



## Predicting Future Employment

Health Care will provide many employment opportunities.

### Montana Job Projections and the Science of Better Planning

*by Barbara Wagner, Chief Economist*

**Every year,** the Montana Department of Labor and Industry produces employment forecasts for job growth in upcoming years. These employment forecasts are primarily used by educational institutions (including both four- and two-year colleges) and other workforce training institutions to guide decisions on programs and curricula, and to ensure that Montana's workforce can meet the demands of tomorrow's jobs. Just as the private sector relies on sales forecasts to help guide decisions on which goods to produce, education professionals rely on employment forecasts to guide decisions on which training programs to develop. These forecasts are also used by workers, parents, and students who are making career decisions to evaluate future opportunities for various professions.

### Accuracy of Forecasts

Like any forecast, the employment projections are based on previous data, trends, and knowledge that is available at the time of forecast. Because the economy is constantly changing, the forecast is unlikely to be exactly right. Instead, employment forecasts should be seen as the most likely employment growth out of many possible outcomes, given the knowledge and information available at the time. Forecasts on total employment and some larger, more stable, industries are likely to be more reliable, whereas detailed projections at the occupation level include greater error.

Further, some industries and occupations have fairly stable growth paths that can be predicted with a great deal of certainty. For example, employment growth in health care has continued at very steady pace over the last twenty years, as Montana's population has aged and consumers have demanded more health care services. The constant steady growth gives greater confidence in the forecasted employment levels. In contrast, employment in the mining industry varies considerably with changing global prices for oil, energy, and commodities. Price changes at the global level are often difficult to predict, making the employment forecast for this industry fairly uncertain.

This article provides information on the recently released 2012 to 2022 projections. Detailed regional forecasts by industry and occupation are available at [www.ourfactsyourfuture.org](http://www.ourfactsyourfuture.org) under "data download" or "projections."

Knowing about forecast uncertainty helps to interpret the employment forecasts more appropriately. As an example, the 2012-2022 employment forecasts suggest there will be about 350 openings annually for registered nurses, making it one of the occupations with the highest demand for new workers. In comparison, we are expecting only 60 openings per year for dental assistants. While neither figure is likely to be exactly correct, it is clear that there is a greater demand for nurses than dental assistants (although both occupations are growing). The greater demand for nurses will persist even if the economy undergoes a structural shift or experiences a large recession. The relative demand of occupations is more stable and of greater certainty than the numerical demand.

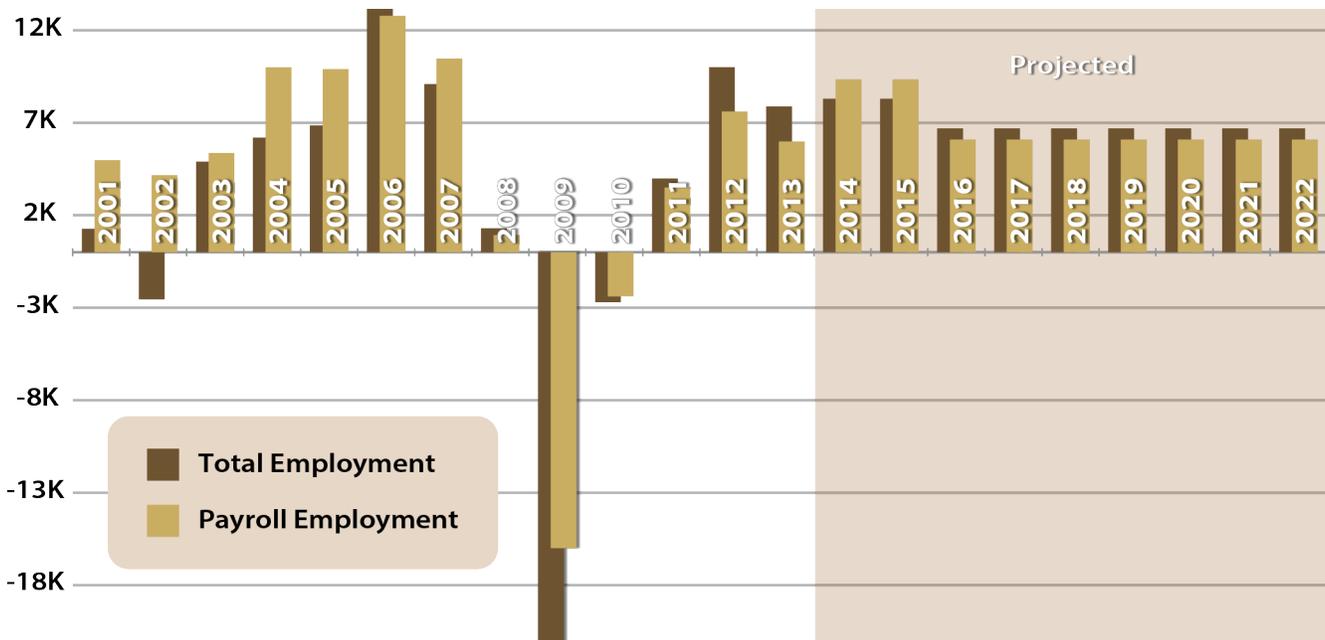
**Factors Influencing Future Growth**

Montana is expected to add 8,300 jobs per year in 2014 and 2015, and then job growth should slow to 6,700 per year from 2016 to 2022. The faster growth in the

near term is expected because of strong momentum of job and wage growth in 2012 and 2013, improving national and global economic conditions, and the construction industry finally recovering and contributing to stronger job growth. In the long-term, job growth is expected to slow because of worker shortages associated with Montana’s aging workforce. Montana’s forecasted economic growth is illustrated in Figure 1, along with the historic trend since 2001.

Figure 1 illustrates the strong pre-recession job growth during the bubble years of 2004-2006, when Montana gained over 10,000 payroll jobs per year. Total job growth during the bubble years averaged slightly less, at roughly 8,700 per year. Total job estimates include all payroll jobs in addition to the self-employed and agricultural workers who are not included in payroll job counts. Payroll employment growing faster than total employment suggests some self-employed workers moved into payroll jobs.

**Figure 1: Montana Jobs Added over prior Year, Total and Payroll, Historic (2001-13) and Projected (2014-22)**



After this period of rapid growth, the 2007 recession struck, causing significant job losses. From 2007 to 2010, the national recession caused job losses of over 22,000 in Montana. The construction industry was the hardest hit, losing over 9,600 jobs at a rate of -11.1% per year. Retail and wholesale trade and manufacturing were also hit hard by the recession, losing roughly 5,000 and 3,700 jobs, respectively. The job recovery from the recession was slower than expected, with losses through 2010 and slower-than-average job growth of 0.9% in 2011. Above-average job growth finally occurred in 2012 and 2013, with growth of 2.1% and 1.7%, respectively. Montana’s average annual total employment growth rate since 1980 is 1%.

Overall, job growth in the next 10 years is expected to be slower than before the recession, with average job growth of 1.7% in 2014 and 2015, followed by average growth of 1.4% from 2016 to 2022. In many ways, the rapid economic growth during 2000 to 2007 was artificially high because of the housing bubble, and slower expected growth is simply a result of being outside the bubble period. Slower job growth in the out-years is also expected due to worker shortages caused by retirement within Montana’s aging workforce. About 27% of Montana’s workforce is 55 or older and approaching retirement age. These impending retirements could potentially reduce Montana’s labor force by 136,982 workers. With the segment of the population aged 16 to 24 totalling only 113,000, there are simply not enough young workers entering the labor force to accommodate those retirements. Even if labor force participation increases at all age levels, it is likely that there will be fewer people available for work in the future.

Tight labor markets can provide economic benefits for workers because jobs are easy to find and wages increase

rapidly. However, economic growth can be constrained if businesses cannot find the right workers, or enough workers, to produce their goods and services. Montana’s overall economic growth will be slowed by worker shortages unless businesses make productivity-enhancing investments to allow each worker to produce more output, thus allowing economic growth to continue despite fewer workers. Ultimately, Montana’s growth depends on our ability to increase technology, productivity, and innovation.

### Industry Growth

Figure 2 illustrates the projected growth by industry for the 2012 to 2022 timeframe. The large-employing industries of health care and trade are expected to add the greatest number of jobs, with the trade industry

**Figure 2: Montana Projected Job Growth by Industry, 2012-2022**

|                                     | <b>Annual Compound- ing Growth Rate</b> | <b>Average Job Gain Per Year, 2012-2022</b> |
|-------------------------------------|---|---|
| Health Care and Social Assistance   | 1.8%                                    | 1,300                                       |
| Retail and Wholesale Trade          | 1.3%                                    | 1,000                                       |
| Accommodation and Food Services     | 1.9%                                    | 950   |
| Construction                        | 2.7%                                    | 700   |
| Professional and Technical Services | 2.7%                                    | 600   |
| Administrative and Waste Services   | 2.3%                                    | 500   |
| Transportation and Utilities        | 3.5%                                    | 300   |
| Arts, Entertainment, and Recreation | 2.7%                                    | 300   |
| Mining                              | 2.7%                                    | 250   |
| Manufacturing                       | 1.4%                                    | 250   |
| Government                          | 0.6%                                    | 250   |
| Finance and Real Estate             | 1.4%                                    | 200   |
| Educational Services                | 0.5%                                    | 200   |
| Other Services, Ex. Public Admin    | 1.0%                                    | 200   |
| Ag and Forestry                     | 0.9%                                    | 50  |
| Information                         | 0.5%                                    | 50  |
| Mgmt. of Companies & Enterprises    | 0.0%                                    | 0   |
| Total Payroll Employment            | 1.6%                                    | 7,100                                       |
| Self-employed                       | -0.1%                                   | -50   |
| <b>Total Employment</b>             | <b>1.4%</b>                             | <b>7,050</b>                                |

Source: MT Dept. of Labor and Industry 2014 Employment Forecasts.

expanding by about 1,000 jobs per year. Many jobs in the trade industry, such as retail sales workers or cashiers, require little or low education and experience. Because of the entry-level nature of these jobs, the trade industry is unlikely to require significant worker training to fill the open positions. In contrast, health care is expected to add roughly 1,300 jobs per year, many of them in occupations that require higher levels of education and training. Further, health care added jobs during the recession, meaning that there is not a pool of already trained workers waiting to become re-employed. Significant worker training will be required to fill open health care positions.

The construction industry is expected to be one of the fastest-growing industries in the next few years, adding roughly 700 jobs per year for a growth rate of 2.7%. However, this growth is much slower than the 6.9% growth during the housing bubble. Further, even at the expected growth rate, construction is not expected to regain the jobs lost during the recession until after 2022. As such, the training needs in this industry are less severe, as there are likely already trained construction workers who might wish to return to the industry when jobs become available.

**Figure 3: Annual Projected Occupational Demand by Large Occupational Group, 2012-2022**

|  | Annual Openings          |                                 |                       | 2013 Montana Annual Average Wage |
|--|--------------------------|---------------------------------|-----------------------|----------------------------------|
|  | Openings Due to New Jobs | Openings Due to Workers Leaving | Total Annual Openings |                                  |
| Food Preparation and Serving Related           | 825                      | 1,700                           | 2,525                 | \$20,536                         |
| Office and Administrative Support              | 1,000                    | 1,400                           | 2,400                 | \$31,070                         |
| Sales and Related                              | 750                      | 1,575                           | 2,325                 | \$32,410                         |
| Construction and Extraction                    | 675                      | 500                             | 1,175                 | \$44,434                         |
| Healthcare Practitioners and Technical         | 600                      | 575                             | 1,175                 | \$68,367                         |
| Transportation and Material Moving             | 475                      | 650                             | 1,125                 | \$35,737                         |
| Management                                     | 350                      | 750                             | 1,100                 | \$78,845                         |
| Installation, Maintenance, and Repair          | 300                      | 500                             | 800                   | \$42,221                         |
| Building and Grounds Cleaning and Maintenance  | 325                      | 400                             | 725                   | \$24,377                         |
| Education, Training, and Library               | 175                      | 550                             | 725                   | \$43,099                         |
| Production                                     | 250                      | 400                             | 650                   | \$35,743                         |
| Business and Financial Operations              | 250                      | 350                             | 600                   | \$57,735                         |
| Personal Care and Service                      | 275                      | 325                             | 600                   | \$23,939                         |
| Healthcare Support                             | 200                      | 250                             | 450                   | \$26,933                         |
| Protective Service                             | 100                      | 250                             | 350                   | \$38,659                         |
| Community and Social Service                   | 125                      | 200                             | 325                   | \$36,230                         |
| Life, Physical, and Social Science             | 75                       | 225                             | 300                   | \$54,589                         |
| Architecture and Engineering                   | 125                      | 150                             | 275                   | \$63,911                         |
| Arts, Design, Entertainment, Sports, and Media | 75                       | 200                             | 275                   | \$34,318                         |
| Computer and Mathematical                      | 125                      | 100                             | 225                   | \$57,337                         |
| Farming, Fishing, and Forestry                 | 25                       | 100                             | 125                   | \$30,799                         |
| Legal  | 50                       | 75                              | 125                   | \$60,379                         |
| <b>TOTAL</b>                                   | <b>7,200</b>             | <b>11,300</b>                   | <b>18,500</b>         | <b>\$37,900</b>                  |

### Occupational Demand

Food preparation, office and administrative support, and sales occupations top the list of jobs with the most expected annual openings. These occupational groups are fairly large, employing roughly 38% of Montana’s current workforce, and these occupations are found in a wide variety of industries. Therefore, it is unsurprising that we will continue to need a large number of workers to fill these positions in the future.

Overall, about 7,200 new jobs are expected each year. Workers are also needed to replace those who retire or move on to other professions. For example, when a bookkeeper retires or is promoted to accountant, a new replacement worker is needed to fill that position even though the number of bookkeeper jobs has not increased. The openings due to workers leaving measures the worker demand for the openings that require replacements, with the total openings noting the total number of workers needed to fill expected demand.

However, many occupations in food preparation and sales do not require high levels of education and training to fill. Occupations such as retail sales workers, cashiers, or food service workers are very common occupations, and will continue to require a large number of workers to fill openings in the future. However, workforce education and training professionals do not have to establish training programs for these occupations because they can be filled by entry-level workers without high levels of education or certification. Figures 4 and 5 illustrate the top jobs requiring some type of post-secondary education, with Figure 4 illustrating the jobs with the most openings requiring a bachelor’s degree and Figure 5 listing those requiring some college, an associate’s degree, or a postsecondary non-degree award. Accountants, teachers, and lawyers top the list for jobs requiring a bachelor’s degree. Nurses (RNs and LPNs), nursing assistants, and other health care jobs are on the list of jobs requiring some type of post-secondary education, along with truck drivers.

**Figure 4: Most Openings for Jobs that Require a Bachelor’s Degree or Higher, 2012-2020**

|   | Minimum Requirements Before Entering Profession |                 | Annual Openings |                        |       | 2013 Montana Annual Average Wage |
|---|---|-----------------|-----------------|------------------------|-------|----------------------------------|
|   | Education                                       | Work Experience | Due to New Jobs | Due to Workers Leaving | Total |                                  |
| Accountants and Auditors                      | Bachelor’s Degree                               |                 | 68              | 104                    | 172   | \$63,280                         |
| General and Operations Managers               | Bachelor’s Degree                               | < 5 years       | 68              | 76                     | 144   | \$89,600                         |
| Elementary School Teacher, except Special Ed. | Bachelor’s Degree                               | Internship      | 41              | 103                    | 144   | \$47,910                         |
| Secondary School Teacher, except Special Ed.  | Bachelor’s Degree                               | Internship      | 7               | 92                     | 99    | \$49,480                         |
| Coaches and Scouts                            | Bachelor’s Degree                               |                 | 27              | 49                     | 76    | \$26,320                         |
| Civil Engineers                               | Bachelor’s Degree                               |                 | 33              | 32                     | 65    | \$66,157                         |
| Lawyers                                       | Professional Degree                             |                 | 26              | 36                     | 62    | \$75,351                         |
| Cost Estimators                               | Bachelor’s Degree                               |                 | 28              | 29                     | 57    | \$54,600                         |
| Physical Therapists                           | Professional Degree                             |                 | 28              | 24                     | 52    | \$68,845                         |
| Substitute Teachers                           | Bachelor’s Degree                               | Internship      | 7               | 45                     | 52    | \$22,467                         |

The listing of registered nurses in Figure 5 brings up an important point about the education and work experience minimums. The education and work experience listed are the minimum required to enter the profession. At these minimums, the worker will likely be earning less than the average wage for the industry. In fact, some hospitals now require registered nurses to have bachelor's degrees before getting hired, but other new workers fill the position with just an associate's degree. However, those with associate's degrees may have to obtain higher education levels before obtaining promotions.

**Conclusion**

The Montana job projections produced by the Department of Labor and Industry provide helpful information for businesses planning future worker needs, for organizations charged with efficient workforce planning, for students and parents trying to minimize education costs while planning a good career, and for workers interested in climbing the career ladder. The Department of Labor

and Industry reproduces these projections in a number of publications to help these different audiences understand the projections data. For example, the Montana Career Information System ([www.mtcis.intocareers.org](http://www.mtcis.intocareers.org)) helps students find the right careers to fit their interests, then walks them through what classes and training they need to take to get hired in the career, even providing information on which Montana educational institution offers the necessary training. The Montana Career Information System is also used by Job Service professionals who are helping unemployed workers find new career opportunities. Projections data is also provided in our [projections publications](#) organized by the career clusters used in educational institutions, making it easy for educational institutions to plan curriculums. Most importantly, the projections data helps to ensure that Montana's workforce is ready for tomorrow's jobs, and that businesses can count on their workforce to ensure strong economic growth in the upcoming years.

**Figure 5: Jobs Requiring Some Post-secondary Education, but Less than a Bachelor's Degree, 2012-2022**

|  | Minimum Requirements Before Entering Profession |                    | Annual Openings |                        |       | 2013 Montana Annual Average Wage |
|--|---|--------------------|-----------------|------------------------|-------|----------------------------------|
|  | Education                                       | Work Experience    | Due to New Jobs | Due to Workers Leaving | Total |                                  |
| Registered Nurses                                  | Associate's Degree                              |                    | 179             | 170                    | 349   | \$60,698                         |
| Heavy and Tractor-Trailer Truck Drivers            | Postsecondary Award                             | Short-term OJT*    | 125             | 113                    | 238   | \$42,735                         |
| Nursing Assistants                                 | Postsecondary Award                             |                    | 67              | 107                    | 174   | \$24,786                         |
| Licensed Practical and Licensed Vocational Nurses  | Postsecondary Award                             |                    | 46              | 67                     | 113   | \$38,180                         |
| Teacher Assistants                                 | Some College, No Degree                         |                    | 12              | 81                     | 93    | \$24,603                         |
| Forest and Conservation Technicians                | Associate's Degree                              |                    | 1               | 73                     | 74    | \$23,854                         |
| Dental Assistants                                  | Postsecondary Award                             |                    | 35              | 24                     | 59    | \$32,777                         |
| Medical Records and Health Information Technicians | Postsecondary Award                             |                    | 26              | 32                     | 58    | \$33,242                         |
| Computer User Support Specialists                  | Some College, No Degree                         | Moderate-term OJT* | 29              | 26                     | 55    | \$40,368                         |
| Hairdressers, Hairstylists, and Cosmetologists     | Postsecondary Award                             |                    | 5               | 38                     | 43    | \$27,372                         |

\*OJT = On-the-Job Training