

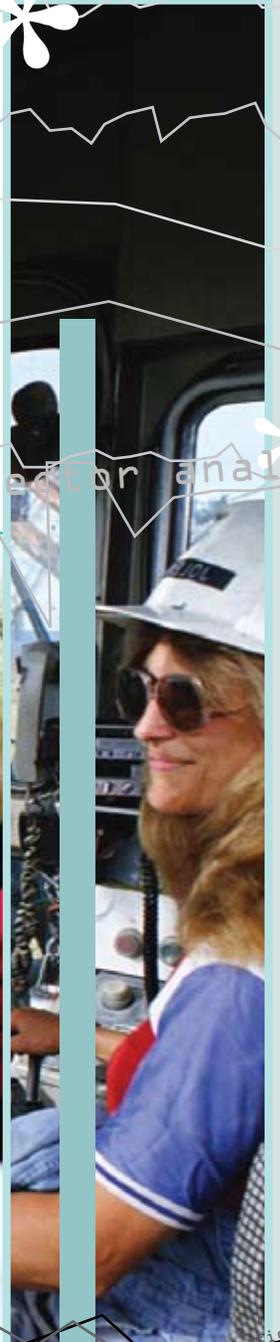
# An Analysis of High-Demand, High-Wage Jobs in Maine

236,981,601

industries

%

sector analysis



wages

# **An Analysis of High-Demand, High-Wage Jobs in Maine**

A publication of:  
Center for Workforce Research and Information  
Maine Department of Labor

Prepared by:  
Dana Evans, Glenn Mills, and Merrill Huhtala

With research support from:  
Gerard Dennison and Paul Trahan

The Maine Department of Labor provides equal opportunity in employment and programs.  
Auxiliary aids and services are available upon request to individuals with disabilities.  
Telephone: (207) 623-7900      TTY: 1-800-794-1110      Fax: (207) 287-2947

## **Preface**

The Maine economy is undergoing constant change. The forces of foreign competition, technology innovation and business restructuring contribute to dynamic work environments and changing labor markets. Some industries are declining and shedding jobs while new industries are emerging and creating new employment opportunities. The impacts of these shifts have challenged individuals, families and entire communities. Across the spectrum of Maine workplaces, more is being demanded of workers in terms of knowledge, skills, and abilities required for job performance. Increasingly, Maine's competitiveness is determined by the quality and availability of human capital.

Maine's demographics are also in flux. An aging population and the impending retirements of baby boomers will profoundly impact our labor markets and reshape long standing patterns of demand for goods and services.

Understanding these dynamics is fundamental to making effective public policies and developing sound public and private investment strategies. Business, education and training systems and workers must consult economic, demographic and labor market information in making critical choices with limited resources. These choices will have enormous implications for Maine's prospects in the years ahead. The Maine Department of Labor, Center for Workforce Research and Information, is committed to examining the dynamics of Maine's economy and the associated impacts on the workforce and labor markets in helping to chart a more prosperous future for all Maine citizens.

John Dorrer, Director  
Center for Workforce Research and Information  
Maine Department of Labor

# Contents

	<b>Page</b>
<b>Why This Report</b> .....	1
<b>Labor Market Overview</b> .....	1
Economic Transformation .....	1
Demographic Change .....	2
What Does This Mean for Maine Employers and Workers .....	3
<b>Developing Job Projections</b> .....	4
Labor Force Trends.....	4
Industry Employment Trends .....	5
Occupational Employment Trends .....	7
Wage Differentials.....	9
<b>High-Demand, High-Wage Jobs</b> .....	9
Criteria for Selection.....	10
High-Growth, High-Wage Occupations.....	11
High-Wage, In-Demand Occupations .....	11
Other Opportunities .....	12
<b>Appendix A--High-Growth, High-Wage Jobs in Maine</b> .....	13
<b>Appendix B--High-Wage, In-Demand Jobs in Maine</b> .....	25

## Why This Report

Identification of jobs in demand is vital to Maine's strategy for investing limited resources in individuals to develop the skills necessary to succeed in the labor market of today and tomorrow. Going a step beyond simply identifying jobs in demand, this report focuses on high-demand, high-wage jobs to help guide Maine workers towards more prosperous working lives.

## Labor Market Overview

Labor market dynamics have become more complex. On-going transitions to a service-based economy amidst increasing global competition and management restructuring creates formidable challenges for workforce development.

There are two primary forces shaping the workplace: economic transformation and demographic changes.

---

### Economic Transformation

#### **Globalization**

The service-producing sector has accounted for most job growth for decades. The manufacturing sector has been steadily losing jobs. Both these trends are projected to continue. Globalization is a primary force behind this change, resulting in job losses in some industries and gains in others. While the extent to which the U.S. and Maine economies will become integrated with the rest of the world depends on several factors including future trade agreements, currency exchange rates, etc., there is not much doubt that industries that were relatively isolated from foreign competition will increasingly be affected.

#### **Technical Change**

Coupled with globalization, technology continues to shape the economy, with the pace of technological change expected to accelerate. Changes in technology have increased the demands for skilled workers in many different industries and occupations. These changes are also reducing demand for workers in some industries, even as the share of gross state product is maintained. These changes are projected to continue and accelerate between 2004 and 2014.

#### **Management Restructuring**

With increased competition comes the need to increase the capacity to deliver and introduce new and more varied products and services. This has resulted in changes in the nature of work. Flatter organizational hierarchies and changing employment practices are increasing the cognitive complexity of work for many workers and delivering more autonomy to lower-level employees.

#### **Innovation**

As several studies have recently pointed out, innovation is a necessity to succeed in the new economy. According to the recent Brookings Report, "... much of the growth will have to come from the entrepreneurship and initiative of Maine's smaller businesses, and entrepreneurial startups."

#### **Meeting the Challenge of Economic Transformation**

To meet the challenge of providing good paying jobs in this environment, several initiatives are underway in Maine. These initiatives promote growth of current traditional industries and development of emerging industries in areas where Maine can be competitive in a global environment. Of particular concern has been the promotion and development of industry clusters. As defined by the Brookings Report, clusters are "... geographically

concentrated groups of similar or related firms whose synergies can create formidable economic advantages for state and regional economies.”

The Governor’s Economic Development Strategy targeted several industry clusters for development. Later, the Brookings Report reviewed several industry clusters, many of which were the same as those laid out by the Governor’s Strategy. Examples of the industry clusters promoted are: forest bioproducts, biotechnology, information technology, advanced composite materials, precision manufacturing, and marine research.

Supporting the advancement of selected industries/industry clusters are Pine Tree Zones. These zones provide tax breaks for selected industries (many of which are in the promoted industry clusters) that locate in high unemployment areas of the state.

The Maine Technology Institute (MTI), created in 1999, supports research and development activity leading to the commercialization of new products and services in the state’s technology-intensive industrial sectors. Programs are designed to enhance the competitive position of those sectors and increase the likelihood that one or more of the sectors will support clusters of industrial activity and create new jobs.

Some of the companies receiving support from MTI have also been assisted by the North Star Alliance Technical Fund. The North Star Alliance, supported by the U.S. Department of Labor’s Workforce Innovation in Regional Economic Development Program, is an industry-led collaborative effort by business, R&D, education, workforce, and economic development resources to re-skill a workforce and develop an industry cluster. Assisted by these efforts, composite manufacturing companies, boat builders, and other marine trades companies are seeking to grow and prosper as an industry cluster.

Support of the creative economy has also been a focal point of recent economic development efforts. The creative workforce may be employed within the creative cluster of industries, in an industry outside the creative cluster (such as a designer at an accounting firm), or they may be self-employed. The creative workforce is composed of individuals whose jobs require a high level of skill in the cultural, fine, or applied arts. Film, textiles, and boatbuilding are considered three thriving creative clusters in Maine by the Maine Arts Commission. As in many other parts of the Maine economy, innovation has been and will be a key to making this sector of the economy a creator of new jobs.

---

## Demographic Change

The population in Maine is growing slowly and growing older. Population growth has become highly dependent on in-migrants for growth. Between 2000 and 2007, the Maine population increased by 3.3 percent compared to a national growth rate of 7.2 percent. About 87 percent of the growth between 2000 and 2007 was due to net in-migration. While population growth in Maine averaged about 6,000 a year between 2000 and 2007, growth has slowed recently as there was a gain of only 2,300 between 2005 and 2007. The slight population gain was due solely to natural increase as out-migration offset in-migration between 2006 and 2007.

Keeping Maine residents here and encouraging in-migration is key to population growth in Maine. This makes population growth highly susceptible to economic conditions, as people will be more likely to move to Maine or stay in-state if job opportunities are available.

The median age of the Maine population has increased from 38.6 in 2000 to 41.1 in 2006, the highest in the nation.

Demographics affect both the workforce and workplace, with one of the primary forces of change being the aging population.

**Workplace**

Demographic characteristics help shape the demand for certain occupations that will provide the population with products and services. The aging population in Maine will increase the demand for health care, leisure, and other occupations.

With an aging population comes an increase in retirements, which will affect the demand structure for workers. Many of the job openings in the next few years will result from replacing retiring workers.

**Workforce**

Expectations concerning labor force growth are muted by demographic trends. As baby boomers age and retire, there will be a need to replace them. The share of the population participating in the labor force is expected to drop between 2004 and 2014 as the baby boomers move beyond their prime working years into retirement. With relatively slow population growth expected between 2004 and 2014, recruitment from underrepresented populations will be crucial.

---

**What Does This Mean for Maine Employers and Workers?**

The shape of Maine's labor market has changed radically in the last several decades. The emergence of new technologies, rise and decline of industry clusters, intensification of international competition, and shifting consumption patterns have kept the pace of change high. It has been crucial for businesses and organizations of all kinds to stay abreast of shifts occurring in their sector. Keeping pace with customer needs, developing new lines of products and services, maximizing efficiency through lean processes, and developing nimble, responsive operations has become more imperative than ever. Those that have not done so have been susceptible to the powerful forces of competition.

A host of industries such as footwear, apparel, and textile manufacturing have experienced a long-term pattern of job loss, while others, such as paper manufacturing, have been in decline more recently. Meanwhile, health care, leisure and recreation, professional, business, and other types of service industries have grown rapidly. As the structure of employment continues to shift from goods-producing to service-providing industries and as businesses in all sectors face pressures to find more efficient means of production and service delivery, individual workers must respond by enhancing their knowledge and skill sets to meet the changing needs of employers.

The projections that follow are one tool to help workers make informed choices.

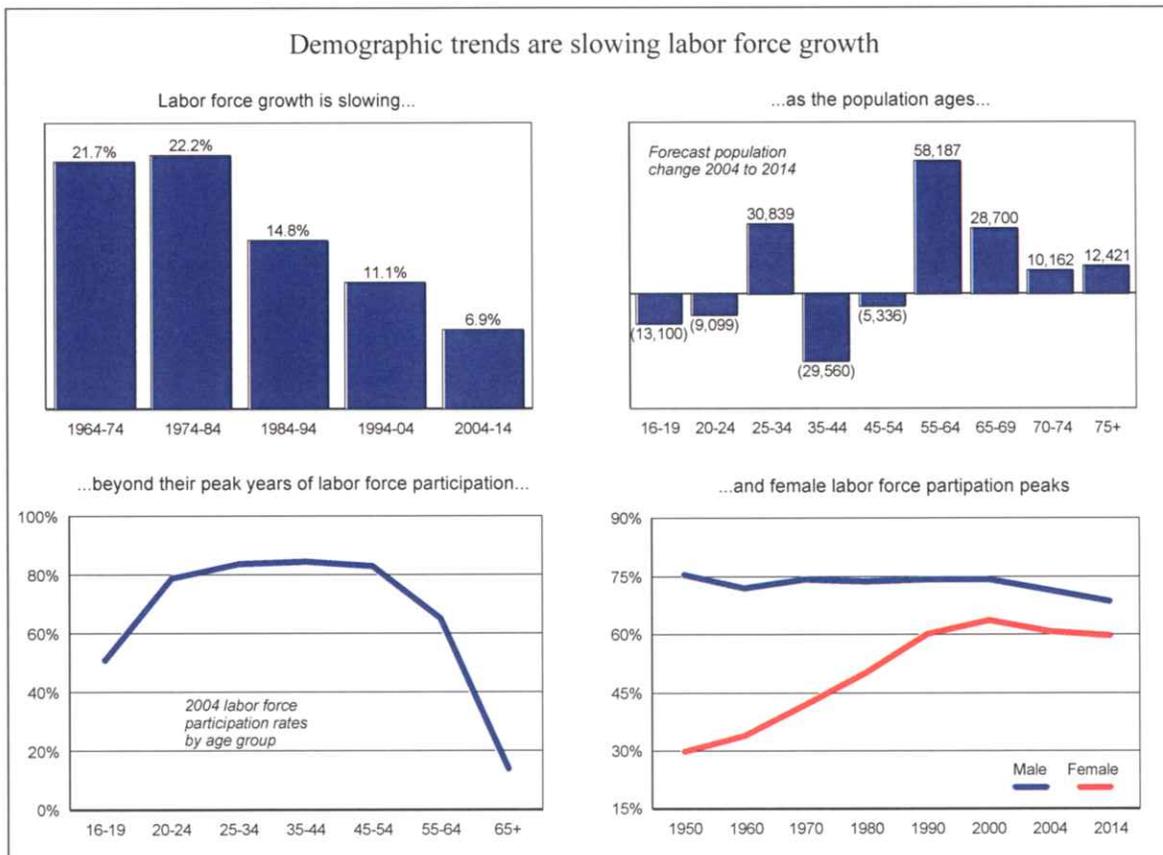
## Developing Job Projections

Making informed career decisions requires reliable information about opportunities in the future. Opportunities result from the relationships between population, labor force, and the demand for goods and services.

There are many variables impacting growth and decline in employment and wages among industries and occupations. Forecasting future trends in individual occupations involves a methodical top-down process of looking at broad demographic trends in the population impacting the rate of growth and composition of the labor force, as well as consumer buying patterns; economic conditions and the impact on the demand for goods and services; and shifting means of production and service delivery that impact demand for knowledge and skill sets. Following is a brief description of the primary forces impacting overall labor force growth as well as those driving growth and decline among industries and occupations.

### Labor Force Trends

Labor force growth is primarily driven by long-term demographic trends in the population, including birth and death rates, migration patterns, and shifts in labor force participation. Shifts in demographic trends can have a substantial impact on growth. There was virtually no growth from the end of World War II to 1964. Labor force growth surged from the mid 1960s to the late 1980s as the baby boom generation reached adulthood and the share of women working outside the home increased sharply. In the last 20 years declining birth rates and a



peaking of female labor force participation have slowed growth and the outlook is for even slower growth. Between 2004 and 2014 the labor force is projected to increase 6.9 percent — less than a third of the mid-1960s to the mid-1980s rate of growth.

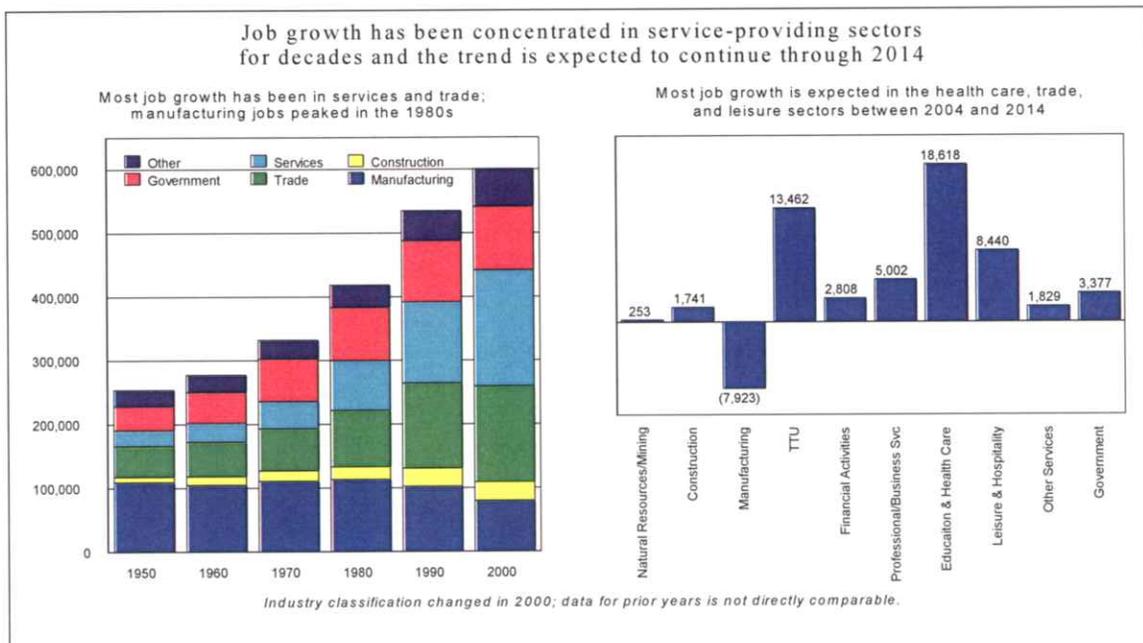
## Industry Employment Trends

The mix of jobs by industry has changed a great deal over the last few generations. Employment in goods-producing industries (manufacturing, construction, and natural resources) accounted for nearly half of wage and salary jobs in Maine 60 years ago; today those industries account for just 15 percent of jobs. During the same period jobs in service-providing sectors nearly quadrupled. Shifting buying patterns related to demographic trends, technological advances, international competition, and a wide range of other factors contributed to the massive changes in the structure of employment. The trends that have played out in Maine have largely mirrored those of the nation and much of the advanced world.

### Factors Impacting Industrial Activity

The demographic trends that have been reshaping the composition of the labor force and causing large fluctuations in its rate of growth are also impacting the type of jobs available. The rising share of working women over the last four decades contributed to increases in the total output of the economy through their labor, and triggered higher demand for products and services such as child daycare, women’s professional clothing and accessories, transportation, prepared foods, and many other items.

The aging of the population is having a similar impact on the mix of jobs. As people move through the life cycle their spending priorities shift. Younger adults typically put a large share of their resources into buying and furnishing a home and providing for children. Middle-aged adults typically transition their resources toward putting kids through college, saving for retirement, and caring for their own increasing health care needs. Seniors typically put an even larger share of their resources toward health care needs and into leisure activities such as travel.



Projected declines in the number of youths is expected to impact demand for educational services. Rapidly rising middle-aged and senior populations are expected to continue to drive job growth in health care, which created more jobs than any other industry over the last decade.

The emergence of a range of technologies and freer trade among nations are also shifting patterns of industrial activity. Technology is reshaping the way products and services are produced and delivered, often making existing processes more efficient and sometimes completely altering the functions of a job. Entirely new industries and occupations have emerged from the development of new technologies.

Freer trade among nations has given consumers more product choices, often at lower expense. Several of Maine's traditional industries, especially those that involve labor-intensive functions, have been hit hard by lower-priced products from developing nations. Less well known is the positive impact of freer trade on legal, consulting, accounting, information technology, and other services, which are actively being exported around the world.

### **Outlook by Sector**

The outlook for the 2004 to 2014 period is largely for a continuation of trends that have been on-going for some time. Employment is expected to increase by about 48,400, or 7.2 percent, with wage and salary growth almost exclusively among service-providing sectors. The education and health services; trade, transportation and utilities; leisure and hospitality; and professional and business services sectors are expected to account for 94 percent of job growth. The manufacturing sector is expected to continue to lose jobs.

<b>Job gains are expected to exceed job losses by a wide margin in industries with high average wages between 2004 and 2014</b>		
<b>Industry</b>	<b>Expected net job change</b>	<b>2006 average wage</b>
Ambulatory health care services	4,702	\$46,300
Hospitals	3,824	\$43,476
Professional, scientific and technical services	2,760	\$48,865
Motor vehicle and parts dealers	1,432	\$34,944
Merchant wholesalers, durable goods	1,252	\$45,393
Specialty trade contractors	1,124	\$35,483
Educational services	978	\$34,288
Credit intermediation and related activities	928	\$41,819
State government	852	\$39,130
Electronic markets and agents and brokers	690	\$66,233
Merchant wholesalers, nondurable goods	475	\$41,585
Construction of buildings	407	\$36,550
Securities, commodity contracts, investments	309	\$88,245
Truck transportation	280	\$36,328
Publishing industries, except Internet	225	\$34,728
Heavy and civil engineering construction	210	\$46,564
Couriers and messengers	167	\$37,219
Fishing, hunting and trapping	141	\$56,795
Insurance carriers and related activities	136	\$55,488
Waste management and remediation services	94	\$35,596
Support activities for transportation	70	\$35,448
Broadcasting, except Internet	59	\$38,220
Nonmetallic mineral product manufacturing	52	\$35,819
Management of companies and enterprises	44	\$63,431
Funds, trusts, and other financial vehicles	41	\$45,561
Beverage and tobacco product manufacturing	34	\$44,851
Internet publishing and broadcasting	17	\$55,095
Printing and related support activities	12	\$34,177
Pipeline transportation	2	\$79,935
Forestry and logging	-14	\$33,899
ISPs, search portals, and data processing	-20	\$59,457
Machinery manufacturing	-29	\$48,054
Chemical manufacturing	-71	\$62,829
Primary metal manufacturing	-93	\$48,253
Telecommunications	-121	\$54,769
Computer and electronic product manufacturing	-126	\$58,833
Electrical equipment and appliance mfg.	-151	\$47,335
Plastics and rubber products manufacturing	-346	\$40,692
Fabricated metal product manufacturing	-428	\$41,155
Federal government	-544	\$59,749
Textile mills	-598	\$34,423
Transportation equipment manufacturing	-1,680	\$48,480

### Outlook for High-Wage Industries

Some prognosticators have claimed that Maine is losing its economic base as job losses in the manufacturing sector are offset by gains in service-providing sectors. They point to higher- than-average manufacturing wages and lower-than-average wages in growing sectors such as leisure and hospitality and retail trade. (Differentials in average wages among industries are largely related to occupational staffing. High average wages in legal services reflects the relatively high wages of attorneys and low average wages in general merchandise stores reflect relatively low wages of cashiers and other retail clerks and the prevalence of part-time work schedules.)

A more detailed analysis of employment trends reveals a brighter picture. A large share of service-providing job growth has been in industries with high average wages such as health care, information, finance and insurance, and professional and business services and a large share of manufacturing job losses have been in relatively low-paying industries such as footwear, apparel, and textiles. The outlook is similar. As the nearby table indicates, among the industries with an average wage exceeding the all-industry average of \$33,800 in 2006, 29 are expected to add a total of 21,300 jobs and 14 are expected to lose a total of 6,000 jobs between 2004 and 2014. Hospitals and ambulatory health services alone, each with average wages over \$43,000, are expected to create more than 8,500 net new jobs.

---

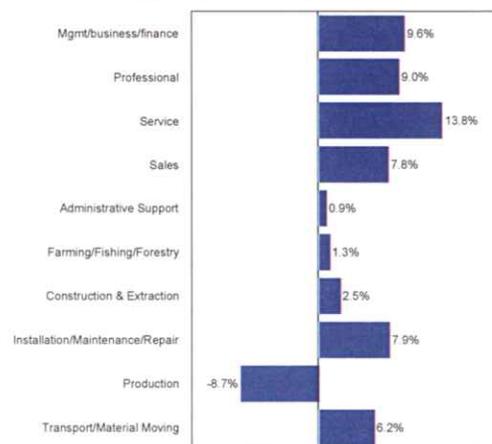
## Occupational Employment Trends

The shifting industry structure has had a profound impact on occupational employment. Growth in service-providing industries spurred demand for managerial, professional, and technical workers, while manufacturing job losses cut demand for production workers. Computers, mechanization, leaner processes, and other factors also played a role in shifting occupational staffing. Just as robotics replaced manpower on many assembly lines, computers replaced administrative support workers in many offices as professional workers increasingly performed typing, communication, filing, and other tasks. In the last 60 years blue-collar jobs declined from more than half to less than one-quarter of jobs, administrative support jobs stagnated, and managerial, professional, and technical jobs increased from one-fifth to nearly one-third of jobs.

### Factors Impacting Occupational Change

The shifting mix of jobs by occupation is largely due to two factors: differing rates of growth and decline among industries; and shifting occupational staffing within industries. Occupational staffing varies greatly from industry to industry — construction jobs are very different from retail jobs. So jobs in occupations common to growing industries generally are also growing and jobs in occupations common to declining industries generally also are declining. The relationship is not one for one because occupational staffing within industries is shifting. The automation that eliminated assembly jobs created engineering jobs to design the

The fastest job growth is expected to continue to be in managerial/professional/technical and service occupations between 2004 and 2014



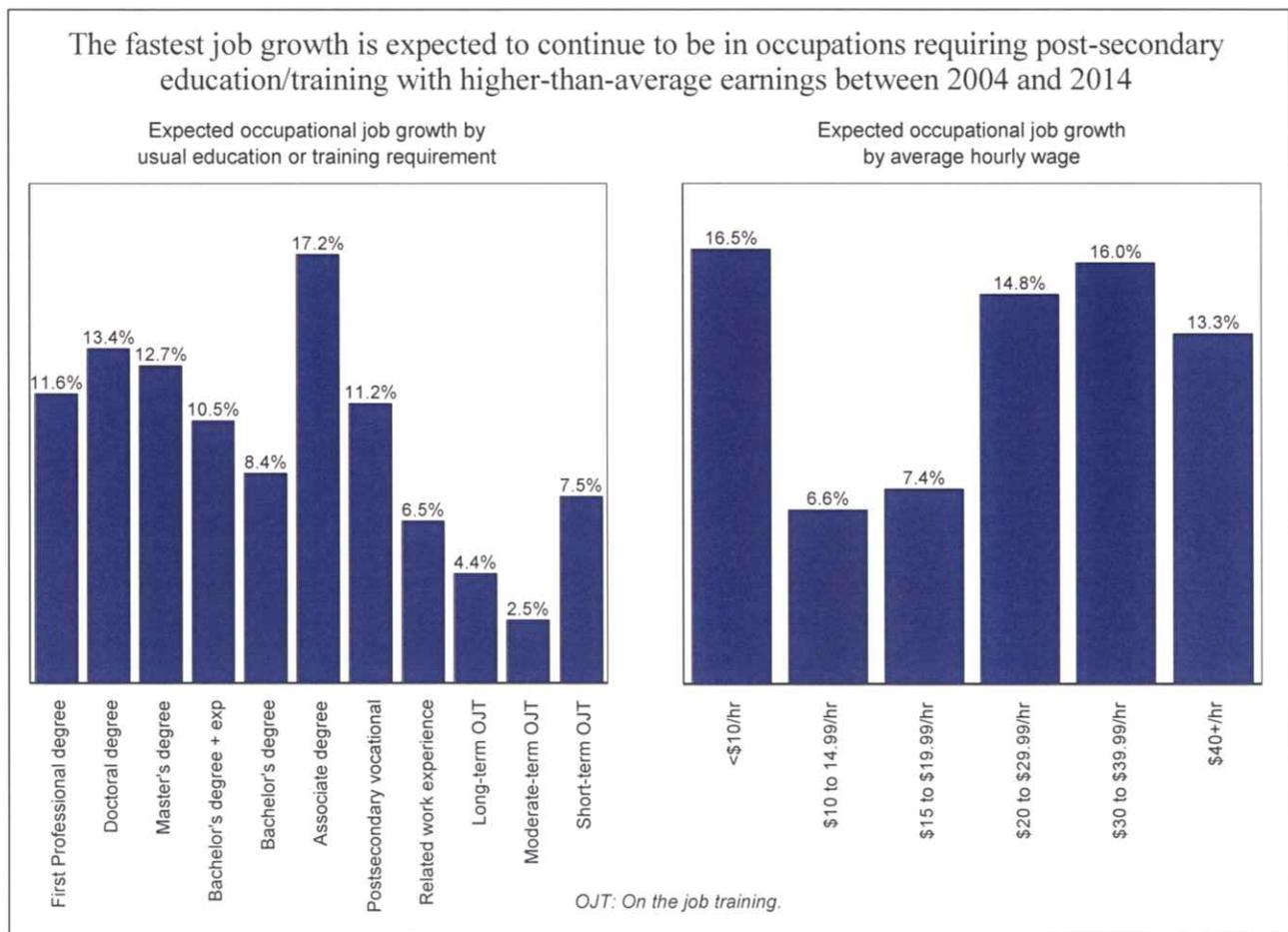
machine and technician jobs to maintain and troubleshoot it on the shop floor. The rise of online banking meant banks needed fewer tellers and more information technology workers per transaction.

**Implications of Occupational Change and Outlook**

Those transitions from assembly or clerical to technical work are symbolic of the on-going rotation of knowledge and skill sets that is occurring throughout the economy. The nature of work is changing, requiring deeper knowledge and more advanced skills for all workers, even those in low-skill jobs. The proliferation of technology and the imperative for leaner processes in a more competitive landscape are raising performance

requirements for jobs and organizations of all types.

Most managerial, professional, and technical jobs require some form of post-secondary education and offer higher-than-average wages, so the positive implications for the economy are obvious. Jobs requiring post-secondary education/training are expected to increase at nearly twice the rate of those with lower requirements – 11.1 vs 5.6 percent – and account for 45 percent of net job growth between 2004 and 2014. And jobs in occupations with average wages of \$20 per hour or more in 2006 are expected to rise twice as fast as most jobs in lower paying occupations.

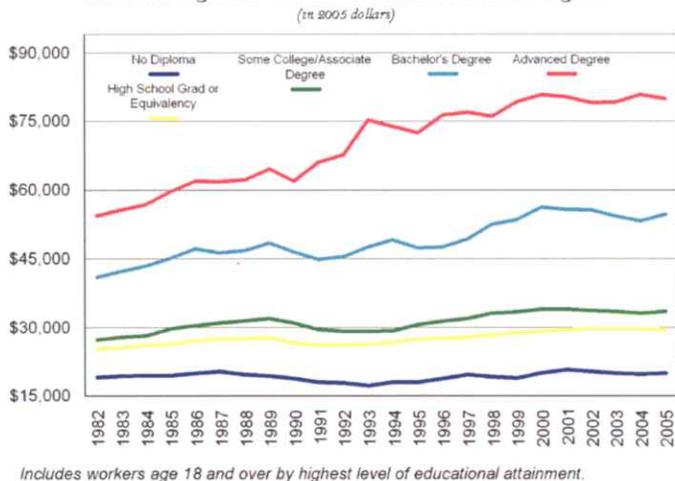


## Wage Differentials

There has long been an earnings "education premium." Occupations requiring an advanced education, such as attorneys and physicians, typically offer earnings higher than those requiring a bachelor's degree, which typically offer higher earnings than those requiring a high school diploma, and so on down the education/training spectrum (with notable exceptions).

As the supply of or demand for knowledge or skill sets shift, wages shift among occupations. Over the last two plus decades the earnings premium for post-secondary education has increased substantially as demand for many types of managerial, professional, and technical work has risen faster than the available supply of workers with the necessary attributes. In the years leading up to the year 2000 wages for computer programmers spiked as the needs of businesses increased more rapidly than the number of experienced programmers. And as the shortage of qualified nurses has become more pronounced with health care providers struggling to fill key vacancies, wages have escalated. At the other end of the spectrum declining or slowly growing demand for production, administrative support, and other types of jobs that do not require post-secondary education has resulted in wage stagnation as employers find those positions easier to fill.

Inflation-adjusted average earnings of U.S. workers have increased fastest among those with bachelor's and advanced degrees



## High-Demand, High-Wage Jobs

Job openings arise from two sources: growth and replacement. Between 2004 and 2014, an average of 21,800 job openings is expected each year; nearly 6,000 due to growth and 15,800 due to replacement needs. Replacement needs arise as workers leave occupations. Some transfer to other occupations, while others retire, return to school, or quit to assume household responsibilities.

A priority was articulated in Maine's Workforce Investment Act Strategic Plan of "...helping workers acquire the skills and supports they need to obtain jobs that pay livable wages so that they can achieve economic security." Although not addressing the issue of livable wages, criteria listed below pinpoint those jobs for which there is a demand and pay wages above the statewide median.

The focus in this section will be on (1) occupations that pay the statewide median wage or above and are projected to grow at or above the average rate for all occupations, and (2) occupations which pay at or above the statewide median wage and are projected to have 20 or more job openings a year between 2004 and 2014.

## Criteria for Selection

### **High-Growth, High-Wage Occupations**

Occupations projected to grow at or above the 7.2 percent average for all occupations are considered high-growth. Median earnings for all occupations combined were \$13.76 per hour (\$28,621 per year) in 2006. Occupations for which the median hourly wage is \$13.76 or higher meet the high-wage criteria. To be considered a high-growth, high-wage occupation, both criteria must be met.

### **High-Wage, In-Demand Occupations**

High-wage, in-demand occupations are addressed separately to allow for adequate coverage of job openings due to replacement. Replacement

demand is the primary source of job openings in Maine.

The definition of a high-wage, in-demand occupation is based on projected job openings of 20 or more a year (based on growth and replacement) with a median wage of \$13.76 or higher.

### **Education or Training Requirements**

In this report we have taken 11 specific levels of education or training and placed them into three groups or categories, as noted below.

<b>Education or Training Category</b>	<b>Specific Requirement</b>	<b>Definition</b>
Bachelor's Degree or Higher	First Professional degree	Six-year academic program beyond Bachelor's degree
	Doctoral degree	Three-year academic program beyond Bachelor's degree
	Master's degree	One-two year academic program beyond Bachelor's degree
	Bachelor's degree and work exp.	Four-year academic program plus experience
	Bachelor's degree	Four-year academic program
Post-Secondary Education Beyond High-School But Less Than a Bachelor's Degree	Associate degree	Two-year academic program beyond high school
	Post-secondary vocational training	Completion of a vocational training program
High-School Diploma or Less (includes on-the-job training and work experience in a related occupation)	Work experience in related occupation	Related occupational experience leading to development of specific skills
	Long-term on-the-job training	More than one year OJT or combination of training and classroom instruction
	Moderate-term on-the-job training	One to 12 months OJT
	Short-term on-the-job training	Up to one month OJT

## High-Growth, High-Wage Occupations

There are 190 individual occupations that meet the definition of high-growth, high-wage occupations. Almost 30 percent of the high-growth, high-wage occupational openings are accounted for by five occupations: registered nurses, general and operations managers, truck drivers, sales representatives, and automotive mechanics. In general, these five occupations reflect growth in service-producing industries, particularly health care. While these occupations meet the high-growth criteria, they are not the fastest growing within this category. Due to large numbers of these jobs in the economy, there are many openings due to replacement needs.

As shown below, 25 percent of all projected job openings to 2014 meet the high-growth, high-wage criteria. The share of job openings meeting this criteria increases by educational attainment. Nearly 61 percent of jobs requiring a bachelor's degree or higher are high-growth, high-wage, but only 12 percent of jobs requiring high school or less are. Job applicants should anticipate competition for high-growth, high-wage openings at all educational levels, but this will be particularly pronounced at the high school level.

Education or Training Requirement	Total Annual Openings For All Occupations	High-Growth, High-Wage Annual Openings	Percent of Openings that are High-Growth, High-Wage
Total, all levels of education or training	21,815	5,471	25.1%
Bachelor's Degree or Higher	3,735	2,270	60.8%
Post-Secondary Education Beyond High School, but Less Than a Bachelor's Degree	2,245	1,266	56.4%
High School Diploma or Less	15,835	1,935	12.0%

Appendix A presents the 190 occupations that meet the high-growth, high-wage criteria sorted by projected annual job openings within each of the three education/training categories. There is no threshold or cut-off point for total employment or number of job openings. As such, some occupations included employ very few and will produce minimal job openings.

## High-Wage, In-Demand Occupations

The previous section focused specifically on occupations projected to grow at or above the 7.2 percent average for all occupations, and exhibited a median wage at or above the \$13.76 median for all Maine occupations. This does not include those occupations which may have low growth rates but many openings due to replacement demand.

By focusing on total demand (growth and replacement), an additional 2,080 annual job openings met the criteria, despite not including occupations with less than 20 annual job openings. The most dramatic gain occurred in occupations requiring a high school diploma or less, where 1,578 annual job openings (an increase of 82 percent) were added to the mix.

<b>Education or Training Requirement</b>	<b>Total Annual Openings For All Occupations</b>	<b>High-Wage, In-Demand Annual Openings</b>	<b>Percent of Openings that are High-Wage, In Demand</b>
Total, all levels of education or training	21,815	7,551	34.6%
Bachelor's Degree or Higher	3,735	2,538	68.0%
Post-Secondary Education Beyond High School, but Less Than a Bachelor's Degree	2,245	1,214	54.1%
High School Diploma or Less	15,835	3,513	22.2%

Appendix B provides a listing of 120 high-wage and in-demand occupations sorted by projected annual openings and usual educational or training requirements for entry. Over 20 percent of the high-wage, in-demand occupational openings are in five occupations; registered nurses, general and operations managers, truck drivers, first-line supervisors of retail sales workers, and wholesale and manufacturing sales representatives.

### **Other Opportunities**

A key characteristic of the labor market is change at an ever more rapid pace. New occupations will arise that are not necessarily captured by the projections methodology.

Information for some occupations is confidential due to the small number of establishments employing them. Two examples of these high-wage, high-growth/in-demand occupations are biological technicians and biological scientists employed by firms in Maine's developing biotechnology cluster, which are expected to play a major role in Maine's economic future.

## **Appendix A**

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
<b>High-School Diploma or Less</b>							
53-3032	Truck Drivers, Heavy & Tractor-Trailer	11,188	12,126	8.4%	277	\$14.85	Moderate-term on-the-job training
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	5,043	5,739	13.8%	202	\$21.73	Moderate-term on-the-job training
49-9042	Maintenance & Repair Workers, General	5,726	6,226	8.7%	160	\$14.64	Moderate-term on-the-job training
33-2011	Fire Fighters	2,122	2,633	24.1%	113	\$16.69	Long-term on-the-job training
33-3051	Police & Sheriff's Patrol Officers	2,186	2,513	15.0%	90	\$16.96	Long-term on-the-job training
49-1011	First-Line Supervisors/Managers of Mechanics, Installers & Repairers	2,246	2,447	8.9%	76	\$21.96	Work experience in a related occupation
31-9091	Dental Assistants	1,021	1,296	26.9%	57	\$14.77	Moderate-term on-the-job training
47-2073	Operating Engineers & Other Construction Equipment Operators	1,571	1,710	8.8%	54	\$14.73	Moderate-term on-the-job training
49-9021	Heating, Air Conditioning & Refrigeration Mechanics & Installers	1,784	2,074	16.3%	53	\$17.37	Long-term on-the-job training
11-9051	Food Service Managers	1,871	2,052	9.7%	49	\$19.47	Work experience in a related occupation
41-3099	Sales Representatives, Services, All Other	887	1,089	22.8%	37	\$21.05	Moderate-term on-the-job training
11-9081	Lodging Managers	1,030	1,216	18.1%	36	\$20.87	Work experience in a related occupation
41-9021	Real Estate Brokers	1,201	1,317	9.7%	36	\$41.84	Work experience in a related occupation
41-4011	Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	864	987	14.2%	35	\$22.58	Moderate-term on-the-job training
43-3051	Payroll & Timekeeping Clerks	1,003	1,085	8.2%	35	\$13.99	Moderate-term on-the-job training
13-1022	Wholesale & Retail Buyers, Except Farm Products	887	967	9.0%	31	\$17.65	Work experience in a related occupation
25-3021	Self-Enrichment Education Teachers	860	1,061	23.4%	31	\$14.82	Work experience in a related occupation
51-8031	Water & Liquid Waste Treatment Plant & System Operators	672	751	11.8%	31	\$16.39	Long-term on-the-job training
37-1011	First-Line Supervisors/Managers of Housekeeping & Janitorial Workers	821	919	11.9%	29	\$15.07	Work experience in a related occupation
53-1031	First-Line Supervisors/Managers of Transportation & Material-Moving Machine Operators	830	923	11.2%	29	\$21.17	Work experience in a related occupation
35-1011	Chefs & Head Cooks	672	752	11.9%	28	\$16.98	Work experience in a related occupation

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
49-3021	Automotive Body & Related Repairers	1,005	1,086	8.1%	28	\$14.17	Long-term on-the-job training
53-3021	Bus Drivers, Transit & Intercity	651	794	22.0%	28	\$14.48	Moderate-term on-the-job training
53-7032	Excavating & Loading Machine & Dragline Operators	777	834	7.3%	27	\$15.28	Moderate-term on-the-job training
43-5031	Police, Fire & Ambulance Dispatchers	703	805	14.5%	25	\$15.45	Moderate-term on-the-job training
49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	790	867	9.7%	24	\$21.20	Long-term on-the-job training
13-1051	Cost Estimators	651	726	11.5%	23	\$21.25	Work experience in a related occupation
13-1041	Compliance Officers, Except Agriculture, Construction, Health & Safety & Transportation	639	707	10.6%	22	\$20.47	Long-term on-the-job training
41-3011	Advertising Sales Agents	647	734	13.4%	22	\$15.54	Moderate-term on-the-job training
33-1012	First-Line Supervisors/Managers of Police & Detectives	412	468	13.6%	20	\$23.95	Work experience in a related occupation
11-3071	Transportation, Storage & Distribution Managers	612	669	9.3%	18	\$28.78	Work experience in a related occupation
47-4041	Hazardous Materials Removal Workers	388	434	11.9%	15	\$15.61	Moderate-term on-the-job training
33-1021	First-Line Supervisors/Managers of Fire Fighting & Prevention Workers	226	273	20.8%	14	\$20.68	Work experience in a related occupation
33-3021	Detectives & Criminal Investigators	326	369	13.2%	13	\$24.04	Work experience in a related occupation
47-4011	Construction & Building Inspectors	350	403	15.1%	13	\$19.34	Work experience in a related occupation
13-1021	Purchasing Agents & Buyers, Farm Products	219	245	11.9%	11	\$19.68	Work experience in a related occupation
27-3091	Interpreters & Translators	252	334	32.5%	11	\$15.64	Long-term on-the-job training
31-1013	Psychiatric Aides	367	428	16.6%	11	\$14.00	Short-term on-the-job training
45-1011	First-Line Supervisors/Managers of Farming, Fishing & Forestry Workers	329	357	8.5%	11	\$21.63	Work experience in a related occupation
29-2081	Opticians, Dispensing	309	350	13.3%	9	\$14.23	Long-term on-the-job training
33-9021	Private Detectives & Investigators	223	249	11.7%	8	\$17.41	Work experience in a related occupation
53-4031	Railroad Conductors & Yardmasters	134	170	26.9%	8	\$28.03	Moderate-term on-the-job training
49-3051	Motorboat Mechanics	159	188	18.2%	7	\$16.25	Long-term on-the-job training
53-4011	Locomotive Engineers	113	128	13.3%	5	\$27.95	Moderate-term on-the-job training
33-1011	First-Line Supervisors/Managers of Correctional Officers	84	92	9.5%	4	\$21.50	Work experience in a related occupation

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
43-4011	Brokerage Clerks	137	161	17.5%	4	\$16.17	Moderate-term on-the-job training
47-2044	Tile & Marble Setters	105	129	22.9%	4	\$14.86	Long-term on-the-job training
47-2121	Glaziers	112	128	14.3%	4	\$16.04	Long-term on-the-job training
51-5021	Job Printers	129	140	8.5%	4	\$14.23	Long-term on-the-job training
47-4071	Septic Tank Servicers & Sewer Pipe Cleaners	68	76	11.8%	3	\$14.56	Moderate-term on-the-job training
53-2021	Air Traffic Controllers	63	70	11.1%	3	\$46.60	Long-term on-the-job training
13-1032	Insurance Appraisers, Auto Damage	58	63	8.6%	2	\$23.20	Long-term on-the-job training
13-1061	Emergency Management Specialists	54	65	20.4%	2	\$17.98	Work experience in a related occupation
27-4011	Audio & Video Equipment Technicians	52	56	7.7%	1	\$16.40	Long-term on-the-job training
<b>Post-Secondary Education Less Than Bachelor's Degree</b>							
29-1111	Registered Nurses	13,837	16,613	20.1%	568	\$25.74	Associate degree
49-3023	Automotive Service Technicians & Mechanics	4,832	5,482	13.5%	194	\$14.34	Postsecondary vocational training
41-9022	Real Estate Sales Agents	1,112	1,452	30.6%	56	\$14.21	Postsecondary vocational training
49-3031	Bus & Truck Mechanics & Diesel Engine Specialists	1,443	1,599	10.8%	53	\$15.85	Postsecondary vocational training
15-1041	Computer Support Specialists	1,713	1,885	10.0%	38	\$17.92	Associate degree
29-2034	Radiologic Technologists & Technicians	991	1,179	19.0%	38	\$22.88	Associate degree
43-6012	Legal Secretaries	1,267	1,409	11.2%	38	\$16.22	Postsecondary vocational training
23-2011	Paralegals & Legal Assistants	938	1,156	23.2%	30	\$19.59	Associate degree
29-2012	Medical & Clinical Laboratory Technicians	629	750	19.2%	29	\$16.04	Associate degree
29-2021	Dental Hygienists	813	1,030	26.7%	29	\$26.66	Associate degree
13-2021	Appraisers & Assessors of Real Estate	667	751	12.6%	22	\$20.02	Postsecondary vocational training
29-1126	Respiratory Therapists	422	503	19.2%	22	\$23.01	Associate degree
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	703	767	9.1%	21	\$17.74	Postsecondary vocational training
17-3023	Electrical & Electronic Engineering Technicians	532	577	8.5%	16	\$21.84	Associate degree
31-2021	Physical Therapist Assistants	301	406	34.9%	16	\$18.15	Associate degree
29-2055	Surgical Technologists	350	405	15.7%	11	\$16.12	Postsecondary vocational training

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
49-3011	Aircraft Mechanics & Service Technicians	282	309	9.6%	10	\$18.75	Postsecondary vocational training
43-9031	Desktop Publishers	203	244	20.2%	9	\$16.63	Postsecondary vocational training
11-9061	Funeral Directors	179	209	16.8%	8	\$20.11	Associate degree
29-2031	Cardiovascular Technologists & Technicians	229	271	18.3%	8	\$24.34	Associate degree
29-2032	Diagnostic Medical Sonographers	139	167	20.1%	6	\$29.69	Associate degree
19-4031	Chemical Technicians	134	146	9.0%	4	\$15.91	Associate degree
17-3025	Environmental Engineering Technicians	89	98	10.1%	3	\$19.52	Associate degree
49-2098	Security & Fire Alarm Systems Installers	115	129	12.2%	3	\$19.63	Postsecondary vocational training
49-9062	Medical Equipment Repairers	73	81	11.0%	3	\$22.56	Associate degree
17-3027	Mechanical Engineering Technicians	57	64	12.3%	2	\$19.38	Associate degree
19-4092	Forensic Science Technicians	37	46	24.3%	2	\$14.67	Associate degree
29-1124	Radiation Therapists	63	71	12.7%	2	\$27.77	Associate degree
29-2033	Nuclear Medicine Technologists	70	80	14.3%	2	\$28.67	Associate degree
31-2011	Occupational Therapist Assistants	83	96	15.7%	2	\$19.65	Associate degree
49-2021	Radio Mechanics	30	35	16.7%	2	\$16.28	Postsecondary vocational training
19-4041	Geological & Petroleum Technicians	18	20	11.1%	1	\$16.52	Associate degree
<b>Bachelor's Degree or Higher</b>							
11-1021	General & Operations Managers	10,273	11,583	12.8%	325	\$34.95	Bachelor's degree plus work experience
13-1199	Business Operations Specialists, All Other	3,710	4,528	22.0%	145	\$24.42	Bachelor's degree
21-1023	Mental Health & Substance Abuse Social Workers	2,011	2,502	24.4%	83	\$18.71	Master's degree
11-3031	Financial Managers	2,832	3,164	11.7%	74	\$31.15	Bachelor's degree plus work experience
23-1011	Lawyers	2,972	3,326	11.9%	73	\$37.87	First professional degree
21-1021	Child, Family & School Social Workers	2,153	2,489	15.6%	71	\$17.36	Bachelor's degree
25-2041	Special Education Teachers, Preschool, Kindergarten & Elementary School	1,476	1,684	14.1%	56	\$41.280	Bachelor's degree
11-9111	Medical & Health Services Managers	1,544	1,794	16.2%	55	\$31.63	Bachelor's degree plus work experience
11-9151	Social & Community Service Managers	1,370	1,643	19.9%	53	\$22.94	Bachelor's degree

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
11-9141	Property, Real Estate & Community Association Managers	938	1,219	30.0%	46	\$22.10	Bachelor's degree
11-2022	Sales Managers	1,309	1,500	14.6%	43	\$33.46	Bachelor's degree plus work experience
29-2011	Medical & Clinical Laboratory Technologists	834	1,020	22.3%	42	\$22.21	Bachelor's degree
29-1051	Pharmacists	985	1,193	21.1%	40	\$49.79	First professional degree
11-1011	Chief Executives	1,387	1,512	9.0%	39	\$47.23	Bachelor's degree plus work experience
21-1014	Mental Health Counselors	850	1,054	24.0%	39	\$19.31	Master's degree
15-1071	Network & Computer Systems Administrators	993	1,253	26.2%	37	\$25.59	Bachelor's degree
15-1031	Computer Software Engineers, Applications	978	1,229	25.7%	35	\$30.87	Bachelor's degree
29-1071	Physician Assistants	736	974	32.3%	35	\$37.78	Bachelor's degree
29-1123	Physical Therapists	1,094	1,320	20.7%	34	\$27.65	Master's degree
11-3021	Computer & Information Systems Managers	1,026	1,151	12.2%	32	\$36.71	Bachelor's degree plus work experience
13-1073	Training & Development Specialists	1,026	1,173	14.3%	31	\$19.78	Bachelor's degree
15-1051	Computer Systems Analysts	1,186	1,365	15.1%	31	\$31.73	Bachelor's degree
11-3011	Administrative Services Managers	1,079	1,166	8.1%	30	\$25.59	Bachelor's degree plus work experience
15-1081	Network Systems & Data Communications Analysts	521	736	41.3%	28	\$31.21	Bachelor's degree
29-1069	Physicians & Surgeons, All Other	1,268	1,378	8.7%	28	\$70.00	First professional degree
11-2021	Marketing Managers	748	879	17.5%	27	\$33.52	Bachelor's degree plus work experience
19-3031	Clinical, Counseling & School Psychologists	776	879	13.3%	27	\$25.72	Doctoral degree
41-3031	Securities, Commodities & Financial Services Sales Agents	879	1,052	19.7%	27	\$30.23	Bachelor's degree
21-1022	Medical & Public Health Social Workers	617	742	20.3%	24	\$17.88	Bachelor's degree
11-9011	Farm, Ranch & Other Agricultural Managers	518	625	20.7%	20	\$30.95	Bachelor's degree plus work experience
21-1011	Substance Abuse & Behavioral Disorder Counselors	458	546	19.2%	20	\$17.14	Master's degree
29-1131	Veterinarians	422	519	23.0%	20	\$32.56	First professional degree
29-1062	Family & General Practitioners	782	860	10.0%	19	\$62.65	First professional degree
29-1122	Occupational Therapists	649	753	16.0%	19	\$24.85	Master's degree
13-1072	Compensation, Benefits & Job Analysis Specialists	735	807	9.8%	18	\$20.85	Bachelor's degree

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
27-3041	Editors	543	588	8.3%	18	\$17.69	Bachelor's degree
27-3043	Writers & Authors	497	572	15.1%	17	\$21.20	Bachelor's degree
13-2052	Personal Financial Advisors	534	625	17.0%	16	\$43.84	Bachelor's degree
25-2042	Special Education Teachers, Middle School	452	505	11.7%	16	\$40,720	Bachelor's degree
27-1024	Graphic Designers	703	768	9.2%	16	\$15.35	Bachelor's degree
27-3031	Public Relations Specialists	573	650	13.4%	16	\$20.65	Bachelor's degree
11-2011	Advertising & Promotions Managers	388	463	19.3%	15	\$25.01	Bachelor's degree plus work experience
29-1011	Chiropractors	386	451	16.8%	14	\$28.44	First professional degree
15-1032	Computer Software Engineers, Systems Software	324	420	29.6%	13	\$33.56	Bachelor's degree
25-1194	Vocational Education Teachers, Postsecondary	316	375	18.7%	13	\$20.96	Bachelor's degree plus work experience
25-9031	Instructional Coordinators	339	417	23.0%	13	\$22.98	Master's degree
13-1079	Human Resources, Training & Labor Relations Specialists, All Other	352	414	17.6%	12	\$21.34	Bachelor's degree
15-1061	Database Administrators	321	415	29.3%	12	\$27.12	Bachelor's degree
17-2081	Environmental Engineers	332	393	18.4%	12	\$31.75	Bachelor's degree
19-3021	Market Research Analysts	263	308	17.1%	12	\$24.89	Bachelor's degree
21-1091	Health Educators	349	413	18.3%	12	\$17.06	Master's degree
25-1011	Business Teachers, Postsecondary	341	378	10.9%	12	\$46,690	Master's degree
29-1031	Dietitians & Nutritionists	284	327	15.1%	11	\$20.88	Bachelor's degree
13-1071	Employment, Recruitment & Placement Specialists	407	451	10.8%	10	\$21.03	Bachelor's degree
25-1071	Health Specialties Teachers, Postsecondary	259	299	15.4%	10	\$53,400	Master's degree
11-3049	Human Resources Managers, All Other	353	384	8.8%	9	\$31.79	Bachelor's degree plus work experience
13-2051	Financial Analysts	337	380	12.8%	9	\$29.56	Bachelor's degree
25-1072	Nursing Instructors & Teachers, Postsecondary	252	284	12.7%	9	\$51,750	Doctoral degree
25-1123	English Language & Literature Teachers, Postsecondary	272	306	12.5%	9	\$47,800	Master's degree
11-3041	Compensation & Benefits Managers	296	325	9.8%	8	\$31.08	Bachelor's degree plus work experience
11-2031	Public Relations Managers	249	281	12.9%	7	\$28.20	Bachelor's degree plus work experience

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
11-3042	Training & Development Managers	184	222	20.7%	7	\$31.15	Bachelor's degree plus work experience
17-1011	Architects, Except Landscape & Naval	369	402	8.9%	7	\$27.03	Bachelor's degree
25-1042	Biological Science Teachers, Postsecondary	187	212	13.4%	7	\$58,810	Doctoral degree
27-1014	Multi-Media Artists & Animators	188	214	13.8%	7	\$19.04	Bachelor's degree
29-1125	Recreational Therapists	200	217	8.5%	7	\$16.85	Bachelor's degree
11-9031	Education Administrators, Preschool & Child Care Center/Program	168	192	14.3%	6	\$17.57	Bachelor's degree plus work experience
11-9121	Natural Sciences Managers	203	221	8.9%	6	\$35.77	Bachelor's degree plus work experience
13-1121	Meeting & Convention Planners	156	185	18.6%	6	\$15.92	Bachelor's degree
25-1022	Mathematical Science Teachers, Postsecondary	197	221	12.2%	6	\$49,060	Master's degree
25-1126	Philosophy & Religion Teachers, Postsecondary	159	181	13.8%	6	\$43,260	Doctoral degree
41-9031	Sales Engineers	140	157	12.1%	6	\$31.12	Bachelor's degree
15-2031	Operations Research Analysts	162	175	8.0%	5	\$30.80	Master's degree
19-3051	Urban & Regional Planners	113	126	11.5%	5	\$25.27	Master's degree
25-1124	Foreign Language & Literature Teachers, Postsecondary	120	137	14.2%	5	\$44,680	Master's degree
25-1125	History Teachers, Postsecondary	110	125	13.6%	5	\$54,940	Doctoral degree
27-1011	Art Directors	130	151	16.2%	5	\$25.19	Bachelor's degree plus work experience
27-2012	Producers & Directors	161	190	18.0%	5	\$17.51	Bachelor's degree plus work experience
29-1041	Optometrists	106	126	18.9%	5	\$45.56	First professional degree
29-1065	Pediatricians, General	200	219	9.5%	5	\$66.75	First professional degree
13-2031	Budget Analysts	178	192	7.9%	4	\$26.29	Bachelor's degree
19-1021	Biochemists & Biophysicists	66	84	27.3%	4	\$29.22	Doctoral degree
19-2043	Hydrologists	89	108	21.3%	4	\$33.10	Master's degree
25-1066	Psychology Teachers, Postsecondary	110	124	12.7%	4	\$54,120	Doctoral degree
25-3011	Adult Literacy, Remedial Education & GED Teachers & Instructors	185	200	8.1%	4	\$18.90	Bachelor's degree
29-1066	Psychiatrists	166	190	14.5%	4	\$67.94	First professional degree

## High-Growth, High-Wage Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
		2004	2014				
13-2061	Financial Examiners	73	80	9.6%	3	\$26,81	Bachelor's degree
25-1021	Computer Science Teachers, Postsecondary	104	116	11.5%	3	\$47,070	Master's degree
25-1052	Chemistry Teachers, Postsecondary	79	90	13.9%	3	\$57,790	Doctoral degree
25-1063	Economics Teachers, Postsecondary	85	96	12.9%	3	\$66,400	Doctoral degree
25-1067	Sociology Teachers, Postsecondary	68	77	13.2%	3	\$56,670	Doctoral degree
27-3042	Technical Writers	62	70	12.9%	3	\$23.78	Bachelor's degree
27-4032	Film & Video Editors	65	81	24.6%	3	\$18.69	Bachelor's degree
29-9091	Athletic Trainers	76	90	18.4%	3	\$36,720	Bachelor's degree
17-1012	Landscape Architects	89	96	7.9%	2	\$27.24	Bachelor's degree
19-1013	Soil & Plant Scientists	57	63	10.5%	2	\$26.13	Bachelor's degree
19-3022	Survey Researchers	47	57	21.3%	2	\$23.10	Bachelor's degree
21-1013	Marriage & Family Therapists	34	40	17.6%	2	\$15.31	Master's degree
25-1053	Environmental Science Teachers, Postsecondary	41	48	17.1%	2	\$53,580	Doctoral degree
25-1054	Physics Teachers, Postsecondary	58	65	12.1%	2	\$67,470	Doctoral degree
25-1061	Anthropology & Archeology Teachers, Postsecondary	44	51	15.9%	2	\$70,170	Doctoral degree
25-1111	Criminal Justice & Law Enforcement Teachers, Postsecondary	39	44	12.8%	2	\$45,150	Doctoral degree
25-1193	Recreation & Fitness Studies Teachers, Postsecondary	63	72	14.3%	2	\$51,310	Master's degree
25-4011	Archivists	33	36	9.1%	1	\$18.92	Master's degree

Source: *Maine Department of Labor, Center for Workforce Research & Information.*

**Notes:** 1. High-Growth High-Wage Criteria: Projected job growth above 7.2 percent between 2004 and 2014 and a median wage at or above \$13.76 per hour (\$28,621 annually) in 2006. 2. Some occupations are not listed due to statistical validity and non-disclosure constraints; some of those occupations have significant employment in Maine. 3. Median wage rates of \$70.00 per hour (\$145,600 annually) or above are noted in italics. This represents the upper limit of the wage analysis program. 4. Some wage rates were not published in 2006, that were available for 2005. Substitutions of 2005 data appear in italics.

## **Appendix B**

## High-Wage, In-Demand Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

HG HW	SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
			2004	2014				
<b>High-School Diploma or Less</b>								
X	53-3032	Truck Drivers, Heavy & Tractor-Trailer	11,188	12,126	8.4%	277	\$14.85	Moderate-term on-the-job training
	41-1011	First-Line Supervisors/Managers of Retail Sales Workers	9,811	10,345	5.4%	229	\$14.59	Work experience in a related occupation
X	41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	5,043	5,739	13.8%	202	\$21.73	Moderate-term on-the-job training
	47-2031	Carpenters	9,591	9,889	3.1%	186	\$15.18	Long-term on-the-job training
	43-1011	First-Line Supervisors/Managers of Office & Administrative Support Workers	6,745	7,110	5.4%	182	\$17.75	Work experience in a related occupation
X	43-3031	Bookkeeping, Accounting & Auditing Clerks	8,965	9,103	1.5%	182	\$13.85	Moderate-term on-the-job training
X	49-9042	Maintenance & Repair Workers, General	5,726	6,226	8.7%	160	\$14.64	Moderate-term on-the-job training
	33-2011	Fire Fighters	2,122	2,633	24.1%	113	\$16.69	Long-term on-the-job training
X	43-6011	Executive Secretaries & Administrative Assistants	4,062	4,254	4.7%	97	\$17.92	Moderate-term on-the-job training
	33-3051	Police & Sheriff's Patrol Officers	2,186	2,513	15.0%	90	\$16.96	Long-term on-the-job training
	47-1011	First-Line Supervisors/Managers of Construction Trades & Extraction Workers	3,945	4,144	5.0%	87	\$21.09	Work experience in a related occupation
	51-1011	First-Line Supervisors/Managers of Production & Operating Workers	3,722	3,602	-3.2%	78	\$21.18	Work experience in a related occupation
X	49-1011	First-Line Supervisors/Managers of Mechanics, Installers & Repairers	2,246	2,447	8.9%	76	\$21.96	Work experience in a related occupation
	47-2111	Electricians	3,649	3,527	-3.3%	72	\$20.89	Long-term on-the-job training
	47-2152	Plumbers, Pipefitters & Steamfitters	2,820	2,751	-2.4%	65	\$19.49	Long-term on-the-job training
X	31-9091	Dental Assistants	1,021	1,296	26.9%	57	\$14.77	Moderate-term on-the-job training
X	47-2073	Operating Engineers & Other Construction Equipment Operators	1,571	1,710	8.8%	54	\$14.73	Moderate-term on-the-job training
X	49-9021	Heating, Air Conditioning & Refrigeration Mechanics & Installers	1,784	2,074	16.3%	53	\$17.37	Long-term on-the-job training
	47-2141	Painters, Construction & Maintenance	3,451	3,294	-4.5%	53	\$15.72	Moderate-term on-the-job training
	43-5052	Postal Service Mail Carriers	1,635	1,391	-14.9%	51	\$20.68	Short-term on-the-job training
X	11-9051	Food Service Managers	1,871	2,052	9.7%	49	\$19.47	Work experience in a related occupation

## High-Wage, In-Demand Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

HG HW	SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
			2004	2014				
	51-4121	Welders, Cutters, Solderers & Brazers	1,749	1,706	-2.5%	49	\$15.82	Long-term on-the-job training
	11-9199	Managers, All Other	2,369	2,318	-2.2%	46	\$31.37	Work experience in a related occupation
	51-4041	Machinists	1,818	1,743	-4.1%	42	\$18.68	Long-term on-the-job training
X	41-9099	Sales & Related Workers, All Other	925	1,135	22.7%	39	\$17.56	Moderate-term on-the-job training
	41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	1,661	1,727	4.0%	38	\$23.99	Work experience in a related occupation
X	41-3099	Sales Representatives, Services, All Other	887	1,089	22.8%	37	\$21.05	Moderate-term on-the-job training
X	11-9081	Lodging Managers	1,030	1,216	18.1%	36	\$20.87	Work experience in a related occupation
X	41-9021	Real Estate Brokers	1,201	1,317	9.7%	36	\$41.84	Work experience in a related occupation
X	41-4011	Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	864	987	14.2%	35	\$22.58	Moderate-term on-the-job training
X	43-3051	Payroll & Timekeeping Clerks	1,003	1,085	8.2%	35	\$13.99	Moderate-term on-the-job training
	33-3012	Correctional Officers & Jailers	1,285	1,356	5.5%	34	\$14.00	Moderate-term on-the-job training
X	25-3021	Self-Enrichment Education Teachers	860	1,061	23.4%	31	\$14.82	Work experience in a related occupation
X	51-8031	Water & Liquid Waste Treatment Plant & System Operators	672	751	11.8%	31	\$16.39	Long-term on-the-job training
X	13-1022	Wholesale & Retail Buyers, Except Farm Products	887	967	9.0%	31	\$17.65	Work experience in a related occupation
	47-2211	Sheet Metal Workers	1,234	1,188	-3.7%	30	\$17.47	Long-term on-the-job training
	43-5053	Postal Service Mail Sorters, Processors & Processing Machine Operators	1,128	961	-14.8%	30	\$20.06	Short-term on-the-job training
X	37-1011	First-Line Supervisors/Managers of Housekeeping & Janitorial Workers	821	919	11.9%	29	\$15.07	Work experience in a related occupation
X	53-1031	First-Line Supervisors/Managers of Transportation & Material-Moving Machine Operators	830	923	11.2%	29	\$21.17	Work experience in a related occupation
	43-5061	Production, Planning & Expediting Clerks	1,215	1,144	-5.8%	29	\$18.02	Short-term on-the-job training
X	53-3021	Bus Drivers, Transit & Intercity	651	794	22.0%	28	\$14.48	Moderate-term on-the-job training
X	35-1011	Chefs & Head Cooks	672	752	11.9%	28	\$16.98	Work experience in a related occupation
X	49-3021	Automotive Body & Related Repairers	1,005	1,086	8.1%	28	\$14.17	Long-term on-the-job training
X	53-7032	Excavating & Loading Machine & Dragline Operators	777	834	7.3%	27	\$15.28	Moderate-term on-the-job training

## High-Wage, In-Demand Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

HG HW	SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
			2004	2014				
	49-9099	Installation, Maintenance & Repair Workers, All Other	944	985	4.3%	26	\$16.96	Moderate-term on-the-job training
	13-1023	Purchasing Agents, Except Wholesale, Retail & Farm Products	914	945	3.4%	26	\$20.41	Work experience in a related occupation
X	43-5031	Police, Fire & Ambulance Dispatchers	703	805	14.5%	25	\$15.45	Moderate-term on-the-job training
	47-3013	Helpers--Electricians	590	558	-5.4%	25	\$14.20	Short-term on-the-job training
X	49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	790	867	9.7%	24	\$21.20	Long-term on-the-job training
X	13-1051	Cost Estimators	651	726	11.5%	23	\$21.25	Work experience in a related occupation
	51-3021	Butchers & Meat Cutters	818	865	5.7%	23	\$14.06	Long-term on-the-job training
X	41-3011	Advertising Sales Agents	647	734	13.4%	22	\$15.54	Moderate-term on-the-job training
X	13-1041	Compliance Officers, Except Agriculture, Construction, Health & Safety & Transportation	639	707	10.6%	22	\$20.47	Long-term on-the-job training
	53-1021	First-Line Supervisors/Managers of Helpers, Laborers & Material Movers, Hand	741	787	6.2%	22	\$16.05	Work experience in a related occupation
	51-9196	Paper Goods Machine Setters, Operators & Tenders	1,037	911	-12.2%	22	\$18.76	Moderate-term on-the-job training
	51-5023	Printing Machine Operators	750	789	5.2%	21	\$13.93	Moderate-term on-the-job training
	49-9044	Millwrights	843	744	-11.7%	21	\$20.00	Long-term on-the-job training
X	33-1012	First-Line Supervisors/Managers of Police & Detectives	412	468	13.6%	20	\$23.95	Work experience in a related occupation
<b>Post-Secondary Education Less Than Bachelor's Degree</b>								
X	29-1111	Registered Nurses	13,837	16,613	20.1%	568	\$25.74	Associate degree
X	49-3023	Automotive Service Technicians & Mechanics	4,832	5,482	13.5%	194	\$14.34	Postsecondary vocational training
X	41-9022	Real Estate Sales Agents	1,112	1,452	30.6%	56	\$14.21	Postsecondary vocational training
	29-2061	Licensed Practical & Licensed Vocational Nurses	1,992	2,098	5.3%	54	\$16.94	Postsecondary vocational training
X	49-3031	Bus & Truck Mechanics & Diesel Engine Specialists	1,443	1,599	10.8%	53	\$15.85	Postsecondary vocational training
X	29-2034	Radiologic Technologists & Technicians	991	1,179	19.0%	38	\$22.88	Associate degree
X	43-6012	Legal Secretaries	1,267	1,409	11.2%	38	\$16.22	Postsecondary vocational training
X	15-1041	Computer Support Specialists	1,713	1,885	10.0%	38	\$17.92	Associate degree
X	23-2011	Paralegals & Legal Assistants	938	1,156	23.2%	30	\$19.59	Associate degree

## High-Wage, In-Demand Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

HG HW	SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
			2004	2014				
X	29-2021	Dental Hygienists	813	1,030	26.7%	29	\$26.66	Associate degree
X	29-2012	Medical & Clinical Laboratory Technicians	629	750	19.2%	29	\$16.04	Associate degree
X	29-1126	Respiratory Therapists	422	503	19.2%	22	\$23.01	Associate degree
X	13-2021	Appraisers & Assessors of Real Estate	667	751	12.6%	22	\$20.02	Postsecondary vocational training
X	17-3013	Mechanical Drafters	797	650	-18.4%	22	\$23.89	Postsecondary vocational training
X	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	703	767	9.1%	21	\$17.74	Postsecondary vocational training
<b>Bachelor's Degree or Higher</b>								
X	11-1021	General & Operations Managers	10,273	11,583	12.8%	325	\$34.95	Bachelor's degree plus work experience
	25-2031	Secondary School Teachers, Except Special & Vocational Education	6,105	6,159	0.9%	177	\$41,430	Bachelor's degree
	25-2021	Elementary School Teachers, Except Special Education	6,457	6,642	2.9%	162	\$43,220	Bachelor's degree
X	13-1199	Business Operations Specialists, All Other	3,710	4,528	22.0%	145	\$24.42	Bachelor's degree
	13-2011	Accountants & Auditors	3,587	3,804	6.0%	90	\$22.11	Bachelor's degree
X	21-1023	Mental Health & Substance Abuse Social Workers	2,011	2,502	24.4%	83	\$18.71	Master's degree
	41-3021	Insurance Sales Agents	3,347	3,169	-5.3%	80	\$20.25	Bachelor's degree
X	11-3031	Financial Managers	2,832	3,164	11.7%	74	\$31.15	Bachelor's degree plus work experience
X	23-1011	Lawyers	2,972	3,326	11.9%	73	\$37.87	First professional degree
X	21-1021	Child, Family & School Social Workers	2,153	2,489	15.6%	71	\$17.36	Bachelor's degree
	25-2022	Middle School Teachers, Except Special & Vocational Education	3,224	3,170	-1.7%	71	\$42,420	Bachelor's degree
X	25-2041	Special Education Teachers, Preschool, Kindergarten & Elementary School	1,476	1,684	14.1%	56	\$41,280	Bachelor's degree
X	11-9111	Medical & Health Services Managers	1,544	1,794	16.2%	55	\$31.63	Bachelor's degree plus work experience
X	11-9151	Social & Community Service Managers	1,370	1,643	19.9%	53	\$22.94	Bachelor's degree
	21-2011	Clergy	2,208	2,235	1.2%	48	\$23.51	Master's degree
X	11-9141	Property, Real Estate & Community Association Managers	938	1,219	30.0%	46	\$22.10	Bachelor's degree
X	11-2022	Sales Managers	1,309	1,500	14.6%	43	\$33.46	Bachelor's degree plus work experience

## High-Wage, In-Demand Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

HG HW	SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
			2004	2014				
	11-9021	Construction Managers	1,968	2,042	3.8%	43	\$32.36	Bachelor's degree
X	29-2011	Medical & Clinical Laboratory Technologists	834	1,020	22.3%	42	\$22.21	Bachelor's degree
X	29-1051	Pharmacists	985	1,193	21.1%	40	\$49.79	First professional degree
X	21-1014	Mental Health Counselors	850	1,054	24.0%	39	\$19.31	Master's degree
X	11-1011	Chief Executives	1,387	1,512	9.0%	39	\$47.23	Bachelor's degree plus work experience
X	15-1071	Network & Computer Systems Administrators	993	1,253	26.2%	37	\$25.59	Bachelor's degree
	11-9032	Education Administrators, Elementary & Secondary School	1,462	1,472	0.7%	37	\$65,210	Bachelor's degree plus work experience
X	29-1071	Physician Assistants	736	974	32.3%	35	\$37.78	Bachelor's degree
X	15-1031	Computer Software Engineers, Applications	978	1,229	25.7%	35	\$30.87	Bachelor's degree
X	29-1123	Physical Therapists	1,094	1,320	20.7%	34	\$27.65	Master's degree
X	11-3021	Computer & Information Systems Managers	1,026	1,151	12.2%	32	\$36.71	Bachelor's degree plus work experience
X	15-1051	Computer Systems Analysts	1,186	1,365	15.1%	31	\$31.73	Bachelor's degree
X	13-1073	Training & Development Specialists	1,026	1,173	14.3%	31	\$19.78	Bachelor's degree
X	11-3011	Administrative Services Managers	1,079	1,166	8.1%	30	\$25.59	Bachelor's degree plus work experience
X	15-1081	Network Systems & Data Communications Analysts	521	736	41.3%	28	\$31.21	Bachelor's degree
X	29-1069	Physicians & Surgeons, All Other	1,268	1,378	8.7%	28	\$70.00	First professional degree
X	41-3031	Securities, Commodities & Financial Services Sales Agents	879	1,052	19.7%	27	\$30.23	Bachelor's degree
X	11-2021	Marketing Managers	748	879	17.5%	27	\$33.52	Bachelor's degree plus work experience
X	19-3031	Clinical, Counseling & School Psychologists	776	879	13.3%	27	\$25.72	Doctoral degree
	13-1111	Management Analysts	1,829	1,837	0.4%	26	\$27.20	Bachelor's degree plus work experience
	21-1012	Educational, Vocational & School Counselors	1,125	1,120	-0.4%	26	\$20.22	Master's degree
	13-2072	Loan Officers	1,258	1,308	4.0%	25	\$23.68	Bachelor's degree
X	21-1022	Medical & Public Health Social Workers	617	742	20.3%	24	\$17.88	Bachelor's degree
	29-1127	Speech-Language Pathologists	762	802	5.2%	23	\$23.40	Master's degree
X	29-1131	Veterinarians	422	519	23.0%	20	\$32.56	First professional degree

## High-Wage, In-Demand Jobs in Maine by Education or Training Requirement for Entry Sorted by Projected Annual Job Openings

HG HW	SOC Code	Occupation	Employment		Growth Rate	Annual Openings	Median Wage	Education/Training Requirement
			2004	2014				
X	11-9011	Farm, Ranch & Other Agricultural Managers	518	625	20.7%	20	\$30.95	Bachelor's degree plus work experience
X	21-1011	Substance Abuse & Behavioral Disorder Counselors	458	546	19.2%	20	\$17.14	Master's degree
	25-2043	Special Education Teachers, Secondary School	679	722	6.3%	20	\$41,110	Bachelor's degree
	11-9033	Education Administrators, Postsecondary	627	664	5.9%	20	\$26.42	Bachelor's degree plus work experience
	15-1021	Computer Programmers	854	734	-14.1%	20	\$25.75	Bachelor's degree

Source: *Maine Department of Labor, Center for Workforce Research & Information.*

**Notes:** 1. High-Wage, In-Demand Criteria: Projected annual job openings of 20 or more between 2004 and 2014 and a median wage at or above \$13.76 per hour (\$28,621 annually) in 2006. 2. Some occupations are not listed due to statistical validity and non-disclosure constraints; some of those occupations have significant employment in Maine. 3. Median wage rates of \$70.00 per hour (\$145,600 annually) or above are noted in italics. This represents the upper limit of the wage analysis program. 4. Some wage rates were not published in 2006, that were available for 2005. Substitutions of 2005 data appear in italics. 5. An "X" in the HGHW column denotes an occupation that also meets the High-Growth, High-Wage criteria.