were held by the self-employed. Self-employment is projected to increase 5.5 percent over the 2006–16 decade, from 12.2 million to 12.9 million jobs.⁸ Although that percentage is just half the 11-percent growth projected for wage and salary workers, it reverses the downward trend represented by the 3-percent decline in self-employment seen between 1996 and 2006. During 2006–16, aging baby boomers are expected to become entrepreneurs, driving growth in self-employment.

Projecting employment for specific occupations involves evaluating many factors, including the demand for goods and services, which in turn is driven in part by population growth and changing demographics. Occupations that normally grow with the population in general, such as hairdressers and police officers, usually grow at the average rate for all occupations. By contrast, occupations that cater to a certain demographic group will grow or shrink on the basis of population projections for that group. The demand for teachers, for example, is correlated with projections of enrollments of school-age children. In the coming decade, the trend with the most implications for occupational change is the aging of the population. The 55-years-and-older age group consumes significantly more health care and social assistance services than any other age group. As a result, jobs in health care and social assistance are expected to have the fastest rate of growth over the next 10 years, adding a projected 4.0 million new wage and salary jobs, or 27 percent of all new nonagricultural wage and salary jobs.⁹

Maintaining competitiveness by cutting costs, offering better quality products, and implementing the latest technological improvements will continue to play a large role in occupational growth and decline over the coming decade. Cost cutting by U.S. industries in almost every sector of the economy will continue to change the workforce. To reduce labor costs, some jobs are being sent offshore while others are being replaced by technology or are being filled with lower cost workers. As a result, information technology-related jobs are expected to be among the fastest and largest growing jobs in the economy, and the category of health care support occupations, for example, will grow faster than health care practitioner and technical occupations.

As companies continue to produce more with fewer workers, labor productivity is projected to increase, although at a slightly lower rate than in the previous decade. Private nonfarm business productivity is projected to grow by 2.2 percent annually from 2006 to 2016, compared with the 2.6-percent annual rate of growth posted over the 1996–2006 period. Workers in production-related occupations, agriculture, and office and administrative-related occupations will be particularly affected by rises in productivity and the implementation of new technology.

Occupations that typically require a bachelor's degree or higher for an entry-level position will generally grow faster than the average for all occupations. Occupations that typically require a bachelor's degree or higher are expected to increase by 15.3 percent, or about 5 million new jobs, by 2016. Many of these new jobs will come about due to increases in professional and related occupations, particularly computer software applications engineers, elementary school teachers, and accountants and auditors, all of which are projected to be among the largest growing occupations during 2006–16. Still, occupations that usually require only short- or moderate-term on-the-job training, while not growing as quickly as those usually requiring more formal education, will continue to account for about half of all jobs by 2016. These occupations require little, if any, postsecondary training. Among such occupations are retail salespersons, food preparation workers, and personal and home care aides, all of which are expected to add numerous jobs over the coming decade.

This article discusses the following aspects of the BLS projections:

- changes in the structure of employment at the major occupational group level;¹⁰

- the detailed occupations that are projected to grow the fastest, as well as those with the largest numerical increases and decreases;
- the total job openings projected to occur due to growth in the economy, and the need to replace workers who (1) leave their occupations to transfer to other occupations, (2) retire, or (3) stop working for other reasons; and
- employment, wages, and job openings by education and training category.

Major occupational groups

Among the 10 major occupational groups, employment change between 2006 and 2016 is projected to vary from an increase of nearly 17 percent for professional and related occupations and for service occupations to a decline of nearly 5 percent for production occupations, which are highly concentrated in declining manufacturing industries. (See table 1.) Because employment in professional and related occupations and in service occupations is so large, the projected 17-percent growth rates entail numeric increases of nearly 5 million jobs in each group over the projection period. Production occupations will experience the largest numeric decline—more than half a million jobs—followed by farming, fishing, and forestry occupations, which are projected to lose nearly 29,000 jobs.

Although the growth rates vary among the groups, the distribution of total employment will shift only slightly by the year 2016, as will the ranking of groups by em-

ployment size. Professional and related occupations and service occupations held the largest shares of total 2006 employment: 19.8 percent and 19.2 percent, respectively. Each of these groups is expected to increase its share of total employment by about 1 percentage point. Farming, forestry, and fishing occupations, which had the smallest share of employment—less than 1.0 percent—in 2006, are projected to retain that share in 2016.

The growth of occupational groups—and occupations—is determined, in large part, by varying rates of growth in industries in which they are concentrated. Professional and related occupations are projected to grow the fastest, largely because they are concentrated in some fast-growing industry sectors, such as health care and social assistance and professional, scientific, and technical services, while production occupations are projected to decline, largely because most of these jobs are in the declining manufacturing sector.

The discussion that follows examines employment growth in each major group.

Management, business, and financial occupations. The number of jobs within this group is projected to grow by 1.6 million from 2006 to 2016. About 493,000 of these new jobs are expected to be in the professional, scientific, and technical services industry sector, which includes the management, scientific, and technical consulting; and accounting, tax preparation, bookkeeping, and payroll services industries. The finance and insurance sector is projected to

Table 1. Employment by major occupational group, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment number		Percent distribution		Change, 2006–16	
		2006	2016	2006	2016	Number	Percent
00–0000	Total, all occupations.....	150,620	166,220	100.0	100.0	15,600	10.4
11–1300	Management, business, and financial occupations ¹ ..	15,397	16,993	10.2	10.2	1,596	10.4
15–2900	Professional and related occupations ²	29,819	34,790	19.8	20.9	4,970	16.7
31–3900	Service occupations ³	28,950	33,780	19.2	20.3	4,830	16.7
41–0000	Sales and related occupations.....	15,985	17,203	10.6	10.3	1,218	7.6
43–0000	Office and administrative support occupations.....	24,344	26,089	16.2	15.7	1,745	7.2
45–0000	Farming, fishing, and forestry occupations.....	1,039	1,010	.7	.6	–29	–2.8
47–0000	Construction and extraction occupations.....	8,295	9,079	5.5	5.5	785	9.5
49–0000	Installation, maintenance, and repair occupations....	5,883	6,433	3.9	3.9	550	9.3
51–0000	Production occupations.....	10,675	10,147	7.1	6.1	–528	–4.9
53–0000	Transportation and material moving occupations.....	10,233	10,695	6.8	6.4	462	4.5

¹ Major occupational groups 11–0000 through 13–0000 in the 2000 *Standard Occupational Classification* (SOC).

² Major occupational groups 15–0000 through 29–0000 in the

2000 *Standard Occupational Classification* (SOC)

³ Major occupational groups 31–0000 through 39–0000 in the 2000 *Standard Occupational Classification* (SOC).

generate another 297,000 new jobs.

Self-employed management, business, and financial workers accounted for one-fifth of all the jobs in this group in 2006, or about 3 million jobs. The number of self-employed is expected to change little by 2016, primarily because declines in the number of farmers and ranchers, most of whom are self-employed, will reduce overall growth in jobs for the self-employed among management, business, and financial workers. Construction managers are projected to have the greatest increase in self-employment.

The environment for consulting is likely to be strong as more businesses look to consultants to provide needed assistance in cutting costs and in performing other key business functions, such as improving the security of network systems.

Business and financial occupations are projected to grow faster than management occupations, with a 16-percent increase, representing 1.1 million new jobs. More businesses and an increasing number of financial reporting requirements will lead to greater demand for accountants and auditors to prepare financial documents and monitor and update business processes. Also, as more people purchase stocks and invest in individual retirement accounts, the demand for financial analysts and personal financial advisors to provide financial advice and manage retirement funds will grow.

Management occupations, by contrast, are expected to grow by a lesser 6 percent, or 533,000 new jobs, by 2016, mainly because little to no growth is expected among general and operations managers, one of the largest detailed occupations of the managerial group. General and operations managers will continue to lose jobs to specialists, and the consolidation of firms will eliminate many of their positions.

Professional and related occupations. This group is projected to add more jobs (5.0 million) than any other major group and to share the fastest growth rate with the services major occupational group. BLS projects about 1.7 million new professional and related jobs in the health care and social assistance industry sector; 1.1 million in educational services, public and private; and another 1 million in professional, scientific, and technical services. An aging population means more people in the 55-years-and-older age group, a group that uses more health care and social assistance than any other age group. Also, the need to improve educational services, along with the need to teach a greater number of students who have more learning and language issues than in the past, will result in faster-than-average growth among education, training, and library occupations.

Of the eight subgroups constituting professional and

related occupations, health care practitioners and technical occupations are projected to add the most new jobs (1.4 million), while computer and mathematical occupations are expected to grow the most quickly (with a 24.8-percent growth rate). Each subgroup is anticipated to grow at least as fast as the 10.4-percent average for all occupations, as shown in the following tabulation:

	<i>Numeric change (thousands)</i>	<i>Percent change</i>
Professional and related occupations.....	4,970	16.7
Health care practitioners and technical occupations.....	1,423	19.8
Education, training, and library.....	1,265	14.0
Computer and mathematical science.....	822	24.8
Community and social services.....	541	22.7
Arts, design, entertainment, sports, and media.....	305	11.4
Architecture and engineering.....	268	10.4
Life, physical, and social science.....	203	14.4
Legal.....	145	11.8

Health care practitioners and technical occupations are projected to grow almost twice as fast as the average for all occupations. Registered nurses—by far the largest detailed occupation among professional and related occupations—alone will add about 587,000 new jobs. The increase in demand for health care practitioners and technical occupations is primarily the result of a growing and aging population. Technological advances in the medical field will lead to increased demand for more medical procedures and the workers who perform them. Medical advances also mean greater accident and illness survival rates and longer lives—sometimes with more health issues—so growth in health care service occupations will remain strong. The growth rates of occupations in this subgroup reflect the trend in the health care industry toward having assistants and technicians perform more of the procedures that health care practitioners traditionally have performed (but under the supervision of those same health care practitioners). Thus, although the number of physicians and surgeons is expected to increase by 14 percent, registered nurses and physician assistants, for example, are projected to grow by 23 percent and 27 percent, respectively. Other health care functions will be transferred to those in the health care support occupations in the services major occupational group. The distribution of workers in health care practitioners and technical occupations also is changing, with more jobs opening up in offices of health practitioners, in home health services, and in individual and family services, rather than in costly inpatient facilities such as hospitals.

With an expected 1.3 million new jobs, education,

training, and library occupations are projected to grow 14 percent, faster than the average for all occupations. Primary school, secondary school, and special education teachers will grow as the school-age population increases, as a greater proportion of students receives special education, and as more funding is provided for all-day kindergarten and preschool classes. Employment of postsecondary teachers is projected to grow rapidly as the population of 18- to 24-year-olds increases, as a greater proportion of high school graduates attends college, and as more adults return to college to enhance their career prospects or update their skills. A significant proportion of new postsecondary teaching jobs will be part time, as institutions seek flexibility in handling both rising costs and changing student interests. About three-quarters of the new jobs are expected to occur in the public and private educational services industry sector, with 517,000 new jobs anticipated in elementary and secondary schools. Self-employment among self-enrichment education teachers is projected to grow 27 percent, adding 15,000 jobs as retirees and others use their increased leisure time to learn.

Computer and mathematical science occupations are projected to add 822,000 jobs—at 24.8 percent, the fastest growth among the eight professional subgroups. The demand for computer-related occupations will increase in almost all industries as organizations continue to adopt and integrate increasingly sophisticated and complex technologies. Growth will not be as rapid as during the previous decade, however, as the software industry begins to mature and as routine work is outsourced overseas. About 291,000—or 35 percent—of all new computer and mathematical science jobs are anticipated to be in the computer systems design and related services industry. The management, scientific, and technical consulting services industry is projected to add another 86,000 computer and mathematical science jobs. This expected 93-percent increase is due to the growing need for consultants to handle issues such as computer network security. Self-employment among computer and mathematical workers is anticipated to increase 19 percent, with most growth appearing among network systems and data communications analysts.

Community and social services occupations are projected to add 541,000 jobs and grow more than twice as fast as the average for all occupations. Such growth will result as the elderly population increases rapidly and as greater efforts are made to provide services for the disabled, the sick, substance abusers, and individuals and families in crisis. Within this occupational group, about 363,000 new jobs are expected to be in the health care

and social assistance industry and 104,000 in religious organizations. The government sector accounted for 1 out of 5 jobs in the community and social services subgroup in 2006, but growth will be slow through 2016 as State governments face budget pressures and more of this kind of work is performed by nonprofit organizations.

Arts, design, entertainment, sports, and media occupations are projected to add 305,000 jobs, 1 in 5 of which is expected to be held by self-employed workers. Writers and authors, photographers, and multimedia animators and artists are all anticipated to have significant gains in self-employment as more companies purchase these workers' services as they are needed, rather than hire them on a full-time basis. Industries that are likely to add substantially more wage and salary workers in this subgroup are advertising and related services and computer systems design and related services, as well as the motion picture industry. Employment of these workers by newspaper publishers is expected to decline as more people access news through other media and as freelancers do more of this kind of work.

Architecture and engineering occupations are projected to add 268,000 jobs, the vast majority of which are expected to arise in the professional, scientific, and technical services industry sector. The new jobs in the sector will owe their existence to engineering consulting firms benefiting from the growing trend toward subcontracting engineering services out of house. Engineers, with approximately 1.5 million jobs, are expected to add 160,000 more. Although the projections show a decline of about 15,000 engineers in the manufacturing sector, engineers will account for an increasing share of manufacturing employment, because these workers remain essential to modernizing production facilities and keeping products new and technologically current.

Life, physical, and social scientists are projected to add 203,000 jobs. Many of the new jobs will arise in the professional, scientific, and technical services sector, in which much of the private sector's scientific research and testing is conducted. Innovative technologies, such as gene-based therapies, will boost demand for medical scientists, and environmental scientists are projected to grow faster than the average for all occupations as concerns over the environment increase. Market research analysts also will benefit from many new jobs, the creation of which is driven by the need to develop products and services that respond to consumer demands. Finally, clinical, counseling, and school psychologists are expected to add 24,000 jobs; many of the workers in these jobs will be self-employed.

Legal occupations are projected to add 145,000 jobs,

with lawyers accounting for 84,000 of them and paralegals and legal assistants 53,000. Demand for legal services will rise in the areas of corporate, intellectual property, energy, elder, antitrust, and environmental law. Employers are seeking to reduce costs and increase the availability and efficiency of legal services by hiring paralegals to perform some routine tasks formerly carried out by lawyers. Most new legal jobs are expected to be in the legal services industry and in State and local government.

Service occupations. As people's basic needs are satisfied, more of their income is spent on services to make life easier, safer, and more pleasurable. Moreover, a growing elderly population generates demand for services to help them stay in their homes or in residential housing. These factors, plus the reality that services are difficult to automate, will cause employment in the service occupational group to increase by a projected 4.8 million, or 17 percent, over the 2006–16 period.

By 2016, of the five subgroups making up the service occupational group, food preparation and serving related occupations are expected to generate the most new jobs (1.4 million), and health care support is projected to grow the fastest (27 percent). Each subgroup is anticipated to grow faster than the average for all occupations and is expected to add at least 450,000 jobs. The following tabulation shows the projected numeric and percent change in employment of the five subgroups from 2006 to 2016:

	<i>Numeric change (in thousands)</i>	<i>Percent change</i>
Service occupations.....	4,830	16.7
Food preparation and serving related.....	1,436	12.7
Personal care and service.....	1,094	22.0
Health care support.....	997	26.8
Building and grounds cleaning and maintenance.....	850	14.8
Protective service.....	453	14.3

Employment in food preparation and serving related occupations is expected to increase by about 1.4 million jobs, or 12.7 percent. Approximately 1 million of the new jobs are anticipated to be in the food services and drinking places industry, particularly in limited-service (fast-food) eating places. Food preparation and serving workers also will be needed in a growing number of other industries, such as grocery stores and residential housing for the elderly.

Personal care and service occupations are projected to

add 1.1 million jobs, about a third of which will be filled by personal and home care aides who provide needed care to elderly and disabled stay-at-homes. The number of jobs for childcare workers, personal appearance workers, and recreation and fitness workers is expected to increase with the demand for these services. Many of these workers will be self-employed.

Health care support occupations are projected to add 997,000 jobs, growing 26.8 percent, the fastest rate among the service occupation subgroups. The broad occupation of nursing, psychiatric, and home health aides is alone expected to add 647,000 jobs as demand increases for these cost-effective workers. Other large and fast-growing occupations in this subgroup include medical assistants and dental assistants.

Building and grounds cleaning and maintenance occupations are expected to add 850,000 jobs. These workers are found in almost all industries, cleaning, mowing lawns, and making small repairs, but they are increasingly being hired by residential customers to handle cleaning and landscaping work. As cleaning and maintenance services remain difficult to automate, the demand for such services will continue to rise along with the number of buildings and premises. Self-employment among these workers is projected to grow by 8 percent, with about 15,000 of the 54,000 new self-employed jobs expected to go to landscaping and groundskeeping workers.

Protective service occupations are projected to add 453,000 jobs to meet population growth and to address continuing concerns about crime and security. Security guards will provide nearly 40 percent of the additional jobs. Approximately 218,000 new jobs are projected to be in the State and local government sector, and 123,000 jobs are expected to be in the investigation and security services industry.

Sales and related occupations. Employment is projected to increase by 1.2 million. Around 440,000 of these new jobs are expected to be in retail trade. The steady expansion of stores will increase demand for retail salespersons by an expected 557,000, but the number of cashier jobs is anticipated to drop by 116,000 with the appearance of more self-service checkout machines. The finance and insurance industry will see some of the fastest growth of sales workers as the demand for financial products rises due to the increased responsibility of individuals to manage their own retirement and insurance accounts.

Office and administrative support occupations. This major occupational group includes some of the largest growing

occupations, as well as some of the largest declining. Overall, employment in the occupational group is projected to increase by 1.7 million new jobs, or 7 percent. Among the largest declining occupations will be stock clerks and order fillers, file clerks, and order clerks, whose jobs will be affected by automation and the introduction of more efficient inventory control methods. However, an increasing emphasis on customer service and the continued need for people to handle routine administrative, correspondence, and accounting tasks will increase the demand for other office and administrative support occupations, some of which will have faster-than-average growth. Four occupations—customer service representatives; general office clerks; receptionists and information clerks; and book-keeping, accounting, and auditing clerks—are expected to account for more than 1.4 million of the 1.7 million new office and administrative support jobs as more businesses start up and expand. About 427,000 of the new jobs are projected to be concentrated in the health care and social assistance industry sector, while another 390,000 are anticipated to be in the professional, scientific, and technical services industry sector.

Farming, fishing, and forestry occupations. Increased mechanization, rising imports of food and fish, and consolidation of the agriculture industry are projected to result in an employment decline of 29,000 jobs. However, growing demand for crop-based ethanol is expected to have a generally positive effect on crop-producing farms and will likely keep some marginal producers in business because of the higher price that ethanol commands. Although all minor groups are projected to decline, fishing and hunting workers are expected to decline the most quickly, dropping by 16 percent. (Agricultural managers, including farmers and ranchers, are classified with management, business, and financial occupations.)

Construction and extraction occupations. Employment in this major group is projected to grow by 785,000, with most new jobs arising in the construction industry (535,000). On the one hand, a larger population that requires homes, stores, and schools to be built, plus repair and renovation work to be performed, together with the need to build and replace roads and other deteriorating components of the Nation's infrastructure, will generate average growth of these mostly skilled occupations. On the other hand, extraction occupations are expected to decline by 2,000 jobs as mechanization increases in the mining industry and as more coal is surface mined, a more productive type of mining that requires fewer workers. By contrast, oil

and gas exploration will generate an increasing number of jobs in the next few years, due chiefly to currently high prices for these products, enabling companies to invest more in exploration. However, exploration is expected to taper off by 2016 as drilling slows down from the current high levels and as restrictions on where drilling can take place put a limit on new locales to explore. Self-employment, which represents almost 1 in 5 construction and extraction jobs, is projected to increase 7 percent, with self-employed painters and carpenters exhibiting the largest increases.

Installation, maintenance, and repair occupations. The complexity of modern machinery and equipment often requires specialized workers with the proper education and tools to make even the simplest repairs. This requirement, together with the ubiquity of such machines, is projected to result in employment growth of 550,000 in installation, maintenance, and repair occupations—a 9-percent growth rate. Workers in nearly one-third of the jobs in these occupations install, maintain, and repair vehicles and other mobile equipment, including automobiles, boats, farm equipment, and trucks. Thus, the broad occupation of vehicle and mobile equipment mechanics, installers, and repairers is expected to increase by 232,000 jobs. The largest detailed occupation in this group, general maintenance and repair workers, employs 1.4 million and is anticipated to add 140,000 jobs. Although these workers are found in almost all industries, most are involved in maintaining properties, such as schools, hotels, and office or residential buildings.

Production occupations. This occupational group is projected to decline by 528,000 jobs. More strikingly, production occupations within the manufacturing sector, which employs about 70 percent of workers in all production occupations, are expected to lose nearly 843,000 jobs, but growth in production occupations elsewhere, particularly in the employment services, construction, and wholesale trade industries, will partially offset the manufacturing decline. Many of the job losses in production occupations will be due to the increased use of automated machinery by manufacturers and rising imports of manufactured goods, both of which factors will reduce the need for production workers over the next decade. Thus, even though real output in the manufacturing sector is anticipated to increase by \$1.1 trillion and grow at an average annual rate of 2.4 percent, employment in the sector is expected to decline by 1.5 million jobs from 2006 to 2016.¹¹ Employment in production occupations would decline even more if not for expected growth

in the employment services industry, which is projected to add 148,000 jobs for production workers, as manufacturers and others increasingly hire these workers on a temporary basis. In addition, wholesalers will be employing increasing numbers of assemblers and fabricators to assemble items that were shipped in pieces from abroad.

Transportation and material moving occupations. About 462,000 new jobs are expected in this major occupational group. Driver/sales worker and truckdriver jobs are projected to account for more than half the increase. However, water transportation occupations will be the fastest growing category in the group as expansion in global trade and shipping increases the demand for more tugboat and barge operators at U.S. ports. Material moving occupations will likely show little employment change. This labor-intensive occupational group is increasingly becoming automated, particularly in manufacturing, where hand packers and packagers are expected to lose 62,000 jobs. However, the number of jobs for hand laborers and freight, stock, and material movers is anticipated to increase by 30,000 in the transportation and warehousing industry.

Detailed occupations

This section focuses on occupations that are the fastest growing, have the largest numeric increases, or have the largest numeric declines. Projected employment is analyzed from the two perspectives of numeric change and percent change, because one can be large and the other small, depending on the size of employment in the base year. For example, employment of financial analysts is projected to grow almost twice as fast (33.8 percent) as employment of accountants and auditors (17.7 percent) over the 2006–16 period, but because employment was so much larger for accountants and auditors (1,274,000) than for financial analysts (221,000) in 2006, the occupation of accountants and auditors is projected to add about 3 times more new jobs—226,000 compared with 75,000. (Data on numeric and percent change for about 750 detailed occupations are presented in the appendix.)

The projected 2006–16 growth rates for detailed occupations range from an increase of 53 percent for network systems and data communication analysts to a decline of 50 percent for photographic processing machine operators. Projected numeric growth ranges from 587,000 additional jobs for registered nurses to a decline of 131,000 jobs for stock clerks and order fillers.

The projected 2006–16 increase of 15.6 million jobs for all occupations is actually the result of 580 of the approxi-

mately 750 detailed occupations growing by an expected 17.4 million jobs, while the remaining detailed occupations are anticipated to decline by 1.8 million jobs. The 30 occupations with the largest numeric increase account for nearly half (8.1 million) of the projected 17.4 million increase in jobs among detailed occupations that will grow over the period. The 30 occupations with the largest numeric declines account for 1.2 million, or two-thirds, of the projected 1.8 million job losses among detailed occupations that will decline by 2016.

The 30 occupations that are projected to be the fastest growing have growth rates of 27 percent or greater, much faster than the 10-percent average for all occupations. Six occupations—three computer related, two health related, and one personal care and service occupation—will be among both the fastest growing occupations and the occupations that register the largest numeric growth:

- Computer software engineers, application
- Computer systems analysts
- Network systems and data communication analysts
- Home health aides
- Medical assistants
- Personal and home care aides

Fastest growing occupations. Professional and related occupations, many of which are associated with health care and the provision of social and mental health services, dominate the fastest growing occupations. (See table 2.) Eighteen of the 30 fastest growing occupations are in professional and related occupations; another 10 are in the service occupations group. Five from the computer specialists subgroup, including the fastest growing occupation, network systems and data communication analysts, show up in the top 30. Other trends reflected by the fastest growing occupations are an increasing emphasis on personal appearance, financial well-being, the environment, and gaming. Altogether, the 30 fastest growing occupations are expected to add 2.3 million jobs over the 2006–16 period, while growing by at least 27 percent, a rate much faster than the average for all occupations.

Fifteen of the 30 fastest growing occupations generally require a bachelor's degree or higher as their most significant source of education and training.¹² Another 7 occupations on the list typically require a postsecondary vocational award or an associate degree. Most of the 30 fastest growing occupations fall under the major group titled "professional and related occupations," in which most of the health care, education, and science related occupations are found. Professional and related occupations normally

have higher entry-level requirements for education and training. Eleven of the fastest growing occupations are concentrated in the very high wage quartile, and 8 are in the high wage quartile. This distribution means that wages are generally higher for the fastest growing occupations.

Computer specialists in general, and especially the five such occupations listed in table 2, are expected to grow very rapidly as organizations continue to adopt and invest in increasingly sophisticated information technologies. Robust demand for efficient communication systems and new Internet and mobile technologies will spur strong growth in these areas, as will the need for more secure computer networks. The three fastest growing computer-related occupations—network systems and data communications analysts, computer systems analysts, and computer software applications engineers—also are among the occupations with the largest projected numerical job growth.

Increasing demand for health care will generate significant growth in almost all occupations in that field. However, cost-containment pressures by the health care industry will concentrate faster-than-average growth primarily among those health care workers who assist health care practitioners and have fewer qualifications, such as medical assistants, physical therapy assistants, pharmacy technicians, dental hygienists, and dental assistants—five fast-growing occupations. There are several reasons for growth in health care occupations, but an increased share of the population aged 55 and older is a primary one: that demographic group uses proportionally more health care resources than any other group.

Two of the fastest growing occupations—personal and home care aides (classified as a personal care and service occupation) and home health aides (a health care support occupation)—are projected to grow by about 50 percent each. An emphasis on less costly home care and outpatient treatment of the elderly population, rather than expensive institutional care, will lead to growing numbers of aides who provide in-home personal care and housekeeping assistance, as well as health care. In addition, patients of all ages are being sent home from hospitals and nursing facilities more quickly, and they may need continued health and personal care at home.

A growing demand for pet health care services will spur employment growth of both veterinarians and veterinary technologists and technicians as pet owners spend more on advanced animal care services, such as preventive dental care and surgical procedures. Veterinary technologists and technicians will receive an extra boost as their employers replace veterinary assistants with these more

highly trained workers.

Greater acceptance in treating mental health and substance abuse problems, and wider coverage of mental illness by insurers, as well as courts increasingly ordering treatment instead of jail for drug-related crimes, will cause much faster than average increases in occupations that deal with mental health and substance abuse issues. Many of these fast-growing occupations, such as counselors, are less costly alternatives to psychiatric and psychological care. Mental health counselors, mental health and substance abuse social workers, and marriage and family therapists are three such fast-growing occupations. In addition, social and human service assistants, another fast-growing occupation, will be needed in greater numbers to help the elderly and disabled with their problems.

An aging and wealthier population—and one that increasingly cares about personal appearance—will generate much faster than average employment increases for skin care specialists and for manicurists and pedicurists. In addition, fitness trainers and aerobics instructors, though not in the top 30, will grow much faster than average as more people seek to improve their appearance and health.

Personal financial advisors and financial analysts also are projected to be among the fastest growing occupations, increasing their numbers by 41.0 percent and 33.8 percent, respectively. As retirement savings continue to shift from defined benefit plans to defined contribution plans, and as people increasingly take on the responsibility of managing their own retirement savings, they will seek personal financial advisors to help them decide how to invest their assets. Then, after they retire, the growing number of retirees will use an advisor's help to make their savings last. The demand for financial analysts will grow as the number and complexity of securities products increases. Overall growth in the number of investors and their need for specialized financial information also will be a factor.

Greater public awareness of the environment and the need by businesses to adhere to a growing number of regulations to protect it will likely play a large role in spurring all four environment-related occupations to increase by more than 24 percent each, although only one—environmental science and protection technicians, including health—falls into the 30 fastest growing occupations. The other three are environmental engineers; environmental scientists and specialists, including health; and environmental engineering technicians. These workers will be needed to monitor the quality of the environment and interpret the impact that human actions are having on terrestrial, atmospheric, and aquatic ecosystems. They also

Table 2. Fastest growing occupations, 2006–16

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment		Change, 2006–16		Quartile rank by 2006 median annual wages ¹	Most significant source of postsecondary education or training ²
		2006	2016	Number	Percent		
15–1081	Network systems and data communications analysts.....	262	402	140	53.4	VH	Bachelor's degree
39–9021	Personal and home care aides.....	767	1,156	389	50.6	VL	Short-term on-the-job training
31–1011	Home health aides.....	787	1,171	384	48.7	VL	Short-term on-the-job training
15–1031	Computer software engineers, applications.....	507	733	226	44.6	VH	Bachelor's degree
29–2056	Veterinary technologists and technicians.....	71	100	29	41.0	L	Associate degree
13–2052	Personal financial advisors.....	176	248	72	41.0	VH	Bachelor's degree
39–5091	Makeup artists, theatrical and performance.....	2	3	1	39.8	H	Postsecondary vocational award
31–9092	Medical assistants.....	417	565	148	35.4	L	Moderate-term on-the-job training
29–1131	Veterinarians.....	62	84	22	35.0	VH	First professional degree
21–1011	Substance abuse and behavioral disorder counselors.....	83	112	29	34.3	H	Bachelor's degree
39–5094	Skin care specialists.....	38	51	13	34.3	L	Postsecondary vocational award
13–2051	Financial analysts.....	221	295	75	33.8	VH	Bachelor's degree
21–1093	Social and human service assistants.....	339	453	114	33.6	L	Moderate-term on-the-job training
33–9031	Gaming surveillance officers and gaming investigators.....	9	12	3	33.6	L	Moderate-term on-the-job training
31–2021	Physical therapist assistants.....	60	80	20	32.4	H	Associate degree
29–2052	Pharmacy technicians.....	285	376	91	32.0	L	Moderate-term on-the-job training
19–4092	Forensic science technicians.....	13	17	4	30.7	H	Bachelor's degree
29–2021	Dental hygienists.....	167	217	50	30.1	VH	Associate degree
21–1014	Mental health counselors.....	100	130	30	30.0	H	Master's degree
21–1023	Mental health and substance abuse social workers.....	122	159	37	29.9	H	Master's degree
21–1013	Marriage and family therapists.....	25	32	7	29.8	H	Master's degree
31–9091	Dental assistants.....	280	362	82	29.2	L	Moderate-term on-the-job training
15–1051	Computer systems analysts.....	504	650	146	29.0	VH	Bachelor's degree
15–1061	Database administrators.....	119	154	34	28.6	VH	Bachelor's degree
15–1032	Computer software engineers, systems software.....	350	449	99	28.2	VH	Bachelor's degree
39–3012	Gaming and sports book writers and runners.....	18	24	5	28.0	VL	Short-term on-the-job training
19–4091	Environmental science and protection technicians, including health.....	36	47	10	28.0	H	Associate degree

See footnotes at end of table.

Table 2. Continued—Fastest growing occupations, 2006–16

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment		Change, 2006–16		Quartile rank by 2006 median annual wages ¹	Most significant source of postsecondary education or training ²
		2006	2016	Number	Percent		
39–5092	Manicurists and pedicurists.....	78	100	22	27.6	VL	Postsecondary vocational award
29–1123	Physical therapists.....	173	220	47	27.1	VH	Master's degree
29–1071	Physician assistants.....	66	83	18	27.0	VH	Master's degree

¹ The quartile rankings of Occupational Employment Statistics Survey annual wages data are presented in the following categories: VH = very high (\$46,360 or more), H = high (\$30,630 to \$46,300), L = low (\$21,260 to \$30,560), and VL = very low (up to \$21,220). The rankings were based on quartiles, with one-fourth of total employment defining each quartile. Wages are for wage and salary workers.

² An occupation is placed into 1 of 11 categories that best describes the postsecondary education or training needed by most workers to become fully qualified in that occupation. For more information about the categories, see *Occupational Projections and Training Data, 2006–07* edition, Bulletin 2602 (Bureau of Labor Statistics, February 2006), and *Occupational Projections and Training Data, 2008–09* edition, Bulletin 2702 (Bureau of Labor Statistics, forthcoming).

will be asked to devise strategies to restore damaged ecosystems and protect water resources.

Greater legalization of the gaming industry, a growing acceptance of gaming by the general population, and more leisure time, particularly among the growing number of retirees, will boost employment in all gaming occupations. Gaming surveillance officers and gaming investigators, as well as gaming and sports book writers and runners, will be among the fastest growing occupations.

Occupations with the largest job growth. The 30 occupations with the largest job growth account for about half of all job openings due to growth: 8.1 million of the projected total 17.4 million openings. (See table 3.) These 8.1 million new jobs represent a much larger number of new jobs, compared with the top 30 fastest growing occupations, which account for a lesser 2.3 million jobs. Each of the 30 occupations with the largest job growth is projected to increase by at least 10 percent by 2016, about the average for all occupations. Because these occupations generally have large employment bases, even average growth rates can yield large numeric employment changes.

Many of the occupations in this category—for example, retail salespersons; truckdrivers, heavy and tractor-trailer; waiters and waitresses; and carpenters—are occupations in which employment gains are dependent primarily on population growth and growth in businesses. Others are large and growing faster than the average because they are critical to productivity and technological growth or are vital to the health care industry.

Almost half of the 30 occupations with the largest nu-

merical job growth generally require short-term on-the-job training for a jobholder to become proficient in the job. Seven generally require at least a bachelor's degree, if not a doctoral degree or additional work experience in a related area. Of those occupations with the largest numeric increases, 10 are in the lowest (very low) wage quartile while 7 are in the highest (very high).

The 30 occupations with the largest job growth are much less concentrated in the professional and related or service occupations than are the 30 fastest growing occupations. Seven of the 30 occupations with the largest job growth are in professional and related occupations, including registered nurses, the occupation with the largest numeric increase. Retail salespersons, the only occupation from the sales and related major group, are expected to have nearly as large a gain in jobs. Another 5 occupations are in the major group titled “office and administrative support occupations.” Twelve of the 30 occupations fall into the service occupational subgroup, and the remaining 5 are distributed among four other occupational groups.

Registered nurses are projected to experience the largest numeric increase, 587,000 new jobs. The growing and aging U.S. population will boost the health care sector, of which these well-trained and versatile workers are an integral part. Demand for registered nurses will be greater in offices of physicians and home health care service providers. Also, those with advanced degrees, such as nurse practitioners, will be needed in greater numbers as they increasingly serve as lower cost primary care providers in rural areas and inner cities.

Postsecondary teachers make up another occupation

Table 3. Occupations with the largest job growth, 2006–16

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment		Change, 2006–16		Quartile rank by 2006 median annual wages ¹	Most significant source of postsecondary education or training ²
		2006	2016	Number	Percent		
29–1111	Registered nurses.....	2,505	3,092	587	23.5	VH	Associate degree
41–2031	Retail salespersons.....	4,477	5,034	557	12.4	VL	Short-term on-the-job training
43–4051	Customer service representatives.....	2,202	2,747	545	24.8	L	Moderate-term on-the-job training
35–3021	Combined food preparation and serving workers, including fast food.....	2,503	2,955	452	18.1	VL	Short-term on-the-job training
43–9061	Office clerks, general.....	3,200	3,604	404	12.6	L	Short-term on-the-job training
39–9021	Personal and home care aides.....	767	1,156	389	50.6	VL	Short-term on-the-job training
31–1011	Home health aides.....	787	1,171	384	48.7	VL	Short-term on-the-job training
25–1000	Postsecondary teachers.....	1,672	2,054	382	22.9	VH	Doctoral degree
37–2011	Janitors and cleaners, except maids and housekeeping cleaners.....	2,387	2,732	345	14.5	VL	Short-term on-the-job training
31–1012	Nursing aides, orderlies, and attendants.....	1,447	1,711	264	18.2	L	Postsecondary vocational award
43–3031	Bookkeeping, accounting, and auditing clerks.....	2,114	2,377	264	12.5	L	Moderate-term on-the-job training
35–3031	Waiters and waitresses.....	2,361	2,615	255	10.8	VL	Short-term on-the-job training
39–9011	Child care workers.....	1,388	1,636	248	17.8	VL	Short-term on-the-job training
43–6011	Executive secretaries and administrative assistants.....	1,618	1,857	239	14.8	H	Work experience in a related occupation
15–1031	Computer software engineers, applications.....	507	733	226	44.6	VH	Bachelor's degree
13–2011	Accountants and auditors.....	1,274	1,500	226	17.7	VH	Bachelor's degree
37–3011	Landscaping and groundskeeping workers.....	1,220	1,441	221	18.1	L	Short-term on-the-job training
25–2021	Elementary school teachers, except special education.....	1,540	1,749	209	13.6	H	Bachelor's degree
43–4171	Receptionists and information clerks.....	1,173	1,375	202	17.2	L	Short-term on-the-job training
53–3032	Truck drivers, heavy and tractor-trailer.....	1,860	2,053	193	10.4	H	Moderate-term on-the-job training
37–2012	Maids and housekeeping cleaners.....	1,470	1,656	186	12.7	VL	Short-term on-the-job training
33–9032	Security guards.....	1,040	1,216	175	16.9	L	Short-term on-the-job training
47–2031	Carpenters.....	1,462	1,612	150	10.3	H	Long-term on-the-job training

See footnotes at end of table.

Table 3. Continued—Occupations with the largest job growth, 2006–16

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment		Change, 2006–16		Quartile rank by 2006 median annual wages ¹	Most significant source of postsecondary education or training ²
		2006	2016	Number	Percent		
13–1111	Management analysts.....	678	827	149	21.9	VH	Bachelor's or higher degree, plus work experience
31–9092	Medical assistants.....	417	565	148	35.4	L	Moderate-term on-the-job training
15–1051	Computer systems analysts.....	504	650	146	29.0	VH	Bachelor's degree
49–9042	Maintenance and repair workers, general.....	1,391	1,531	140	10.1	H	Moderate-term on-the-job training
15–1081	Network systems and data communications analysts.....	262	402	140	53.4	VH	Bachelor's degree
35–2021	Food preparation workers.....	902	1,040	138	15.3	VL	Short-term on-the-job training
25–9041	Teacher assistants.....	1,312	1,449	137	10.4	VL	Short-term on-the-job training

¹ The quartile rankings of Occupational Employment Statistics Survey annual wages data are presented in the following categories: VH = very high (\$46,360 or more), H = high (\$30,630 to \$46,300), L = low (\$21,260 to \$30,560), and VL = very low (up to \$21,220). The rankings were based on quartiles, with one-fourth of total employment defining each quartile. Wages are for wage and salary workers.

² An occupation is placed into 1 of 11 categories that best describes the postsecondary education or training needed by most workers to become fully qualified in that occupation. For more information about the categories, see *Occupational Projections and Training Data*, 2006–07 edition, Bulletin 2602 (Bureau of Labor Statistics, February 2006), and *Occupational Projections and Training Data*, 2008–09 edition, Bulletin 2702 (Bureau of Labor Statistics, forthcoming).

from professional and related occupations that will see large gains in employment. The increasing population of 18- to 24-year-olds, a larger proportion of high school graduates attending college, and a greater number of adults returning to college to enhance their career prospects or update skills will drive demand for postsecondary teachers. Similarly, elementary school teachers, except special education, will see employment gains due to a rise in student enrollments, although the rise will be more moderate than in the past. Over the next decade, the mounting enrollment of students with special education needs or of those who are learning English as a second language will boost the demand for teacher assistants. Legislation requires both students with disabilities and nonnative English speakers to receive an education equal to that of other students, and teacher assistants play a central role in meeting this requirement.

The three computer specialist occupations that appear in table 3 (computer applications software engineers, computer systems analysts, and network systems and data communications analysts) will experience large employment gains as individuals and organizations continue to invest in information technology. These three occupations also were among the fastest growing. The growth of electronic commerce and the integration of Internet technologies into

business have resulted in an increasing need for specialists who can develop and support Internet and intranet applications. The introduction of the wireless Internet, known as WiFi, and of personal mobile computers has created a need for specialists who can integrate these technologies into existing networks. Explosive growth in these areas is expected to fuel demand for knowledgeable analysts.

Retail salespersons, the only occupation from the sales and related major group on the list of occupations with the largest employment gains, is projected to increase by 557,000. Population growth will generate new and expanding outlets that will need more retail salespersons. In addition, because these workers, who assist customers and answer their questions, are more difficult to replace by technology, they are less subject to job loss than are workers in other occupations. Finally, although it might be thought otherwise, the growing popularity of purchasing goods over the Internet is expected to have only a minimal detrimental effect on this occupation.

Although many workplaces will continue to computerize tasks or outsource routine administrative tasks to foreign countries with competitive wages, certain office and administrative support occupations—particularly those dealing with people and office-related technology—will

Table 4. Occupations with the largest job declines, 2006–16

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment		Change, 2006–16		Quartile rank by 2006 median annual wages ¹	Most significant source of postsecondary education or training ²
		2006	2016	Number	Percent		
43–5081	Stock clerks and order fillers.....	1,705	1,574	–131	–7.7	VL	Short-term on-the-job training
41–2011	Cashiers, except gaming.....	3,500	3,382	–118	–3.4	VL	Short-term on-the-job training
53–7064	Packers and packagers, hand.....	834	730	–104	–12.4	VL	Short-term on-the-job training
43–4071	File clerks.....	234	137	–97	–41.3	L	Short-term on-the-job training
11–9012	Farmers and ranchers.....	1,058	969	–90	–8.5	H	Long-term on-the-job training
43–4151	Order clerks.....	271	205	–66	–24.3	L	Short-term on-the-job training
51–6031	Sewing machine operators.....	233	170	–63	–27.2	VL	Moderate-term on-the-job training
51–2022	Electrical and electronic equipment assemblers.....	213	156	–57	–26.8	L	Short-term on-the-job training
51–4031	Cutting, punching, and press machine setters, operators, and tenders, metal and plastic....	272	231	–40	–14.9	L	Moderate-term on-the-job training
41–9041	Telemarketers.....	395	356	–39	–9.9	VL	Short-term on-the-job training
51–9061	Inspectors, testers, sorters, samplers, and weighers.....	491	457	–35	–7.0	L	Moderate-term on-the-job training
51–1011	First-line supervisors/managers of production and operating workers..	699	665	–34	–4.8	VH	Work experience in a related occupation
43–9011	Computer operators.....	130	98	–32	–24.7	H	Moderate-term on-the-job training
51–9132	Photographic processing machine operators.....	49	25	–25	–49.8	VL	Short-term on-the-job training
53–3031	Driver/sales workers.....	445	421	–24	–5.3	VL	Short-term on-the-job training
53–7063	Machine feeders and offbearers.....	148	125	–22	–15.2	L	Short-term on-the-job training
51–9111	Packaging and filling machine operators and tenders.....	386	365	–21	–5.4	L	Short-term on-the-job training
43–9022	Word processors and typists.....	179	158	–21	–11.6	L	Moderate-term on-the-job training
51–9196	Paper goods machine setters, operators, and tenders.....	113	93	–21	–18.2	H	Moderate-term on-the-job training
45–2092	Farmworkers and laborers, crop, nursery, and greenhouse.....	603	583	–20	–3.4	VL	Short-term on-the-job training
51–4072	Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic.....	157	137	–20	–12.8	L	Moderate-term on-the-job training
15–1021	Computer programmers.....	435	417	–18	–4.1	VH	Bachelor's degree
43–9051	Mail clerks and mail machine operators, except postal service....	152	134	–18	–11.6	L	Short-term on-the-job training
43–5053	Postal service mail sorters, processors, and processing machine operators.....	198	181	–17	–8.4	H	Short-term on-the-job training

See footnotes at end of table.

Table 4. Continued—Occupations with the largest job declines, 2006–16

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment		Change, 2006–16		Quartile rank by 2006 median annual wages ¹	Most significant source of postsecondary education or training ²
		2006	2016	Number	Percent		
51–4033	Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic.....	101	85	–16	–15.7	L	Moderate-term on-the-job training
51–4034	Lathe and turning machine tool setters, operators, and tenders, metal and plastic.....	68	52	–16	–23.3	H	Moderate-term on-the-job training
51–5022	Prepress technicians and workers.....	71	56	–15	–21.1	H	Postsecondary vocational award
43–2011	Switchboard operators, including answering service.....	177	163	–15	–8.4	L	Short-term on-the-job training
43–9021	Data entry keyers.....	313	299	–15	–4.7	L	Moderate-term on-the-job training
51–5011	Bindery workers.....	65	51	–14	–21.8	L	Short-term on-the-job training

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² An occupation is placed into 1 of 11 categories that best describes the postsecondary education or training needed by most workers to become fully qualified in that occupation. For more information about the categories, see *Occupational Projections and Training Data, 2006–07* edition, Bulletin 2602 (Bureau of Labor Statistics, February 2006), and *Occupational Projections and Training Data, 2008–09* edition, Bulletin 2702 (Bureau of Labor Statistics, forthcoming).

generate numerous job openings. Customer service representatives; general office clerks; bookkeeping, accounting, and auditing clerks; executive secretaries and administrative assistants; and receptionists and information clerks are expected to see increases of 200,000 or more jobs. The overall rise in business activity and the difficulty in computerizing or outsourcing certain key tasks will keep these workers in demand. Customer service representatives in particular are projected to add more than 500,000 jobs as businesses realize that good customer service is often key to getting and retaining business and developing a loyal clientele. The Internet has caused the volume of e-mails to businesses and organizations to grow, requiring more customer service representatives to respond to them. Receptionists and information clerks also will be affected by the need to provide more personal service and information. Employment growth will be driven by gains in the industries that employ these workers, such as the very fast growing management, scientific, and technical consulting services industry.

Jobs will continue to be generated for those who perform basic, but needed, tasks, such as preparing and serving food or cleaning offices and buildings. New construction of office buildings, shopping malls, residential housing, highways, and parks is expected to increase demand for janitors and cleaners, landscaping and ground-

keeping workers, and general maintenance and repair workers. In addition, the need to protect offices and people from harm is expected to lead to more than 175,000 new jobs for security guards. Concern about crime, vandalism, and terrorism continues to increase the need for security. Demand for guards will grow as private security firms increasingly take on more security functions, such as providing security at public events and in residential neighborhoods and business establishments.

Employment of personal and home care aides and home health aides will grow very rapidly, with both occupations projected to add more than 380,000 jobs each. As the elderly population grows, and as efforts to contain health care costs by minimizing inpatient treatments continue, the need for these two occupations will expand greatly. Medical assistants will add many new jobs as well, as the growing health care industry, particularly outpatient facilities and clinics, increasingly demands the services of these workers to perform a number of administrative and basic clinical duties.

Childcare workers, also from the services occupational group, are expected to add nearly 250,000 jobs. More children in general and a greater preference for formal childcare settings will continue to spur demand for these workers. Further, as more States and localities add pre-

school and before- and afterschool programs to their list of services, demand for childcare workers who staff these programs will increase.

Accountants and auditors, as well as management analysts, will see employment gains as a growing number of companies step up efforts to meet regulations and streamline operations. Job growth for management analysts is projected in consulting firms with international expertise and in firms that specialize in specific areas, such as biotechnology, health care, or information technology.

Truckdrivers will be needed to transport a growing amount of goods between ports, rail depots, airports, warehouses, retail establishments, and consumers. Because they provide one of the fastest modes of transport, truckdrivers are needed particularly to transport perishable and time-sensitive commodities.

Declining occupations. This section focuses on those occupations with the largest *numerical* job declines over the period from 2006 to 2016. (See table 4.) A few of the occupations with the fastest *rates* of decline also rank among the top 30 occupations in terms of numerical decline. However, other rapidly declining occupations are small and play a minor role in job loss. The 30 occupations with the largest declines will account for about 1.2 million job losses, the majority of the 1.8 million job losses projected among declining occupations.

Only two among the largest declining occupations typically require postsecondary education as their primary method of entry: computer programmers and press technicians. Most of the remaining occupations can be learned through on-the-job training or related work experience. Sixteen of the 30 occupations with the largest numerical declines generally require short-term (1 month or less) on-the-job training, and 10 require moderate-term (from 1 month to 1 year) on-the-job training, for a worker to become proficient in the job. Fourteen of the occupations with the largest declines are in the next-to-lowest (low) wage quartile, and 8 are in the lowest (very low) quartile.

Of the 30 occupations with the largest numerical decline, 9 are office and administrative occupations, 2 belong in the sales and related major group, and another 3 fall into the transportation and material moving major group. Two more are related to agriculture—one in the management major group and the other in the farming, fishing, and forestry major group—and 13 are in the production major group, more than any other major group. The last occupation is computer programmers, which is the only one on the list of 30 that is from professional and

related occupations. Changes in technology or business practices, and outsourcing to foreign countries, will reduce demand in most of the 30 occupations. No occupations in the table are from the services group, the construction and extraction group, or the installation, maintenance, and repair group, which together represent the more difficult occupations to automate or move overseas.

Nine of the occupations with the largest declines are in the office and administrative support major group, including stock clerks and order fillers, the occupation with the largest decline of all, 131,000 jobs. Advances in information technologies have automated many clerical tasks and raised the productivity of these workers, causing fewer workers to be needed. For example, order clerks are projected to lose 66,000 jobs due to growth in electronic commerce and the use of automated ordering systems. Orders are now more easily placed without human intervention, and advances in voice recognition technology will hasten the process. In addition, there will be fewer clerical workers with very limited duties, such as file clerks, word processors and typists, and data entry keyers, and more workers with broader duties, such as general office clerks and executive secretaries and administrative assistants, two of the largest growing occupations.

The occupation titled “cashiers, except gaming,” is projected to lose 118,000 jobs as more customers shop online and use automated checkout machines for their purchases. Telemarketers’ employment also will decrease, as more people opt out of receiving telephone calls from salespersons and as blocking technology improves.

Three transportation and material moving occupations are on the list of the largest declining occupations. Much of the work done by material moving workers, particularly those working in manufacturing, will be increasingly automated and performed by industrial robots. Hand packers and packagers will decline as businesses rely more and more on machines to do these workers’ routine tasks. Drivers/sales workers will decline as deliveries are made more efficient and are increasingly carried out by employees other than sales workers.

Two agriculture-related occupations will see large declines: farmers and ranchers; and farmworkers and laborers, crop, nursery, and greenhouse. Farmers and ranchers will decline by 90,000 jobs, farmworkers and laborers by 20,000, as market pressures and improved farm technology result in the consolidation of farms into fewer and larger units. Rising imports of agricultural products also will reduce demand for these workers. The continuing ability of the agriculture sector to produce more with fewer workers will cause some farmers to go out of business

as market pressures leave little room for the marginally successful farmer. As land, machinery, seed, and chemicals become more expensive, only well-capitalized farmers and corporations will be able to acquire many of the farms that become available. These larger, more productive farms are better able to withstand the adverse effects of climate and price fluctuations on farm output and income. Larger farms also have the advantage of being able to obtain government subsidies and payments more readily, because these payments are usually based on acreage owned and per unit production.

Thirteen of the occupations with the largest declines are production occupations. Advances in manufacturing technology, such as faster machines and more automated processes, and a shift of assembly and other production activities to countries with lower labor costs will decrease employment in a number of production and related occupations, such as sewing machine operators and electrical and electronic equipment assemblers. Desktop publishing software will adversely affect the demand for prepress technicians and workers, who will switch to performing many of the same duties as customer service representatives. Also, machines with sophisticated scanning technology are doing a better job of inspecting goods during the manufacturing process, thereby eliminating the need for some human inspectors, testers, sorters, samplers, and weighers. More widespread use of digital photography will reduce the need for photographic processing machine operators.

Computer programmers, the only occupation from professional and related occupations on the list of the largest declining occupations, is expected to decline moderately as workers in other occupations acquire programming skills, as work is outsourced to foreign countries, and as some basic programming functions are automated.

Job openings from replacement needs

Although analyzing job growth and decline is important in identifying hiring trends, the need to replace workers who move to different occupations, who retire, or who stop working for other reasons is often the more significant source of job openings. In most occupations, job openings due to replacement needs exceed those resulting from employment growth. For occupations that are projected to decline in employment, such as farmers and ranchers or stock clerks and order fillers, all job openings will be due to replacement needs. (See appendix.)¹³

Net replacement needs for all occupations over the 2006–16 period are expected to total 33.4 million job openings, as opposed to 17.4 million due to growth.

While most replacement openings are generated when workers change occupations either through a promotion or a career change, or when they simply leave the workforce, in the coming decade a greater number of openings than usual will result from baby boomers retiring. However, because replacement needs data are calculated on the basis of past trends, projected replacement needs may be fewer should larger-than-anticipated numbers of older Americans choose or be forced to delay their retirement over the next decade.

The measurement of replacement needs is complex because of the continuous movement of workers into and out of occupations. The replacement needs cited in this article are based on the net change in employment (entrants minus separations) in each age group of an occupation over the projection period. Although there are other measures that reflect the number of job openings for new and experienced entrants to an occupation, the measure used in this article—job openings due to growth and net replacements—best represents the job openings for new entrants to the occupation through 2016.¹⁴

For most occupations listed in the appendix, net replacement needs exceed job openings due to growth. In general, only the fastest growing occupations and those occupations which include highly specialized workers with high education and training requirements, who usually stay in their profession until they retire, have more job openings due to growth. Computer specialists and health care practitioners and technical occupations are two subgroups in the professional and related group with more job openings due to growth than to replacement needs.

Management occupations, in which 52 percent of workers are 45 years and older, are projected to have more than 1.7 million job openings due to the need to replace workers, compared with 632,000 jobs created due to growth in the occupation. Primary, secondary, and special education teachers also will have very large replacement needs. This broad occupation has an older-than-average workforce, as well as a high number of workers who leave the profession after only a few years of teaching. Thus, replacement needs will generate 1 million job openings, as opposed to 555,000 due to employment growth.

Low-paying entry-level occupations employing large numbers of youths often generate the highest replacement needs. The food preparation and serving workers occupation will generate close to 4 million jobs to replace current workers who leave the occupation, but only 1.4 million jobs due to growth. Cashier occupations, with 50 percent of workers between the ages of 16 and 24 years, will need 1.7 million new workers to replace those who

leave the occupation. However, except for gaming cashier jobs, there will be no new cashier jobs due to growth, because the occupation is expected to decline overall.

Although, as previously discussed, production occupations will see some of the biggest employment declines, the need to replace workers who leave or retire is expected to generate more than 2.1 million jobs in this major group. Office and administrative support workers, another occupational group often considered on the decline, is projected to create more than 5 million job openings to replace those who leave the field.

Employment growth, and education or training

The BLS assigns each occupation to an education and training category that represents the most common entry requirement for the occupation. The categories range from “short-term on-the-job training” to “first professional degree.” (See box on page 104 for descriptions.) Although there has been a slight increase in the education required to enter some occupations in recent years, about half of all jobs will continue to typically require short-term on-the-job training or moderate-term on-the-job training for a worker to become fully qualified in the occupation. The total percentage of jobs in

these two categories, however, is projected to decline from 52.8 percent to 51.9 percent by 2016. (See table 5.)

Nearly one-third of all new jobs—more than 4.6 million—are projected to fall into the short-term on-the-job-training category. This category dominates the list of the 30 largest growing occupations, with 14 of the 30 occupations listed, including retail salespersons, the largest occupation in the category. From the perspective of total job openings, the number of openings falling into the short-term on-the-job-training category is 20.1 million, or 40 percent of all job openings due to growth and net replacement needs. Some workers whose training falls into this category, such as childcare workers or retail salespersons, perform duties that require a great deal of personal attention. The relative ease of training workers for such practical tasks helps the category account for such a substantial share of jobs.

The doctoral degree category is expected to increase the fastest of all the education and training categories over the 2006–16 period, growing at a 22-percent rate. Most of this change will be due to the fast-growing occupation of postsecondary teachers. Despite such growth, jobs generally needing a doctoral degree for qualification will still account for just 1.5 percent of total jobs in 2016.

The education and training category with the smallest

Table 5. Employment and total job openings, by education and training category, 2006 and projected 2016

[Numbers in thousands]

Most significant source of education and training	Employment				Change, 2006–16		Total job openings due to growth and net replacement needs, 2006–16 ¹		May 2006 median annual wages ²
	Number		Percent distribution		Number	Percent	Number	Percent distribution	
	2006	2016	2006	2016					
Total, all occupations.....	150,620	166,220	100.0	100.0	15,600	10.4	50,732	100.0	\$30,400
First professional degree.....	1,970	2,247	1.3	1.4	277	14.0	638	1.3	112,070
Doctoral degree.....	2,025	2,462	1.3	1.5	437	21.6	793	1.6	57,640
Master's degree.....	2,167	2,575	1.4	1.5	409	18.9	819	1.6	51,380
Bachelor's or higher degree, plus work experience.....	6,524	7,117	4.3	4.3	592	9.1	2,008	4.0	81,280
Bachelor's degree.....	18,585	21,659	12.3	13.0	3,074	16.5	6,706	13.2	53,550
Associate degree.....	5,812	6,899	3.9	4.2	1,087	18.7	2,240	4.4	50,240
Postsecondary vocational award.....	7,901	8,973	5.2	5.4	1,072	13.6	2,491	4.9	29,520
Work experience in a related occupation.....	14,579	15,889	9.7	9.6	1,310	9.0	4,126	8.1	43,480
Long-term on-the-job training.....	11,489	12,200	7.6	7.3	711	6.2	3,272	6.5	37,360
Moderate-term on-the-job training.....	27,230	29,248	18.1	17.6	2,018	7.4	7,516	14.8	29,100
Short-term on-the-job training.....	52,339	56,951	34.7	34.3	4,613	8.8	20,123	39.7	19,620

¹ Total job openings represent the sum of employment increases and net replacements. If employment change is negative, job openings due to growth are zero and total job openings equal net replacements.

² For wage and salary workers, from the Occupational Employment Statistics survey.

Classification of occupations by most significant source of education or training

Occupations are classified into 1 of 11 categories according to the following principles:

- An occupation is placed into the category that best describes the education or training needed by most workers to become fully qualified in that occupation.
- If generally needed for entry into an occupation, postsecondary awards take precedence over work-related training, even though additional skills or experience may be needed for a worker to become fully qualified in the occupation.
- The length of time an average worker generally needs to become fully qualified in an occupation through a combination of on-the-job training and experience is used to categorize occupations in which a postsecondary award generally is not needed for entry into the occupation.

Postsecondary awards

First professional degree. Completion of the degree usually requires at least 3 years of full-time academic study beyond a bachelor's degree. Examples are lawyers; and physicians and surgeons.

Doctoral degree. Completion of a Ph.D. or other doctoral degree usually requires at least 3 years of full-time academic study beyond a bachelor's degree. Examples are postsecondary teachers; and medical scientists, except epidemiologists.

Master's degree. Completion of the degree usually requires 1 or 2 years of full-time academic study beyond a bachelor's degree. Examples are educational, vocational, and school counselors; and clergy.

Bachelor's or higher degree, plus work experience. Most occupations in this category are management occupations. All require experience in a related nonmanagement position for which a bachelor's or higher degree is usually required. Examples are general and operations managers; and judges, magistrate judges, and magistrates.

Bachelor's degree. Completion of the degree generally requires at least 4 years, but not more than 5 years, of full-time academic study. Examples are accountants and auditors; and elementary school teachers, except special education.

Associate degree. Completion of the degree usually requires at least 2 years of full-time academic study. Examples are paralegals and legal

assistants; and medical records and health information technicians.

Postsecondary vocational award. Some programs last only a few weeks, while others last more than a year. Programs lead to a certificate or other award, but not a degree. Examples are nursing aides, orderlies, and attendants; and hairdressers, hairstylists, and cosmetologists.

Work-related training

Work experience in a related occupation. Most of the occupations in this category are first-line supervisors or managers of service, sales and related, production, or other occupations; or are management occupations.

Long-term on-the-job training. Occupations in this category require more than 12 months of on-the-job training or require combined work experience and formal classroom instruction for workers to develop the skills necessary to be fully qualified in the occupation. These occupations include formal and informal apprenticeships that may last up to 5 years. Long-term on-the-job training also includes intensive occupation-specific, employer-sponsored programs that workers must complete. Among such programs are those conducted by fire and police academies and by schools for air traffic controllers and flight attendants. In other occupations—insurance sales and securities sales, for example—trainees take formal courses, often provided on the jobsite, to prepare for the required licensing exams. Individuals undergoing training generally are considered to be employed in the occupation. Also included in this category is the development of a natural ability—such as that possessed by musicians, athletes, actors, and other entertainers—that must be cultivated over several years, frequently in a nonwork setting.

Moderate-term on-the-job training. In this category of occupations, the skills needed to be fully qualified in the occupation can be acquired during 1 to 12 months of combined on-the-job experience and informal training. Examples are truckdrivers, heavy and tractor-trailer; and secretaries, except legal, medical, and executive.

Short-term on-the-job training. In occupations in this category, the skills needed to be fully qualified in the occupation can be acquired during a short demonstration of job duties or during 1 month or less of on-the-job experience or instruction. Examples of these occupations are retail salespersons; and waiters and waitresses.

percent increase in new jobs (6.2 percent) during 2006–16 will be long-term on-the-job training. Many in this category are in construction or production occupations, such as plumbers and tool and die makers, that require several years of on-the-job and classroom training or formal apprenticeships for the worker to become fully proficient. As more companies become reluctant to provide long-term training to workers out of the concern that they will leave once they are trained, the burden of becoming trained in a profession will increasingly rest on the individual. Thus, jobs typically requiring a postsecondary award or college degree will account for a greater proportion of all jobs. Between 2006 and

2016, the share of all jobs generally requiring a postsecondary vocational award or higher is projected to go from 29.9 percent of all jobs to 31.2 percent.

Occupations in the bachelor's degree category are expected to add the second-largest number of new jobs, 3.1 million, by 2016. Most jobs in this category are among the professional and related occupations. Also, occupations in the bachelor's degree category make up the plurality of new jobs on the list of fastest growing occupations, which includes information technology-related and finance-related occupations.

Note that, for most occupations that are assigned an education and training category, some of the jobs in that

category usually are filled by people with higher or lower levels of education and training than that specified by the category. For example, although, presumably, most retail salespersons can learn their job in less than 1 month, 55 percent of retail salespersons had some college or higher in 2006, suggesting that some employers prefer to hire salespersons with more than a high school diploma. Many occupations have multiple paths of entry, with education often being a substitute for experience. An example of an occupation with multiple paths of entry is police and sheriff's patrol officers. The most significant source of education or training for this occupation is long-term on-the-job training, which may involve an apprenticeship as a cadet lasting 1 or 2 years. However, many police officers have a bachelor's degree in a related field. Those who do may have an edge in landing a job or earning a promotion.

In general, occupations requiring more formal education or training have higher pay and benefits than occupations with less stringent entry requirements. Although the

annual median wage for all occupations was \$30,400 in 2006, occupations that generally require a college degree or extensive work experience in a related occupation had much higher median wages. Occupations that generally require short-term on-the-job training had median annual wages of \$19,620, while occupations that generally require a first professional degree, such as lawyers and physicians and surgeons, had median annual wages of \$112,070.

In projecting occupational growth and decline, the BLS makes many assumptions about the size and makeup of the population, its demand for goods and services, and how governments and businesses react in delivering those goods and services. Changes in laws, preferences, and technology may alter the BLS projections over time. However, given the set of assumptions found in the articles in this issue of the *Review*, the BLS attempts to provide the reader with the best estimate of job growth and decline over the next decade. □

Notes

¹ For more information on the population and labor force projections cited throughout this article, see Mitra Toossi, "Labor force projections to 2016: more workers in their golden years," this issue, pp. 33–52.

² These projections assume that the current immigration policy and levels of immigration will remain constant.

³ For more information on the methodology used to calculate net replacement needs, see *Occupational Projections and Training Data*, 2006–07 edition, Bulletin 2602 (Bureau of Labor Statistics, February 2006), Chapter VI; and 2008–09 edition, Bulletin 2702, forthcoming.

⁴ The number of job openings generated due to growth is expected to be greater than the overall employment change between 2006 and 2016 (15.6 million new jobs), because occupations with declining employment do not create any job openings due to growth.

⁵ See Betty W. Su, "The U.S. economy to 2016: slower growth as boomers begin to retire," this issue, pp. 13–32, for more information on economic projections pertaining to the U.S. economy.

⁶ See Rose A. Woods and Eric B. Figueroa, "Industry output and employment projections to 2016," this issue, pp. 53–96, for more information on the employment, output, and productivity projections, by industry, cited throughout this article.

⁷ Occupational projections presented in this article provide information to those interested in labor market issues. They also provide the background for analyses of future employment opportunities described in the forthcoming 2008–09 *Occupational Outlook Handbook*. The Internet version of this edition of the *Handbook*, which will be accessible at www.bls.gov/oco/, is expected to be available in late December 2007; the print version of the 2008–09 *Handbook*, BLS Bulletin 2700, should be available in the spring of 2008. Job outlook information in the 2008–09 *Handbook* will use the projections presented in each of the articles in this issue of the *Monthly Labor Review*. For a description of the methodology used to develop employment projections, see *BLS Handbook of Methods*, Bulletin 2490 (Bureau of Labor Statistics, April 1997), pp. 122–29, on the Internet at www.bls.gov/emp/nioem/empioan.htm (visited Nov. 30, 2007).

⁸ Those who are self-employed in their primary job are expected to add

643,000 of the 675,000 new jobs for all self-employed workers. Those who are self-employed in their secondary jobs are expected to add the remaining 32,000 new jobs.

⁹ Woods and Figueroa, "Industry output and employment projections to 2016."

¹⁰ For more information on the occupational classification system used in this article, see Executive Office of the President, Office of Management and Budget, *Standard Occupation Classification Manual 2000* (Lanham, MD, Bernan Associates, 2000).

¹¹ Woods and Figueroa, "Industry output and employment projections to 2016."

¹² The education and training categories listed in the tables in this article show the category that best describes the most significant source of postsecondary education or training needed by most workers in a given occupation to become fully qualified in that occupation. However, in many occupations that require a range of education and training, there is more than one way to become qualified. For more information on education and training categories and the educational attainment of workers in occupations, see *Occupational Projections and Training Data*, 2006–07 edition, Bulletin 2602 (Bureau of Labor Statistics, February 2006), and *Occupational Projections and Training Data*, 2008–09 edition, Bulletin 2702 (Bureau of Labor Statistics, forthcoming).

¹³ For detailed occupations that are growing, net replacement needs equal the number of job openings due to growth and net replacements, minus the number of job openings due to growth (numeric change). For detailed occupations that are declining, all job openings are due to replacement needs.

¹⁴ Net separations do not count all movements of workers out of an occupation—a measure termed *total separations*. For example, an opening caused by a worker who stops working for a time and then gets another job in his or her previous occupation would be counted in the measure of total separations, but not in net separations. (See the discussion of the uses of replacement needs information developed in Bureau of Labor Statistics, *Occupational Projections and Training Data*.)

APPENDIX: Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title	Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
	Number		Percent distribution		Number	Percent	
	2006	2016	2006	2016			
00-0000 Total, all occupations	150,620	166,220	100.0	100.0	15,600	10.4	50,732
11-1300 Management, business, and financial occupations ²	15,397	16,993	10.2	10.2	1,596	10.4	4,575
11-0000 Management occupations.....	8,789	9,322	5.8	5.6	533	6.1	2,373
11-1000 Top executives.....	2,187	2,222	1.5	1.3	35	1.6	572
11-1011 Chief executives.....	402	410	.3	.2	8	2.1	118
11-1021 General and operations managers	1,720	1,746	1.1	1.1	26	1.5	441
11-1031 Legislators.....	65	65	.0	.0	1	1.0	13
11-2000 Advertising, marketing, promotions, public relations, and sales managers	583	651	.4	.4	68	11.7	198
11-2011 Advertising and promotions managers	47	50	.0	.0	3	6.2	13
11-2020 Marketing and sales managers.....	486	542	.3	.3	57	11.7	165
11-2021 Marketing managers	167	192	.1	.1	24	14.4	61
11-2022 Sales managers	318	351	.2	.2	33	10.2	103
11-2031 Public relations managers.....	50	58	.0	.0	8	16.9	20
11-3000 Operations specialties managers	1,474	1,628	1.0	1.0	154	10.5	473
11-3011 Administrative services managers	247	276	.2	.2	29	11.7	94
11-3021 Computer and information systems managers	264	307	.2	.2	43	16.4	86
11-3031 Financial managers.....	506	570	.3	.3	64	12.6	138
11-3040 Human resources managers.....	136	153	.1	.1	17	12.5	43
11-3041 Compensation and benefits managers	49	55	.0	.0	6	12.0	15
11-3042 Training and development managers.....	29	33	.0	.0	5	15.6	10
11-3049 Human resources managers, all other.....	58	65	.0	.0	7	11.4	18
11-3051 Industrial production managers.....	157	148	.1	.1	-9	-5.9	54
11-3061 Purchasing managers	70	72	.0	.0	2	3.4	22
11-3071 Transportation, storage, and distribution managers	94	102	.1	.1	8	8.4	36
11-9000 Other management occupations.....	4,545	4,821	3.0	2.9	276	6.1	1,130
11-9010 Agricultural managers	1,317	1,230	.9	.7	-87	-6.6	117
11-9011 Farm, ranch, and other agricultural managers	258	261	.2	.2	3	1.1	22
11-9012 Farmers and ranchers.....	1,058	969	.7	.6	-90	-8.5	95
11-9021 Construction managers.....	487	564	.3	.3	77	15.7	152
11-9030 Education administrators	443	496	.3	.3	53	11.9	176
11-9031 Education administrators, preschool and child care center/program	56	69	.0	.0	13	23.5	29
11-9032 Education administrators, elementary and secondary school	226	243	.1	.1	17	7.6	80
11-9033 Education administrators, postsecondary	131	150	.1	.1	19	14.2	55
11-9039 Education administrators, all other.....	30	33	.0	.0	4	12.6	12
11-9041 Engineering managers.....	187	201	.1	.1	14	7.3	51
11-9051 Food service managers	350	368	.2	.2	18	5.0	100
11-9061 Funeral directors	29	32	.0	.0	4	12.5	10
11-9071 Gaming managers	4	5	.0	.0	1	24.4	2
11-9081 Lodging managers	71	80	.0	.0	9	12.2	24
11-9111 Medical and health services managers.....	262	305	.2	.2	43	16.4	92
11-9121 Natural sciences managers	41	45	.0	.0	5	11.4	14
11-9131 Postmasters and mail superintendents.....	26	26	.0	.0	0	-8	6
11-9141 Property, real estate, and community association managers	329	379	.2	.2	50	15.1	95
11-9151 Social and community service managers	130	162	.1	.1	32	24.7	57
11-9199 Managers, all other	870	930	.6	.6	60	6.9	233
13-0000 Business and financial operations occupations	6,608	7,671	4.4	4.6	1,063	16.1	2,203
13-1000 Business operations specialists.....	3,860	4,466	2.6	2.7	606	15.7	1,276
13-1011 Agents and business managers of artists, performers, and athletes	25	27	.0	.0	2	9.6	9
13-1020 Buyers and purchasing agents	460	459	.3	.3	-1	-3	99
13-1021 Purchasing agents and buyers, farm products	16	15	.0	.0	-1	-8.6	2
13-1022 Wholesale and retail buyers, except farm products	157	156	.1	.1	0	-1	35
13-1023 Purchasing agents, except wholesale, retail, and farm products	287	288	.2	.2	0	.1	62
13-1030 Claims adjusters, appraisers, examiners, and investigators.....	319	347	.2	.2	29	9.1	110
13-1031 Claims adjusters, examiners, and investigators.....	305	332	.2	.2	27	8.9	105

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16 ¹
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
13-1032	Insurance appraisers, auto damage.....	13	15	0.0	0.0	2	12.5	5
13-1041	Compliance officers, except agriculture, construction, health and safety, and transportation	237	249	.2	.1	12	4.9	39
13-1051	Cost estimators	221	262	.1	.2	41	18.5	86
13-1061	Emergency management specialists	12	13	.0	.0	1	12.3	3
13-1070	Human resources, training, and labor relations specialists.....	732	862	.5	.5	130	17.8	288
13-1071	Employment, recruitment, and placement specialists.....	197	233	.1	.1	36	18.4	79
13-1072	Compensation, benefits, and job analysis specialists.....	110	130	.1	.1	20	18.4	44
13-1073	Training and development specialists.....	210	249	.1	.1	38	18.3	84
13-1079	Human resources, training, and labor relations specialists, all other.....	214	250	.1	.2	35	16.5	81
13-1081	Logisticians	83	98	.1	.1	14	17.3	27
13-1111	Management analysts.....	678	827	.5	.5	149	21.9	264
13-1121	Meeting and convention planners.....	51	61	.0	.0	10	19.9	20
13-1199	Business operation specialists, all other.....	1,043	1,261	.7	.8	218	20.9	330
13-2000	Financial specialists.....	2,748	3,204	1.8	1.9	457	16.6	927
13-2011	Accountants and auditors	1,274	1,500	.8	.9	226	17.7	450
13-2021	Appraisers and assessors of real estate.....	101	118	.1	.1	17	16.9	37
13-2031	Budget analysts	62	66	.0	.0	4	7.1	19
13-2041	Credit analysts	67	68	.0	.0	1	1.9	27
13-2050	Financial analysts and advisors	501	655	.3	.4	153	30.6	210
13-2051	Financial analysts.....	221	295	.1	.2	75	33.8	87
13-2052	Personal financial advisors	176	248	.1	.1	72	41.0	88
13-2053	Insurance underwriters.....	104	111	.1	.1	7	6.3	35
13-2061	Financial examiners	26	28	.0	.0	3	10.7	7
13-2070	Loan counselors and officers	406	450	.3	.3	44	10.8	88
13-2071	Loan counselors.....	33	35	.0	.0	1	4.0	5
13-2072	Loan officers.....	373	415	.2	.2	43	11.5	83
13-2080	Tax examiners, collectors, preparers, and revenue agents	181	174	.1	.1	-7	-3.7	40
13-2081	Tax examiners, collectors, and revenue agents.....	81	82	.1	.0	2	2.1	22
13-2082	Tax preparers	100	92	.1	.1	-8	-8.4	18
13-2099	Financial specialists, all other	129	144	.1	.1	15	11.8	50
15-2900	Professional and related occupations ³	29,819	34,790	19.8	20.9	4,970	16.7	11,067
15-0000	Computer and mathematical science occupations	3,313	4,135	2.2	2.5	822	24.8	1,568
15-1000	Computer specialists.....	3,200	4,006	2.1	2.4	807	25.2	1,524
15-1011	Computer and information scientists, research.....	25	31	.0	.0	5	21.5	12
15-1021	Computer programmers.....	435	417	.3	.3	-18	-4.1	91
15-1030	Computer software engineers	857	1,181	.6	.7	324	37.9	449
15-1031	Computer software engineers, applications.....	507	733	.3	.4	226	44.6	300
15-1032	Computer software engineers, systems software	350	449	.2	.3	99	28.2	150
15-1041	Computer support specialists.....	552	624	.4	.4	71	12.9	242
15-1051	Computer systems analysts.....	504	650	.3	.4	146	29.0	280
15-1061	Database administrators	119	154	.1	.1	34	28.6	47
15-1071	Network and computer systems administrators	309	393	.2	.2	83	26.9	154
15-1081	Network systems and data communications analysts	262	402	.2	.2	140	53.4	193
15-1099	Computer specialists, all other.....	136	157	.1	.1	21	15.1	57
15-2000	Mathematical science occupations	114	129	.1	.1	15	13.2	44
15-2011	Actuaries	18	22	.0	.0	4	23.7	11
15-2021	Mathematicians.....	3	3	.0	.0	0	10.2	1
15-2031	Operations research analysts	58	65	.0	.0	6	10.6	18
15-2041	Statisticians.....	22	24	.0	.0	2	8.5	9
15-2090	Miscellaneous mathematical science occupations	12	14	.0	.0	2	19.8	5
15-2091	Mathematical technicians.....	1	1	.0	.0	0	7.9	0
15-2099	Mathematical scientists, all other	10	13	.0	.0	2	21.3	5
17-0000	Architecture and engineering occupations.....	2,583	2,852	1.7	1.7	268	10.4	852

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16 ¹
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
17-1000	Architects, surveyors, and cartographers	232	277	0.2	0.2	45	19.2	97
17-1010	Architects, except naval	160	188	.1	.1	28	17.5	58
17-1011	Architects, except landscape and naval	132	155	.1	.1	23	17.7	48
17-1012	Landscape architects	28	32	.0	.0	5	16.4	10
17-1020	Surveyors, cartographers, and photogrammetrists	72	89	.0	.1	17	23.1	39
17-1021	Cartographers and photogrammetrists	12	15	.0	.0	2	20.3	6
17-1022	Surveyors	60	74	.0	.0	14	23.7	33
17-2000	Engineers	1,512	1,671	1.0	1.0	160	10.6	505
17-2011	Aerospace engineers	90	99	.1	.1	9	10.2	27
17-2021	Agricultural engineers	3	3	.0	.0	0	8.6	1
17-2031	Biomedical engineers	14	17	.0	.0	3	21.1	6
17-2041	Chemical engineers	30	33	.0	.0	2	7.9	10
17-2051	Civil engineers	256	302	.2	.2	46	18.0	114
17-2061	Computer hardware engineers	79	82	.1	.0	4	4.6	28
17-2070	Electrical and electronics engineers	291	306	.2	.2	15	5.0	82
17-2071	Electrical engineers	153	163	.1	.1	10	6.3	45
17-2072	Electronics engineers, except computer	138	143	.1	.1	5	3.7	37
17-2081	Environmental engineers	54	68	.0	.0	14	25.4	30
17-2110	Industrial engineers, including health and safety	227	270	.2	.2	43	19.1	98
17-2111	Health and safety engineers, except mining safety engineers and inspectors	25	28	.0	.0	2	9.6	9
17-2112	Industrial engineers	201	242	.1	.1	41	20.3	89
17-2121	Marine engineers and naval architects	9	10	.0	.0	1	10.9	3
17-2131	Materials engineers	22	22	.0	.0	1	4.0	6
17-2141	Mechanical engineers	226	235	.1	.1	9	4.2	58
17-2151	Mining and geological engineers, including mining safety engineers	7	8	.0	.0	1	10.0	2
17-2161	Nuclear engineers	15	16	.0	.0	1	7.2	5
17-2171	Petroleum engineers	17	18	.0	.0	1	5.2	5
17-2199	Engineers, all other	170	180	.1	.1	9	5.5	29
17-3000	Drafters, engineering, and mapping technicians	840	904	.6	.5	64	7.6	250
17-3010	Drafters	253	268	.2	.2	15	6.0	88
17-3011	Architectural and civil drafters	116	123	.1	.1	7	6.1	40
17-3012	Electrical and electronics drafters	35	36	.0	.0	1	4.1	11
17-3013	Mechanical drafters	78	82	.1	.0	4	5.2	26
17-3019	Drafters, all other	25	27	.0	.0	3	11.0	10
17-3020	Engineering technicians, except drafters	511	545	.3	.3	34	6.7	134
17-3021	Aerospace engineering and operations technicians	9	9	.0	.0	1	10.4	3
17-3022	Civil engineering technicians	91	100	.1	.1	9	10.2	27
17-3023	Electrical and electronic engineering technicians	170	177	.1	.1	6	3.6	39
17-3024	Electro-mechanical technicians	16	16	.0	.0	0	2.7	3
17-3025	Environmental engineering technicians	21	26	.0	.0	5	24.8	9
17-3026	Industrial engineering technicians	75	82	.0	.0	7	9.9	22
17-3027	Mechanical engineering technicians	48	51	.0	.0	3	6.4	12
17-3029	Engineering technicians, except drafters, all other ..	82	83	.1	.1	2	2.0	18
17-3031	Surveying and mapping technicians	76	90	.1	.1	15	19.4	29
19-0000	Life, physical, and social science occupations	1,407	1,610	.9	1.0	203	14.4	538
19-1000	Life scientists	258	292	.2	.2	33	12.8	103
19-1010	Agricultural and food scientists	33	36	.0	.0	3	9.3	13
19-1011	Animal scientists	5	6	.0	.0	1	9.9	2
19-1012	Food scientists and technologists	12	13	.0	.0	1	10.4	5
19-1013	Soil and plant Scientists	16	17	.0	.0	1	8.4	6
19-1020	Biological scientists	87	95	.1	.1	8	9.2	26
19-1021	Biochemists and biophysicists	20	23	.0	.0	3	15.9	7
19-1022	Microbiologists	17	19	.0	.0	2	11.2	5
19-1023	Zoologists and wildlife biologists	20	22	.0	.0	2	8.7	6
19-1029	Biological scientists, all other	29	30	.0	.0	1	3.7	7
19-1030	Conservation scientists and foresters	33	35	.0	.0	2	5.3	11
19-1031	Conservation scientists	20	21	.0	.0	1	5.3	7
19-1032	Foresters	13	14	.0	.0	1	5.2	5
19-1040	Medical scientists	92	110	.1	.1	18	19.9	47
19-1041	Epidemiologists	5	5	.0	.0	1	13.6	2

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title	Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
	Number		Percent distribution		Number	Percent	
	2006	2016	2006	2016			
19-1042 Medical scientists, except epidemiologists.....	87	105	0.1	0.1	18	20.2	45
19-1099 Life scientists, all other.....	14	16	.0	.0	2	15.3	6
19-2000 Physical scientists.....	267	309	.2	.2	42	15.7	109
19-2010 Astronomers and physicists.....	18	19	.0	.0	1	6.7	6
19-2011 Astronomers.....	2	2	.0	.0	0	5.5	0
19-2012 Physicists.....	17	18	.0	.0	1	6.8	5
19-2021 Atmospheric and space scientists.....	9	10	.0	.0	1	10.6	3
19-2030 Chemists and materials scientists.....	93	102	.1	.1	8	9.1	33
19-2031 Chemists.....	84	91	.1	.1	8	9.1	30
19-2032 Materials scientists.....	10	11	.0	.0	1	8.7	3
19-2040 Environmental scientists and geoscientists.....	123	152	.1	.1	30	24.2	61
19-2041 Environmental scientists and specialists, including health.....	83	104	.1	.1	21	25.1	42
19-2042 Geoscientists, except hydrologists and geographers.....	31	38	.0	.0	7	21.9	15
19-2043 Hydrologists.....	8	10	.0	.0	2	24.3	4
19-2099 Physical scientists, all other.....	24	25	.0	.0	1	6.2	6
19-3000 Social scientists and related occupations.....	530	616	.4	.4	86	16.3	160
19-3011 Economists.....	15	16	.0	.0	1	7.5	5
19-3020 Market and survey researchers.....	261	313	.2	.2	51	19.7	69
19-3021 Market research analysts.....	234	281	.2	.2	47	20.1	63
19-3022 Survey researchers.....	27	31	.0	.0	4	15.9	6
19-3030 Psychologists.....	166	191	.1	.1	25	15.3	51
19-3031 Clinical, counseling, and school psychologists.....	152	176	.1	.1	24	15.8	47
19-3032 Industrial-organizational psychologists.....	2	2	.0	.0	0	21.3	1
19-3039 Psychologists, all other.....	12	13	.0	.0	1	7.9	3
19-3041 Sociologists.....	4	4	.0	.0	0	10.0	1
19-3051 Urban and regional planners.....	34	39	.0	.0	5	14.5	15
19-3090 Miscellaneous social scientists and related workers.....	51	54	.0	.0	3	6.1	19
19-3091 Anthropologists and archeologists.....	6	6	.0	.0	1	15.0	3
19-3092 Geographers.....	1	1	.0	.0	0	6.1	0
19-3093 Historians.....	3	4	.0	.0	0	7.8	1
19-3094 Political scientists.....	5	5	.0	.0	0	5.3	2
19-3099 Social scientists and related workers, all other.....	36	38	.0	.0	2	4.7	13
19-4000 Life, physical, and social science technicians.....	351	393	.2	.2	42	11.8	165
19-4011 Agricultural and food science technicians.....	26	28	.0	.0	2	6.6	6
19-4021 Biological technicians.....	79	91	.1	.1	13	16.0	41
19-4031 Chemical technicians.....	61	65	.0	.0	4	5.8	24
19-4041 Geological and petroleum technicians.....	12	13	.0	.0	1	8.6	5
19-4051 Nuclear technicians.....	7	7	.0	.0	0	6.7	3
19-4061 Social science research assistants.....	18	20	.0	.0	2	12.4	9
19-4090 Other life, physical, and social science technicians.....	150	170	.1	.1	20	13.4	78
19-4091 Environmental science and protection technicians, including health.....	37	47	.0	.0	10	27.9	24
19-4092 Forensic science technicians.....	13	17	.0	.0	4	30.7	9
19-4093 Forest and conservation technicians.....	34	33	.0	.0	-1	-2.0	13
19-4099 Life, physical, and social science technicians, all other.....	66	73	.0	.0	7	9.9	32
21-0000 Community and social services occupations.....	2,386	2,927	1.6	1.8	541	22.7	945
21-1000 Counselors, social workers, and other community and social service specialists.....	1,843	2,280	1.2	1.4	438	23.8	760
21-1010 Counselors.....	635	771	.4	.5	136	21.3	261
21-1011 Substance abuse and behavioral disorder counselors.....	83	112	.1	.1	29	34.4	45
21-1012 Educational, vocational, and school counselors.....	260	292	.2	.2	33	12.6	84
21-1013 Marriage and family therapists.....	25	32	.0	.0	7	29.8	12
21-1014 Mental health counselors.....	100	130	.1	.1	30	30.0	50
21-1015 Rehabilitation counselors.....	141	173	.1	.1	32	23.0	60
21-1019 Counselors, all other.....	27	32	.0	.0	5	16.6	10
21-1020 Social workers.....	595	727	.4	.4	132	22.2	258
21-1021 Child, family, and school social workers.....	282	336	.2	.2	54	19.1	114
21-1022 Medical and public health social workers.....	124	154	.1	.1	30	24.2	56

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
21-1023	Mental health and substance abuse social workers	122	159	0.1	0.1	37	29.9	62
21-1029	Social workers, all other	66	78	.0	.0	12	17.8	26
21-1090	Miscellaneous community and social service specialists.....	613	783	.4	.5	170	27.7	241
21-1091	Health educators.....	62	78	.0	.0	16	26.2	23
21-1092	Probation officers and correctional treatment specialists.....	94	105	.1	.1	10	10.9	21
21-1093	Social and human service assistants.....	339	453	.2	.3	114	33.6	153
21-1099	Community and social service specialists, all other.....	118	148	.1	.1	30	25.1	43
21-2000	Religious workers.....	543	646	.4	.4	104	19.1	185
21-2011	Clergy.....	404	481	.3	.3	76	18.9	130
21-2021	Directors, religious activities and education.....	99	119	.1	.1	20	19.7	42
21-2099	Religious workers, all other.....	39	47	.0	.0	8	19.7	12
23-0000	Legal occupations.....	1,222	1,367	.8	.8	145	11.8	360
23-1000	Lawyers, judges, and related workers	812	898	.5	.5	86	10.6	240
23-1011	Lawyers.....	761	844	.5	.5	84	11.0	228
23-1020	Judges, magistrates, and other judicial workers.....	51	53	.0	.0	2	4.5	12
23-1021	Administrative law judges, adjudicators, and hearing officers.....	15	15	.0	.0	0	.1	3
23-1022	Arbitrators, mediators, and conciliators.....	8	9	.0	.0	1	10.6	3
23-1023	Judges, magistrate judges, and magistrates.....	27	29	.0	.0	1	5.1	7
23-2000	Legal support workers	410	469	.3	.3	59	14.3	120
23-2011	Paralegals and legal assistants	238	291	.2	.2	53	22.2	84
23-2090	Miscellaneous legal support workers	173	179	.1	.1	6	3.4	36
23-2091	Court reporters.....	19	24	.0	.0	5	24.6	8
23-2092	Law clerks	37	36	.0	.0	0	-1.2	6
23-2093	Title examiners, abstractors, and searchers	69	68	.0	.0	-1	-1.2	11
23-2099	Legal support workers, all other.....	48	50	.0	.0	2	5.1	10
25-0000	Education, training, and library occupations.....	9,034	10,298	6.0	6.2	1,265	14.0	3,050
25-1000	Postsecondary teachers	1,672	2,054	1.1	1.2	382	22.9	662
25-2000	Primary, secondary, and special education teachers.....	4,413	4,963	2.9	3.0	550	12.5	1,578
25-2010	Preschool and kindergarten teachers	607	750	.4	.5	143	23.5	243
25-2011	Preschool teachers, except special education	437	552	.3	.3	115	26.3	187
25-2012	Kindergarten teachers, except special education	170	198	.1	.1	28	16.3	56
25-2020	Elementary and middle school teachers.....	2,214	2,496	1.5	1.5	282	12.7	766
25-2021	Elementary school teachers, except special education.....	1,540	1,749	1.0	1.1	209	13.6	545
25-2022	Middle school teachers, except special and vocational education	658	732	.4	.4	74	11.2	217
25-2023	Vocational education teachers, middle school	16	15	.0	.0	-1	-5.1	3
25-2030	Secondary school teachers.....	1,133	1,187	.8	.7	54	4.8	396
25-2031	Secondary school teachers, except special and vocational education	1,038	1,096	.7	.7	59	5.6	368
25-2032	Vocational education teachers, secondary school	96	91	.1	.1	-4	-4.6	28
25-2040	Special education teachers.....	459	530	.3	.3	71	15.5	173
25-2041	Special education teachers, preschool, kindergarten, and elementary school.....	219	262	.1	.2	43	19.6	92
25-2042	Special education teachers, middle school.....	102	118	.1	.1	16	15.8	39
25-2043	Special education teachers, secondary school.....	138	150	.1	.1	12	8.5	42
25-3000	Other teachers and instructors	1,078	1,214	.7	.7	136	12.6	251
25-3011	Adult literacy, remedial education, and GED teachers and instructors.....	76	87	.1	.1	11	14.2	19
25-3021	Self-enrichment education teachers	261	322	.2	.2	60	23.1	88
25-3099	Teachers and instructors, all other	741	805	.5	.5	64	8.7	144
25-4000	Librarians, curators, and archivists.....	307	328	.2	.2	21	6.9	135
25-4010	Archivists, curators, and museum technicians.....	27	33	.0	.0	5	18.3	17
25-4011	Archivists.....	6	7	.0	.0	1	14.4	4
25-4012	Curators	10	13	.0	.0	2	23.3	7
25-4013	Museum Technicians and Conservators	11	12	.0	.0	2	15.9	6
25-4021	Librarians	158	164	.1	.1	6	3.6	49
25-4031	Library technicians.....	121	132	.1	.1	10	8.5	69

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
25-9000	Other education, training, and library occupations	1,563	1,739	1.0	1.0	176	11.2	425
25-9011	Audio-visual collections specialists	7	6	.0	.0	-1	-13.8	1
25-9021	Farm and home management advisors	15	16	.0	.0	1	5.1	3
25-9031	Instructional coordinators	129	159	.1	.1	29	22.5	47
25-9041	Teacher assistants	1,312	1,449	.9	.9	137	10.4	350
25-9099	Education, training, and library workers, all other	99	110	.1	.1	10	10.5	24
27-0000	Arts, design, entertainment, sports, and media occupations	2,677	2,982	1.8	1.8	305	11.4	968
27-1000	Art and design occupations	821	905	.5	.5	84	10.2	303
27-1010	Artists and related workers	218	253	.1	.2	34	15.8	85
27-1011	Art directors	78	85	.1	.1	7	9.0	25
27-1012	Craft artists	9	10	.0	.0	1	8.0	3
27-1013	Fine artists, including painters, sculptors, and illustrators	30	33	.0	.0	3	9.9	10
27-1014	Multi-media artists and animators	87	110	.1	.1	23	25.8	43
27-1019	Artists and related workers, all other	14	15	.0	.0	1	8.4	4
27-1020	Designers	603	653	.4	.4	50	8.2	218
27-1021	Commercial and industrial designers	48	51	.0	.0	3	7.2	16
27-1022	Fashion designers	20	21	.0	.0	1	5.0	6
27-1023	Floral designers	87	79	.1	.0	-8	-8.9	23
27-1024	Graphic designers	261	286	.2	.2	26	9.8	95
27-1025	Interior designers	72	86	.0	.1	14	19.5	33
27-1026	Merchandise displayers and window trimmers	87	96	.1	.1	9	10.7	32
27-1027	Set and exhibit designers	12	14	.0	.0	2	17.8	5
27-1029	Designers, all other	16	18	.0	.0	2	11.8	6
27-2000	Entertainers and performers, sports and related occupations	798	897	.5	.5	100	12.5	307
27-2010	Actors, producers, and directors	163	182	.1	.1	18	11.3	60
27-2011	Actors	70	78	.0	.0	8	11.6	23
27-2012	Producers and directors	93	103	.1	.1	10	11.1	38
27-2020	Athletes, coaches, umpires, and related workers	253	291	.2	.2	38	15.1	103
27-2021	Athletes and sports competitors	18	21	.0	.0	3	19.2	8
27-2022	Coaches and scouts	217	249	.1	.1	32	14.7	87
27-2023	Umpires, referees, and other sports officials	19	22	.0	.0	3	16.0	8
27-2030	Dancers and choreographers	40	43	.0	.0	2	5.9	25
27-2031	Dancers	20	22	.0	.0	2	9.5	13
27-2032	Choreographers	20	21	.0	.0	0	2.4	12
27-2040	Musicians, singers, and related workers	264	293	.2	.2	29	10.8	82
27-2041	Music directors and composers	68	77	.0	.0	9	12.9	23
27-2042	Musicians and singers	196	216	.1	.1	20	10.1	60
27-2099	Entertainers and performers, sports and related workers, all other	77	89	.1	.1	12	15.8	37
27-3000	Media and communication occupations	764	847	.5	.5	83	10.8	245
27-3010	Announcers	71	66	.0	.0	-5	-6.9	24
27-3011	Radio and television announcers	59	54	.0	.0	-5	-8.3	20
27-3012	Public address system and other announcers	12	12	.0	.0	0	-2	4
27-3020	News analysts, reporters and correspondents	67	68	.0	.0	1	1.8	22
27-3021	Broadcast news analysts	8	8	.0	.0	0	6.0	3
27-3022	Reporters and correspondents	59	60	.0	.0	1	1.2	19
27-3031	Public relations specialists	243	286	.2	.2	43	17.6	61
27-3040	Writers and editors	306	336	.2	.2	30	9.7	105
27-3041	Editors	122	124	.1	.1	3	2.3	39
27-3042	Technical writers	49	59	.0	.0	10	19.5	24
27-3043	Writers and authors	135	153	.1	.1	17	12.8	42
27-3090	Miscellaneous media and communications workers	77	91	.1	.1	14	18.1	32
27-3091	Interpreters and translators	41	51	.0	.0	10	23.6	20
27-3099	Media and communication workers, all other	36	40	.0	.0	4	11.7	13
27-4000	Media and communication equipment occupations	294	332	.2	.2	38	13.0	113
27-4010	Broadcast and sound engineering technicians and radio operators	105	123	.1	.1	18	17.0	52
27-4011	Audio and video equipment technicians	50	62	.0	.0	12	24.2	28

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16 ¹
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
27-4012	Broadcast technicians.....	38	42	0.0	0.0	5	12.1	17
27-4013	Radio operators.....	2	1	.0	.0	0	-16.3	1
27-4014	Sound engineering technicians.....	16	18	.0	.0	1	9.1	7
27-4021	Photographers.....	122	135	.1	.1	13	10.3	40
27-4030	Television, video, and motion picture camera operators and editors.....	47	53	.0	.0	6	12.0	15
27-4031	Camera operators, television, video, and motion picture.....	27	30	.0	.0	3	11.5	8
27-4032	Film and video editors.....	21	23	.0	.0	3	12.7	6
27-4099	Media and communication equipment workers, all other.....	19	21	.0	.0	2	10.2	7
29-0000	Healthcare practitioners and technical occupations.....	7,198	8,620	4.8	5.2	1,423	19.8	2,785
29-1000	Health diagnosing and treating practitioners.....	4,460	5,383	3.0	3.2	923	20.7	1,670
29-1011	Chiropractors.....	53	60	.0	.0	8	14.4	13
29-1020	Dentists.....	161	176	.1	.1	15	9.1	46
29-1021	Dentists, general.....	136	149	.1	.1	13	9.2	39
29-1022	Oral and maxillofacial surgeons.....	8	8	.0	.0	1	9.1	2
29-1023	Orthodontists.....	9	10	.0	.0	1	9.2	3
29-1024	Prosthodontists.....	1	1	.0	.0	0	10.7	0
29-1029	Dentists, all other specialists.....	7	7	.0	.0	0	6.8	2
29-1031	Dietitians and nutritionists.....	57	62	.0	.0	5	8.6	19
29-1041	Optometrists.....	33	36	.0	.0	4	11.3	9
29-1051	Pharmacists.....	243	296	.2	.2	53	21.7	95
29-1060	Physicians and surgeons.....	633	723	.4	.4	90	14.2	204
29-1071	Physician assistants.....	66	83	.0	.1	18	27.0	27
29-1081	Podiatrists.....	12	13	.0	.0	1	9.5	5
29-1111	Registered nurses.....	2,505	3,092	1.7	1.9	587	23.4	1,001
29-1120	Therapists.....	570	684	.4	.4	114	19.9	197
29-1121	Audiologists.....	12	13	.0	.0	1	9.8	3
29-1122	Occupational therapists.....	99	122	.1	.1	23	23.1	37
29-1123	Physical therapists.....	173	220	.1	.1	47	27.1	68
29-1124	Radiation therapists.....	15	18	.0	.0	4	24.8	6
29-1125	Recreational therapists.....	25	26	.0	.0	1	3.7	5
29-1126	Respiratory therapists.....	102	126	.1	.1	23	22.6	38
29-1127	Speech-language pathologists.....	110	121	.1	.1	12	10.6	33
29-1129	Therapists, all other.....	35	38	.0	.0	3	10.0	8
29-1131	Veterinarians.....	62	84	.0	.1	22	35.0	34
29-1199	Health diagnosing and treating practitioners, all other.....	65	73	.0	.0	8	11.8	19
29-2000	Health technologists and technicians.....	2,612	3,094	1.7	1.9	482	18.5	1,074
29-2010	Clinical laboratory technologists and technicians.....	319	362	.2	.2	43	13.6	92
29-2011	Medical and clinical laboratory technologists.....	167	188	.1	.1	21	12.4	46
29-2012	Medical and clinical laboratory technicians.....	151	174	.1	.1	23	15.0	46
29-2021	Dental hygienists.....	167	217	.1	.1	50	30.1	82
29-2030	Diagnostic related technologists and technicians.....	307	360	.2	.2	53	17.2	95
29-2031	Cardiovascular technologists and technicians.....	45	57	.0	.0	12	25.5	18
29-2032	Diagnostic medical sonographers.....	46	54	.0	.0	9	19.1	15
29-2033	Nuclear medicine technologists.....	20	23	.0	.0	3	14.8	6
29-2034	Radiologic technologists and technicians.....	196	226	.1	.1	30	15.1	56
29-2041	Emergency medical technicians and paramedics.....	201	240	.1	.1	39	19.2	62
29-2050	Health diagnosing and treating practitioner support technicians.....	549	692	.4	.4	143	26.1	313
29-2051	Dietetic technicians.....	25	29	.0	.0	4	14.8	11
29-2052	Pharmacy technicians.....	285	376	.2	.2	91	32.0	178
29-2053	Psychiatric technicians.....	62	60	.0	.0	-2	-3.3	19
29-2054	Respiratory therapy technicians.....	19	19	.0	.0	0	.9	6
29-2055	Surgical technologists.....	86	107	.1	.1	21	24.4	47
29-2056	Veterinary technologists and technicians.....	71	100	.0	.1	29	41.0	51
29-2061	Licensed practical and licensed vocational nurses.....	749	854	.5	.5	105	14.0	309
29-2071	Medical records and health information technicians.....	170	200	.1	.1	30	17.8	76
29-2081	Opticians, dispensing.....	66	72	.0	.0	6	8.7	27

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16 ¹
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
29-2090	Miscellaneous health technologists and technicians ..	85	98	0.1	0.1	13	14.7	19
29-2091	Orthotists and prosthetists	6	6	.0	.0	1	11.8	1
29-2099	Healthcare technologists and technicians, all other	79	91	.1	.1	12	15.0	18
29-9000	Other healthcare practitioners and technical occupations	126	143	.1	.1	17	13.7	41
29-9010	Occupational health and safety specialists and technicians	56	61	.0	.0	5	9.3	16
29-9011	Occupational health and safety specialists	45	49	.0	.0	4	8.1	12
29-9012	Occupational health and safety technicians	10	12	.0	.0	2	14.6	4
29-9090	Miscellaneous health practitioners and technical workers	70	82	.0	.0	12	17.1	25
29-9091	Athletic trainers	17	21	.0	.0	4	24.3	7
29-9099	Healthcare practitioners and technical workers, all other	53	61	.0	.0	8	14.8	18
31-3900	Service occupations ⁴	28,950	33,780	19.2	20.3	4,830	16.7	12,218
31-0000	Healthcare support occupations	3,724	4,721	2.5	2.8	997	26.8	1,399
31-1000	Nursing, psychiatric, and home health aides	2,296	2,944	1.5	1.8	647	28.2	853
31-1011	Home health aides	787	1,171	.5	.7	384	48.7	454
31-1012	Nursing aides, orderlies, and attendants	1,447	1,711	1.0	1.0	264	18.2	393
31-1013	Psychiatric aides	62	62	.0	.0	0	–1	6
31-2000	Occupational and physical therapist assistants and aides	140	179	.1	.1	39	27.9	58
31-2010	Occupational therapist assistants and aides	33	41	.0	.0	8	24.5	13
31-2011	Occupational therapist assistants	25	31	.0	.0	6	25.4	10
31-2012	Occupational therapist aides	8	10	.0	.0	2	21.9	3
31-2020	Physical therapist assistants and aides	107	137	.1	.1	31	28.9	44
31-2021	Physical therapist assistants	60	80	.0	.0	20	32.4	27
31-2022	Physical therapist aides	46	58	.0	.0	11	24.4	17
31-9000	Other healthcare support occupations	1,287	1,598	.9	1.0	311	24.2	489
31-9011	Massage therapists	118	142	.1	.1	24	20.3	37
31-9090	Miscellaneous healthcare support occupations	1,170	1,457	.8	.9	287	24.5	452
31-9091	Dental assistants	280	362	.2	.2	82	29.2	130
31-9092	Medical assistants	417	565	.3	.3	148	35.4	199
31-9093	Medical equipment preparers	45	52	.0	.0	6	14.2	12
31-9094	Medical transcriptionists	98	112	.1	.1	13	13.5	26
31-9095	Pharmacy aides	50	45	.0	.0	–6	–11.1	6
31-9096	Veterinary assistants and laboratory animal caretakers	75	86	.0	.1	12	15.7	21
31-9099	Healthcare support workers, all other	204	236	.1	.1	32	15.6	57
33-0000	Protective service occupations	3,163	3,616	2.1	2.2	453	14.3	1,327
33-1000	First-line supervisors/managers, protective service workers	233	260	.2	.2	26	11.4	91
33-1010	First-line supervisors/managers, law enforcement workers	133	146	.1	.1	13	10.2	53
33-1011	First-line supervisors/managers of correctional officers	40	45	.0	.0	5	12.5	16
33-1012	First-line supervisors/managers of police and detectives	93	102	.1	.1	9	9.2	38
33-1021	First-line supervisors/managers of fire fighting and prevention workers	52	58	.0	.0	6	11.5	22
33-1099	First-line supervisors/managers, protective service workers, all other	48	55	.0	.0	7	14.5	15
33-2000	Fire fighting and prevention workers	308	345	.2	.2	37	12.0	147
33-2011	Fire fighters	293	328	.2	.2	35	12.1	142
33-2020	Fire inspectors	16	17	.0	.0	2	10.0	5
33-2021	Fire inspectors and investigators	14	15	.0	.0	2	11.0	5
33-2022	Forest fire inspectors and prevention specialists	2	2	.0	.0	0	2.1	0
33-3000	Law enforcement workers	1,239	1,406	.8	.8	167	13.5	475
33-3010	Bailiffs, correctional officers, and jailers	460	537	.3	.3	77	16.6	182
33-3011	Bailiffs	19	21	.0	.0	2	11.2	6
33-3012	Correctional officers and jailers	442	516	.3	.3	75	16.9	175

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
33-3021	Detectives and criminal investigators.....	106	125	0.1	0.1	18	17.3	42
33-3031	Fish and game wardens.....	8	8	.0	.0	0	-.2	2
33-3041	Parking enforcement workers.....	11	12	.0	.0	1	12.3	4
33-3050	Police officers.....	654	724	.4	.4	70	10.8	245
33-3051	Police and sheriff's patrol officers.....	648	719	.4	.4	70	10.8	243
33-3052	Transit and railroad police.....	6	6	.0	.0	0	6.4	2
33-9000	Other protective service workers.....	1,382	1,605	.9	1.0	223	16.1	615
33-9011	Animal control workers.....	15	17	.0	.0	2	12.5	5
33-9021	Private detectives and investigators.....	52	61	.0	.0	9	18.2	19
33-9030	Security guards and gaming surveillance officers.....	1,049	1,227	.7	.7	178	17.0	391
33-9031	Gaming surveillance officers and gaming investigators.....	9	12	.0	.0	3	33.6	5
33-9032	Security guards.....	1,040	1,216	.7	.7	175	16.9	387
33-9090	Miscellaneous protective service workers.....	266	299	.2	.2	33	12.4	199
33-9091	Crossing guards.....	69	71	.0	.0	1	1.9	21
33-9092	Lifeguards, ski patrol, and other recreational protective service workers.....	114	136	.1	.1	21	18.7	106
33-9099	Protective service workers, all other.....	83	93	.1	.1	10	12.6	72
35-0000	Food preparation and serving related occupations.....	11,352	12,789	7.5	7.7	1,436	12.7	5,382
35-1000	Supervisors, food preparation and serving workers.....	932	1,033	.6	.6	101	10.9	177
35-1011	Chefs and head cooks.....	115	124	.1	.1	9	7.6	23
35-1012	First-line supervisors/managers of food preparation and serving workers.....	817	909	.5	.5	92	11.3	154
35-2000	Cooks and food preparation workers.....	2,998	3,340	2.0	2.0	342	11.4	1,223
35-2010	Cooks.....	2,097	2,301	1.4	1.4	204	9.7	772
35-2011	Cooks, fast food.....	629	681	.4	.4	52	8.3	223
35-2012	Cooks, institution and cafeteria.....	401	445	.3	.3	43	10.9	152
35-2013	Cooks, private household.....	5	5	.0	.0	0	8.8	2
35-2014	Cooks, restaurant.....	850	948	.6	.6	98	11.5	328
35-2015	Cooks, short order.....	195	205	.1	.1	9	4.8	62
35-2019	Cooks, all other.....	16	16	.0	.0	1	3.4	5
35-2021	Food preparation workers.....	902	1,040	.6	.6	138	15.3	451
35-3000	Food and beverage serving workers.....	6,081	6,927	4.0	4.2	846	13.9	3,182
35-3011	Bartenders.....	495	551	.3	.3	56	11.2	236
35-3020	Fast food and counter workers.....	3,036	3,542	2.0	2.1	506	16.7	1,350
35-3021	Combined food preparation and serving workers, including fast food.....	2,503	2,955	1.7	1.8	452	18.1	927
35-3022	Counter attendants, cafeteria, food concession, and coffee shop.....	533	587	.4	.4	54	10.2	424
35-3031	Waiters and waitresses.....	2,361	2,615	1.6	1.6	255	10.8	1,537
35-3041	Food servers, nonrestaurant.....	189	219	.1	.1	30	15.8	59
35-9000	Other food preparation and serving related workers.....	1,341	1,488	.9	.9	147	11.0	800
35-9011	Dining room and cafeteria attendants and bartender helpers.....	416	466	.3	.3	49	11.8	223
35-9021	Dishwashers.....	517	571	.3	.3	54	10.4	265
35-9031	Hosts and hostesses, restaurant, lounge, and coffee shop.....	351	388	.2	.2	37	10.4	277
35-9099	Food preparation and serving related workers, all other.....	56	64	.0	.0	7	13.0	35
37-0000	Building and grounds cleaning and maintenance occupations.....	5,745	6,595	3.8	4.0	850	14.8	1,833
37-1000	Supervisors, building and grounds cleaning and maintenance workers.....	484	555	.3	.3	71	14.7	127
37-1011	First-line supervisors/managers of housekeeping and janitorial workers.....	282	318	.2	.2	36	12.7	77
37-1012	First-line supervisors/managers of landscaping, lawn service, and groundskeeping workers.....	202	237	.1	.1	36	17.6	49
37-2000	Building cleaning and pest control workers.....	3,941	4,486	2.6	2.7	544	13.8	1,298
37-2010	Building cleaning workers.....	3,872	4,405	2.6	2.7	533	13.8	1,270
37-2011	Janitors and cleaners, except maids and housekeeping cleaners.....	2,387	2,732	1.6	1.6	345	14.5	802
37-2012	Maids and housekeeping cleaners.....	1,470	1,656	1.0	1.0	186	12.7	463

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
37-2019	Building cleaning workers, all other.....	16	18	0.0	0.0	2	15.1	5
37-2021	Pest control workers	70	81	.0	.0	11	15.5	28
37-3000	Grounds maintenance workers.....	1,319	1,554	.9	.9	235	17.8	409
37-3010	Grounds maintenance workers	1,319	1,554	.9	.9	235	17.8	409
37-3011	Landscaping and groundskeeping workers.....	1,220	1,441	.8	.9	221	18.1	382
37-3012	Pesticide handlers, sprayers, and applicators, vegetation.....	31	35	.0	.0	4	14.0	8
37-3013	Tree trimmers and pruners.....	41	45	.0	.0	5	11.1	10
37-3019	Grounds maintenance workers, all other	28	33	.0	.0	5	16.6	8
39-0000	Personal care and service occupations.....	4,966	6,060	3.3	3.6	1,094	22.0	2,276
39-1000	Supervisors, personal care and service workers	268	312	.2	.2	43	16.2	100
39-1010	First-line supervisors/managers of gaming workers ...	54	64	.0	.0	10	18.9	20
39-1011	Gaming supervisors	34	42	.0	.0	8	23.4	14
39-1012	Slot key persons.....	20	22	.0	.0	2	11.1	6
39-1021	First-line supervisors/managers of personal service workers.....	215	248	.1	.1	33	15.5	80
39-2000	Animal care and service workers	200	238	.1	.1	39	19.3	71
39-2011	Animal trainers.....	43	53	.0	.0	10	22.7	17
39-2021	Nonfarm animal caretakers.....	157	185	.1	.1	29	18.4	54
39-3000	Entertainment attendants and related workers	546	667	.4	.4	120	22.1	378
39-3010	Gaming services workers.....	117	146	.1	.1	29	25.0	53
39-3011	Gaming dealers.....	84	104	.1	.1	20	24.1	37
39-3012	Gaming and sports book writers and runners	18	24	.0	.0	5	28.0	9
39-3019	Gaming service workers, all other.....	15	18	.0	.0	4	26.2	7
39-3021	Motion picture projectionists	11	11	.0	.0	-1	-8.4	5
39-3031	Ushers, lobby attendants, and ticket takers	103	121	.1	.1	17	16.9	90
39-3090	Miscellaneous entertainment attendants and related workers.....	315	390	.2	.2	75	23.8	230
39-3091	Amusement and recreation attendants	247	308	.2	.2	60	24.3	182
39-3092	Costume attendants.....	4	5	.0	.0	1	14.1	3
39-3093	Locker room, coatroom, and dressing room attendants	19	24	.0	.0	4	21.6	14
39-4000	Funeral service workers.....	42	48	.0	.0	6	14.3	16
39-4011	Embalmers.....	9	10	.0	.0	1	14.3	3
39-4021	Funeral attendants.....	33	37	.0	.0	5	14.3	12
39-5000	Personal appearance workers	825	942	.5	.6	117	14.2	217
39-5010	Barbers and cosmetologists.....	677	755	.4	.5	77	11.4	162
39-5011	Barbers.....	60	61	.0	.0	1	1.1	12
39-5012	Hairdressers, hairstylists, and cosmetologists	617	694	.4	.4	77	12.4	151
39-5090	Miscellaneous personal appearance workers.....	148	187	.1	.1	39	26.7	55
39-5091	Makeup artists, theatrical and performance	2	3	.0	.0	1	39.8	1
39-5092	Manicurists and pedicurists.....	78	100	.1	.1	22	27.6	30
39-5093	Shampooers.....	29	33	.0	.0	4	13.3	7
39-5094	Skin care specialists.....	38	51	.0	.0	13	34.3	17
39-6000	Transportation, tourism, and lodging attendants.....	232	261	.2	.2	29	12.7	77
39-6010	Baggage porters, bellhops, and concierges.....	69	76	.0	.0	7	10.4	16
39-6011	Baggage porters and bellhops	49	54	.0	.0	4	9.0	11
39-6012	Concierges.....	20	23	.0	.0	3	14.1	5
39-6020	Tour and travel guides.....	45	54	.0	.0	9	20.1	27
39-6021	Tour guides and escorts	40	49	.0	.0	9	21.2	25
39-6022	Travel guides.....	5	5	.0	.0	0	10.5	2
39-6030	Transportation attendants	118	131	.1	.1	13	11.2	34
39-6031	Flight attendants.....	97	107	.1	.1	10	10.6	27
39-6032	Transportation attendants, except flight attendants and baggage porters	21	24	.0	.0	3	14.0	7
39-9000	Other personal care and service workers	2,853	3,593	1.9	2.2	739	25.9	1,418
39-9011	Child care workers	1,388	1,636	.9	1.0	248	17.9	646
39-9021	Personal and home care aides	767	1,156	.5	.7	389	50.6	519
39-9030	Recreation and fitness workers.....	555	658	.4	.4	104	18.7	208
39-9031	Fitness trainers and aerobics instructors	235	298	.2	.2	63	26.8	107
39-9032	Recreation workers	320	360	.2	.2	41	12.7	101

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title	Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
	Number		Percent distribution		Number	Percent	
	2006	2016	2006	2016			
39-9041 Residential advisors.....	57	67	0.0	0.0	11	18.5	27
39-9099 Personal care and service workers, all other.....	86	75	.1	.0	-11	-12.9	19
41-0000 Sales and related occupations.....	15,985	17,203	10.6	10.3	1,218	7.6	6,171
41-1000 Supervisors, sales workers.....	2,206	2,296	1.5	1.4	91	4.1	519
41-1011 First-line supervisors/managers of retail sales workers.....	1,676	1,747	1.1	1.1	71	4.2	423
41-1012 First-line supervisors/managers of non-retail sales workers.....	530	549	.4	.3	19	3.7	96
41-2000 Retail sales workers.....	8,719	9,263	5.8	5.6	544	6.2	3,932
41-2010 Cashiers.....	3,527	3,411	2.3	2.1	-116	-3.3	1,679
41-2011 Cashiers, except gaming.....	3,500	3,382	2.3	2.0	-118	-3.4	1,664
41-2012 Gaming change persons and booth cashiers.....	27	29	.0	.0	2	6.7	15
41-2020 Counter and rental clerks and parts salespersons.....	715	819	.5	.5	104	14.6	318
41-2021 Counter and rental clerks.....	477	586	.3	.4	109	22.9	291
41-2022 Parts salespersons.....	238	233	.2	.1	-5	-2.2	27
41-2031 Retail salespersons.....	4,477	5,034	3.0	3.0	557	12.4	1,935
41-3000 Sales representatives, services.....	1,567	1,889	1.0	1.1	322	20.6	663
41-3011 Advertising sales agents.....	170	205	.1	.1	35	20.3	64
41-3021 Insurance sales agents.....	436	492	.3	.3	56	12.9	151
41-3031 Securities, commodities, and financial services sales agents.....	320	399	.2	.2	79	24.8	161
41-3041 Travel agents.....	101	102	.1	.1	1	1.0	8
41-3099 Sales representatives, services, all other.....	540	690	.4	.4	151	27.9	278
41-4000 Sales representatives, wholesale and manufacturing.....	1,973	2,155	1.3	1.3	182	9.2	617
41-4011 Sales representatives, wholesale and manufacturing, technical and scientific products.....	411	462	.3	.3	51	12.4	142
41-4012 Sales representatives, wholesale and manufacturing, except technical and scientific products.....	1,562	1,693	1.0	1.0	131	8.4	476
41-9000 Other sales and related workers.....	1,520	1,599	1.0	1.0	79	5.2	440
41-9010 Models, demonstrators, and product promoters.....	107	126	.1	.1	19	17.9	49
41-9011 Demonstrators and product promoters.....	105	124	.1	.1	19	18.0	49
41-9012 Models.....	2	2	.0	.0	0	9.8	1
41-9020 Real estate brokers and sales agents.....	564	624	.4	.4	60	10.7	150
41-9021 Real estate brokers.....	131	146	.1	.1	15	11.1	36
41-9022 Real estate sales agents.....	432	478	.3	.3	46	10.6	115
41-9031 Sales engineers.....	76	82	.1	.0	6	8.5	26
41-9041 Telemarketers.....	395	356	.3	.2	-39	-9.9	139
41-9090 Miscellaneous sales and related workers.....	379	412	.3	.2	33	8.6	76
41-9091 Door-to-door sales workers, news and street vendors, and related workers.....	200	207	.1	.1	7	3.7	34
41-9099 Sales and related workers, all other.....	180	205	.1	.1	25	14.0	41
43-0000 Office and administrative support occupations.....	24,344	26,089	16.2	15.7	1,745	7.2	7,424
43-1000 Supervisors, office and administrative support workers.....	1,418	1,500	.9	.9	82	5.8	374
43-1011 First-line supervisors/managers of office and administrative support workers.....	1,418	1,500	.9	.9	82	5.8	374
43-2000 Communications equipment operators.....	209	183	.1	.1	-25	-12.1	42
43-2011 Switchboard operators, including answering service.....	177	163	.1	.1	-15	-8.4	37
43-2021 Telephone operators.....	27	16	.0	.0	-11	-39.5	3
43-2099 Communications equipment operators, all other.....	4	5	.0	.0	0	7.4	1
43-3000 Financial clerks.....	4,007	4,482	2.7	2.7	476	11.9	1,283
43-3011 Bill and account collectors.....	434	534	.3	.3	99	22.9	165
43-3021 Billing and posting clerks and machine operators.....	542	566	.4	.3	24	4.4	93
43-3031 Bookkeeping, accounting, and auditing clerks.....	2,114	2,377	1.4	1.4	264	12.5	594
43-3041 Gaming cage workers.....	18	20	.0	.0	2	11.3	7
43-3051 Payroll and timekeeping clerks.....	214	220	.1	.1	7	3.1	61
43-3061 Procurement clerks.....	78	76	.1	.0	-2	-2.1	16
43-3071 Tellers.....	608	689	.4	.4	82	13.5	347
43-4000 Information and record clerks.....	5,738	6,389	3.8	3.8	651	11.4	2,320
43-4011 Brokerage clerks.....	73	88	.0	.1	15	20.0	38
43-4021 Correspondence clerks.....	17	20	.0	.0	2	12.0	7
43-4031 Court, municipal, and license clerks.....	115	125	.1	.1	10	8.8	36
43-4041 Credit authorizers, checkers, and clerks.....	69	63	.0	.0	-6	-8.4	21
43-4051 Customer service representatives.....	2,202	2,747	1.5	1.7	545	24.8	1,158

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
43-4061	Eligibility interviewers, government programs	112	116	0.1	0.1	3	3.1	23
43-4071	File clerks	234	137	.2	.1	-97	-41.3	62
43-4081	Hotel, motel, and resort desk clerks	219	257	.1	.2	38	17.4	127
43-4111	Interviewers, except eligibility and loan	221	242	.1	.1	21	9.5	79
43-4121	Library assistants, clerical	116	125	.1	.1	9	7.9	46
43-4131	Loan interviewers and clerks	256	254	.2	.2	-2	-9	44
43-4141	New accounts clerks	81	68	.1	.0	-13	-16.3	24
43-4151	Order clerks	271	205	.2	.1	-66	-24.4	57
43-4161	Human resources assistants, except payroll and timekeeping	168	187	.1	.1	19	11.3	31
43-4171	Receptionists and information clerks	1,173	1,375	.8	.8	202	17.2	489
43-4181	Reservation and transportation ticket agents and travel clerks	165	167	.1	.1	2	1.1	38
43-4199	Information and record clerks, all other	245	213	.2	.1	-32	-12.9	39
43-5000	Material recording, scheduling, dispatching, and distributing occupations	4,016	3,931	2.7	2.4	-86	-2.1	1,050
43-5011	Cargo and freight agents	86	100	.1	.1	14	16.5	38
43-5021	Couriers and messengers	134	134	.1	.1	0	-2	36
43-5030	Dispatchers	289	306	.2	.2	16	5.7	89
43-5031	Police, fire, and ambulance dispatchers	99	113	.1	.1	13	13.6	38
43-5032	Dispatchers, except police, fire, and ambulance	190	193	.1	.1	3	1.5	51
43-5041	Meter readers, utilities	47	42	.0	.0	-5	-10.3	15
43-5050	Postal service workers	615	603	.4	.4	-12	-2.0	142
43-5051	Postal service clerks	80	80	.1	.0	1	1.2	19
43-5052	Postal service mail carriers	338	341	.2	.2	4	1.1	102
43-5053	Postal service mail sorters, processors, and processing machine operators	198	181	.1	.1	-17	-8.4	21
43-5061	Production, planning, and expediting clerks	293	305	.2	.2	12	4.2	92
43-5071	Shipping, receiving, and traffic clerks	769	797	.5	.5	28	3.7	213
43-5081	Stock clerks and order fillers	1,705	1,574	1.1	.9	-131	-7.7	405
43-5111	Weighers, measurers, checkers, and samplers, recordkeeping	79	70	.1	.0	-9	-11.3	21
43-6000	Secretaries and administrative assistants	4,241	4,603	2.8	2.8	362	8.5	1,037
43-6011	Executive secretaries and administrative assistants	1,618	1,857	1.1	1.1	239	14.8	497
43-6012	Legal secretaries	275	308	.2	.2	32	11.7	76
43-6013	Medical secretaries	408	477	.3	.3	68	16.7	133
43-6014	Secretaries, except legal, medical, and executive	1,940	1,962	1.3	1.2	22	1.2	331
43-9000	Other office and administrative support workers	4,715	5,001	3.1	3.0	286	6.1	1,318
43-9011	Computer operators	130	98	.1	.1	-32	-24.7	21
43-9020	Data entry and information processing workers	492	457	.3	.3	-35	-7.2	111
43-9021	Data entry keyers	313	299	.2	.2	-15	-4.7	77
43-9022	Word processors and typists	179	158	.1	.1	-21	-11.6	34
43-9031	Desktop publishers	32	32	.0	.0	0	1.0	7
43-9041	Insurance claims and policy processing clerks	254	251	.2	.2	-3	-1.3	31
43-9051	Mail clerks and mail machine operators, except postal service	152	134	.1	.1	-18	-11.6	40
43-9061	Office clerks, general	3,200	3,604	2.1	2.2	404	12.6	991
43-9071	Office machine operators, except computer	94	91	.1	.1	-3	-2.7	31
43-9081	Proofreaders and copy markers	18	19	.0	.0	1	6.4	5
43-9111	Statistical assistants	23	24	.0	.0	2	7.6	12
43-9199	Office and administrative support workers, all other	320	290	.2	.2	-30	-9.3	71
45-0000	Farming, fishing, and forestry occupations	1,039	1,010	.7	.6	-29	-2.8	251
45-1000	Supervisors, farming, fishing, and forestry workers	53	53	.0	.0	0	-4	10
45-2000	Agricultural workers	859	838	.6	.5	-21	-2.4	214
45-2011	Agricultural inspectors	16	16	.0	.0	0	-1.1	4
45-2021	Animal breeders	11	11	.0	.0	0	4.4	3
45-2041	Graders and sorters, agricultural products	42	41	.0	.0	-1	-1.8	6
45-2090	Miscellaneous agricultural workers	790	769	.5	.5	-20	-2.6	201
45-2091	Agricultural equipment operators	59	56	.0	.0	-3	-5.0	15
45-2092	Farmworkers and laborers, crop, nursery, and greenhouse	603	583	.4	.4	-20	-3.4	151
45-2093	Farmworkers, farm and ranch animals	107	110	.1	.1	3	2.7	30

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
45-2099	Agricultural workers, all other.....	20	20	0.0	0.0	0	0.1	5
45-3000	Fishing and hunting workers.....	39	33	.0	.0	-6	-16.2	5
45-3011	Fishers and related fishing workers.....	38	32	.0	.0	-6	-16.1	5
45-3021	Hunters and trappers.....	0	0	.0	.0	0	-19.0	0
45-4000	Forest, conservation, and logging workers.....	88	87	.1	.1	-1	-1.4	23
45-4011	Forest and conservation workers.....	20	21	.0	.0	1	5.5	9
45-4020	Logging workers.....	69	66	.0	.0	-2	-3.4	14
45-4021	Fallers.....	13	12	.0	.0	-1	-7.4	3
45-4022	Logging equipment operators.....	40	40	.0	.0	-1	-1.3	8
45-4023	Log graders and scalers.....	7	7	.0	.0	0	-5.3	1
45-4029	Logging workers, all other.....	8	7	.0	.0	0	-5.9	2
47-0000	Construction and extraction occupations.....	8,295	9,079	5.5	5.5	785	9.5	2,249
47-1000	Supervisors, construction and extraction workers.....	772	842	.5	.5	70	9.1	178
47-1011	First-line supervisors/managers of construction trades and extraction workers.....	772	842	.5	.5	70	9.1	178
47-2000	Construction trades and related workers.....	6,422	7,044	4.3	4.2	622	9.7	1,719
47-2011	Boilermakers.....	18	20	.0	.0	2	14.0	9
47-2020	Brickmasons, blockmasons, and stonemasons.....	182	200	.1	.1	18	9.7	56
47-2021	Brickmasons and blockmasons.....	158	174	.1	.1	15	9.7	48
47-2022	Stonemasons.....	24	26	.0	.0	2	10.0	7
47-2031	Carpenters.....	1,462	1,612	1.0	1.0	150	10.3	348
47-2040	Carpet, floor, and tile installers and finishers.....	196	203	.1	.1	8	3.9	41
47-2041	Carpet installers.....	73	72	.0	.0	-1	-1.2	11
47-2042	Floor layers, except carpet, wood, and hard tiles.....	29	25	.0	.0	-4	-12.2	4
47-2043	Floor sanders and finishers.....	14	14	.0	.0	0	-1.8	2
47-2044	Tile and marble setters.....	79	91	.1	.1	12	15.4	24
47-2050	Cement masons, concrete finishers, and terrazzo workers.....	228	254	.2	.2	26	11.4	92
47-2051	Cement masons and concrete finishers.....	222	247	.1	.1	25	11.4	89
47-2053	Terrazzo workers and finishers.....	7	8	.0	.0	1	10.9	3
47-2061	Construction laborers.....	1,232	1,366	.8	.8	134	10.9	227
47-2070	Construction equipment operators.....	494	536	.3	.3	42	8.5	138
47-2071	Paving, surfacing, and tamping equipment operators.....	64	70	.0	.0	6	9.0	19
47-2072	Pile-driver operators.....	6	6	.0	.0	0	8.3	2
47-2073	Operating engineers and other construction equipment operators.....	424	460	.3	.3	35	8.4	118
47-2080	Drywall installers, ceiling tile installers, and tapers.....	240	258	.2	.2	17	7.2	50
47-2081	Drywall and ceiling tile installers.....	186	199	.1	.1	14	7.3	39
47-2082	Tapers.....	54	58	.0	.0	4	7.1	11
47-2111	Electricians.....	705	757	.5	.5	52	7.4	234
47-2121	Glaziers.....	55	62	.0	.0	7	11.9	16
47-2130	Insulation workers.....	61	66	.0	.0	5	8.5	19
47-2131	Insulation workers, floor, ceiling, and wall.....	32	35	.0	.0	3	8.4	10
47-2132	Insulation workers, mechanical.....	28	31	.0	.0	2	8.6	9
47-2140	Painters and paperhangers.....	473	526	.3	.3	53	11.3	138
47-2141	Painters, construction and maintenance.....	463	517	.3	.3	54	11.8	137
47-2142	Paperhangers.....	10	9	.0	.0	-1	-12.2	2
47-2150	Pipelayers, plumbers, pipefitters, and steamfitters.....	569	628	.4	.4	59	10.4	176
47-2151	Pipelayers.....	67	72	.0	.0	6	8.7	20
47-2152	Plumbers, pipefitters, and steamfitters.....	502	555	.3	.3	53	10.6	157
47-2161	Plasterers and stucco masons.....	61	66	.0	.0	5	8.1	19
47-2171	Reinforcing iron and rebar workers.....	30	34	.0	.0	3	11.5	11
47-2181	Roofers.....	156	179	.1	.1	22	14.3	58
47-2211	Sheet metal workers.....	189	201	.1	.1	13	6.8	59
47-2221	Structural iron and steel workers.....	72	76	.0	.0	4	6.0	28
47-3000	Helpers, construction trades.....	448	491	.3	.3	43	9.6	157
47-3010	Helpers, construction trades.....	448	491	.3	.3	43	9.6	157
47-3011	Helpers—Brickmasons, blockmasons, stonemasons, and tile and marble setters.....	65	73	.0	.0	7	11.0	24
47-3012	Helpers—Carpenters.....	109	122	.1	.1	13	11.7	40
47-3013	Helpers—Electricians.....	105	112	.1	.1	7	6.8	34

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
47-3014	Helpers—Painters, paperhangers, plasterers, and stucco masons	24	24	0.0	0.0	0	-0.7	6
47-3015	Helpers—Pipelayers, plumbers, pipefitters, and steamfitters	85	95	.1	.1	10	11.9	32
47-3016	Helpers—Roofers	22	23	.0	.0	1	6.7	7
47-3019	All other helpers, construction trades	38	42	.0	.0	5	12.6	14
47-4000	Other construction and related workers	451	502	.3	.3	51	11.4	144
47-4011	Construction and building inspectors	110	130	.1	.1	20	18.2	40
47-4021	Elevator installers and repairers	22	24	.0	.0	2	8.8	8
47-4031	Fence erectors	32	36	.0	.0	3	10.6	10
47-4041	Hazardous materials removal workers	39	44	.0	.0	4	11.2	13
47-4051	Highway maintenance workers	145	158	.1	.1	13	8.9	39
47-4061	Rail-track laying and maintenance equipment operators	15	15	.0	.0	1	4.8	4
47-4071	Septic tank servicers and sewer pipe cleaners	24	26	.0	.0	2	10.2	7
47-4090	Miscellaneous construction and related workers	63	69	.0	.0	6	8.9	22
47-4091	Segmental pavers	1	1	.0	.0	0	10.3	0
47-4099	Construction and related workers, all other	62	68	.0	.0	6	8.8	22
47-5000	Extraction workers	202	200	.1	.1	-2	-8	52
47-5010	Derrick, rotary drill, and service unit operators, oil, gas, and mining	67	63	.0	.0	-4	-5.5	7
47-5011	Derrick operators, oil and gas	19	18	.0	.0	-1	-5.8	2
47-5012	Rotary drill operators, oil and gas	20	19	.0	.0	-1	-5.4	2
47-5013	Service unit operators, oil, gas, and mining	28	26	.0	.0	-2	-5.4	3
47-5021	Earth drillers, except oil and gas	22	23	.0	.0	1	6.5	8
47-5031	Explosives workers, ordnance handling experts, and blasters	5	5	.0	.0	0	1.4	2
47-5040	Mining machine operators	21	22	.0	.0	1	4.3	9
47-5041	Continuous mining machine operators	10	11	.0	.0	0	4.6	4
47-5042	Mine cutting and channeling machine operators	8	8	.0	.0	0	3.8	3
47-5049	All other mining machine operators	3	3	.0	.0	0	4.9	1
47-5051	Rock splitters, quarry	4	5	.0	.0	1	25.1	2
47-5061	Roof bolters, mining	4	4	.0	.0	0	1.2	1
47-5071	Roustabouts, oil and gas	44	43	.0	.0	-1	-3.2	13
47-5081	Helpers—Extraction workers	25	25	.0	.0	0	-2	7
47-5099	Extraction workers, all other	10	10	.0	.0	0	4	2
49-0000	Installation, maintenance, and repair occupations	5,883	6,433	3.9	3.9	550	9.3	1,502
49-1000	Supervisors of installation, maintenance, and repair workers	465	499	.3	.3	34	7.3	143
49-1011	First-line supervisors/managers of mechanics, installers, and repairers	465	499	.3	.3	34	7.3	143
49-2000	Electrical and electronic equipment mechanics, installers, and repairers	661	690	.4	.4	29	4.4	170
49-2011	Computer, automated teller, and office machine repairers	175	180	.1	.1	5	3.0	26
49-2020	Radio and telecommunications equipment installers and repairers	205	209	.1	.1	5	2.3	55
49-2021	Radio mechanics	7	6	.0	.0	0	-4.1	2
49-2022	Telecommunications equipment installers and repairers, except line installers	198	203	.1	.1	5	2.6	54
49-2090	Miscellaneous electrical and electronic equipment mechanics, installers, and repairers	281	301	.2	.2	19	6.8	89
49-2091	Avionics technicians	16	17	.0	.0	1	8.1	3
49-2092	Electric motor, power tool, and related repairers	25	24	.0	.0	-1	-4.2	10
49-2093	Electrical and electronics installers and repairers, transportation equipment	21	22	.0	.0	1	4.3	5
49-2094	Electrical and electronics repairers, commercial and industrial equipment	80	86	.1	.1	5	6.8	33
49-2095	Electrical and electronics repairers, powerhouse, substation, and relay	22	21	.0	.0	-1	-4.7	8

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016								
[Numbers in thousands]								
2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16¹
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
49-2096	Electronic equipment installers and repairers, motor vehicles	20	21	0.0	0.0	1	4.6	7
49-2097	Electronic home entertainment equipment installers and repairers	40	41	.0	.0	1	3.0	5
49-2098	Security and fire alarm systems installers	57	68	.0	.0	11	20.2	19
49-3000	Vehicle and mobile equipment mechanics, installers, and repairers	1,771	2,003	1.2	1.2	232	13.1	589
49-3011	Aircraft mechanics and service technicians	122	135	.1	.1	13	10.6	25
49-3020	Automotive technicians and repairers	979	1,115	.6	.7	136	13.9	343
49-3021	Automotive body and related repairers	183	204	.1	.1	21	11.6	64
49-3022	Automotive glass installers and repairers	24	28	.0	.0	4	18.7	13
49-3023	Automotive service technicians and mechanics	773	883	.5	.5	110	14.3	265
49-3031	Bus and truck mechanics and diesel engine specialists	275	306	.2	.2	32	11.5	91
49-3040	Heavy vehicle and mobile equipment service technicians and mechanics	188	206	.1	.1	18	9.5	55
49-3041	Farm equipment mechanics	31	31	.0	.0	0	1.4	6
49-3042	Mobile heavy equipment mechanics, except engines	131	147	.1	.1	16	12.3	42
49-3043	Rail car repairers	27	28	.0	.0	1	5.1	7
49-3050	Small engine mechanics	78	87	.1	.1	9	11.6	25
49-3051	Motorboat mechanics	24	29	.0	.0	5	19.0	9
49-3052	Motorcycle mechanics	21	24	.0	.0	3	12.5	7
49-3053	Outdoor power equipment and other small engine mechanics	33	35	.0	.0	2	5.5	8
49-3090	Miscellaneous vehicle and mobile equipment mechanics, installers, and repairers	128	153	.1	.1	25	19.1	50
49-3091	Bicycle repairers	9	9	.0	.0	1	7.2	2
49-3092	Recreational vehicle service technicians	14	17	.0	.0	3	18.2	5
49-3093	Tire repairers and changers	106	127	.1	.1	21	20.2	42
49-9000	Other installation, maintenance, and repair occupations ..	2,987	3,241	2.0	1.9	254	8.5	599
49-9010	Control and valve installers and repairers	58	61	.0	.0	2	4.2	13
49-9011	Mechanical door repairers	15	18	.0	.0	2	14.9	5
49-9012	Control and valve installers and repairers, except mechanical door	43	43	.0	.0	0	.3	8
49-9021	Heating, air conditioning, and refrigeration mechanics and installers	292	317	.2	.2	25	8.7	77
49-9031	Home appliance repairers	57	58	.0	.0	1	1.5	14
49-9040	Industrial machinery installation, repair, and maintenance workers	1,794	1,960	1.2	1.2	165	9.2	265
49-9041	Industrial machinery mechanics	261	284	.2	.2	24	9.0	67
49-9042	Maintenance and repair workers, general	1,391	1,531	.9	.9	140	10.1	174
49-9043	Maintenance workers, machinery	84	83	.1	.1	-1	-1.1	14
49-9044	Millwrights	55	58	.0	.0	3	5.8	10
49-9045	Refractory materials repairers, except brickmasons ..	3	3	.0	.0	0	-11.5	1
49-9050	Line installers and repairers	275	290	.2	.2	16	5.7	93
49-9051	Electrical power-line installers and repairers	112	120	.1	.1	8	7.2	43
49-9052	Telecommunications line installers and repairers	162	170	.1	.1	7	4.6	50
49-9060	Precision instrument and equipment repairers	68	77	.0	.0	9	12.8	28
49-9061	Camera and photographic equipment repairers	4	4	.0	.0	0	-2.1	1
49-9062	Medical equipment repairers	38	46	.0	.0	8	21.7	19
49-9063	Musical instrument repairers and tuners	6	6	.0	.0	0	2.8	2
49-9064	Watch repairers	4	4	.0	.0	0	-5.1	1
49-9069	All other precision instrument and equipment repairers	16	17	.0	.0	1	4.3	5
49-9090	Miscellaneous installation, maintenance, and repair workers	442	478	.3	.3	36	8.2	109
49-9091	Coin, vending, and amusement machine servicers and repairers	48	46	.0	.0	-1	-3.0	13
49-9092	Commercial divers	3	4	.0	.0	1	17.7	1
49-9093	Fabric menders, except garment	2	2	.0	.0	0	-1.6	0

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16 ¹
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
49-9094	Locksmiths and safe repairers	26	32	0.0	0.0	6	22.1	11
49-9095	Manufactured building and mobile home installers	12	11	.0	.0	0	-2.9	2
49-9096	Riggers	12	12	.0	.0	0	-3	1
49-9097	Signal and track switch repairers	7	7	.0	.0	0	-5.1	0
49-9098	Helpers—Installation, maintenance, and repair workers	163	183	.1	.1	19	11.8	58
49-9099	Installation, maintenance, and repair workers, all other	168	181	.1	.1	13	7.5	24
51-0000	Production occupations	10,675	10,147	7.1	6.1	-528	-4.9	2,323
51-1000	Supervisors, production workers	699	665	.5	.4	-34	-4.8	117
51-1011	First-line supervisors/managers of production and operating workers	699	665	.5	.4	-34	-4.8	117
51-2000	Assemblers and fabricators	2,075	1,982	1.4	1.2	-93	-4.5	424
51-2011	Aircraft structure, surfaces, rigging, and systems assemblers	28	32	.0	.0	4	12.8	9
51-2020	Electrical, electronics, and electromechanical assemblers	297	227	.2	.1	-70	-23.5	50
51-2021	Coil winders, tapers, and finishers	23	16	.0	.0	-7	-30.5	4
51-2022	Electrical and electronic equipment assemblers	213	156	.1	.1	-57	-26.8	36
51-2023	Electromechanical equipment assemblers	60	55	.0	.0	-5	-9.1	10
51-2031	Engine and other machine assemblers	45	41	.0	.0	-4	-8.6	11
51-2041	Structural metal fabricators and fitters	103	103	.1	.1	0	-2	18
51-2090	Miscellaneous assemblers and fabricators	1,602	1,579	1.1	.9	-23	-1.4	336
51-2091	Fiberglass laminators and fabricators	33	35	.0	.0	2	6.2	9
51-2092	Team assemblers	1,274	1,275	.8	.8	1	.1	265
51-2093	Timing device assemblers, adjusters, and calibrators	3	2	.0	.0	0	-7.6	1
51-2099	All other assemblers and fabricators	292	266	.2	.2	-25	-8.7	61
51-3000	Food processing occupations	705	764	.5	.5	59	8.4	267
51-3011	Bakers	149	164	.1	.1	15	10.1	47
51-3020	Butchers and other meat, poultry, and fish processing workers	398	431	.3	.3	34	8.5	160
51-3021	Butchers and meat cutters	131	134	.1	.1	3	1.9	44
51-3022	Meat, poultry, and fish cutters and trimmers	144	160	.1	.1	16	10.9	61
51-3023	Slaughterers and meat packers	122	138	.1	.1	16	12.7	54
51-3090	Miscellaneous food processing workers	158	169	.1	.1	10	6.5	61
51-3091	Food and tobacco roasting, baking, and drying machine operators and tenders	19	21	.0	.0	2	10.8	9
51-3092	Food batchmakers	95	105	.1	.1	10	10.9	35
51-3093	Food cooking machine operators and tenders	44	42	.0	.0	-2	-4.7	17
51-4000	Metal workers and plastic workers	2,258	2,087	1.5	1.3	-171	-7.6	455
51-4010	Computer control programmers and operators	158	153	.1	.1	-6	-3.6	19
51-4011	Computer-controlled machine tool operators, metal and plastic	141	136	.1	.1	-4	-3.0	17
51-4012	Numerical tool and process control programmers	18	16	.0	.0	-2	-8.4	2
51-4020	Forming machine setters, operators, and tenders, metal and plastic	161	140	.1	.1	-20	-12.7	43
51-4021	Extruding and drawing machine setters, operators, and tenders, metal and plastic	94	87	.1	.1	-7	-7.2	26
51-4022	Forging machine setters, operators, and tenders, metal and plastic	31	22	.0	.0	-9	-30.4	10
51-4023	Rolling machine setters, operators, and tenders, metal and plastic	36	32	.0	.0	-4	-11.8	7
51-4030	Machine tool cutting setters, operators, and tenders, metal and plastic	513	425	.3	.3	-88	-17.1	100
51-4031	Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	272	231	.2	.1	-40	-14.9	65
51-4032	Drilling and boring machine tool setters, operators, and tenders, metal and plastic	43	33	.0	.0	-9	-22.2	9
51-4033	Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic	101	85	.1	.1	-16	-15.7	10

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
51-4034	Lathe and turning machine tool setters, operators, and tenders, metal and plastic	68	52	0.0	0.0	-16	-23.3	13
51-4035	Milling and planing machine setters, operators, and tenders, metal and plastic	29	23	.0	.0	-6	-21.0	3
51-4041	Machinists	397	384	.3	.2	-12	-3.1	61
51-4050	Metal furnace and kiln operators and tenders	33	27	.0	.0	-6	-18.3	5
51-4051	Metal-refining furnace operators and tenders	18	15	.0	.0	-3	-19.0	3
51-4052	Pourers and casters, metal	15	12	.0	.0	-3	-17.4	2
51-4060	Model makers and patternmakers, metal and plastic	16	15	.0	.0	-1	-5.9	4
51-4061	Model makers, metal and plastic	9	8	.0	.0	-1	-6.3	2
51-4062	Patternmakers, metal and plastic	7	7	.0	.0	0	-5.5	2
51-4070	Molders and molding machine setters, operators, and tenders, metal and plastic	171	148	.1	.1	-23	-13.6	40
51-4071	Foundry mold and coremakers	15	11	.0	.0	-3	-22.7	3
51-4072	Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	157	137	.1	.1	-20	-12.8	37
51-4081	Multiple machine tool setters, operators, and tenders, metal and plastic	97	97	.1	.1	0	.3	20
51-4111	Tool and die makers	101	91	.1	.1	-10	-9.6	13
51-4120	Welding, soldering, and brazing workers	462	484	.3	.3	22	4.8	120
51-4121	Welders, cutters, solderers, and brazers	409	430	.3	.3	21	5.1	107
51-4122	Welding, soldering, and brazing machine setters, operators, and tenders	53	54	.0	.0	2	3.0	13
51-4190	Miscellaneous metalworkers and plastic workers	150	122	.1	.1	-28	-18.4	30
51-4191	Heat treating equipment setters, operators, and tenders, metal and plastic	27	23	.0	.0	-4	-14.8	5
51-4192	Lay-out workers, metal and plastic	10	8	.0	.0	-2	-19.8	2
51-4193	Plating and coating machine setters, operators, and tenders, metal and plastic	42	37	.0	.0	-5	-12.2	12
51-4194	Tool grinders, filers, and sharpeners	22	18	.0	.0	-4	-19.4	4
51-4199	All other metal workers and plastic workers	49	36	.0	.0	-12	-25.1	8
51-5000	Printing occupations	389	343	.3	.2	-46	-11.9	70
51-5010	Bookbinders and bindery workers	72	57	.0	.0	-15	-21.3	10
51-5011	Bindery workers	65	51	.0	.0	-14	-21.8	9
51-5012	Bookbinders	7	6	.0	.0	-1	-16.9	1
51-5020	Printers	317	286	.2	.2	-31	-9.7	59
51-5021	Job printers	48	44	.0	.0	-4	-9.3	5
51-5022	Prepress technicians and workers	71	56	.0	.0	-15	-21.1	11
51-5023	Printing machine operators	198	186	.1	.1	-11	-5.7	44
51-6000	Textile, apparel, and furnishings occupations	873	777	.6	.5	-97	-11.1	169
51-6011	Laundry and dry-cleaning workers	239	262	.2	.2	23	9.7	77
51-6021	Pressers, textile, garment, and related materials	77	74	.1	.0	-3	-4.4	6
51-6031	Sewing machine operators	233	170	.2	.1	-63	-27.2	22
51-6040	Shoe and leather workers	20	17	.0	.0	-3	-15.6	4
51-6041	Shoe and leather workers and repairers	16	14	.0	.0	-2	-10.3	3
51-6042	Shoe machine operators and tenders	4	3	.0	.0	-1	-35.7	0
51-6050	Tailors, dressmakers, and sewers	77	76	.1	.0	-2	-2.4	14
51-6051	Sewers, hand	23	21	.0	.0	-3	-12.2	4
51-6052	Tailors, dressmakers, and custom sewers	54	55	.0	.0	1	1.9	10
51-6060	Textile machine setters, operators, and tenders	122	88	.1	.1	-34	-27.9	27
51-6061	Textile bleaching and dyeing machine operators and tenders	19	14	.0	.0	-6	-30.2	3
51-6062	Textile cutting machine setters, operators, and tenders	19	14	.0	.0	-5	-27.4	6
51-6063	Textile knitting and weaving machine setters, operators, and tenders	40	28	.0	.0	-12	-30.9	12
51-6064	Textile winding, twisting, and drawing out machine setters, operators, and tenders	43	33	.0	.0	-11	-24.3	6
51-6090	Miscellaneous textile, apparel, and furnishings workers	106	92	.1	.1	-14	-13.5	20
51-6091	Extruding and forming machine setters, operators, and tenders, synthetic and glass fibers	18	15	.0	.0	-3	-17.6	4
51-6092	Fabric and apparel patternmakers	9	7	.0	.0	-3	-28.6	2

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
51-6093	Upholsterers.....	55	50	0.0	0.0	-5	-9.0	9
51-6099	All other textile, apparel, and furnishings workers	24	21	.0	.0	-4	-14.8	6
51-7000	Woodworkers.....	370	380	.2	.2	11	2.9	106
51-7011	Cabinetmakers and bench carpenters.....	149	153	.1	.1	4	2.8	48
51-7021	Furniture finishers	31	30	.0	.0	-1	-3.1	6
51-7030	Model makers and patternmakers, wood.....	4	2	.0	.0	-2	-40.3	1
51-7031	Model makers, wood.....	2	1	.0	.0	-1	-40.8	0
51-7032	Patternmakers, wood.....	2	1	.0	.0	-1	-39.9	0
51-7040	Woodworking machine setters, operators, and tenders	165	173	.1	.1	9	5.4	47
51-7041	Sawing machine setters, operators, and tenders, wood.....	65	68	.0	.0	2	3.8	15
51-7042	Woodworking machine setters, operators, and tenders, except sawing	100	106	.1	.1	6	6.4	31
51-7099	All other woodworkers.....	20	21	.0	.0	0	1.6	5
51-8000	Plant and system operators	325	327	.2	.2	2	.8	95
51-8010	Power plant operators, distributors, and dispatchers.....	47	48	.0	.0	1	2.0	18
51-8011	Nuclear power reactor operators	4	4	.0	.0	0	10.6	2
51-8012	Power distributors and dispatchers.....	9	8	.0	.0	0	-4.9	3
51-8013	Power plant operators.....	35	36	.0	.0	1	2.7	13
51-8021	Stationary engineers and boiler operators.....	45	47	.0	.0	2	3.4	9
51-8031	Water and liquid waste treatment plant and system operators.....	111	126	.1	.1	15	13.8	35
51-8090	Miscellaneous plant and system operators.....	122	106	.1	.1	-15	-12.6	34
51-8091	Chemical plant and system operators.....	53	45	.0	.0	-8	-15.3	15
51-8092	Gas plant operators	12	11	.0	.0	-1	-9.9	3
51-8093	Petroleum pump system operators, refinery operators, and gaugers	42	36	.0	.0	-6	-13.4	12
51-8099	All other plant and system operators	14	14	.0	.0	0	-2.6	4
51-9000	Other production occupations.....	2,981	2,822	2.0	1.7	-159	-5.3	619
51-9010	Chemical processing machine setters, operators, and tenders	97	94	.1	.1	-3	-3.6	22
51-9011	Chemical equipment operators and tenders	53	51	.0	.0	-2	-3.9	12
51-9012	Separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders.....	44	43	.0	.0	-1	-3.2	10
51-9020	Crushing, grinding, polishing, mixing, and blending workers	230	215	.2	.1	-16	-6.8	38
51-9021	Crushing, grinding, and polishing machine setters, operators, and tenders.....	42	37	.0	.0	-5	-11.9	7
51-9022	Grinding and polishing workers, hand.....	45	42	.0	.0	-3	-7.1	7
51-9023	Mixing and blending machine setters, operators, and tenders	143	136	.1	.1	-7	-5.1	23
51-9030	Cutting workers	107	98	.1	.1	-9	-8.4	16
51-9031	Cutters and trimmers, hand	29	27	.0	.0	-2	-6.1	4
51-9032	Cutting and slicing machine setters, operators, and tenders	79	71	.1	.0	-7	-9.3	12
51-9041	Extruding, forming, pressing, and compacting machine setters, operators, and tenders	81	75	.1	.0	-7	-8.1	15
51-9051	Furnace, kiln, oven, drier, and kettle operators and tenders	32	29	.0	.0	-3	-8.7	9
51-9061	Inspectors, testers, sorters, samplers, and weighers	491	457	.3	.3	-35	-7.0	73
51-9071	Jewelers and precious stone and metal workers.....	52	51	.0	.0	-1	-2.2	9
51-9080	Medical, dental, and ophthalmic laboratory technicians	95	100	.1	.1	5	5.3	23
51-9081	Dental laboratory technicians.....	53	55	.0	.0	2	3.7	12
51-9082	Medical appliance technicians	12	13	.0	.0	1	9.5	3
51-9083	Ophthalmic laboratory technicians.....	29	31	.0	.0	2	6.6	7
51-9111	Packaging and filling machine operators and tenders...	386	365	.3	.2	-21	-5.4	72
51-9120	Painting workers	192	184	.1	.1	-8	-4.2	43
51-9121	Coating, painting, and spraying machine setters, operators, and tenders	106	93	.1	.1	-14	-12.9	21
51-9122	Painters, transportation equipment	54	59	.0	.0	5	8.4	15
51-9123	Painting, coating, and decorating workers.....	31	32	.0	.0	1	3.6	7

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16'
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
51-9130	Photographic process workers and processing machine operators.....	73	40	0.0	0.0	-33	-45.4	25
51-9131	Photographic process workers.....	24	15	.0	.0	-9	-36.3	8
51-9132	Photographic processing machine operators.....	49	25	.0	.0	-25	-49.8	17
51-9141	Semiconductor processors.....	42	37	.0	.0	-5	-12.9	7
51-9190	Miscellaneous production workers.....	1,102	1,078	.7	.6	-23	-2.1	268
51-9191	Cementing and gluing machine operators and tenders.....	23	21	.0	.0	-2	-9.2	6
51-9192	Cleaning, washing, and metal pickling equipment operators and tenders.....	16	14	.0	.0	-2	-9.8	5
51-9193	Cooling and freezing equipment operators and tenders.....	11	10	.0	.0	-1	-6.8	2
51-9194	Etchers and engravers.....	14	13	.0	.0	-1	-4.8	3
51-9195	Molders, shapers, and casters, except metal and plastic.....	56	57	.0	.0	1	1.3	13
51-9196	Paper goods machine setters, operators, and tenders.....	113	93	.1	.1	-21	-18.2	27
51-9197	Tire builders.....	23	20	.0	.0	-3	-12.0	8
51-9198	Helpers--Production workers.....	542	539	.4	.3	-3	-.5	133
51-9199	All other production workers.....	305	312	.2	.2	7	2.3	70
53-0000	Transportation and material moving occupations.....	10,233	10,695	6.8	6.4	462	4.5	2,952
53-1000	Supervisors, transportation and material moving workers.....	414	461	.3	.3	47	11.4	132
53-1011	Aircraft cargo handling supervisors.....	6	7	.0	.0	1	23.3	3
53-1021	First-line supervisors/managers of helpers, laborers, and material movers, hand.....	182	205	.1	.1	23	12.5	60
53-1031	First-line supervisors/managers of transportation and material-moving machine and vehicle operators.....	226	249	.2	.1	23	10.2	69
53-2000	Air transportation occupations.....	137	154	.1	.1	17	12.4	57
53-2010	Aircraft pilots and flight engineers.....	107	121	.1	.1	14	13.0	45
53-2011	Airline pilots, copilots, and flight engineers.....	79	90	.1	.1	10	12.9	33
53-2012	Commercial pilots.....	28	31	.0	.0	4	13.2	12
53-2020	Air traffic controllers and airfield operations specialists.....	30	33	.0	.0	3	10.5	11
53-2021	Air traffic controllers.....	25	28	.0	.0	3	10.2	9
53-2022	Airfield operations specialists.....	5	5	.0	.0	1	11.8	2
53-3000	Motor vehicle operators.....	4,335	4,704	2.9	2.8	368	8.5	1,117
53-3011	Ambulance drivers and attendants, except emergency medical technicians.....	22	26	.0	.0	5	21.7	7
53-3020	Bus drivers.....	653	721	.4	.4	67	10.3	153
53-3021	Bus drivers, transit and intercity.....	198	223	.1	.1	25	12.5	51
53-3022	Bus drivers, school.....	455	497	.3	.3	42	9.3	102
53-3030	Driver/sales workers and truck drivers.....	3,356	3,614	2.2	2.2	258	7.7	877
53-3031	Driver/sales workers.....	445	421	.3	.3	-24	-5.3	79
53-3032	Truck drivers, heavy and tractor-trailer.....	1,860	2,053	1.2	1.2	193	10.4	523
53-3033	Truck drivers, light or delivery services.....	1,051	1,140	.7	.7	89	8.5	275
53-3041	Taxi drivers and chauffeurs.....	229	258	.2	.2	30	13.0	59
53-3099	All other motor vehicle operators.....	76	85	.1	.1	9	11.4	21
53-4000	Rail transportation occupations.....	125	127	.1	.1	2	1.4	51
53-4010	Locomotive engineers and operators.....	47	48	.0	.0	1	2.9	17
53-4021	Railroad brake, signal, and switch operators.....	25	22	.0	.0	-3	-11.4	9
53-4031	Railroad conductors and yardmasters.....	40	44	.0	.0	4	9.1	19
53-4041	Subway and streetcar operators.....	7	8	.0	.0	1	12.1	3
53-4099	Rail transportation workers, all other.....	7	6	.0	.0	-1	-18.7	2
53-5000	Water transportation occupations.....	84	98	.1	.1	14	16.1	39
53-5011	Sailors and marine oilers.....	33	38	.0	.0	5	15.7	17
53-5020	Ship and boat captains and operators.....	37	43	.0	.0	6	17.3	16
53-5021	Captains, mates, and pilots of water vessels.....	34	40	.0	.0	6	17.9	15
53-5022	Motorboat operators.....	3	3	.0	.0	0	10.9	1
53-5031	Ship engineers.....	15	17	.0	.0	2	14.1	6
53-6000	Other transportation workers.....	312	351	.2	.2	39	12.6	139
53-6011	Bridge and lock tenders.....	4	4	.0	.0	0	-3.2	1
53-6021	Parking lot attendants.....	135	152	.1	.1	16	12.1	53
53-6031	Service station attendants.....	96	108	.1	.1	12	12.6	56

See footnotes at end of table.

APPENDIX: Continued—Employment by occupation, 2006 and projected 2016

[Numbers in thousands]

2006 National Employment Matrix code and title		Employment				Change, 2006–16		Total job openings due to growth and net replacements, 2006–16 ¹
		Number		Percent distribution		Number	Percent	
		2006	2016	2006	2016			
53-6041	Traffic technicians	7	8	0.0	0.0	1	9.9	2
53-6051	Transportation inspectors	26	31	.0	.0	4	16.4	13
53-6099	All other related transportation workers	44	49	.0	.0	6	13.3	14
53-7000	Material moving occupations	4,825	4,800	3.2	2.9	-25	-.5	1,417
53-7011	Conveyor operators and tenders	50	46	.0	.0	-4	-7.4	9
53-7021	Crane and tower operators	46	48	.0	.0	1	2.8	10
53-7030	Dredge, excavating, and loading machine operators	85	92	.1	.1	7	8.1	20
53-7031	Dredge operators	2	2	.0	.0	0	6.7	0
53-7032	Excavating and loading machine and dragline operators	80	87	.1	.1	7	8.3	19
53-7033	Loading machine operators, underground mining	3	3	.0	.0	0	4.5	1
53-7041	Hoist and winch operators	3	3	.0	.0	0	-1.2	1
53-7051	Industrial truck and tractor operators	637	624	.4	.4	-13	-2.0	161
53-7060	Laborers and material movers, hand	3,766	3,741	2.5	2.3	-25	-.7	1,143
53-7061	Cleaners of vehicles and equipment	368	420	.2	.3	52	14.0	192
53-7062	Laborers and freight, stock, and material movers, hand	2,416	2,466	1.6	1.5	50	2.1	823
53-7063	Machine feeders and offbearers	148	125	.1	.1	-22	-15.2	26
53-7064	Packers and packagers, hand	834	730	.6	.4	-104	-12.4	102
53-7070	Pumping station operators	29	25	.0	.0	-4	-12.9	12
53-7071	Gas compressor and gas pumping station operators	4	3	.0	.0	-1	-17.5	2
53-7072	Pump operators, except wellhead pumpers	11	9	.0	.0	-1	-12.5	4
53-7073	Wellhead pumpers	14	13	.0	.0	-2	-11.9	6
53-7081	Refuse and recyclable material collectors	136	146	.1	.1	10	7.4	47
53-7111	Shuttle car operators	3	3	.0	.0	0	-8.3	1
53-7121	Tank car, truck, and ship loaders	16	18	.0	.0	2	9.2	4
53-7199	Material moving workers, all other	54	54	.0	.0	0	.7	10

¹ Total job openings represent the sum of employment increases and net replacements. If employment change is negative, job openings due to growth are zero and total job openings equal net replacements.

² Codes 11–0000 through 13–0000 in the 2000 Standard Occupational Classification (soc).

³ Codes 15–0000 through 29–0000 in the 2000 Standard Occupational Classification (soc).

⁴ Codes 31–0000 through 39–0000 in the 2000 Standard Occupational Classification (soc).

NOTE: Details may not sum to totals or 100 percent due to rounding.