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A Closer Look At Occupational Projections

New York State | 2010



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I. Introduction

Job seekers, students, workers and employers in New York State can use the information here to plan their futures. This report combines information about jobs that are expected to grow with information on each job's usual wages, education and training requirements. This provides a powerful tool to gauge the current and future prospects of an occupation.

Industry vs. Occupation

An **industry** is a cluster of businesses that produce comparable products or services. The **North American Industry Classification System** classifies establishments based on how they create their goods and services. Usually, goods or services are similar between firms in the same industry. Example: Nike, New Balance, Reebok, etc. are different companies that make comparable products, and are part of the same industry because they make the products in a similar way.

An **occupation** is a specific set of common tasks performed by employees for pay. The **Standard Occupational Classification (SOC)** system classifies occupations. It groups persons who perform similar tasks in the same occupation regardless of the industry. Example: Accountants perform a core set of tasks, but are employed in many industries including government, health care, finance, etc.

II. Findings

- For job seekers, **there is a trade-off between how easy it is to find a job in their chosen field, and how much the work pays.** As you page through this publication, look at the industries and occupations that grow the most, or have the greatest number of annual openings.
- With a few exceptions, the occupations listed share two common characteristics, they often:
 - Pay lower wages than other jobs and
 - Require less education or training than other jobs
- Total employment in New York State is expected to grow by 57,440 annually. However, **different industries grow at very different rates.** A few industries, such as manufacturing, are actually expected to shrink.
- **There is a strong relationship between industry growth and occupational growth** for occupations common to an industry. Health care and social assistance is the industry expected to grow the most. Three of the top five growing occupations are in health care and social service careers.
- **The relationship between industry and wages is less clear.** The best-paying industries include financial activities, information and professional and business services. And there are high-paying occupations in these industries. However, many medical occupations, such as surgeons, offer high pay levels. Yet the overall annual wage in the health care industry is unexceptional.
- **Growth is concentrated in a few occupations.** There are more than 625 distinct occupations found in the state. Of these, the top 25 growth occupations account for more than 60 percent of total growth expected by 2016. That is 360,660 of the 574,400 net job gains.
- **Certain types of careers do not even make it onto our list** of the top 25 growth occupations. This includes professional titles in managerial, engineering, scientific, legal and design/media careers. It also includes more blue-collar titles in farming, maintenance/repair, production, and transportation careers.

- Some good news – the **growth occupations tend to have lower entry requirements** for education or training. Of the top 25 occupations, 18 require only short-term or moderate-term on-the-job training. Only seven occupations require any post-secondary education, and not one requires a degree higher than a bachelor's.
- The bad news – **the occupations that require the most education and training pay the best.** The 12 occupations on the list that only require short-term on-the-job training are also the lowest paying. Their average median wage is only \$22,893.
- **Replacement needs generate the majority of openings for most occupations.** The three occupations with the most annual openings are retail salespersons, cashiers, and waiters and waitresses. These all serve as entry-level jobs. Few people choose them as permanent careers, and the many who do move on must be replaced. This need for replacement creates many more job openings than growth does.
- Even **occupations not expected to grow may still have a large number of total openings** if the replacement needs are great. Typically, this happens only when an occupation is very widespread, like cashiers.
- **The fastest growing occupations are usually smaller occupations.** They will not have the most openings, or even the most growth. They usually pay more, but require more education or training, than other occupations.



Conclusion:
 When considering a career, weigh the pros and cons:

There will be many openings in the lower-paying jobs that are easy to learn.

But the best-paying jobs require the most education, training or work experience, and have the fewest openings.

III. Industry Trends Influencing Occupational Growth to 2016

Between 2006 and 2016, total employment in New York State is expected to grow by 0.6 percent a year. We expect average annual job gains of 57,440 during the period. (See Table 1 on the next page.) By 2016, employment in New York State is expected to reach 9,892,040, an all-time high.

Almost all of the increase will be in the nonagricultural sectors of the economy, both public and private. These are forecast to grow from:

- 8,675,240 in 2006 to
- 9,232,100 in 2016

That would offer a gain of 56,860 jobs annually (+0.6 percent.)

Goods-Producing vs. Service-Providing

This 0.6 percent growth rate, however, hides major differences between the goods-producing and the service-providing sectors of New York State's economy.

The annual growth rate in goods-producing industries was forecast at -0.6 percent, or a loss of -5,360 jobs. Among goods-producing industries, manufacturing is expected to suffer the largest net and percentage annual decrease. It will fall 2.2 percent, with a loss of 11,770 jobs. This is the largest decrease among all private sector industries. Losses in manufacturing are forecast to be split almost evenly between nondurable goods (-5,820, or -2.4 percent) and durable goods (-5,950, or -1.9 percent).

Service-providing industries, on the other hand, are expected to grow by 0.8 percent, or 61,040 jobs, each year. The biggest annual gain, 29,320 jobs, or 1.3 percent, is projected for educational and health services, with growth concentrated in health care and social assistance (+21,400 jobs.) The aging health care needs of a population is a primary cause for the increase -- in particular those of the baby boom generation (those born between 1946 and 1964.)

Health Care and Social Assistance

There is a clear effect of an aging population on New York's labor market. It shows up in the trend of strong job growth in the state's health care and social assistance sector. Between 1990 and 2009, private sector health care and social assistance employment in the Empire State grew 56 percent. At the same time, overall private sector jobs only increased by 6 percent. Over this period, the share of private sector employment in health care and social assistance grew from 13 percent to 18 percent.

This trend is expected to continue. The leading edge of the baby boom generation will turn 65 in 2011. According to Cornell University's Program on Applied Demographics there are sharp contrasts between age groups during the decade that ends in 2015. The number of people age:

- 65 or older in New York State is expected to grow by over 325,000, or 13.2 percent
- 15 to 64 is expected to grow by only 315,000, or 2.4 percent

With the number of people 65 or older increasing rapidly, demand for health care will grow more quickly than the overall economy. In New York State, many of the occupations projected to grow most rapidly between 2006 and 2016 are health care-related.



Frequently Used Terms

2006 Employment: Employment in the forecast base year.

2016 Employment: Employment in the ending year of the 10-year projection.

Percent change: Numeric change divided by 2006 employment.

Total Payroll: Sum of wages of full-time and part-time workers.

Average (Mean) wage: Total payroll divided by total employment.

Median Wage: The wage at which half of the people make more and half make less.

North American Industry Classification System (NAICS): used to classify businesses by industry. It groups establishments that use comparable raw materials, equipment and human capital into like industries. For more information see <http://stats.bls.gov/bls/naics.htm>.

Standard Occupational Classification (SOC): Classifies over 800 occupations into 23 major occupational groups. It uses two-to six-digit classifications (with six-digit being the most detailed) to categorize each occupation.

Major Occupational Group: Two-digit SOC identifier.

Occupational Employment Statistics (OES): Survey-based program carried out by the U.S. Department of Labor in conjunction with every state. Employment and wage estimates are generated for more than 800 occupations and hundreds of geographic areas. **Note** - Employment estimates data from the OES survey are an input into occupational projections.

Replacement: A job opening created by an employee leaving an occupation.

Growth: Occupational demand increase that leads to a **new** job opening.

Total Openings: The sum of growth and replacement openings.

Professional and Business Services

The next largest gains are expected in professional and business services, with 18,110 new jobs or 1.5 percent annually. This is a result of technological innovation and increasing product specialization. All three sub-sectors in this sector expect strong annual growth. They project:

- Professional, scientific and technical services at 1.8 percent
- Administrative and waste services at 1.5 percent
- Management of companies and enterprises at 1.0 percent.



Manufacturing

The largest employment losses are projected to occur in manufacturing, where a long-term decline continues. The sector is shedding jobs at a faster rate than the nation, with employment being:

- shifted out of the state or the country or
- curtailed due to increased productivity

Double-digit declining rates are forecasted across almost every manufacturing sub-industry.

Table 1: New York State Industry Projections to 2016

Industry Title	Employment		Annualized Change	
	2006	2016	Net	Percent
Total	9,317,660	9,892,040	57,440	0.6%
Nonagricultural Wage & Salary	8,675,240	9,232,100	55,690	0.6%
Goods Producing (excluding agriculture)	909,680	856,130	-5,360	-0.6%
Mining	5,280	5,440	20	0.3%
Construction	336,500	400,460	6,400	1.8%
Manufacturing	567,900	450,230	-11,770	-2.2%
Durable Goods	320,870	261,360	-5,950	-1.9%
Nondurable Goods	247,030	188,870	-5,820	-2.4%
Service Providing	7,765,560	8,375,970	61,040	0.8%
Trade, Transportation & Utilities	1,578,380	1,587,640	930	0.1%
Wholesale Trade	353,700	341,180	-1,250	-0.3%
Retail Trade	880,890	902,580	2,170	0.2%
Transportation & Warehousing	304,690	306,910	220	0.1%
Utilities	39,100	36,970	-210	-0.5%
Information	269,910	263,850	-610	-0.2%
Financial Activities	726,100	764,040	3,790	0.5%
Finance & Insurance	539,450	561,720	2,230	0.4%
Real Estate & Rental & Leasing	184,300	200,250	1,600	0.9%
Professional & Business Services	1,108,500	1,289,570	18,110	1.5%
Professional, Scientific & Technical Services	555,290	660,930	10,560	1.8%
Management of Companies & Enterprises	127,800	141,320	1,350	1.0%
Administrative & Waste Services	425,410	487,320	6,190	1.5%
Educational & Health Services (private & public)	2,231,550	2,524,760	29,320	1.3%
Educational Services	956,150	1,035,360	7,920	0.8%
Health Care & Social Assistance	1,275,400	1,489,400	21,400	1.6%
Leisure & Hospitality	677,900	746,740	6,880	1.0%
Arts, Entertainment & Recreation	132,800	158,300	2,550	1.9%
Accommodation & Food Services	545,100	588,440	4,330	0.8%
Other Services	414,840	445,860	3,100	0.7%
Government (excluding public education & public health care)	758,380	753,510	-490	-0.1%
Self Employed & Unpaid Family Workers	575,270	594,370	1,910	0.3%
Agriculture, Forestry, Fishing & Hunting	67,150	65,570	-160	-0.2%

IV. New York State Industry Employment and Wages in 2008

Employment information – by place of work – is based on quarterly reports from employers covered under New York State’s Unemployment Insurance Law. Data by industry (using the North American Industry Classification System) include:

- Employment
- Total annual and average weekly wages and
- Number of establishments.

We offer data for New York State, metropolitan areas, and counties. (State law prohibits us from disclosing information that would reveal the identity of individual employers.) It takes about six months to collect the data and publish.

Goods-Producing vs. Service-Providing

The 2008 average employment and annual wages by industry appear in Table 2 (on the next page.) Goods-producing industries pay a lower average wage compared to service-providing industries (\$57,192 compared to \$62,902). However, service-providing industries’ wages vary much more.

The average wage among goods-producing industries (excluding agriculture, forestry, fishing and hunting) ranged from:

- \$57,240 in non-durable goods manufacturing to
- \$60,257 in durable goods manufacturing

The average wage among service-providing industries, however, ranged from:

- A low of \$21,675 in accommodation and food services to
- A high of \$207,304 in finance and insurance

The average wage in government was \$51,283.

Best Paying Industries

Among major industries, average annual wages in 2008 were highest in:

- Financial activities (\$167,931)
- Information (\$88,251) and
- Professional and business services (\$75,276).



Table 2: 2008 New York State Industry Employment and Wages

Industry Title	Reporting Units	Average Employment	Total Wages	Average Wages
Total, All Industries	579,296	8,607,715	\$518,865,957,832	\$60,279
Total, All Private	569,157	7,162,593	\$444,755,294,723	\$62,094
Goods Producing	73,997	920,232	\$52,629,528,279	\$57,192
Agriculture, Forestry, Fishing & Hunting	2,380	22,459	\$625,942,056	\$27,870
Mining	390	5,549	\$334,367,168	\$60,257
Construction	51,375	359,978	\$21,203,317,209	\$58,902
Manufacturing	19,852	532,246	\$30,465,901,846	\$57,240
Durable Goods	10,345	308,301	\$18,887,807,691	\$61,264
Nondurable Goods	9,507	223,947	\$11,578,094,155	\$51,700
Service Providing	478,546	6,222,151	\$391,385,849,804	\$62,902
Trade, Transportation & Utilities	126,177	1,517,476	\$64,318,137,700	\$42,385
Wholesale Trade	39,024	351,799	\$24,373,870,822	\$69,284
Retail Trade	74,627	895,589	\$26,391,891,167	\$29,469
Transportation & Warehousing	12,088	231,312	\$9,907,878,518	\$42,833
Utilities	438	38,776	\$3,644,497,193	\$93,988
Information	11,679	262,011	\$23,122,653,147	\$88,251
Finance & Rental & Leasing	65,363	720,926	\$121,066,167,278	\$167,931
Finance & Insurance	30,670	534,720	\$110,849,737,998	\$207,304
Real Estate & Rental & Leasing	34,693	186,206	\$10,216,429,280	\$54,866
Professional & Business Services	97,624	1,155,060	\$86,947,863,368	\$75,276
Professional & Technical Services	65,364	586,913	\$51,674,659,092	\$88,045
Management of Companies & Enterprises	3,519	131,509	\$17,506,406,182	\$133,119
Administrative & Waste Services	28,741	436,638	\$17,766,798,094	\$40,690
Educational & Health Services (private)	59,809	1,523,674	\$66,134,165,963	\$43,404
Educational Services	7,304	287,123	\$13,079,727,590	\$45,554
Health Care & Social Assistance	52,505	1,236,551	\$53,054,438,373	\$42,905
Leisure & Hospitality	52,795	715,255	\$18,863,861,366	\$26,374
Arts, Entertainment, & Recreation	11,319	142,985	\$6,459,740,559	\$45,178
Accommodation & Food Services	41,476	572,270	\$12,404,120,807	\$21,675
Other Services	65,099	327,749	\$10,933,000,982	\$33,358
Unclassified	16,618	20,207	\$739,885,360	\$36,615
Total, All Government	10,139	1,445,122	\$74,110,663,109	\$51,283

V. Making Sense of Occupational Projections for New York State

We evaluate occupational projections for New York from multiple perspectives:

- Number of job openings
- Amount of wages
- Education and training requirements

Openings get the most attention, as there must be a job to fill before either the pay or the effort needed to achieve a job comes into play.

Number of Openings

You can review employment prospects by:

- Examining the likelihood of new jobs or growth and
- Considering total openings, which includes both growth and replacement

Total openings, as defined here, does not include the job openings that result when people move from job to job or firm to firm without a change of occupation.

Find the top 25 occupations with the:

- Greatest growth in Table 3
- Most openings in Table 4



Wages

People often think high-paying occupations offer good careers. The median, entry and experienced wages for each occupation appear in the tables.

If you combine the wages with the career projections and the minimum education and training requirements, it gives you a more complete picture of an occupation.

Minimum Education and Training Requirements

Most careers have a minimum education or training requirement that apply to anyone who enters that field. This effort can range from brief on-the-job training to the years required for a professional degree.

Part of the analysis will focus on differences in occupational outlook between careers that require post-secondary training and those that do not.

These perspectives -- openings, wages and education -- are criteria used to evaluate occupations. People who can use these data to make informed decisions include:

- Policy makers
- Employers
- Job seekers
- Career changers
- Others

To learn more about the relationship between wages and education, see page 13.

A. Top 25 Occupations with the Greatest Growth in Number of Jobs

The 25 occupations forecast to grow the most between 2006 and 2016 appear in Table 3-A on page 12. Three factors determine which careers can expect to experience major growth between 2006 and 2016:

- Industry projections
- Base employment
- Occupational relevance

1. Industry Projections as a Factor in Occupational Projections

Much of the growth we can expect for an occupation depends a good deal on whether this career occurs primarily in growing industries or in shrinking industries.

In technical terms, for occupations common to an industry, the projected change in total industrial employment reported in Table 1 correlates strongly and positively with those occupational employment projections. That means an occupation that occurs only in a particular industry will change on a par with that industry.

Likewise, the industry in New York State with the greatest expected growth - health care and social assistance – has ties to many careers ranked high on the list of growing occupations.

Three of the top five occupations on the list of New York State's top 25 growth occupations are health care and social service careers:

- Home health aides
- Personal and home care aides
- Registered nurses

Home health aides are projected to have the greatest net growth: 5,230 jobs annually, or 52,320 over the 10-year period. The majority of job openings will be brand new jobs; over 80 percent of the total openings for home health care aides will come from growth (jobs from growth). Among careers on the list of high growth occupations, home health aides have the third highest rate of growth (+37.8 percent.)

2. Base Employment as a Factor in Occupational Projections

Change in industry employment is not the only factor that drives an occupation's growth. If there is a large base of jobs in a specific occupation, even a moderate rate of growth will lead to a large number of openings. Occupations that illustrate this include:

- Retail salespersons
- Office clerks
- Teacher assistants
- Others

Retail salesperson is the most common occupation in New York State. It ranks second in net growth, despite a projected growth *rate* that is among the lowest of the top 25 growth occupations (19th). Starting from an employment base of more than 280,000, the expected change for this career over a 10-year period is 28,170, or 2,820 annually.

3. Occupational Relevance as a Factor in Occupational Projections

The third reason for a career to make the top 25 list involves the occupation itself. Over time, some careers become less common or vanish entirely; others grow more than the average. Advances in technology can reduce the need for some occupations.

The recent shift towards digital cameras, for instance, has greatly reduced the number of people needed to make, sell and develop photographic film. ATMs have cut the need for bank tellers even as the number of bank branches continues to grow.

This phenomenon is not new; telephone operators, chimney sweeps and blacksmiths are all occupations whose time has passed.

In the same vein, new and previously unimagined occupations continually appear, while other careers become more common. Many computer titles did not exist several decades ago. Today, information technology and its practitioners occur in every industry.

Even in contracting industries, such as manufacturing, these occupations enjoy an increased presence. As we might expect, the top 25 growth occupations include three computer titles:

- computer software engineers and applications
- network systems and data communications analysts
- computer systems analysts

A Combination of Factors

Customer service representative owes its fifth place ranking on the list of growth occupations to a combination of the below factors.

- Financial firms, which are predicted to see moderate growth between 2006 and 2016, have more than one-third of customer service representatives.
- In terms of employment, the occupation is one of the 10 largest in New York State.
- Its share of total employment has increased over the last few years as more and more companies make customer service a priority.

Put these three factors together, and the number of customer service representatives is expected to increase by 19,040, or 14 percent, between 2006 and 2016. Like customer service representatives, the majority of the careers on the list of growth occupations are there for more than one reason.



Table 3-A: Top 25 Occupations with Greatest Projected Growth

New York State Employment Change/Annual Openings to 2016

Rank	Occupational Title	Employment		Change		Annual Average Openings		
		2006	2016	Net	Percent	Growth	Replacement	Total
1	Home Health Aides	138,290	190,610	52,320	37.8	5,230	1,240	6,470
2	Retail Salespersons	280,650	308,820	28,170	10.0	2,820	8,640	11,460
3	Personal & Home Care Aides	74,680	100,790	26,110	35.0	2,610	1,270	3,880
4	Registered Nurses	169,400	193,520	24,120	14.2	2,410	2,800	5,210
5	Customer Service Representatives	136,160	155,200	19,040	14.0	1,900	3,790	5,690
6	Janitors & Cleaners, except Maids & Housekeepers	190,410	206,630	16,220	8.5	1,620	3,650	5,270
7	Executive Secretaries & Administrative Assistants	147,060	161,530	14,470	9.8	1,450	2,340	3,790
8	Accountants & Auditors	106,960	120,470	13,510	12.6	1,350	1,880	3,230
9	Computer Software Engineers, Applications	32,250	44,490	12,240	38.0	1,220	470	1,690
10	Nursing Aides, Orderlies & Attendants	104,210	116,310	12,100	11.6	1,210	930	2,140
11	Child Care Workers	119,200	131,300	12,100	10.2	1,210	3,420	4,630
12	Office Clerks, General	206,100	217,840	11,740	5.7	1,170	3,780	4,950
13	Waiters & Waitresses	130,830	142,220	11,390	8.7	1,140	7,110	8,250
14	Security Guards	100,550	111,250	10,700	10.6	1,070	2,040	3,110
15	Receptionists & Information Clerks	87,120	97,820	10,700	12.3	1,070	2,130	3,200
16	Bookkeeping, Accounting & Auditing Clerks	142,830	153,440	10,610	7.4	1,060	2,240	3,300
17	Carpenters	69,260	79,810	10,550	15.2	1,060	940	2,000
18	Elementary School Teachers, except Special Ed.	97,210	107,600	10,390	10.7	1,040	2,120	3,160
19	Food Preparation Workers	88,540	98,810	10,270	11.6	1,030	3,070	4,100
20	Combined Food Preparation & Serving Workers	73,580	81,580	8,000	10.9	800	1,400	2,200
21	Construction Laborers	54,770	62,540	7,770	14.2	780	410	1,190
22	Teacher Assistants	129,910	137,510	7,600	5.9	760	2,120	2,880
23	Network Systems & Data Communications Analysts	17,100	24,270	7,170	41.9	720	350	1,070
24	Computer Systems Analysts	30,520	37,260	6,740	22.1	670	810	1,480
25	Social & Human Service Assistants	33,540	40,170	6,630	19.8	660	390	1,050

**Table 3-B: Top 25 Occupations with Greatest Projected Growth
New York State Education/Training Requirements and Wages**

Rank	Occupational Title	Typical Education and Training Requirements	Annual Wages (\$)		
			Median	Entry	Experienced
1	Home Health Aides	Short-term on-the-job training	\$21,570	\$17,430	\$25,190
2	Retail Salespersons	Short-term on-the-job training	\$21,500	\$16,800	\$31,540
3	Personal & Home Care Aides	Short-term on-the-job training	\$22,320	\$19,010	\$23,650
4	Registered Nurses	Associate degree	\$69,690	\$50,370	\$82,690
5	Customer Service Representatives	Moderate-term on-the-job training	\$31,800	\$21,550	\$40,690
6	Janitors & Cleaners, except Maids & Housekeepers	Short-term on-the-job training	\$25,170	\$17,700	\$32,040
7	Executive Secretaries & Administrative Assistants	Moderate-term on-the-job training	\$46,010	\$33,850	\$55,930
8	Accountants & Auditors	Bachelor's degree	\$69,900	\$50,050	\$92,540
9	Computer Software Engineers, Applications	Bachelor's degree	\$89,330	\$62,720	\$107,200
10	Nursing Aides, Orderlies & Attendants	Postsecondary vocational training	\$30,850	\$22,520	\$34,500
11	Child Care Workers	Short-term on-the-job training	\$23,070	\$17,040	\$26,890
12	Office Clerks, General	Short-term on-the-job training	\$26,280	\$18,130	\$32,190
13	Waiters & Waitresses	Short-term on-the-job training	\$22,110	\$16,410	\$29,680
14	Security Guards	Short-term on-the-job training	\$25,360	\$18,430	\$32,790
15	Receptionists & Information Clerks	Short-term on-the-job training	\$27,230	\$20,530	\$31,950
16	Bookkeeping, Accounting & Auditing Clerks	Moderate-term on-the-job training	\$35,540	\$25,130	\$42,320
17	Carpenters	Long-term on-the-job training	\$47,350	\$30,270	\$63,340
18	Elementary School Teachers, except Special Ed.	Bachelor's degree	\$61,870	\$42,080	\$75,790
19	Food Preparation Workers	Short-term on-the-job training	\$19,870	\$16,430	\$24,610
20	Combined Food Preparation & Serving Workers	Short-term on-the-job training	\$16,250	\$15,680	\$19,140
21	Construction Laborers	Moderate-term on-the-job training	\$42,690	\$25,980	\$56,110
22	Teacher Assistants	Short-term on-the-job training	\$23,990	\$17,490	\$29,410
23	Network Systems & Data Communications Analysts	Bachelor's degree	\$77,050	\$53,190	\$94,330
24	Computer Systems Analysts	Bachelor's degree	\$83,060	\$55,330	\$102,980
25	Social & Human Service Assistants	Moderate-term on-the-job training	\$28,030	\$20,070	\$34,830

What Kind of Occupations are Growing?

Certain types of jobs show up on the list more than others. Of the 25 top growth occupations:

- Five are office and administrative support
- Three are computer and mathematical
- Three are food preparation and serving related

Nine occupational groups have no representation on the top 25 list, including professional titles in managerial, engineering, scientific, legal and design/media careers, as well as more blue-collar titles in farming, maintenance/repair, production and transportation careers.

Job Growth is Primarily Concentrated Among a Small Group of Occupations

It's hard to overstate the total employment impact of the top 25 growth occupations. Of the 625 distinct careers found in New York State, the top 25 growth occupations account for more than 60 percent of total growth. That means they hold 360,660 of the 574,400 net job gains (62.8 percent) expected between 2006 and 2016. Nineteen occupations are projected to have 1,000 or more job openings annually.

For five occupations, new jobs from growth will be responsible for over two-thirds of total openings (See sidebar: Growth and Replacement.) These professions are expected to grow by 10,440 annually:

- Home health aides
- Computer software engineers, applications
- Personal and home care aides
- Network systems and data communications analysts and
- Social and human service assistants

Education and Training Requirements / Wages

The minimum education /experience requirements to enter one of the top 25 growth careers usually are not a high hurdle to overcome. (See Table 3-B, page 10.) Eighteen of the top 25 occupations with the greatest growth require only short-term or moderate-term on-the-job training. Only seven occupations require post-secondary education and none require a degree higher than a bachelor's.

Unfortunately, jobs with lower minimal education requirements also tend to pay lower than careers that require higher education credentials. Of the top 25 occupations with the greatest net growth, the top four highest paying careers require a bachelor's degree and pay a median wage of \$79,835:

- Computer software engineers
- Computer system analysts
- Network system and data communications analysts
- Accountants and auditors

The 12 growth occupations that require short-term on-the-job training, however, are also the lowest paying of the top 25 growth occupations. Their average median wage is \$22,893.



B. Top 25 Occupations with the Most Openings to 2016

In the last section we discussed the role growth plays in interpreting projections. But not all openings are due to growth. In fact, more job openings overall are due to replacement needs. While there are occupations where the bulk of openings come from growth, for most careers the majority of jobs come from replacement. Thus, total job openings are usually the result of a mix of growth and replacement.

Contributors to Total Openings: Growth and Replacement

Not surprisingly, many careers that show strong growth in the number of jobs also place high on the list of top 25 occupations with the most openings. (See Table 4-A, page 16.) Seventeen occupations appear on both lists, including the career projected to have the largest number of total openings: retail salespersons.

For 12 occupations on the list, replacement needs will generate 75 - 100 percent of expected total openings. Employment for the number two occupation, cashiers, actually is expected to decline by 7,590, or 3.7 percent, over the forecast period. This means replacements will provide all of the 9,860 annual openings.



Growth and Replacement

Growth Openings: Where occupational employment increases, it generates new job openings that did not exist previously. These openings are growth openings. Occupations where employment is projected to shrink will have **zero** growth openings.

Replacement Openings: Every occupation experiences turnover. However, not all turnovers create a replacement opening. When a worker leaves one occupation for another, a replacement is needed. If an employee leaves a job, only to get a new job in the same occupation, no replacement opening is created.

For example, a waiter who upon finishing college takes a job as an accountant leaves the labor market with one less waiter. That waiter would need to be replaced. However, when an accountant switches from one accounting firm to another, the total number of accountants is unchanged. They have simply shifted around. Unlike growth, replacement can occur in both growing and declining occupations.

Total Openings: The sum of growth and replacement openings for an occupation. Furthermore, total openings do not capture every job opportunity expected, as neither total nor replacement openings reflect the commonplace job switching seen in occupations with high turnover.

Table 4-A: Top 25 Occupations With Largest Number of Annual Openings**New York State Employment Change/Annual Openings to 2016**

Rank	Occupational Title	Employment		Change		Annual Average Openings		
		2006	2016	Net	Percent	Growth	Replacement	Total
1	Retail Salespersons	280,650	308,820	28,170	10.0	2,820	8,640	11,460
2	Cashiers	207,260	199,670	-7,590	-3.7	0	9,860	9,860
3	Waiters & Waitresses	130,830	142,220	11,390	8.7	1,140	7,110	8,250
4	Home Health Aides	138,290	190,610	52,320	37.8	5,230	1,240	6,470
5	Customer Service Representatives	136,160	155,200	19,040	14.0	1,900	3,790	5,690
6	Janitors & Cleaners, except Maids & Housekeepers	190,410	206,630	16,220	8.5	1,620	3,650	5,270
7	Registered Nurses	169,400	193,520	24,120	14.2	2,410	2,800	5,210
8	Office Clerks, General	206,100	217,840	11,740	5.7	1,170	3,780	4,950
9	Child Care Workers	119,200	131,300	12,100	10.2	1,210	3,420	4,630
10	Food Preparation Workers	88,540	98,810	10,270	11.6	1,030	3,070	4,100
11	Personal & Home Care Aides	74,680	100,790	26,110	35.0	2,610	1,270	3,880
12	Executive Secretaries & Administrative Assistants	147,060	161,530	14,470	9.8	1,450	2,340	3,790
13	Bookkeeping, Accounting & Auditing Clerks	142,830	153,440	10,610	7.4	1,060	2,240	3,300
14	Accountants & Auditors	106,960	120,470	13,510	12.6	1,350	1,880	3,230
15	Receptionists & Information Clerks	87,120	97,820	10,700	12.3	1,070	2,130	3,200
16	Elementary School Teachers, except Special Ed.	97,210	107,600	10,390	10.7	1,040	2,120	3,160
17	Security Guards	100,550	111,250	10,700	10.6	1,070	2,040	3,110
18	Laborers & Freight, Stock & Material Movers, Hand	96,430	90,370	-6,060	-6.3	0	3,090	3,090
19	Teacher Assistants	129,910	137,510	7,600	5.9	760	2,120	2,880
20	Counter Attendants, Cafeteria & Concession	37,370	40,240	2,870	7.7	290	2,590	2,880
21	Secretaries, except Legal, Medical, & Executive	178,180	174,690	-3,490	-2.0	0	2,840	2,840
22	Secondary School Teachers, except Special Ed.	81,770	84,270	2,500	3.1	250	2,440	2,690
23	Sales Reps, Wholesale/Manufacturing, except Tech.	119,850	120,090	240	0.2	20	2,650	2,670
24	Stock Clerks & Order Fillers	104,850	92,350	-	-11.9	0	2,490	2,490
25	General & Operations Managers	95,880	92,440	-3,440	-3.6	0	2,310	2,310

Table 4-B: Top 25 Occupations With Largest Number of Annual Openings

New York State Education/Training Requirements and Wages

Rank	Occupational Title	Typical Education and Training Requirements	Annual Wages (\$)		
			Median	Entry	Experienced
1	Retail Salespersons	Short-term on-the-job training	\$21,500	\$16,800	\$31,540
2	Cashiers	Short-term on-the-job training	\$17,500	\$15,750	\$21,370
3	Waiters & Waitresses	Short-term on-the-job training	\$22,110	\$16,410	\$29,680
4	Home Health Aides	Short-term on-the-job training	\$21,570	\$17,430	\$25,190
5	Customer Service Representatives	Moderate-term on-the-job training	\$31,800	\$21,550	\$40,690
6	Janitors & Cleaners, except Maids & Housekeepers	Short-term on-the-job training	\$25,170	\$17,700	\$32,040
7	Registered Nurses	Associate degree	\$69,690	\$50,370	\$82,690
8	Office Clerks, General	Short-term on-the-job training	\$26,280	\$18,130	\$32,190
9	Child Care Workers	Short-term on-the-job training	\$23,070	\$17,040	\$26,890
10	Food Preparation Workers	Short-term on-the-job training	\$19,870	\$16,430	\$24,610
11	Personal & Home Care Aides	Short-term on-the-job training	\$22,320	\$19,010	\$23,650
12	Executive Secretaries & Administrative Assistants	Moderate-term on-the-job training	\$46,010	\$33,850	\$55,930
13	Bookkeeping, Accounting & Auditing Clerks	Moderate-term on-the-job training	\$35,540	\$25,130	\$42,320
14	Accountants & Auditors	Bachelor's degree	\$69,900	\$50,050	\$92,540
15	Receptionists & Information Clerks	Short-term on-the-job training	\$27,230	\$20,530	\$31,950
16	Elementary School Teachers, except Special Ed.	Bachelor's degree	\$61,870	\$42,080	\$75,790
17	Security Guards	Short-term on-the-job training	\$25,360	\$18,430	\$32,790
18	Laborers & Freight, Stock & Material Movers, Hand	Short-term on-the-job training	\$23,900	\$17,760	\$30,390
19	Teacher Assistants	Short-term on-the-job training	\$23,990	\$17,490	\$29,410
20	Counter Attendants, Cafeteria & Concession	Short-term on-the-job training	\$17,060	\$15,790	\$20,150
21	Secretaries, except Legal, Medical, & Executive	Moderate-term on-the-job training	\$31,380	\$22,890	\$37,340
22	Secondary School Teachers, except Special Ed.	Bachelor's degree	\$62,380	\$43,800	\$77,300
23	Sales Reps, Wholesale/Manufacturing, except Tech.	Moderate-term on-the-job training	\$57,350	\$32,790	\$87,010
24	Stock Clerks & Order Fillers	Short-term on-the-job training	\$19,920	\$16,690	\$26,100
25	General & Operations Managers	College plus work experience	\$115,530	\$63,320	\$163,810

Factors in Replacement

One reason people may leave an occupation and create a vacancy is career change. People will often change careers, especially in entry-level occupations. They commonly leave the three occupations with the most annual openings:

- Retail salespersons (11,460)
- Cashiers (9,860)
- Waiters and waitresses (8,250)

Other times, career advancement creates a vacancy. The occupational codes offer separate categories for many supervisors and management occupations. Every time a machine operator moves up to foreman, or an accountant becomes a financial manager, they create a replacement slot for a machine operator or accountant.

When people leave the workforce, that also opens vacancies. Some go back to school, or choose to stay home with family. Others leave involuntarily, perhaps due to illness, incarceration or poor job performance. Moreover, retirements and deaths occur at every level. Elementary and secondary school teachers are two careers that face a replacement crisis. Teachers are expected to retire in large numbers over the next few years. Both occupations appear in Table 4.

For five occupations on the list, replacement needs will create all the openings:

- Cashiers
- Laborers and freight, stock and material movers (by hand)
- Secretaries (except legal, medical and executive)
- Stock clerks and order-fillers
- General and operations managers

These are declining or shrinking occupations. Yet, an additional 205,900 people are expected to vacate these five occupations and require replacement. Thus, the forecast calls for 20,590 total annual openings in these shrinking careers.

Types of Occupations That Have Many Openings

The top two jobs (retail salespersons and cashiers) are sales occupations. But, the office and administrative occupational group has the greatest number (seven) of occupations appearing on the list of 25 occupations with the most openings. Also making the list are three occupations from these groups:

- Education, training and library
- Food preparation and serving

The remaining occupational groups are represented by only one or two careers at most.

Education and Training Requirements / Wages

Again, the minimum education /experience requirements for most of these 25 occupations will not slow many jobs seekers. (See Table 4-B, page 17.) Fifteen require only short-term on-the-job training and five require only moderate-term on-the-job training. Only five occupations require post-secondary education and none require a degree higher than a bachelor's.

As before, the five that require post-secondary education are the highest paying. They include:

- General and operations managers (\$115,530)
- Accountants and auditors (\$69,900)
- Registered nurses (\$69,690)
- Secondary school teachers (\$62,380)
- Elementary school teachers (\$61,870)

Of these five occupations, registered nurses require the least schooling (an associate degree to start), yet expect more annual openings (5,210) than the other high-paying career choices.

General and operations managers, on the other hand, require additional experience on top of their education. While they have the highest annual median wage, they expect the fewest total annual openings (2,310) of all occupations on the top 25 list.

None of the occupations that require short-term on-the-job training have an annual median wage over \$27,230.

VI. Education and Occupational Growth: How are they Related?

In our analysis of New York State's list of high growth occupations in Table 3, we noted that 18 of 25 careers on the list need only on-the-job training. If you look at total openings in Table 4, the scarcity of occupations requiring post-secondary education is even more pronounced. Careers that require on-the-job training outnumber those requiring additional education by four to one.

The Fastest Growing Occupations

What makes this distribution even more unusual is that many of the fastest growing occupations require post-secondary education. On the list of New York State's 25 Fastest Growing Occupations (Table 5, page 20), fourteen require post-secondary education. This is a completely different distribution than that found in Tables 3 and 4, where most occupations require minimal training.

Furthermore, the published list of fastest growing careers is restricted to occupations with employment of at least 1,000. If we lifted that restriction, we would have a dozen more fast-growing (minimum growth rate of 17.5% annually) occupations. Three-quarters of these would require post-secondary education.

Why is this Important?

As we saw when examining growth and openings, occupations requiring post-secondary education pay higher wages. We now see that these occupations are also likely to have a higher rate of growth. What they do not have is a large number of employment opportunities, compared to careers that require only on-the-job training.

Thus, choosing which career to pursue is, in part, a question of whether to:

- Train for a higher-paying occupation with fewer openings
- Enter a lower-paying occupation with a greater number of openings.

The answer will differ for each person, but you must look at each group of occupations separately to make an informed choice.

On-the-Job Training vs. Post-Secondary Schooling

For jobs that require on-the-job training, we rank growth occupations in Tables 6-A and 6-B (page 22-23). We rank those with the most openings in Tables 7-A and 7-B (page 24-25).

For jobs that require post-secondary education, we rank the 25 with the highest projected net growth in Tables 8-A and 8-B (page 26-27) and those with the greatest number of openings in Tables 9-A and 9-B (page 28-29.)

Note - Most of the occupations in Tables 6 and 7 appeared previously in this report and have already been discussed. For more information on these, please look back at our analysis of Tables 3 and 4.



Table 5: Top 25 Fastest Growing Occupations**New York State Employment Change, Net and Percent to 2016**

Rank	Occupational Title	Employment		Change	
		2006	2016	Net	Percent
1	Network Systems & Data Communications Analysts	17,100	24,270	7,170	41.9
2	Computer Software Engineers, Applications	32,250	44,490	12,240	38.0
3	Home Health Aides	138,290	190,610	52,320	37.8
4	Personal & Home Care Aides	74,680	100,790	26,110	35.0
5	Medical Assistants	18,060	23,540	5,480	30.3
6	Dental Hygienists	9,390	11,760	2,370	25.2
7	Dental Assistants	17,570	21,860	4,290	24.4
8	Physical Therapist Assistants	3,220	3,970	750	23.3
9	Substance Abuse & Behavioral Disorder Counselors	8,960	10,960	2,000	22.3
10	Computer Systems Analysts	30,520	37,260	6,740	22.1
11	Physical Therapist Aides	2,810	3,410	600	21.4
12	Network & Computer Systems Administrators	17,980	21,800	3,820	21.2
13	Helpers - Carpenters	8,090	9,770	1,680	20.8
14	Physical Therapists	12,870	15,490	2,620	20.4
15	Security & Fire Alarm Systems Installers	3,690	4,440	750	20.3
16	Fitness Trainers & Aerobics Instructors	16,860	20,230	3,370	20.0
17	Tile & Marble Setters	3,550	4,260	710	20.0
18	Veterinary Technologists & Technicians	3,260	3,910	650	19.9
19	Social and Human Service Assistants	33,540	40,170	6,630	19.8
20	Helpers - Pipelayers, Plumbers, Pipefitters, Steamfitters	3,290	3,940	650	19.8
21	Skin Care Specialists	2,470	2,960	490	19.8
22	Cement Masons & Concrete Finishers	5,930	7,090	1,160	19.6
23	Database Administrators	8,760	10,470	1,710	19.5
24	Helpers - Brickmasons, Blockmasons, Stonemasons, & Tile & Marble Setters	1,590	1,900	310	19.5
25	Computer Software Engineers, Systems Software	18,430	21,950	3,520	19.1

Top 25 Post-Secondary Occupations to 2016

Post-Secondary Occupations - Growth

For careers that require post-secondary education, the 25 occupations with most growth are expected to have combined job gains that total 36,060 annually during the 2006 to 2016 period. (See Table 8, page 26.) In sum, this group's employment will increase by 14 percent over the 10 years.

Ranked by net growth:

- Registered nurses are projected to have the highest net growth, with 2,410 jobs annually (total of 24,120, or 15.1 percent, over 10 years)
- Followed by accountants and auditors (1,350)
- Computer applications software engineers (1,220)
- Nursing aides and attendants (1,210)
- Elementary school teachers (1,040)

These five are the only post-secondary-education occupations expected to grow by more than 1,000 openings annually. Their total growth is almost as large as that of the next 20 careers combined.

Post-Secondary Occupations - Total Openings

Registered nurses not only have the most growth but also the largest number of total openings. (See Table 9, page 28.) Between 2006 and 2016, registered nurses can expect 5,210 openings annually from growth and replacement combined.

The next four occupations listed with a notable number of total annual openings include:

- Accountants and auditors (3,230)
- Elementary school teachers (3,160)
- Secondary school teachers (2,690)
- General and operations managers (2,310)

Seventeen occupations in Table 8-A are expected to have more than 1,000 openings every year.

Replacement needs generate the majority of openings. One occupation, general and operations managers, is not expected to grow at all. Replacement needs make up *all* of its openings.

Post-Secondary Occupations - Education and Wages

Eighteen of the top post-secondary occupations require a bachelor's degree, a bachelor's degree plus work experience, or a professional degree. (See Tables 8-B, page 27, and 9-B, page 29.) The rest require either post-secondary vocational training or an associate degree. Conspicuously absent from the lists are careers that require a doctoral or master's degree to enter.

Among post-secondary occupations in these lists, the careers with the highest median wage all require a bachelor's degree or higher. The occupations that require post-secondary vocational training are the lowest paying on the list. The only exception is for real estate sales agents. (At \$62,320, they are 17th in wage rank among the 25 occupations in Table 9-B.)



Table 6-A: Top 25 OJT Occupations with Greatest Projected Growth

New York State Employment Change/Annual Openings to 2016

Rank	Occupational Title	Employment		Change		Annual Average Openings		
		2006	2016	Net	Percent	Growth	Replacement	Total
1	Home Health Aides	138,290	190,610	52,320	37.8	5,230	1,240	6,470
2	Retail Salespersons	280,650	308,820	28,170	10.0	2,820	8,640	11,460
3	Personal & Home Care Aides	74,680	100,790	26,110	35.0	2,610	1,270	3,880
4	Customer Service Representatives	136,160	155,200	19,040	14.0	1,900	3,790	5,690
5	Janitors & Cleaners, except Maids & Housekeepers	190,410	206,630	16,220	8.5	1,620	3,650	5,270
6	Executive Secretaries & Administrative Assistants	147,060	161,530	14,470	9.8	1,450	2,340	3,790
7	Child Care Workers	119,200	131,300	12,100	10.2	1,210	3,420	4,630
8	Office Clerks, General	206,100	217,840	11,740	5.7	1,170	3,780	4,950
9	Waiters & Waitresses	130,830	142,220	11,390	8.7	1,140	7,110	8,250
10	Security Guards	100,550	111,250	10,700	10.6	1,070	2,040	3,110
11	Receptionists & Information Clerks	87,120	97,820	10,700	12.3	1,070	2,130	3,200
12	Bookkeeping, Accounting & Auditing Clerks	142,830	153,440	10,610	7.4	1,060	2,240	3,300
13	Carpenters	69,260	79,810	10,550	15.2	1,060	940	2,000
14	Food Preparation Workers	88,540	98,810	10,270	11.6	1,030	3,070	4,100
15	Combined Food Preparation & Serving Workers	73,580	81,580	8,000	10.9	800	1,400	2,200
16	Construction Laborers	54,770	62,540	7,770	14.2	780	410	1,190
17	Teacher Assistants	129,910	137,510	7,600	5.9	760	2,120	2,880
18	Social & Human Service Assistants	33,540	40,170	6,630	19.8	660	390	1,050
19	Landscaping & Groundskeeping Workers	54,520	60,670	6,150	11.3	620	720	1,340
20	Maintenance & Repair Workers, General	94,990	100,510	5,520	5.8	550	230	780
21	Electricians	40,000	45,520	5,520	13.8	550	1,030	1,580
22	Medical Assistants	18,060	23,540	5,480	30.3	550	220	770
23	Maids & Housekeeping Cleaners	79,700	84,950	5,250	6.6	530	1,500	2,030
24	Plumbers, Pipefitters & Steamfitters	28,040	32,960	4,920	17.5	490	580	1,070
25	First-Line Supervisors of Construction Workers	33,510	37,840	4,330	12.9	430	470	900

Table 6-B: Top 25 OJT Occupations with Greatest Projected Growth

New York State Education/Training Requirements and Wages

Rank	Occupational Title	Typical Education and Training Requirements	Annual Wages (\$)		
			Median	Entry	Experienced
1	Home Health Aides	Short-term on-the-job training	\$21,570	\$17,430	\$25,190
2	Retail Salespersons	Short-term on-the-job training	\$21,500	\$16,800	\$31,540
3	Personal & Home Care Aides	Short-term on-the-job training	\$22,320	\$19,010	\$23,650
4	Customer Service Representatives	Moderate-term on-the-job training	\$31,800	\$21,550	\$40,690
5	Janitors & Cleaners, except Maids & Housekeepers	Short-term on-the-job training	\$25,170	\$17,700	\$32,040
6	Executive Secretaries & Administrative Assistants	Moderate-term on-the-job training	\$46,010	\$33,850	\$55,930
7	Child Care Workers	Short-term on-the-job training	\$23,070	\$17,040	\$26,890
8	Office Clerks, General	Short-term on-the-job training	\$26,280	\$18,130	\$32,190
9	Waiters & Waitresses	Short-term on-the-job training	\$22,110	\$16,410	\$29,680
10	Security Guards	Short-term on-the-job training	\$25,360	\$18,430	\$32,790
11	Receptionists & Information Clerks	Short-term on-the-job training	\$27,230	\$20,530	\$31,950
12	Bookkeeping, Accounting & Auditing Clerks	Moderate-term on-the-job training	\$35,540	\$25,130	\$42,320
13	Carpenters	Long-term on-the-job training	\$47,350	\$30,270	\$63,340
14	Food Preparation Workers	Short-term on-the-job training	\$19,870	\$16,430	\$24,610
15	Combined Food Preparation & Serving Workers	Short-term on-the-job training	\$16,250	\$15,680	\$19,140
16	Construction Laborers	Moderate-term on-the-job training	\$42,690	\$25,980	\$56,110
17	Teacher Assistants	Short-term on-the-job training	\$23,990	\$17,490	\$29,410
18	Social & Human Service Assistants	Moderate-term on-the-job training	\$28,030	\$20,070	\$34,830
19	Landscaping & Groundskeeping Workers	Short-term on-the-job training	\$24,960	\$18,230	\$32,470
20	Maintenance & Repair Workers, General	Moderate-term on-the-job training	\$36,160	\$24,390	\$44,010
21	Electricians	Long-term on-the-job training	\$61,010	\$37,280	\$79,050
22	Medical Assistants	Moderate-term on-the-job training	\$30,240	\$24,160	\$34,790
23	Maids & Housekeeping Cleaners	Short-term on-the-job training	\$26,020	\$18,040	\$32,750
24	Plumbers, Pipefitters & Steamfitters	Long-term on-the-job training	\$57,180	\$35,360	\$72,440
25	First-Line Supervisors of Construction Workers	Related work experience	\$70,950	\$47,610	\$88,580

Table 7-A: Top 25 OJT Occupations With Largest Number of Annual Openings

New York State Employment Change/Annual Openings to 2016

Rank	Occupational Title	Employment		Change		Annual Average Openings		
		2006	2016	Net	Percent	Growth	Replace-ment	Total
1	Retail Salespersons	280,650	308,820	28,170	10.0	2,820	8,640	11,460
2	Cashiers	207,260	199,670	-7,590	-3.7	0	9,860	9,860
3	Waiters & Waitresses	130,830	142,220	11,390	8.7	1,140	7,110	8,250
4	Home Health Aides	138,290	190,610	52,320	37.8	5,230	1,240	6,470
5	Customer Service Representatives	136,160	155,200	19,040	14.0	1,900	3,790	5,690
6	Janitors & Cleaners, except Maids & Housekeepers	190,410	206,630	16,220	8.5	1,620	3,650	5,270
7	Office Clerks, General	206,100	217,840	11,740	5.7	1,170	3,780	4,950
8	Child Care Workers	119,200	131,300	12,100	10.2	1,210	3,420	4,630
9	Food Preparation Workers	88,540	98,810	10,270	11.6	1,030	3,070	4,100
10	Personal & Home Care Aides	74,680	100,790	26,110	35.0	2,610	1,270	3,880
11	Executive Secretaries & Administrative Assistants	147,060	161,530	14,470	9.8	1,450	2,340	3,790
12	Bookkeeping, Accounting & Auditing Clerks	142,830	153,440	10,610	7.4	1,060	2,240	3,300
13	Receptionists & Information Clerks	87,120	97,820	10,700	12.3	1,070	2,130	3,200
14	Security Guards	100,550	111,250	10,700	10.6	1,070	2,040	3,110
15	Laborers & Freight, Stock & Material Movers, Hand	96,430	90,370	-6,060	-6.3	0	3,090	3,090
16	Teacher Assistants	129,910	137,510	7,600	5.9	760	2,120	2,880
17	Counter Attendants, Cafeteria & Concession	37,370	40,240	2,870	7.7	290	2,590	2,880
18	Secretaries, Except Legal, Medical & Executive	178,180	174,690	-3,490	-2.0	0	2,840	2,840
19	Sales Reps, Wholesale/Manufacturing, except Tech.	119,850	120,090	240	0.2	20	2,650	2,670
20	Stock Clerks & Order Fillers	104,850	92,350	-12,500	-11.9	0	2,490	2,490
21	First-Line Supervisors/Managers of Office Workers	106,400	106,690	290	0.3	30	2,200	2,230
22	Combined Food Preparation & Serving Workers	73,580	81,580	8,000	10.9	800	1,400	2,200
23	Maids & Housekeeping Cleaners	79,700	84,950	5,250	6.6	530	1,500	2,030
24	Carpenters	69,260	79,810	10,550	15.2	1,060	940	2,000
25	First-Line Supervisors of Retail Sales Workers	72,340	74,520	2,180	3.0	220	1,520	1,740

Table 7-B: Top 25 OJT Occupations With Largest Number of Annual Openings

New York State Education/Training Requirements and Wages

Rank	Occupational Title	Typical Education and Training Requirements	Annual Wages (\$)		
			Median	Entry	Experienced
1	Retail Salespersons	Short-term on-the-job training	\$21,500	\$16,800	\$31,540
2	Cashiers	Short-term on-the-job training	\$17,500	\$15,750	\$21,370
3	Waiters & Waitresses	Short-term on-the-job training	\$22,110	\$16,410	\$29,680
4	Home Health Aides	Short-term on-the-job training	\$21,570	\$17,430	\$25,190
5	Customer Service Representatives	Moderate-term on-the-job training	\$31,800	\$21,550	\$40,690
6	Janitors & Cleaners, except Maids & Housekeepers	Short-term on-the-job training	\$25,170	\$17,700	\$32,040
7	Office Clerks, General	Short-term on-the-job training	\$26,280	\$18,130	\$32,190
8	Child Care Workers	Short-term on-the-job training	\$23,070	\$17,040	\$26,890
9	Food Preparation Workers	Short-term on-the-job training	\$19,870	\$16,430	\$24,610
10	Personal & Home Care Aides	Short-term on-the-job training	\$22,320	\$19,010	\$23,650
11	Executive Secretaries & Administrative Assistants	Moderate-term on-the-job training	\$46,010	\$33,850	\$55,930
12	Bookkeeping, Accounting & Auditing Clerks	Moderate-term on-the-job training	\$35,540	\$25,130	\$42,320
13	Receptionists & Information Clerks	Short-term on-the-job training	\$27,230	\$20,530	\$31,950
14	Security Guards	Short-term on-the-job training	\$25,360	\$18,430	\$32,790
15	Laborers & Freight, Stock & Material Movers, Hand	Short-term on-the-job training	\$23,900	\$17,760	\$30,390
16	Teacher Assistants	Short-term on-the-job training	\$23,990	\$17,490	\$29,410
17	Counter Attendants, Cafeteria & Concession	Short-term on-the-job training	\$17,060	\$15,790	\$20,150
18	Secretaries, Except Legal, Medical & Executive	Moderate-term on-the-job training	\$31,380	\$22,890	\$37,340
19	Sales Reps, Wholesale/Manufacturing, except Tech.	Moderate-term on-the-job training	\$57,350	\$32,790	\$87,010
20	Stock Clerks & Order Fillers	Short-term on-the-job training	\$19,920	\$16,690	\$26,100
21	First-Line Supervisors/Managers of Office Workers	Related work experience	\$51,650	\$36,910	\$63,540
22	Combined Food Preparation & Serving Workers	Short-term on-the-job training	\$16,250	\$15,680	\$19,140
23	Maids & Housekeeping Cleaners	Short-term on-the-job training	\$26,020	\$18,040	\$32,750
24	Carpenters	Long-term on-the-job training	\$47,350	\$30,270	\$63,340
25	First-Line Supervisors of Retail Sales Workers	Related work experience	\$39,320	\$26,400	\$54,770

Table 8-A: Top 25 Post Secondary Occupations with Greatest Projected Growth

New York State Employment Change/Annual Openings to 2016

Rank	Occupational Title	Employment		Change		Annual Average Openings		
		2006	2016	Net	Percent	Growth	Replacement	Total
1	Registered Nurses	169,400	193,520	24,120	14.2	2,410	2,800	5,210
2	Accountants & Auditors	106,960	120,470	13,510	12.6	1,350	1,880	3,230
3	Computer Software Engineers, Applications	32,250	44,490	12,240	38.0	1,220	470	1,690
4	Nursing Aides, Orderlies & Attendants	104,210	116,310	12,100	11.6	1,210	930	2,140
5	Elementary School Teachers, Except Special Ed.	97,210	107,600	10,390	10.7	1,040	2,120	3,160
6	Network Systems & Data Communications Analysts	17,100	24,270	7,170	41.9	720	350	1,070
7	Computer Systems Analysts	30,520	37,260	6,740	22.1	670	810	1,480
8	Financial Analysts	33,170	39,090	5,920	17.8	590	190	780
9	Management Analysts	36,480	42,070	5,590	15.3	560	620	1,180
10	Securities, Commodities & Financial Services Sales	40,950	46,360	5,410	13.2	540	1,050	1,590
11	Lawyers	85,610	90,960	5,350	6.2	540	1,620	2,160
12	Licensed Practical & Licensed Vocational Nurses	49,820	54,830	5,010	10.1	500	1,360	1,860
13	Financial Managers	52,410	57,400	4,990	9.5	500	760	1,260
14	Personal Financial Advisors	24,750	29,060	4,310	17.4	430	220	650
15	Paralegals & Legal Assistants	25,580	29,760	4,180	16.3	420	340	760
16	Network & Computer Systems Administrators	17,980	21,800	3,820	21.2	380	410	790
17	Market Research Analysts	25,830	29,480	3,650	14.1	370	180	550
18	Computer Software Engineers, Systems Software	18,430	21,950	3,520	19.1	350	270	620
19	Middle School Teachers, except Special Ed.	41,060	44,530	3,470	8.5	350	900	1,250
20	Fitness Trainers & Aerobics Instructors	16,860	20,230	3,370	20.0	340	320	660
21	Construction Managers	27,080	30,430	3,350	12.4	340	420	760
22	Special Education Teachers, Pre- & Elementary	21,730	25,040	3,310	15.2	330	480	810
23	Public Relations Specialists	22,820	26,080	3,260	14.3	330	170	500
24	Preschool Teachers, except Special Education	31,220	33,960	2,740	8.8	270	520	790
25	Computer Support Specialists	34,180	36,910	2,730	8.0	270	1,060	1,330

Table 8-B: Top 25 Post Secondary Occupations with Greatest Projected Growth

New York State Education/Training Requirements and Wages

Rank	Occupational Title	Typical Education and Training Requirements	Annual Wages (\$)		
			Median	Entry	Experienced
1	Registered Nurses	Associate degree	\$69,690	\$50,370	\$82,690
2	Accountants & Auditors	Bachelor's degree	\$69,900	\$50,050	\$92,540
3	Computer Software Engineers, Applications	Bachelor's degree	\$89,330	\$62,720	\$107,200
4	Nursing Aides, Orderlies & Attendants	Postsecondary vocational training	\$30,850	\$22,520	\$34,500
5	Elementary School Teachers, Except Special Ed.	Bachelor's degree	\$61,870	\$42,080	\$75,790
6	Network Systems & Data Communications Analysts	Bachelor's degree	\$77,050	\$53,190	\$94,330
7	Computer Systems Analysts	Bachelor's degree	\$83,060	\$55,330	\$102,980
8	Financial Analysts	Bachelor's degree	\$87,240	\$56,430	\$127,300
9	Management Analysts	College plus work experience	\$77,800	\$49,290	\$111,240
10	Securities, Commodities & Financial Services Sales	Bachelor's degree	\$98,540	\$48,580	\$150,920
11	Lawyers	First professional degree	\$131,270	\$78,330	>\$166,400
12	Licensed Practical & Licensed Vocational Nurses	Postsecondary vocational training	\$40,570	\$31,830	\$46,300
13	Financial Managers	College plus work experience	\$132,760	\$76,970	>\$166,400
14	Personal Financial Advisors	Bachelor's degree	\$125,590	\$56,970	>\$166,400
15	Paralegals & Legal Assistants	Associate degree	\$54,940	\$39,810	\$66,010
16	Network & Computer Systems Administrators	Bachelor's degree	\$76,980	\$51,910	\$94,130
17	Market Research Analysts	Bachelor's degree	\$66,050	\$41,670	\$89,730
18	Computer Software Engineers, Systems Software	Bachelor's degree	\$97,340	\$66,870	\$115,640
19	Middle School Teachers, except Special Ed.	Bachelor's degree	\$63,020	\$44,110	\$77,340
20	Fitness Trainers & Aerobics Instructors	Postsecondary vocational training	\$38,380	\$20,200	\$55,000
21	Construction Managers	Bachelor's degree	\$113,290	\$67,870	\$156,030
22	Special Education Teachers, Pre- & Elementary	Bachelor's degree	\$62,730	\$41,960	\$76,940
23	Public Relations Specialists	Bachelor's degree	\$56,440	\$37,940	\$74,120
24	Preschool Teachers, except Special Education	Postsecondary vocational training	\$28,600	\$19,930	\$36,550
25	Computer Support Specialists	Associate degree	\$49,330	\$33,900	\$62,360

Table 9-A: Top 25 Post Secondary Occupations With Largest Number of Annual Openings**New York State Employment Change/Annual Openings to 2016**

Rank	Occupational Title	Employment		Change		Annual Average Openings		
		2006	2016	Net	Percent	Growth	Replacement	Total
1	Registered Nurses	169,400	193,520	24,120	14.2	2,410	2,800	5,210
2	Accountants & Auditors	106,960	120,470	13,510	12.6	1,350	1,880	3,230
3	Elementary School Teachers, except Special Ed.	97,210	107,600	10,390	10.7	1,040	2,120	3,160
4	Secondary School Teachers, except Special Ed.	81,770	84,270	2,500	3.1	250	2,440	2,690
5	General & Operations Managers	95,880	92,440	-3,440	-3.6	0	2,310	2,310
6	Lawyers	85,610	90,960	5,350	6.2	540	1,620	2,160
7	Nursing Aides, Orderlies & Attendants	104,210	116,310	12,100	11.6	1,210	930	2,140
8	Licensed Practical & Licensed Vocational Nurses	49,820	54,830	5,010	10.1	500	1,360	1,860
9	Computer Software Engineers, Applications	32,250	44,490	12,240	38.0	1,220	470	1,690
10	Securities, Commodities & Financial Services Sales	40,950	46,360	5,410	13.2	540	1,050	1,590
11	Computer Systems Analysts	30,520	37,260	6,740	22.1	670	810	1,480
12	Computer Support Specialists	34,180	36,910	2,730	8.0	270	1,060	1,330
13	Financial Managers	52,410	57,400	4,990	9.5	500	760	1,260
14	Middle School Teachers, except Special Ed.	41,060	44,530	3,470	8.5	350	900	1,250
15	Management Analysts	36,480	42,070	5,590	15.3	560	620	1,180
16	Network Systems & Data Communications Analysts	17,100	24,270	7,170	41.9	720	350	1,070
17	Automotive Service Technicians & Mechanics	41,620	43,940	2,320	5.6	230	840	1,070
18	Physicians & Surgeons, All Other	37,620	40,140	2,520	6.7	250	680	930
19	Special Education Teachers, Pre- & Elementary	21,730	25,040	3,310	15.2	330	480	810
20	Real Estate Sales Agents	34,260	36,710	2,450	7.2	250	550	800
21	Network & Computer Systems Administrators	17,980	21,800	3,820	21.2	380	410	790
22	Preschool Teachers, except Special Education	31,220	33,960	2,740	8.8	270	520	790
23	Child, Family & School Social Workers	24,670	27,370	2,700	10.9	270	520	790
24	Graphic Designers	23,890	25,390	1,500	6.3	150	640	790
25	Financial Analysts	33,170	39,090	5,920	17.8	590	190	780

Table 9-B: Top 25 Post Secondary Occupations With Largest Number of Annual Openings

New York State Education/Training Requirements and Wages

Rank	Occupational Title	Typical Education and Training Requirements	Annual Wages (\$)		
			Median	Entry	Experienced
1	Registered Nurses	Associate degree	\$69,690	\$50,370	\$82,690
2	Accountants & Auditors	Bachelor's degree	\$69,900	\$50,050	\$92,540
3	Elementary School Teachers, except Special Ed.	Bachelor's degree	\$61,870	\$42,080	\$75,790
4	Secondary School Teachers, except Special Ed.	Bachelor's degree	\$62,380	\$43,800	\$77,300
5	General & Operations Managers	College plus work experience	\$115,530	\$63,320	\$163,810
6	Lawyers	First professional degree	\$131,270	\$78,330	>\$166,400
7	Nursing Aides, Orderlies & Attendants	Postsecondary vocational training	\$30,850	\$22,520	\$34,500
8	Licensed Practical & Licensed Vocational Nurses	Postsecondary vocational training	\$40,570	\$31,830	\$46,300
9	Computer Software Engineers, Applications	Bachelor's degree	\$89,330	\$62,720	\$107,200
10	Securities, Commodities & Financial Services Sales	Bachelor's degree	\$98,540	\$48,580	\$150,920
11	Computer Systems Analysts	Bachelor's degree	\$83,060	\$55,330	\$102,980
12	Computer Support Specialists	Associate degree	\$49,330	\$33,900	\$62,360
13	Financial Managers	College plus work experience	\$132,760	\$76,970	>\$166,400
14	Middle School Teachers, except Special Ed.	Bachelor's degree	\$63,020	\$44,110	\$77,340
15	Management Analysts	College plus work experience	\$77,800	\$49,290	\$111,240
16	Network Systems & Data Communications Analysts	Bachelor's degree	\$77,050	\$53,190	\$94,330
17	Automotive Service Technicians & Mechanics	Postsecondary vocational training	\$34,300	\$21,780	\$45,530
18	Physicians & Surgeons, All Other	First professional degree	\$149,700	\$61,940	>\$166,400
19	Special Education Teachers, Pre- & Elementary	Bachelor's degree	\$62,730	\$41,960	\$76,940
20	Real Estate Sales Agents	Postsecondary vocational training	\$62,320	\$36,080	\$104,080
21	Network & Computer Systems Administrators	Bachelor's degree	\$76,980	\$51,910	\$94,130
22	Preschool Teachers, except Special Education	Postsecondary vocational training	\$28,600	\$19,930	\$36,550
23	Child, Family & School Social Workers	Bachelor's degree	\$46,240	\$33,360	\$58,240
24	Graphic Designers	Bachelor's degree	\$52,190	\$35,220	\$67,890
25	Financial Analysts	Bachelor's degree	\$87,240	\$56,430	\$127,300

Who Cares About Occupational Projections?

People interested in occupational projections fall into three groups: those who are or will be seeking employment; those who are or will need workers; and those who will be training workers.

Students, dislocated workers and other job seekers will find occupational projections information useful in narrowing their job search. After examining an occupation's future prospects, employment numbers, and wage information, students can prepare themselves for careers (through post-secondary education or on-the-job-training) with some confidence that a job will be available upon finishing.

For people already in the labor market, occupational projections can help them match their specific skills with specific occupations, or determine what skills they need to acquire in order to switch to a different career. Workers being retrained after layoffs should be targeting jobs that will be needed not just today, but into the future.

Employers can use projections to make employment level decisions in preparing themselves for growth or decline over a 10-year span. If it appears that there may be a shortage of the type of worker they need, an employer can take steps to 'grow their own' through in-house training programs, or set up recruiting efforts outside the firm.

Economic developers can use occupational projection information to tout their area, and to target firms that will fit well into both the current and future job mix of the area.



VII. Occupational Projections: An Application

The Center for Health Workforce Studies (CHWS) at the University at Albany School of Public Health uses occupational projections to assess the health care workforce yearly. Their mission is to collect, analyze and distribute information on the supply, demand and use of health care workers.

CHWS uses New York State's occupational projections data for health care occupations in the state and 10 sub-state labor market regions, to inform:

- Health, professional and education organizations
- Policy makers and
- The public

Their report "The Health Care Workforce in New York, 2007" analyzes trends in the supply and demand for health care workers in the state and its regions. CHWS starts with data from the New York State Department of Labor. We provide geography, industry definitions and changes, occupational estimates and occupational projections. Then the Center completes the picture by adding layers of data from:

- Other surveys of health care service providers
- Educational institutions that train health care providers

That final picture can assess current, as well as future, demand by using:

- Historical trends in employment by healthcare setting
- Health care industry projections

The information helps policymakers and others to focus worker education and training funds on areas of greatest need. It can also aid those who develop health workforce policy guidelines to gauge both the:

- Correct occupational makeup and
- Appropriate size of the workforce

Occupational projections for healthcare careers give current and future prospects for jobs in the industry.

For more information on the Center for Health Workforce Studies' annual reports on the supply/demand of health workers, go to <http://chws.albany.edu/>.

VII. Summary

The Bottom Line

Jobs in the higher wage careers that require more on-the-job training or work experience tend to have lower average annual openings than those that require short-term on-the-job training. People looking at career options need to consider the trade-off between:

- Lower-paying careers with minimal training requirements but a high number of openings
- versus
- Higher-paying careers that require more training but offer fewer openings

Where To Go for More Information

Find New York State industry and occupational projections at: <http://labor.ny.gov/stats/lproj.shtm>. We update occupational projections every two years for the state's 10 regions as well as statewide.



IX. Appendix

The Projections Process

Step 1. Develop Industry Employment Projections

Industry employment projections are the key input to compiling occupational employment projections. Industry projections use historical trends in employment, population, and income to predict whether an industry is expected to expand or contract over the 10-year period. (See "Industry vs. Occupation" sidebar.) 2006 is our base year and we project to 2016.

Step 2. Apply Occupational Staffing Patterns

Occupational staffing patterns, which measure each occupation's share of total employment within an industry, are created using employment estimates from the Occupational Employment Statistics program. These staffing patterns, after adjustment to reflect future occupational needs, are then applied to the industry projections in order to yield future occupational employment estimates. We sum these estimates across all industries to create the occupational projections.

Step 3. Include Replacement Needs

Openings also arise from the need to replace workers that leave an occupation. We calculate these openings also. By combining them with the openings due to growth, we get a fuller, more complete, measure of occupational opportunity.

Step 4. Attach Additional Occupational Data

To get a complete look at each occupation's potential, we have included in our tables some additional information. For each occupation, we list the median wage, the entry, and experienced wage, and the minimum education or training required for entry into each occupation. This way, we know something about the quality of the job as well as the quantity of openings.

