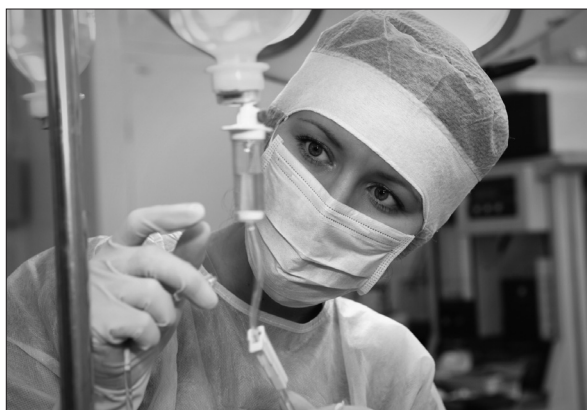


# Minnesota Job Outlook to 2024



The main goal of employment projections is to provide details on projected job growth and employment prospects for 810 occupations in Minnesota. Projections of future job growth at the national, state, and substate level are widely used in career guidance, in planning education and training programs, and in workforce development efforts in the private and public sectors.

Changes in demand for goods and services, productivity advances, technological innovations, and shifts in business practices all combine to alter the mix of occupations that employers will be looking to fill over the next 10 years. Another factor is the retirement of the baby boomers over the next 10 years. Job openings arising from retirements are higher than job openings created by employment growth for most occupations.

Total jobs in Minnesota are projected to increase by 130,000 between 2014 and 2024, reaching over 3.1 million jobs by 2024 according to recently released 2014 – 2024 Minnesota employment projections.<sup>1</sup> The projected growth is roughly 40 percent higher than the previous 10 years (2004 - 2014) when the state added just 94,000. Job expansion over the last 10 years was severely trimmed by steep job cutbacks experienced during the Great Recession. Minnesota's job machine won't return to the glory years of 1994 – 2004 when Minnesota added 350,000 jobs despite the mild 2001 recession. While no repeat of the Great Recession is expected, economic and job growth nationally and in Minnesota will be limited by slow labor force growth as the baby boomers begin to retire. Minnesota's labor force participation inched upwards in 2015 for the first time in 15 years as the job market heated up, but the uptick is likely to be temporary.

When Baby Boomers entered the labor force between 1964 and 1980, they replaced a much smaller older generation in the workforce thus generating robust labor force expansion. A steady increase in female labor force participation between 1960 and 2000 boosted labor force growth even higher before it flattened out in 2000. Since Millennial numbers are just slightly larger than Baby Boomers, labor force growth will be subdued as Millennials replace Baby Boomers. Unless net immigration into the state increases significantly the state's labor force will record minimal growth between 2020 and 2030.

<sup>1</sup>Detailed 2014 – 2024 occupational and industry employment projections for Minnesota can be found at <http://mn.gov/deed/data/data-tools/employment-outlook/>.

Projected jobs include wage and salary employment as well as self-employment with all jobs measured on an annual average basis. Projection employment plunged 4.8 percent between 2007 and 2010 with wage and salary jobs dropping 4.6 percent and self-employed jobs slipping by 6.2 percent. Wage and salary employment surpassed the 2007 peak in 2013, but self-employment continued to fall until last year and remains below its pre-recession peak.

Job growth has averaged 1.5 percent since 2011 but is expected to decline gradually over the next 10 years to average only 0.5 percent annually between 2014 and 2024. Most of the projected job expansion will occur over the next five years before tailing off during the second half of the decade as Baby Boomer retirements slow labor force growth and restrict job growth. The moderate job growth combined with slower labor force growth will continue to push Minnesota's unemployment down. Unemployment in the state is likely to fall below 3 percent for the first time since 1999 over the next few years unless a recession develops and demand for workers drops.

Minnesota's long-term industry and occupational employment projections (10-year timeframe) rely heavily on national industry and occupational employment projections produced by the U.S. Department of Labor's Bureau of Labor Statistics (BLS).<sup>2</sup> Minnesota, along with most other states, customizes national projections to reflect state specific industrial, occupational, and demographic traits. Historical employment trends for 290 industries in Minnesota are compared to corresponding national industry employment trends using statistical

techniques. The models produced are used with BLS's projections of 2024 national industry employment to produce industry projections for Minnesota.

The key macroeconomic assumptions driving the 2014-2024 national industry projections are:

1. Gross Domestic Product (GDP) growth will average 2.2 percent annually during the 10-year period, up from the 1.6 percent annual average experienced during the previous decade, but slower than the 3.4 percent growth achieved between 1994 and 2004.
2. Productivity growth will increase slightly over the next 10 years, averaging 1.8 percent between 2014 and 2024 compared to the 1.5 percent average experienced between 2004 and 2014. The 1.8 percent annual productivity gain will be down from the 2.8 percent achieved between 1994 and 2004.
3. U.S. labor force growth will inch down over the next 10 years, averaging 0.5 percent a year compared to the 0.6 percent annual average of the previous 10 years. Labor force growth between 1994 and 2004 averaged 1.2 percent annually.
4. Unemployment will average 5.2 percent in 2024, an improvement over the 6.2 percent averaged in 2014 and the 5.6 percent 2004 average.

Projected industry employment is converted to occupational employment projections based on industry staffing patterns, the distribution of industry employment across occupations. Staffing patterns for Minnesota industries are developed from estimates of occupational employment

collected through the Minnesota Salary Survey, which is a product of the Occupational Employment Statistics (OES) program.<sup>3</sup> Shifts in staffing patterns over the 2014 and 2024 period across industries are also projected as part of the BLS national projections. These shifts in staffing patterns are used in Minnesota's projections.

A majority of occupations, 562 in all, will experience employment growth over the next 10 years in Minnesota. The expected expansion of healthcare services over the next 10 years is a prime example of how changes in the demand for goods and services fuel demand for particular occupations. As the Baby Boomer generation enters their senior years, demand for healthcare services will increase steadily. Increasing healthcare service expenditures will in turn boost the demand for workers in healthcare related jobs like registered nurses, pharmacists, dental assistants, personal care aides, and home health aides both nationally and in Minnesota.

Twenty-three occupations are expected to see no change in the number of workers. Slightly more than 25 percent of all occupations, 225, are projected to decline. Seven of 10 declining occupations, however, are projected to decline by 10 percent or less.

The 225 shrinking occupations combined accounted for roughly 477,000 jobs or 16 percent of all jobs in 2014. The number of jobs in these occupations is projected to tail off to 444,000 by 2024, an aggregated 7 percent drop. Declining occupations are concentrated in the production, office and administrative support, and management occupational

<sup>2</sup>The BLS's main projection website is <http://www.bls.gov/emp/>. Projections for all states are available at <http://www.projectionscentral.com/Projections/LongTerm>.

<sup>3</sup>Information on the Minnesota Salary Survey is available at <http://mn.gov/deed/data/data-tools/oes/>. A condensed 2014 Minnesota staffing pattern matrix (810 occupations across 30 aggregated industries) is available at <http://mn.gov/deed/data/data-tools/occupational-staffing/>.



groups. Almost all of the job loss in the managerial group is expected to be farmers, ranchers, and other agricultural managers. Minnesota farmers totaled 50,900 in 2014 and are projected to slip to 47,900 over the next 10 years. They are included in the managerial occupation group. Other occupations expected to see their numbers shrink the most over the next 10 years are bookkeeping, accounting, and auditing clerks, postal service mail carriers, cutting, punching, and press setters and operators, executive secretaries, and computer programmers.

For example, in 2014 an estimated 2,250 bill and account collectors (SOC 43-3011) were working in the business support services industry (NAICS 5614) accounting for 18.9 percent of the 11,860 workers in the industry. While this industry is expected to increase employment to 12,190 by 2024, bill and account collector jobs will drop to 1,880 or 15.4 percent of industry employment. New software and automated calling systems should increase productivity and allow collectors to handle more accounts, thus decreasing demand for workers in this occupation.

Other occupations expected to shrink by more than half are office and administrative support occupations. Automation of duties performed by many office and administrative support occupations will increase productivity thereby reducing the need for employees in these occupations. The declining occupations include: bookkeeping, accounting, and auditing clerks, tellers, bill and account collectors, and shipping, receiving, and traffic clerks.

Minnesota's total employment is projected to climb 4.3 percent over



the 2014-24 period, compared to the 6.5 percent projected for U.S. employment over the same time period. Minnesota's employment growth trailed the U.S. pace during the previous 10 years, 3.2 percent for the state compared to 4.3 percent nationwide.

Job growth is predicted to be concentrated in the 315 occupations projected to grow faster than overall employment. These fast growing occupations are anticipated to account for roughly 80 percent of new jobs. The rest of the employment expansion will occur in the other 247 occupations expected to add workers during the next 10 years but at a slower pace than the 4.3 percent projected average. Twenty-two occupations are expected to experience no change in numbers over the next 10 years. The other 223 occupations are expected to be declining occupations. The combined loss of shrinking occupations is projected to be approximately 33,000 jobs.

Only four occupational groups will experience job growth above overall



job growth over the next 10 years – service, construction, professional and related, and installation, maintenance, and repair. Management, business, and financial jobs along with sales and related, and transportation and material moving occupations will

**Table 1: Minnesota Industrial Employment Projections**

	Estimated 2014	Projected 2024	2014 - 2024 Numeric Change	2014 - 2024 Percent Change
Total Employment	3,007,000	3,137,000	130,000	4.3
Self-Employed	196,800	201,300	4,500	2.3
Goods-Producing Sector	449,500	443,800	-5,700	-1.3
Natural Resources and Mining	29,900	28,400	-1,500	-5.0
Construction	107,600	117,900	10,300	9.6
Manufacturing	312,000	297,500	-14,500	-4.6
Private Service-Providing Sector	1,980,900	2,113,400	132,500	6.7
Trade, Transportation, and Utilities	516,500	530,000	13,400	2.6
Information	52,500	48,900	-3,700	-6.9
Financial Activities	177,400	187,700	10,300	5.8
Professional and Business Services	353,400	372,300	19,000	5.3
Educational and Health Services	485,800	563,500	77,600	16.0
Leisure and Hospitality	267,300	280,700	13,400	5.0
Other Services (Except Government)	128,000	130,300	2,300	1.8
Government	379,800	378,600	-1,200	-0.3

Source: DEED LMI Office Projections

continue to grow over the next decade but slower than average job growth.

The two largest major occupational groups in Minnesota - professional and related occupations and service occupations – will add the most jobs in Minnesota from 2014 to 2024 (see Table 1). These two major occupational groups, which tend to have occupations at the opposite ends of the educational attainment and earnings range are projected to account for 74 percent of all net employment growth over the next 10 years.

Service occupations will not only be adding the most jobs over the next decade but will also be the fastest growing occupational group. Service occupations, fueled by rapidly climbing healthcare support jobs and personal care and service jobs, are anticipated to

expand 8.9 percent or more than twice as fast as the overall job growth rate.

The top 50 occupations in terms of the number of workers employed accounted for 50.3 percent of all employment in Minnesota in 2014. The largest occupations range from retail salespersons (87,600 jobs) to computer systems analysts (13,700 jobs). Employment growth in these large occupations will account for 60.3 percent of the new jobs. Four of the largest occupations, however, are expected to see their workforce numbers shrink – bookkeeping, accounting, and auditing clerks, farmers, ranchers, and other agricultural managers, executive secretaries and executive administrative assistants, and shipping, receiving, and traffic clerks.

Three major occupational groups are expected to see their workforce numbers decrease between 2014 and 2024. Declining manufacturing employment will result in fewer production jobs. Automation of duties performed by many office and administrative support occupations is anticipated to lead to fewer office and administrative support jobs by 2024. Farm, fishing, and forestry occupations are also projected to continue their gradual decline.

The top 50 fastest growing occupations among occupations with employment of more than 500 workers in 2014 combined for just over 7 percent of the 2014 employment base but are anticipated to account for slightly more than 37 percent of jobs created over the next 10 years. These

**Table 2: Minnesota Occupational Employment Projections**

	Estimated 2014	Projected 2024	2014 - 2024 Numeric Change	2014 - 2024 Percent Change
<b>Total Employment</b>	<b>3,007,000</b>	<b>3,137,000</b>	<b>130,000</b>	<b>4.3</b>
Management	228,500	233,600	5,100	2.2
Business and Financial Operations	170,500	180,000	9,600	5.6
Computer and Mathematical	93,500	101,300	7,800	8.3
Architecture and Engineering	52,300	52,600	300	0.6
Life, Physical, and Social Science	26,000	27,300	1,400	5.0
Community and Social Services	59,900	65,400	5,500	9.2
Legal	21,100	22,100	1,000	4.7
Education, Training, and Library	164,200	168,200	4,000	2.4
Arts, Design, Entertainment, Sports, and Media	54,300	55,100	800	1.5
Healthcare Practitioners and Technical	163,600	183,800	20,100	12.3
Healthcare Support	91,500	107,600	16,100	17.6
Protective Service	47,800	49,000	1,200	2.5
Food Preparation and Serving Related	231,500	243,300	11,800	5.1
Building and Grounds Cleaning and Maintenance	99,200	103,900	4,700	4.7
Personal Care and Service	157,800	179,600	21,800	13.8
Sales and Related	289,100	299,900	10,800	3.7
Office and Administrative Support	425,400	421,300	-4,000	-1.0
Farming, Fishing, and Forestry	16,000	15,200	-800	-5.0
Construction and Extraction	111,900	120,600	8,700	7.8
Installation, Maintenance, and Repair	102,900	107,500	4,600	4.5
Production	223,600	219,000	-4,600	-2.1
Transportation and Material Moving	176,500	180,600	4,200	2.3

Source: DEED LMI Office Projections

fast growing occupations are projected to grow by 14.4 percent or more which is over three times faster than overall job growth.

As presented above, projected employment growth can be viewed from two perspectives – percent change and numerical change. Some

occupations, which start with a large number of workers in 2014, are projected to grow slower than overall employment growth but will add a large number of workers by 2024. Other occupations, which have relatively small numbers of worker in 2014, are projected to grow rapidly over the next 10 years

but will add relatively few new jobs. The distinction between occupations with fast employment growth and occupations expected to add the most jobs is apparent when the 50 fastest growing occupations (Table 2) are compared to the 50 occupations expected to add the most jobs (Table 3).





Only 13 of the 87 occupations listed in the tables are in both tables. These occupations are:

- Computer and Information Systems Managers
- Computer Systems Analysts
- Computer-Controlled Machine Tool Operators
- Emergency Medical Technicians and Paramedics
- Home Health Aides
- Industrial Machinery Mechanics
- Massage Therapists
- Medical and Health Services Managers
- Medical Assistants
- Personal Care Aides
- Personal Financial Advisors
- Physical Therapists
- Self-Enrichment Education Teachers

Job opportunities tend to be better in occupations that are growing, but new openings created by employment growth are not even half of the future

job opportunity story. The chance of scoring a job in a particular occupation also depends on how many workers are leaving the occupation and on how many job seekers are looking to enter that occupation.

An estimated 87,600 workers were employed in Minnesota's largest occupation, retail salespersons, in 2014. By 2024 the state is expected have nearly 92,600 retail salespersons. The 5,000 new retail salesperson jobs expected over the next 10 years will represent roughly 5 percent of all retail salesperson jobs in 2024; the other 85 percent of retail salesperson jobs already exist.

Many of the 85,800 individuals working as retail salespersons in 2014, however, will not be working as retail salespersons in 2024. Workers will switch occupations, retire, or leave the labor force for other reasons thereby creating retail salesperson job openings. More of these openings, termed net openings, are projected than job openings arising from employment growth for most occupations. An estimated 30,400 net replacement openings are projected for retail salespersons over the next

10 years as current retail salespersons leave the occupation while only 5,000 retail salespersons openings are expected over the same period from growth in the occupation.

Even occupations that are expected to decline in numbers over the next 10 years will have replacement openings. Fewer bookkeeping, accounting, and auditing clerks are projected to be employed in Minnesota in 2024 than in 2014 (35,830 vs. 39,740), but many of the workers employed as bookkeeping, accounting, and auditing clerks in 2024 will have been hired over the last 10 years, filling the clerk jobs that opened as workers moved to other occupations or retired. More than 3,900 net replacement bookkeeping, accounting, and auditing clerk openings will need to be filled over the next 10 years.

Because of the importance of replacement needs, estimates of net replacement openings for each occupation over the next 10 years are included in the 2014 – 2024 employment projections for Minnesota. Net replacement openings, entrants minus separations, are based on nationwide census

**Table 3: Occupations Adding the Most Jobs**

	2014 - 2024 Numeric Change	2014 - 2024 Percent Change
Personal Care Aides	16,520	25.8
Home Health Aides	9,250	30.1
Registered Nurses	6,720	11.8
Combined Food Preparation and Serving Workers	5,320	8.3
Retail Salespersons	4,920	5.6
Cooks, Restaurant	2,700	11.2
Computer Systems Analysts	2,470	18.0
Nursing Assistants	2,450	8.2
Customer Service Representatives	2,400	4.4
Social and Human Service Assistants	2,210	14.2
Licensed Practical and Licensed Vocational Nurses	2,060	11.4
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,030	4.4
Accountants and Auditors	1,930	7.0
Market Research Analysts and Marketing Specialists	1,670	13.3
General and Operations Managers	1,590	4.2
Maids and Housekeeping Cleaners	1,580	6.3
Medical Assistants	1,540	17.9
Heavy and Tractor-Trailer Truck Drivers	1,510	4.0
Computer and Information Systems Managers	1,450	14.4
Carpenters	1,430	7.2
Business Operations Specialists, All Other	1,350	4.6
Construction Laborers	1,310	9.4
First-Line Supervisors of Office and Administrative Support Workers	1,260	5.3
Childcare Workers	1,260	4.0
Software Developers, Applications	1,250	10.4
Management Analysts	1,250	8.6
Computer User Support Specialists	1,200	9.2
Electricians	1,180	10.6
Medical Secretaries	1,150	13.0
First-Line Supervisors of Food Preparation and Serving Workers	1,120	7.4
Self-Enrichment Education Teachers	1,120	15.0
Machinists	1,110	10.0
Bartenders	1,060	6.1
Cashiers	1,020	1.7
Recreation Workers	1,020	12.1
First-Line Supervisors of Retail Sales Workers	980	4.3
Industrial Machinery Mechanics	960	16.3
Maintenance and Repair Workers, General	960	4.3
Medical and Health Services Managers	950	14.9
Computer-Controlled Machine Tool Operators	930	20.1
Hairdressers, Hairstylists, and Cosmetologists	900	5.6
Insurance Sales Agents	890	10.7
Physical Therapists	880	23.2
Receptionists and Information Clerks	870	4.1
Personal Financial Advisors	840	16.6
Massage Therapists	820	24.0
Sales Representatives, Wholesale and Manufacturing	800	2.5
Plumbers, Pipefitters, and Steamfitters	800	8.3
Bus and Truck Mechanics and Diesel Engine Specialists	790	11.9
Emergency Medical Technicians and Paramedics	770	17.4

Source: DEED LMI Office Projections

**Table 4: Most Net Replacement Openings**

	Net Replacement Openings 2014 - 2024	Job Openings from Employment Growth 2014 - 2024
Retail Salespersons	30,380	4,920
Cashiers	25,890	1,020
Combined Food Preparation and Serving Workers, Including Fast Food	20,660	5,320
Waiters and Waitresses	23,320	180
Personal Care Aides	5,180	16,520
Registered Nurses	13,390	6,720
Home Health Aides	6,940	9,250
Customer Service Representatives	13,440	2,400
Office Clerks, General	12,400	380
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	9,230	2,030
General and Operations Managers	9,510	1,590
Stock Clerks and Order Fillers	10,340	550
Laborers and Freight, Stock, and Material Movers, Hand	10,080	680
Childcare Workers	9,210	1,260
Accountants and Auditors	7,330	1,930
Nursing Assistants	6,730	2,450
Cooks, Restaurant	6,360	2,700
Farmers, Ranchers, and Other Agricultural Managers	8,680	0
Teacher Assistants	7,590	680
Heavy and Tractor-Trailer Truck Drivers	6,410	1,510

Source: DEED LMI Office Projections

data which track the entrants and separations of an occupation by age cohorts. The net replacement opening estimates understate the total number of job openings in an occupation over the next 10 years but are the best available estimates of job openings available to new labor force entrants.

In addition to the 130,000 job openings projected to be created through employment growth over

the next 10 years, approximately 697,000 net replacement openings are projected. Occupations with high numbers of net replacement openings tend to be occupations with large employment bases in 2014 and high turnover rates (see Table 4). Over 94 percent the occupations are projected to have more net replacement openings than openings from employment growth. Net replacement openings

should be considered when exploring the future prospects of any occupation. The need to fill replacement openings will only increase later in the decade ahead as Baby Boomer retirements increase between now and 2024.

by Dave Senf  
Labor Market Information Office  
Minnesota Department of Employment  
and Economic Development



Central, and Southeast Minnesota than in the Metro Area. Through 2022 Protective Service jobs are expected to grow fastest in Central Minnesota, but Northwest, Southeast, and the Metro Area also have positive growth projections.

## Graduate Employment Outcomes

Although most Protective Service occupations require only a high school education, over 75 percent of those who graduated in 2013 with a post-secondary award in criminal justice were gainfully employed in 2015. Workers with one-year certificates were making more per hour in 2015 (\$19.61) than graduates with Associate's (\$16.64) and Bachelor's degrees (\$18.47). Certificate holders might also have Associate or Bachelor's degrees earned in a prior year, and this may explain the higher wage earned by Certificate Holders. As with all Protective Service workers, over 50 percent of recent graduates are working in the Seven County Metro Area (see Figure 1).

## Conclusion

Protective Service occupational opportunities are available throughout Minnesota. Relatively low education requirements for employment allow Protective Service workers to carve out a career path in many ways. There are opportunities for employment in multiple industries and in various jobs with different levels of responsibility. Upward mobility in these Protective Service occupations will likely require professional certification training and work experience which is readily available for current Protective Service professionals and prospective job seekers.

Table 2

### 2016 Minnesota Occupation and Employment Statistics, Protective Services Occupations

Geography	OES Employment	Median Wage	Projections 2012-2022
Northwest Minnesota	4,980	\$20.26	5.1%
Northeast Minnesota	2,800	\$18.47	-0.1%
Central Minnesota	2,340	\$23.46	7.4%
Seven County Metro	25,100	\$19.05	5.0%
Southwest Minnesota	3,210	\$18.16	-1.6%
Southeast Minnesota	4,010	\$21.41	1.9%

Source: 2016 DEED Occupation and Employment Statistics

Table 3

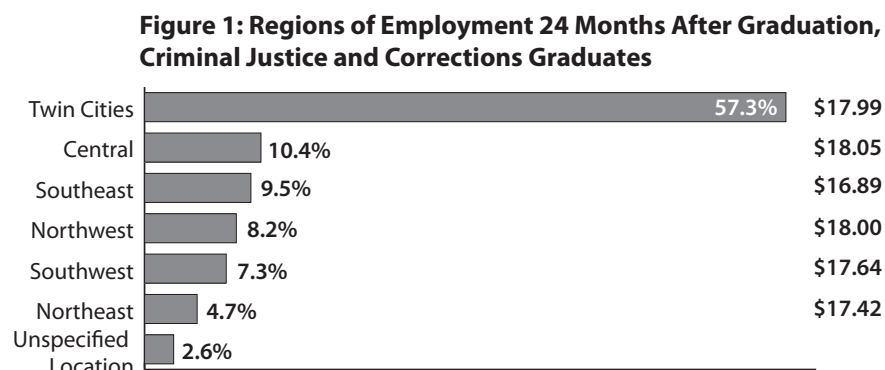
### Minnesota Statewide Graduate Employment Outcomes, Criminal Justice and Corrections Programs

Post-Secondary Award	2013 Graduates	Two years after Graduating	
		Percent Earning Wages in MN	Median Hourly Wage
Certificates (less than Bachelor's Degrees)	273	81.3%	\$19.61
Associate's Degrees	990	78.4%	\$16.64
Bachelor's Degrees	853	75.3%	\$18.47

Source: DEED Graduate Employment Outcomes

Figure 1

### Regions of Employment 24 Months After Graduation, Criminal Justice and Corrections Graduates



by Chet Bodin  
Regional Analyst, Northwest Minnesota  
Department of Employment and Economic Development