Montana Department of
LABOR & INDUSTRY

Registered Apprenticeship Program
Data Report
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Executive Summary

Apprenticeships are a time-honored tradition of passing on craftsmanship, knowledge, and skills to the next generation in the workplace. This method of on-the-job training plays an integral part in Montana's worker training systems. While traditional apprenticeable occupations remain a large part of the program, the Montana Registered Apprenticeship program has evolved to include a wider range of occupations to meet the needs of our economy. Today's apprentices study in fields such as information technology and healthcare, in addition to the traditional apprenticeships for plumbers, carpenters, electricians, and other trades. Apprenticeships often require college-level classroom learning to keep up with the science, computing, and technologies needed for modern day success.

The Montana Department of Labor & Industry's Registered Apprenticeship program partners with union and non-union sponsors to establish registered apprenticeship programs in Montana. A registered apprenticeship program provides the on-the-job and classroom training required to meet the national requirements for an industry-recognized Montana Registered Apprenticeship certificate through a curriculum customized to meet the needs of the employer. Once an apprentice completes a registered apprenticeship program, he or she obtains an industry-recognized credential indicating to employers in all 50 states that they are qualified and trained.

Since 2000, the Montana Registered Apprenticeship Program has coordinated 9,400 apprenticeships in over 100 different occupations. These 9,400 apprenticeships involved 8,300 individuals and over 1,200 businesses. While the program has been growing in participation and expanding into new occupations, there is a demand for continued expansion. The U.S. Department of Labor maintains a list of all occupations that can be trained through a registered apprenticeship program, which includes over 1,000 jobs listed as apprenticeable under national guidelines. New apprenticeship programs in these occupations begin when an employer expresses interest and works with the Montana Department of Labor & Industry to set up a program. Starting in 2018, Montana began offering a tax credit for apprenticeship sponsors.

The apprenticeship option offers a way for workers to earn while they learn, allowing an individual to remain in the labor force and earn a paycheck while obtaining certification in their career field. The training program typically takes three or four years to complete, depending on the occupation. Apprentices are offered a wage while learning hands-on skills alongside an experienced journeyman or mentor.

Apprentices who successfully completed a program earned average wages of $67,488 in 2018, nearly $25,000 more than the statewide average of $43,410. Over the last five years, the program has graduated an average of 167 apprentices per year, adding a large contribution to the training of Montana's workforce. This report provides information on this important component of Montana's worker training system, including information on past participants' demographics, program participation, and employment outcomes.[i]

Highlights include:

- Apprenticeship training has been gaining popularity in the last five years, responding to the increasing demand for trained workers in Montana. There were 857 new apprenticeships in 2018 compared to 424 new apprenticeships in 2013.

- Apprenticeships contribute to the economic success of Montana's workers. Apprentices who successfully completed their training had an average wage of $67,488 in 2018, nearly $25,000 higher than the statewide average wage and 78% higher than participants that started a program but did not finish it.

- Apprenticeships help keep skilled workers in Montana. Ninety percent of apprentices that have graduated from the program since 2013 are currently working for a Montana employer.

- The number of sponsors active in apprenticeship has increased by approximately 7% per year in the last three years. About 600 sponsors had an active apprentice in 2018.

- The programs are largely based in the more populated counties with 41% of all apprenticeship programs in Lewis & Clark, Gallatin, and Yellowstone counties.

- Since 2000, 54 out of Montana's 56 counties have had at least one apprenticeship participant.

- Apprentices were trained in 73 different occupations in 2018. The Montana Registered Apprenticeship staff assists interested employers in establishing apprenticeships in new occupations. Eighteen new occupations became apprenticeable in 2018.

- The majority of apprentices are in the trades, with 35% of programs for electricians and 21% for plumbing. These two occupations require an apprentice certificate for licensing in Montana.

- Apprenticeship opportunities in the healthcare field are quickly expanding, with certified nursing assistant (CNA) as the fastest growing new program. The first CNA program began in 2015 with two apprentices. By 2018, there were 156 active apprentices training to be nurse assistants. Medical coding is also a fast-growing new program. There were 47 active apprentices in a medical coding program in 2018, rising from 7 in 2017.

- Apprentices are generally between the ages of 16 and 34, suggesting that work-based learning in the form of apprenticeship is becoming a well-known option for young adults to pursue directly after high school.

- In tax year 2019, 249 businesses were eligible to claim the new apprenticeship tax credit. These 249 businesses employed a total of 436 apprentices that met the tax credit criteria.

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How Does the Montana Registered Apprenticeship Program Work?

Registered apprenticeships involve a worker, called an apprentice, participating in a structured work-based learning program that involves both technical instruction and on-the-job practical training. To qualify as a Registered Apprenticeship, the program must meet national standards for curriculum and training under the monitoring of the Montana Department of Labor & Industry. The Montana Department of Labor & Industry's Registered Apprentice Program is a recognized State Apprenticeship Agency by the U.S. Department of Labor, allowing the Department to monitor the apprenticeship and award apprenticeship credentials.

After completing a registered apprenticeship, the participant receives a national industry-recognized credential. Many states, including Montana, require a registered apprentice certification for state licensing in trade occupations such as plumbers or electricians. In many instances, the participant may also earn a simultaneous post-secondary degree.

The Montana Department of Labor & Industry works with employers to help them set up programs that follow the recommended curriculum, then monitors program progress to ensure that the apprentice and business sponsor are meeting program goals. The Montana Department of Labor & Industry can also help businesses find potential workers to fill apprenticeship positions, but the hiring process is completed by the employer. There were approximately 660 Montana businesses serving as apprenticeship sponsors in 2018.

The U.S. Department of Labor maintains a list of all occupations that can be trained through a registered apprentice program. Montana sponsors have offered training in over 100 of these occupations. The largest apprentice groups in Montana are electricians and plumbers, but programs are expanding to include in-demand jobs in non-trade occupations like nursing aides, daycare providers, radiologic technicians, and computer programmers.

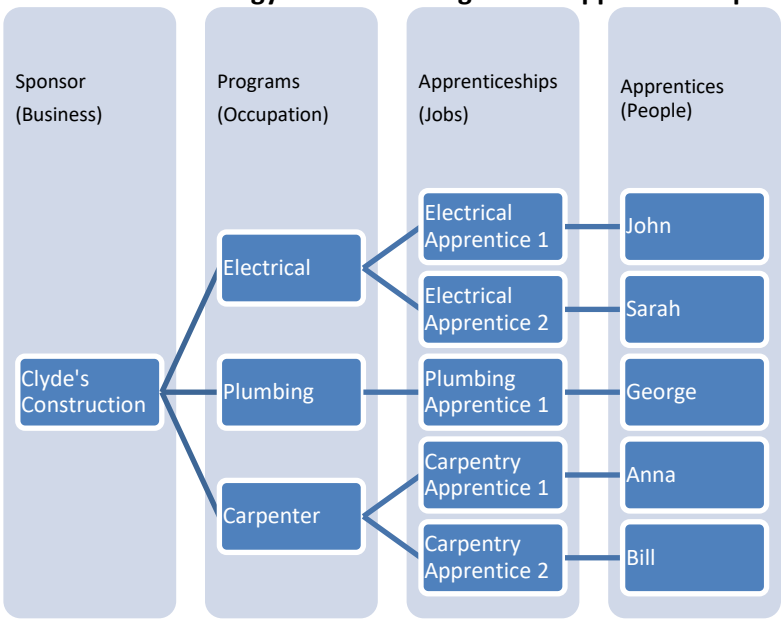
Most apprenticeships are expected to be completed in 8,000 hours, or approximately four years. However, the training for some occupations can be completed in as short as one year. There is a probation period equal to six months, or 25% of the length of the program, whichever is shorter. Apprenticeships can be cancelled by either the employer or the apprentice if the job match is unsuitable. The costs of training, such as tuition payments, books, or supplies, are typically paid by the apprentice, although sponsors can also meet these needs. Sponsors must pay the apprentice a wage, create a mentorship with existing staff to provide on-the-job guidance, and allow additional time for training while completing a job. In exchange, employers gain by having a worker that is specifically trained to meet the exact needs of their business. Starting in the 2018 tax year, sponsors may be eligible for a tax credit for sponsoring an apprentice.

Common terminology includes:

- Sponsors: Businesses that are willing to train an apprentice.
- Programs: The unique business/occupation combination through which an apprentice will be trained.
- Apprenticeships: The jobs that exist, within which the worker will receive apprentice training.
- Apprentices: The people that fill the apprenticeships. One apprentice may have participated in more than one apprenticeship.

Figure 1 illustrates this terminology.

Figure 1: Illustration of Terminology used in the Registered Apprenticeship Program



Apprenticeship Completion Rates

From January 1, 2000 to September 30, 2019, the Montana Department of Labor & Industry's Registered Apprenticeship program has overseen 9,410 apprenticeships participated in by 8,292 individuals. Figure 2 shows the number of apprenticeship positions that were completed, cancelled (includes transfers and suspensions), or are currently in progress.

Figure 2: Apprenticeship Trainings by Outcome

	Apprentice Positions	Percent of Total	Completion Rates
Completed	3,062	33%	42%
Cancelled	4,232	45%	58%
Ongoing	2,116	22%	
	9,410	100%	100%

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

Roughly 42% of apprenticeships are successfully completed, and the remaining 58% apprenticeships are not completed. About 26% are cancelled within their probation period, which is the lesser of six months or 25% of the training period. The other 74% cancel after the probation period possibly because the employers and apprentices find that the job match is not working out well, or that the worker is no longer needed. The average time until cancellation is 17.3 months.

Many of the apprenticeship candidates who cancel with one program transfer to a different program either in a different occupation or in the same occupation with a different employer. If an apprentice transfers to a different program, it is recorded as a cancellation of the first apprenticeship. In addition, some apprentices complete more than one program. These situations are the reason there are more apprenticeships (9,410) than individuals (8,292).

Figure 3 shows the number of individuals in an apprenticeship by their final result. Occasionally, an apprentice will complete a program first, and cancel a second program later. In those instances, their completed apprenticeship is counted as the final result. By individual, 48% of people successfully complete an apprenticeship, although their first apprenticeship position may have been cancelled at either their request or their employer's request. About 52% of apprenticeships are cancelled without the apprentice finding another apprentice training position.

Figure 3: Individual Apprentices by Final Result

	Apprentice Positions	Percent of Total	Completion Rates
Completed	2,988	36%	48.3%
Cancelled	3,193	39%	51.7%
Ongoing	2,111	25%	--
	8,292	100%	100%

Source: MT DLI Registered Apprentice Program. Data from 2000 to October 30, 2019

Completion rates of 48% are higher than some other types of training programs. Among those entering the Montana University System schools from 2012 to 2014, about 22% to 23% of first-time, full-time associate degree seekers successfully graduated within four years.[ii] Unlike a college relationship where the student is typically the only factor in completion, the apprenticeship relationship can be ended by either the apprentice of the employer, with business closure or other business concerns also influencing graduation rates. Data from the Bureau of Labor Statistics shows that the median duration with one employer for U.S. workers is 4.2 years, with workers aged 25 to 34 having even shorter duration of 2.8 years.[iii]

As can be seen from Figure 2 and Figure 3, participation in the apprenticeship program can either be calculated as the count of training positions started (9,410), or by the number of people who have filled these positions (8,292). For example, if a person starts an electrician program then transfers to a plumbing program, they are counted in two apprenticeships (one for electrician and one for plumbing), but only once if counting individuals trained. Unless otherwise stated, the remainder of the report will summarize information by apprenticeships, not by individuals.

Growth in the Montana Registered Apprenticeship Program

The number of new apprenticeships in Montana has been steadily growing in recent years. In 2018, there were 857 new apprenticeship training positions, which is over 400 more than in 2013. Because of this growth, the total number of apprenticeships has increased from 1,275 in 2013 to 2,421 in 2018. Figure 4 illustrates participation in the Registered Apprentice program by year since 2013, separating out those who started during the year, or who cancelled or completed a program during the year.

“In program” is the total amount of apprenticeships including those that started in that year, ended in that year, or are in the middle of their training (considered ongoing). The in-program metric is conceptually similar to enrollment statistics for colleges and universities, including all students served regardless of outcome.

Figure 4: Apprenticeship Program Participation

Result	2013	2014	2015	2016	2017	2018	2019 (through Sep30)
In Program	1,275	1,454	1,706	1,896	2,098	2,421	2,532
Completed	147	126	164	134	199	214	196
Cancelled	208	214	273	276	334	333	223
Ongoing	919	1,114	1,269	1,486	1,563	1,864	2,109
New	424	536	592	627	723	857	670

Source: MT DLI Registered Apprenticeship Program. Data from 2000 to September 30, 2019

Note: "In Program" counts apprenticeships that were active at some point during the year. "Ongoing" counts active apprenticeships that did not cancel or complete their program in that year.

Business Sponsors and Number of Programs

There are over 1,200 businesses that have sponsored an apprentice since 2000. Many businesses provide training in multiple occupations resulting in over 1,300 different programs since 2000. A program is a separate field of study with a specific business. For example, if a business hosts two plumbing apprentices and one electrician apprentice, the business would be hosting two programs and three apprenticeships. See Figure 1 for an illustration of the terminology.

Although there are over 1,200 sponsors registered, about half of them are active in any given year. Figure 5 lists the number of active and new programs by year since 2013 and Figure 6 lists the number of active and new sponsors by year since 2013. Sponsors and programs have both grown significantly in recent years. This expansion of programs is from the traditional trades occupations, plus some expansion into new fields as a success of the Department's initiatives to expand work-based learning into non-traditional fields like healthcare and information technology.

Figure 5: Active and New Apprenticeship Programs by Year

Year	Active	% Change	New	% Change
2013	442		56	
2014	463	4.8%	63	12.5%
2015	518	11.9%	71	12.7%
2016	539	4.1%	83	16.9%
2017	606	12.4%	100	20.5%
2018	648	6.9%	110	10.0%
2019 (through Sep 30)	709		82	

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

Figure 6: Active and New Apprenticeship Sponsors by Year

Year	Active	% Change	New	% Change
2013	418		51	
2014	432	3.3%	53	3.9%
2015	472	9.3%	56	5.7%
2016	493	4.4%	73	30.4%
2017	555	12.6%	84	15.1%
2018	596	7.4%	93	10.7%
2019 through (Sep 30)	648		63	

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

As seen in Figure 5 and 6, there were 648 programs in 2018 that were sponsored by 596 businesses. Of these businesses:

- 57% of the 596 businesses sponsored just one apprenticeship
- 19% of the 596 businesses sponsored two apprenticeships
- 15 businesses sponsored over 20 apprenticeships

Sponsors by Industry

Sponsors are displayed by their primary industry sector in Figure 7. Of the sponsors active in 2018, 80% of them are in construction. The second highest industry concentration is healthcare, an industry targeted for expansion by the Registered Apprenticeship Program in recent years and the largest private employing industry in Montana.

Figure 7: Apprenticeship Sponsors by Industry

NAICS	NAICS description	Total
11	Agriculture, Forestry, Fishing and Hunting	0
21	Mining, Quarrying, and Oil and Gas Extraction	0
22	Utilities	8
23	Construction	479
31-33	Manufacturing	9
42	Wholesale Trade	2
44-45	Retail Trade	6
48-49	Transportation and Warehousing	1
51	Information	2
52	Finance and Insurance	0
53	Real Estate and Rental and Leasing	0
54	Professional, Scientific, and Technical Services	7
55	Management of Companies	1
56	Administrative and Support Services	3
61	Educational Services	1
62	Health Care and Social Assistance	56
71	Arts, Entertainment, and Recreation	0
72	Accommodation and Food Services	1
81	Other Services (except Public Administration)	11
92	Public Administration	9
Total		**596**

Source: DLI apprentice program. Data includes active apprentices in 2018.

Work Location of Apprenticeships and Sponsors

The Registered Apprenticeship Program has trained workers in nearly every Montana county, but the majority of apprentices train in the urban counties. Out of the 56 counties in Montana, 54 have had at least one apprenticeship since 2000. The two counties without an apprenticeship program are Petroleum and Treasure Counties.

Lewis and Clark, Gallatin, and Yellowstone counties have had the most apprenticeships based on sponsor location. These three counties account for approximately 41% of all apprenticeship locations since 2000. Figure 8 lists the five counties with the most apprenticeships and the number of apprenticeships that have been completed. The full table including all counties is in Figure 24 in the appendix.

Figure 8: Five Counties with the Most Apprenticeships – Jan. 1, 2000 to Sept. 30, 2019

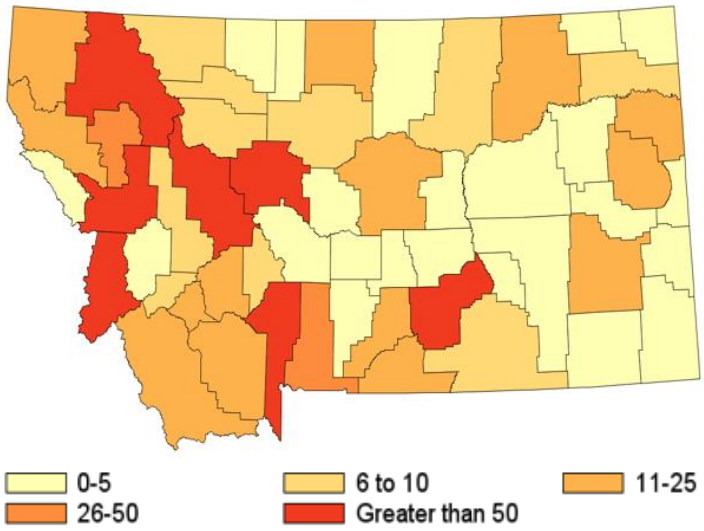
County	Total Apprenticeships	Completed Apprenticeships
Lewis and Clark	1,710	604
Gallatin	1,195	361
Yellowstone	974	375
Flathead	716	196
Silver Bow	712	362
Total	**5,307**	**1,898**

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019.

The number of new apprenticeships has been increasing each year. This increase has been predominantly in the largest counties. For example, Lewis and Clark County had 77 new apprenticeships in 2013 and 168 new apprenticeships in 2018. Gallatin County had 72 new apprenticeships in 2013 and 109 new in 2018. Although not one of the largest counties, Custer County had 3 new apprenticeships in 2013, and 47 new in 2018. Figure 25 in the appendix lists all new apprentices by county for the years 2016 to 2018.

Apprentices come from 54 of Montana's 56 counties. Each of these counties must also have a sponsor to host the apprentices, with some sponsors hosting multiple apprentices. Figure 9 illustrates the number of sponsors by county. In general, the counties with the most apprentices also have the most sponsors, reflecting the fact that most sponsors host one or two apprentices.

Figure 9: Number of Apprenticeship Sponsors by County



Source: DLI Registered Apprenticeship Program. Data from 2000 to September 30, 2019.

Types of Occupations

Apprentices have trained in over 100 different occupations since 2000, although not all are active in any given year. Apprentices actively trained in one of 73 occupations in 2018, and in one of 83 occupations in 2019 through September 30.[iv]

Most apprenticeship training is in the trades. Thirty-five percent of apprenticeships are electrician programs, and 21% are programs for plumbing. The remaining 44% of the apprenticeships are split between other occupations. Figure 10 lists the number of new apprenticeships per year by occupation, sorted by the total trained since 2000. Data presented is limited to occupations that have had more than 50 apprenticeships. The total column represents the total amount of apprenticeships in that occupation since 2000. For example, there have been 3,248 electrician apprenticeships since 2000. The full table can be found in Figure 26 in the appendix.

Figure 10: New Apprenticeships by Occupation

ONET	Occupation	2013	2014	2015	2016	2017	2018	2019	Total Trained since 2000
47-2111.00	ELECTRICIANS	162	185	219	230	230	269	188	3,248
47-2152.02	PLUMBERS	105	116	109	147	131	158	114	1,964
47-2031.01	CARPENTER	15	22	28	28	39	79	46	463
47-2221.00	STRUCTURAL IRON AND STEEL WORKERS	17	33	10	18	22	35	26	452
47-2152.01	PIPE FITTERS	23	35	28	34	34	32	16	366
39-9011.00	CHILD CARE WORKERS	4	1	5	7	14	15	4	352
47-2211.00	SHEET METAL WORKERS	20	23	16	26	22	21	15	342
47-2011.00	BOILERMAKER	16	6	21	3	15	10	14	256
31-1014.00	NURSE ASSISTANT CERTIFIED	0	0	2	34	87	55	57	235
49-9051.00	ELECTRICAL POWER-LINE INSTALLERS AND REPAIRERS	4	10	18	9	19	8	8	231
51-8021.00	STATIONARY ENGINEERS & BOILER OPERATORS	2	14	7	4	4	9	4	124
47-2073.00	OPERATING ENGINEERS	7	0	0	0	9	2	18	119
47-2181.00	ROOFERS	7	17	14	13	5	5	0	105
49-9021.01	HEATING & AIR CONDITIONING MECHANIC & INSTALLER	3	6	5	8	19	25	17	102
47-2021.00	BRICKLAYER/BRICKMASONS & BLOCKMASONS	1	4	5	4	4	11	8	100
47-2061.00	CONSTRUCTION LABORERS	4	2	6	2	2	1	1	94
33-2011.01	MUNICIPAL FIRE FIGHTERS	6	1	2	0	1	0	0	76
29-2071.00	MEDICAL RECORD AND HEALTH INFORMATION TECHNICIAN/MEDICAL CODERS	0	0	0	0	7	41	25	73
49-9041.00	INDUSTRIAL MACHINERY MECHANICS	2	9	2	0	0	0	0	69
49-2022.00	TELECOMMUNICATIONS TECHNICIAN	0	0	4	3	2	1	3	66
47-4021.00	ELEVATOR INSTALLERS AND REPAIRERS	1	3	7	3	5	5	7	65

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

Thirty-eight new occupations have been added since 2017. The new occupations, year they were added, and total number of participants are listed in Figure 11.

Figure 11: New Registered Apprenticeship Occupations Added Since 2017

Year Added	ONET	Occupation	Apprenticeships
2017	29-2071.00	MEDICAL RECORD AND HEALTH INFORMATION TECHNICIAN/MEDICAL CODERS	73
2017	31-9092.00	MEDICAL ASSISTANTS	14
2017	29-2061.00	LICENSED PRACTICAL AND LICENSED VOCATIONAL NURSES	9
2017	43-3031.00	BOOKKEEPING, ACCOUNTING, AND AUDITING CLERKS	9
2017	31-9094.00	MEDICAL TRANSCRIPTIONISTS	5
2017	13-1031.00	CLAIMS ADJUSTERS, EXAMINERS, AND INVESTIGATORS	3
2017	49-2092.00	ELECTRIC MOTOR, POWER TOOL, AND RELATED REPAIRERS	3
2017	29-2055.00	SURGICAL TECHNOLOGISTS	1
2017	17-3023.03	ELECTRICAL ENGINEERING TECHNICIANS	1
2018	15-1151.00	COMPUTER USER SUPPORT SPECIALISTS	6
2018	17-3029.09	MANUFACTURING PRODUCTION TECHNICIANS	5
2018	41-3041.00	TRAVEL AGENTS	5
2018	21-1091.00	HEALTH EDUCATORS	4
2018	29-2053.00	PSYCHIATRIC TECHNICIANS	3
2018	29-2012.00	MEDICAL AND CLINICAL LABORATORY TECHNICIANS	3
2018	90159	MASTER BREWER	3
2018	51-6093.00	UPHOLSTERERS	3
2018	49-3022.00	AUTOMOTIVE GLASS INSTALLERS AND REPAIRERS	2
2018	31-9097.00	PHLEBOTOMISTS	2
2018	11-9081.00	LODGING MANAGERS	2
2018	49-2011.00	COMPUTER, AUTOMATED TELLER, AND OFFICE MACHINE REPAIRERS	2
2018	49-9094.00	LOCKSMITHS AND SAFE REPAIRERS	2
2018	15-1142.00	NETWORK AND COMPUTER SYSTEMS ADMINISTRATORS	1
2018	90152	AUTOMOTIVE TECHNICIAN SPECIALIST	1
2018	11-3021.00	COMPUTER AND INFORMATION SYSTEMS MANAGERS	1
2018	27-1025.00	INTERIOR DESIGNERS	1
2018	51-9012.00	SEPARATING, FILTERING, CLARIFYING, PRECIPITATING, AND STILL MACHINE SETTERS, OPERATORS, AND TENDERS	1
2019	47-2082.00	TAPERS	9
2019	29-2041.00	EMERGENCY MEDICAL TECHNICIANS AND PARAMEDICS	8
2019	29-2099.00	HEALTH TECHNOLOGISTS AND TECHNICIANS, ALL OTHER	6
2019	51-2041.00	STRUCTURAL METAL FABRICATORS AND FITTERS	2
2019	27-2042.02	MUSICIANS, INSTRUMENTAL	1
2019	13-1151.00	TRAINING AND DEVELOPMENT SPECIALISTS	1
2019	35-1011.00	CHEFS AND HEAD COOKS	1
2019	11-9199.02	COMPLIANCE MANAGERS	1
2019	49-3053.00	OUTDOOR POWER EQUIPMENT AND OTHER SMALL ENGINE MECHANICS	1
2019	23-1022.00	ARBITRATORS, MEDIATORS, AND CONCILIATORS	1
2019	53-3032.00	HEAVY AND TRACTOR-TRAILER TRUCK DRIVERS	1

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

In some occupations, apprentices comprise a significant portion of employment. For example, over one-third of all electricians employed in Montana in 2018 were apprentices being trained through the Registered Apprenticeship Program. Figure 12 shows occupations with 35 or more active apprenticeships in 2018, along with the employment level for the occupation in Montana. Overall, workers currently undergoing apprentice training comprise 3.5% of Montana's employment in the apprenticeable occupations in 2018, underscoring the importance of the program to meet training needs for some types of jobs.

Figure 12: Number of Active Apprentices in 2018

ONET	Occupation	Active Apprentices	Total Employment	Apprentices as a % of Employment
47-2111	Electricians	848	2,390	35.5%
47-2011	Boilermakers	41	120	34.2%
47-2221	Structural Iron and Steel Workers	63	200	31.5%
47-2152	Plumbers, Pipefitters, and Steamfitters	600	1,990	30.2%
47-2211	Sheet Metal Workers	80	410	19.5%
49-9051	Electrical Power-Line Installers and Repairers	38	640	5.9%
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics & Installers	56	1,120	5.0%
29-2071	Medical Records & Health Information Technicians	47	1,020	4.6%
47-2031	Carpenters	127	4,550	2.8%
31-1014	Nursing Assistants	155	5,760	2.7%
Total of Listed Apprentices		**2,055**	**18,200**	**11.3%**
Total of all Apprenticeable Occupations*		**2,324**	**67,010**	**3.5%**

Source: MT DLI Registered Apprentice Program 2018. Total employment from OES 2018.
*Excludes apprentices and jobs that are confidential in the BLS OES 2018 data.

Apprentices by Industry

Most apprentices are in construction-related occupations, consequently, the majority of apprentices are working in the construction industry. Figure 13 shows the primary work industry that apprentices have worked, including only apprentices that were active in apprenticeship in 2018.

Figure 13: Apprentices by Industry (Active in 2017)

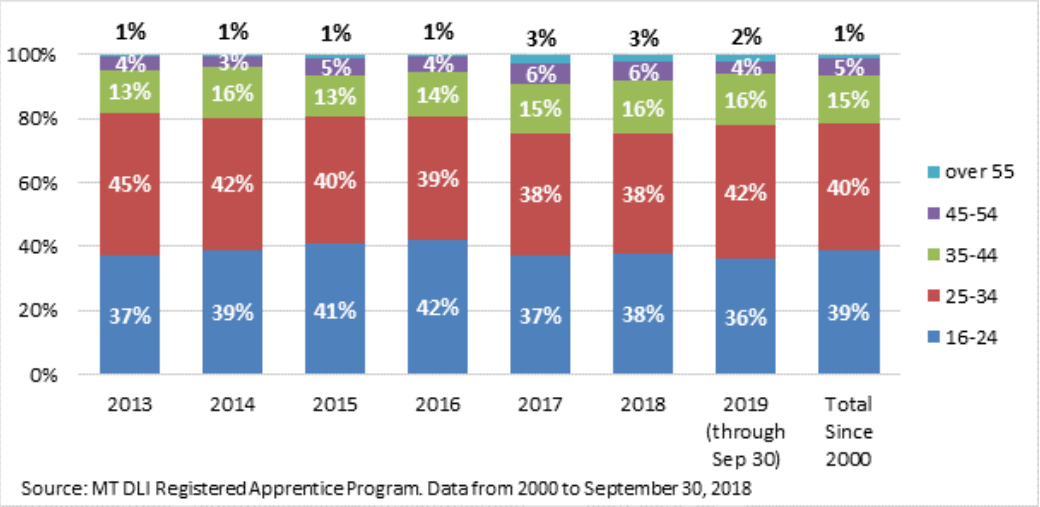
NAICS	NAICS description	Total
22	Utilities	113
23	Construction	1,743
31-33	Manufacturing	72
42, 44, 45	Wholesale and Retail Trade	28
48-49	Transportation and Warehousing	4
54-56	Business Services	47
61, 62	Healthcare and Education	314
51, 81	Other	20
92	Public Administration	52
Total		**2,395**

Source: DLI apprentice program. Data includes active apprentices in 2018.

Age of Apprentices

Apprentices are generally between the ages of 16 and 34. Figure 14 illustrates new apprentices by age. Total is all apprentices since 2000.

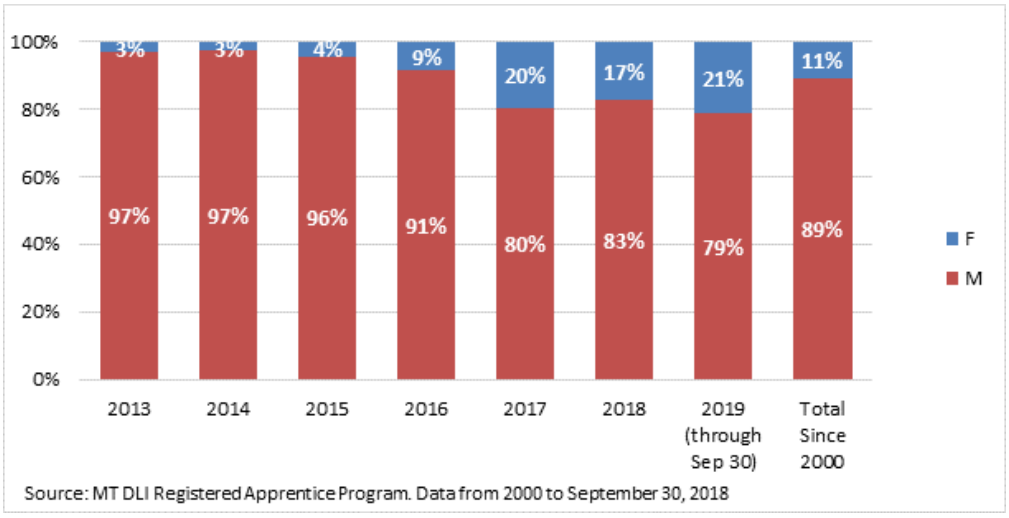
Figure 14: New Apprentices by Age



Gender of Apprentices

Men have accounted for 90% of total apprenticeships since 2000. However, the share of women has risen in recent years. Figure 15 lists new apprentices by gender.

Figure 15: New Apprentices by Gender



In the last few years, the Montana Registered Apprenticeship Program has implemented initiatives to make the program more diverse in terms of gender, race, and types of jobs trained. By encouraging employers to hire a more diverse set of workers and by expanding apprenticeship into occupations with more female workers, there has been success in increasing the share of female apprentices. The certified nurse assistant apprenticeship programs have been particularly popular with 235 apprenticeships – 214 of these apprentices are women. The medical coder apprenticeships, started in 2017, already has had 73 apprenticeships – 71 are women. These apprenticeship expansion efforts have helped increase female apprenticeship so that 17% of 2018 apprentices were women. Figure 16 lists the number of female apprenticeships by occupation (limited to the top ten).

Figure 16: Female Participation in Apprenticeship by Occupation (New Apprentices)

ONET	Occupation	2013	2014	2015	2016	2017	2018	2019 (through Sep 30)	Total Trained since 2000
39-9011.00	CHILD CARE WORKERS	4	0	4	7	14	15	4	340
31-1014.00	NURSE ASSISTANT CERTIFIED	0	0	2	34	79	49	50	214
47-2111.00	ELECTRICIANS	2	7	10	6	7	10	5	87
29-2071.00	MEDICAL RECORD AND HEALTH INFORMATION TECHNICIAN / MEDICAL CODERS	0	0	0	0	7	40	24	71
47-2152.02	PLUMBERS	0	0	1	3	7	4	6	35
47-2031.01	CARPENTER	2	0	1	2	6	3	2	22
47-2011.00	BOILERMAKER	0	0	1	0	4	0	5	20
47-2073.00	OPERATING ENGINEERS	0	0	0	0	2	0	3	19
47-2061.00	CONSTRUCTION LABORERS	0	0	3	1	0	0	1	16
51-8021.00	STATIONARY ENGINEERS & BOILER OPERATORS	0	3	1	0	0	2	1	13

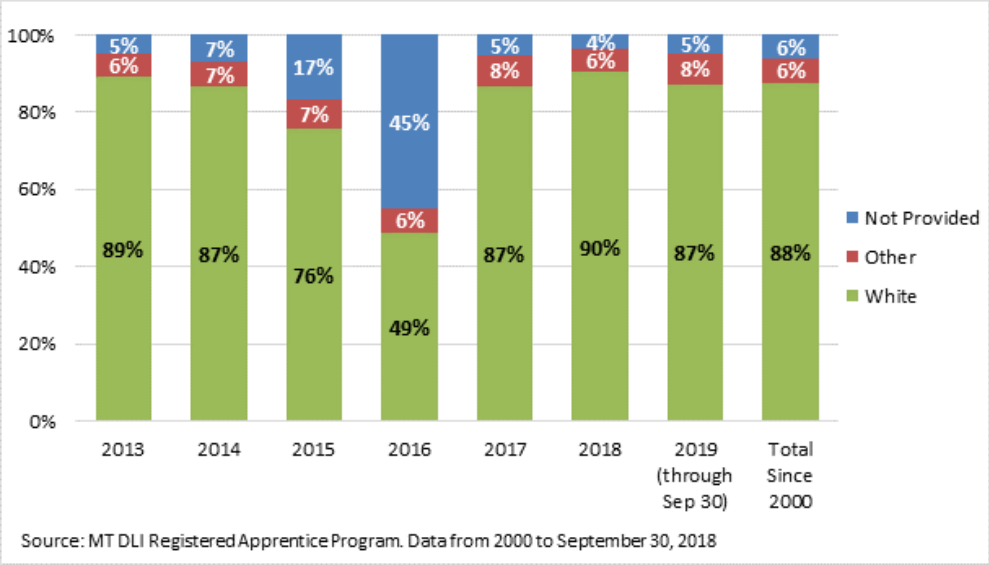
Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

Part of the reason for low enrollment of female apprentices is that the most popular apprenticeship programs are typically male-dominated occupations. According to the U.S. Census Bureau, 2.6% of Montana's construction and extraction workers are women.[v] Construction programs tend to be the most popular apprenticeships, with plumbing and electricians at the top of the list. Since 2000, there have been 87 women in the electrician program, or 2.7%, and 35 women in the plumber program, or 1.8%.

Race of Apprentices

Figure 17 lists new apprenticeships by race. Total is a sum for all apprenticeships since 2000.

Figure 17: New Apprentices by Race

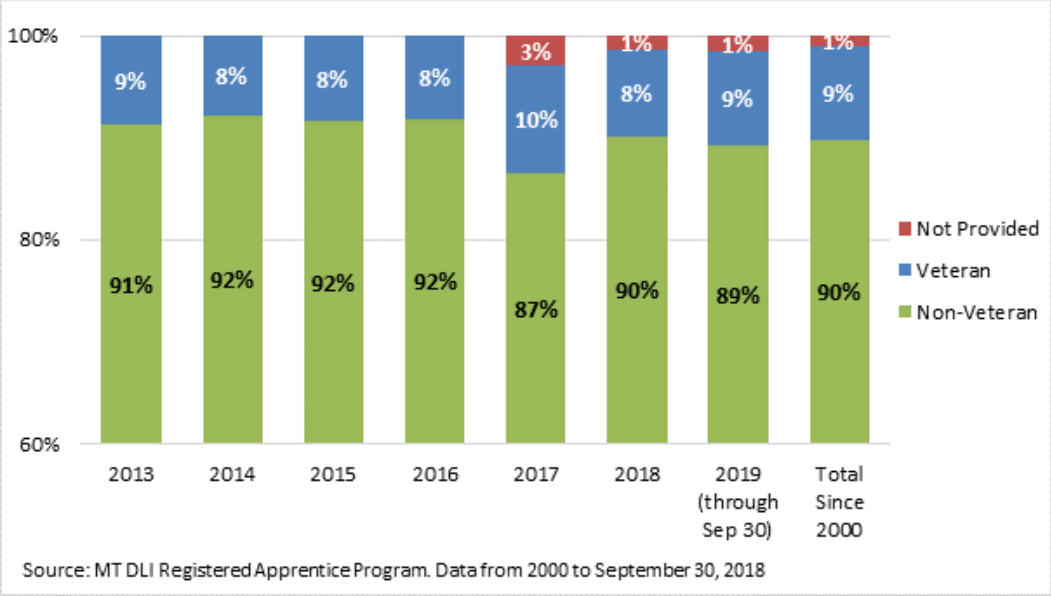


Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2018

Veterans in Apprenticeship

Figure 18 shows the share of new apprenticeships by veteran status. The share has remained relatively consistent over time. However, the number of new veterans signing up for apprenticeships has increased from 36 in 2013 to 72 in 2018. Starting in 2018, sponsors may receive a tax credit for hiring an apprentice, with sponsors receiving a larger credit if the apprentice is a veteran.

Figure 18: New Apprentices by Veteran Status



Time to Completion

Most apprenticeships are expected to be completed in 8,000 hours, which translates to approximately four years. Some programs are expected to be done in 6,000 hours (three years) or 4,000 hours (two years). There have been 1,960 completed apprenticeships over the last ten years, since 2009. Of those, 1,168 of them, or 60%, completed their program within the recommended time. The recommended time used for this analysis was 48 months if the information for program length was not immediately available. Figure 19 lists these statistics for the top 15 occupations.

Figure 19: Number of Completed Apprenticeships within the Program Length

ONET	Occupation	Program Length (Years)	Completed within the Program Length?		
			Yes	No	% Yes
47-2111.00	ELECTRICIANS	4	348	346	50.14%
47-2152.02	PLUMBERS	4	166	222	42.78%
49-9051.00	ELECTRICAL POWER-LINE INSTALLERS AND REPAIRERS	4	88	13	87.13%
39-9011.00	CHILD CARE WORKERS	2	65	8	89.04%
47-2152.01	PIPE FITTERS	4	57	53	51.82%
51-8021.00	STATIONARY ENGINEERS & BOILER OPERATORS	4	52	5	91.23%
47-2221.00	STRUCTURAL IRON AND STEEL WORKERS	4	44	5	89.80%
49-9041.00	INDUSTRIAL MACHINERY MECHANICS	4	43	2	95.56%
31-1014.00	NURSE ASSISTANT CERTIFIED	1	41	16	71.93%
47-2011.00	BOILERMAKER	4	39	17	69.64%
47-2211.00	SHEET METAL WORKERS	4	35	60	36.84%
47-2031.01	CARPENTER	4	35	10	77.78%
33-2011.01	MUNICIPAL FIRE FIGHTERS	4	33	0	100.00%
47-2073.00	OPERATING ENGINEERS	4	26	0	100.00%
47-2021.00	BRICKLAYER/BRICKMASONS & BLOCKMASONS	4	15	4	78.95%

Source: MT DLI Registered Apprentice Program. Data from 2009 to September 30, 2019

Looking at data for the past ten years, the average time it takes to complete an apprenticeship is 43 months, or just under four years. Figure 20 shows, by occupation, the number of apprenticeships that were completed within these 43 months. Figure 20 also shows the average number of months it takes to complete a program by occupation, starting with the shortest training programs.

Figure 20: Apprenticeship Completion Rates by Occupation

ONET	Occupation	Apprenticeships Completed in Less than 43 Months	Average Completion Time (Months)
29-2099.00	HEALTH TECHNOLOGISTS AND TECHNICIANS, ALL OTHER	1	6.4
17-3029.09	MANUFACTURING PRODUCTION TECHNICIANS	1	9.8
31-1014.00	NURSE ASSISTANT CERTIFIED	57	11.1
31-9092.00	MEDICAL ASSISTANTS	2	12.0
41-3041.00	TRAVEL AGENTS	3	12.0
51-4011.00	NUMERICAL CONTROL MACHINE TOOL OPERATORS AND TENDERS, METAL AND PLASTIC	1	12.7
49-2092.00	ELECTRIC MOTOR, POWER TOOL, AND RELATED REPAIRERS	1	12.8
43-3031.00	BOOKKEEPING, ACCOUNTING, AND AUDITING CLERKS	2	13.4
29-2034.02	RADIOLOGIC TECHNICIANS	1	13.9
51-9199.00	PRODUCTION WORKERS, ALL OTHER	1	17.0
39-9011.00	CHILD CARE WORKERS	73	17.8

Figure 20: Apprenticeship Completion Rates by Occupation (continued)

ONET	Occupation	Apprenticeships Completed in Less than 43 Months	Average Completion Time (Months)
11-9111.00	MEDICAL AND HEALTH SERVICES MANAGERS	1	20.1
47-2073.00	OPERATING ENGINEERS	26	21.0
49-9021.02	REFRIGERATION MECHANICS	2	23.7
15-1131.00	COMPUTER PROGRAMMERS	1	23.7
49-2022.00	TELECOMMUNICATIONS TECHNICIAN	4	24.2
51-8013.00	POWER GENERATING PLANT OPERATORS, EXCEPT AUXILIARY EQUIPMENT OPERATORS	2	27.7
17-3012.02	ELECTRICAL DRAFTERS	2	32.2
49-2098.00	SECURITY AND FIRE ALARM SYSTEMS INSTALLERS	12	33.0
47-2181.00	ROOFERS	4	35.4
47-2031.01	CARPENTER	30	36.0
51-8012.00	POWER DISTRIBUTORS AND DISPATCHERS	4	36.0
51-8021.00	STATIONARY ENGINEERS & BOILER OPERATORS	46	36.1
33-2011.01	MUNICIPAL FIRE FIGHTERS	33	36.3
47-2221.00	STRUCTURAL IRON AND STEEL WORKERS	39	37.3
49-9052.00	TELECOMMUNICATIONS LINE INSTALLERS AND REPAIRERS	3	37.4
90073	POWERHOUSE MECHANIC	11	37.5
49-9041.00	INDUSTRIAL MACHINERY MECHANICS	36	37.6
17-3022.00	CIVIL ENGINEERING TECHNICIANS	1	37.8
49-2095.00	ELECTRICAL AND ELECTRONICS REPAIRERS, POWERHOUSE, SUBSTATION, AND RELAY	3	37.8
49-2096.00	ELECTRONIC EQUIPMENT INSTALLERS AND REPAIRERS, MOTOR VEHICLES	2	37.9
47-2021.00	BRICKLAYER/BRICKMASONS & BLOCKMASONS	13	38.1
49-3052.00	MOTORCYCLE MECHANICS	2	40.2
49-9051.00	ELECTRICAL POWER-LINE INSTALLERS AND REPAIRERS	72	41.1
47-2152.01	PIPE FITTERS	49	42.2
51-3023.00	SLAUGHTERERS AND MEAT PACKERS	1	43.0
47-2011.00	BOILERMAKER	34	43.8
47-2111.00	ELECTRICIANS	287	45.9
47-2211.00	SHEET METAL WORKERS	18	48.7
47-2152.02	PLUMBERS	147	50.1
51-3021.00	BUTCHERS AND MEAT CUTTERS	0	50.5
49-9021.01	HEATING & AIR CONDITIONING MECHANIC & INSTALLER	1	50.8
47-2044.00	TILE AND MARBLE SETTERS	0	51.3
17-3011.01	DRAFTER, HEATING & VENTILATE/PLUMBING	0	52.1
49-9071.00	MAINTENANCE AND REPAIR WORKERS, GENERAL	0	55.0
49-3021.00	AUTOMOTIVE BODY AND RELATED REPAIRERS	1	64.2
47-2061.00	CONSTRUCTION LABORERS	3	69.1
47-4021.00	ELEVATOR INSTALLERS AND REPAIRERS	0	80.9
Total		**1,033**	**43**

Source: MT DLI Registered Apprentice Program. Data from 2009 to September 30, 2019

Wages of Apprentices

The wage and employment outcomes of apprentices can be tracked after the completion of their training using information from the mandatory reporting of employment and wages from the Montana Department of Labor & Industry's Unemployment Insurance Division. This data source provides information on the quarterly earnings of individuals from nearly all Montana employers. However, self-employed individuals and employers outside Montana are not included in the data, which may result in underestimates of the number of apprentices working after training. The wage match was completed for apprentices who successfully completed their training before 2018, and for participants who started an apprenticeship but did not complete it. The non-completers were included in the analysis to provide a group of workers who are similar to the successful apprentices prior to the training, thus allowing us to conclude that the wage gains are due to the apprentice training instead of pre-existing characteristics.

Among graduates from 2013 to 2017, 89.9% were employed and working for a Montana employer, providing an important source of trained workers for our state. In comparison, only 63% of cancelled participants since 2013 were working for Montana employers in 2018. Comparing all apprentices who graduated since 2000, 78.1% of apprentices were working for Montana employers. The percentage of apprentices working in Montana will decrease over time as individuals leave the workforce or move out of state.

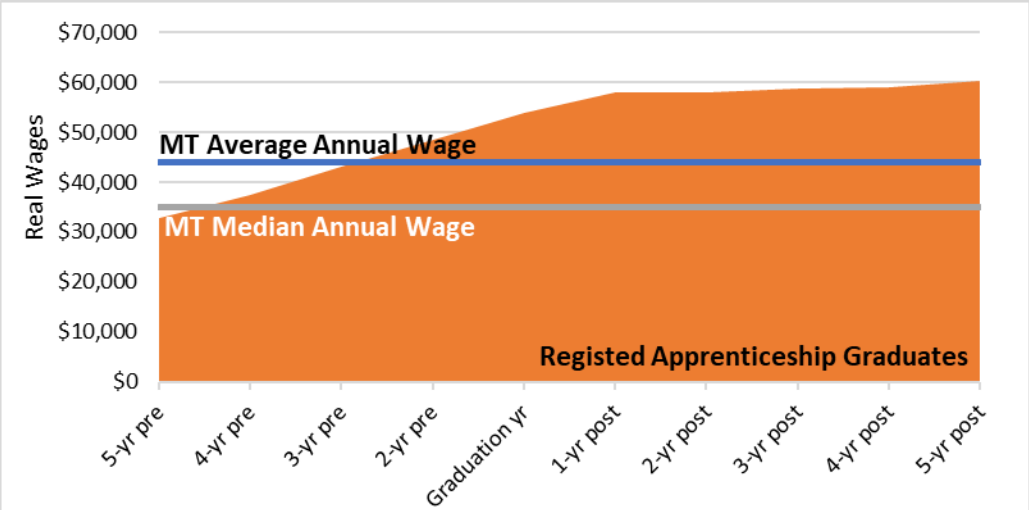
Apprenticeships that completed a program had wages that are 55% higher than the average Montana wage, and 78% higher than those who did not complete their apprentice program. These completers had average wages of $67,488 in 2018, nearly $25,000 higher than the 2018 average wage for all Montana workers of $43,410. In comparison, workers who did not complete their apprenticeship training had an average wage of $37,865 in 2018.

Not only do apprentices see high wages post-graduation, but they also earn wages while earning their certification. The average wage for Montanans in registered apprenticeship training throughout 2018 was about $45,011, which is higher than the typical income potential of a college student working around a class schedule.

The wages earned normally increase while in training as skills progress and continue to increase post-graduation. The wage match shows this increase. Among those who successfully completed their apprenticeship, real wages increased by an average of 7.6% within the first year after graduation. These post-graduation earnings were 76.9% higher than the annual wage earnings five years before graduating (typically before the apprentice started their training). Long-term average real wage gains are shown in Figure 21.

In comparison, those who did not complete the apprenticeship training, who were likely similar in demographic and economic characteristics as completers when starting the apprenticeship training, had five-year real wage gains of only 17.7%. One year after cancellation, those that did not complete training had negative real wage growth of -1.7%.

Figure 21: Average Wages of Apprentice Before, During, and After Graduation



Source: MT Registered Apprenticeship Program and UI wage match. Includes all Registered Apprenticeship graduates since from 2000 to 2017. Real wages reported in 2018 dollars using the CPI-U. Average and median wages from 2018 Occupational Employment Statistics.

Many apprenticeships are in occupations that pay high wages. Figure 22 illustrates the wages earned by recent graduates from the apprentice program by occupation compared to Montana wages at the 25th-percentile wage and the Montana average wages. The 25th-precentile is provided to represent the expected entry-level wages for workers just starting out in their careers. Average wages include all workers, including those with extensive training and experience. The table compares the 2018 wages earned for apprentices who graduated in 2015, 2016, or 2017 to the expected wages for all occupations. For roughly half of the occupations, the recent apprenticeship graduates were earning wages significantly higher than the statewide average. In all of the occupations shown, the apprentice graduates were earning wages that were above the entry-level occupational wage.

Figure 22: Average Wages of Recent Apprenticeship Graduates Compared with Entry-Level and Average

Occupation	Apprentices	Graduated Apprentice Average Wage	Entry Level Wage (25th Percentile)	State Average Wage
ELECTRICAL POWER-LINE INSTALLERS & REPAIRERS	32	$108,844	$78,760	$86,500
PIPE FITTERS	34	$97,282	$49,000	$60,940
INDUSTRIAL MACHINERY MECHANICS	11	$86,144	$43,790	$57,440
BOILERMAKER	10	$82,494	$49,900	$65,250
CARPENTER	6	$62,705	$33,300	$42,480
PLUMBERS	114	$61,393	$49,000	$60,940
ELECTRICIANS	149	$59,124	$45,230	$58,990
SHEET METAL WORKERS	15	$56,909	$38,720	$53,350
STRUCTURAL IRON AND STEEL WORKERS	11	$48,415	$37,530	$49,600
BRICKLAYER/BRICKMASONS & BLOCKMASONS	7	$40,439	$31,170	$45,420

Source: MT DLI Registered Apprenticeship Program and UI wage match. OES wage data from the May 2018 Bureau of Labor Statistics Occupation Employment Survey, Montana.

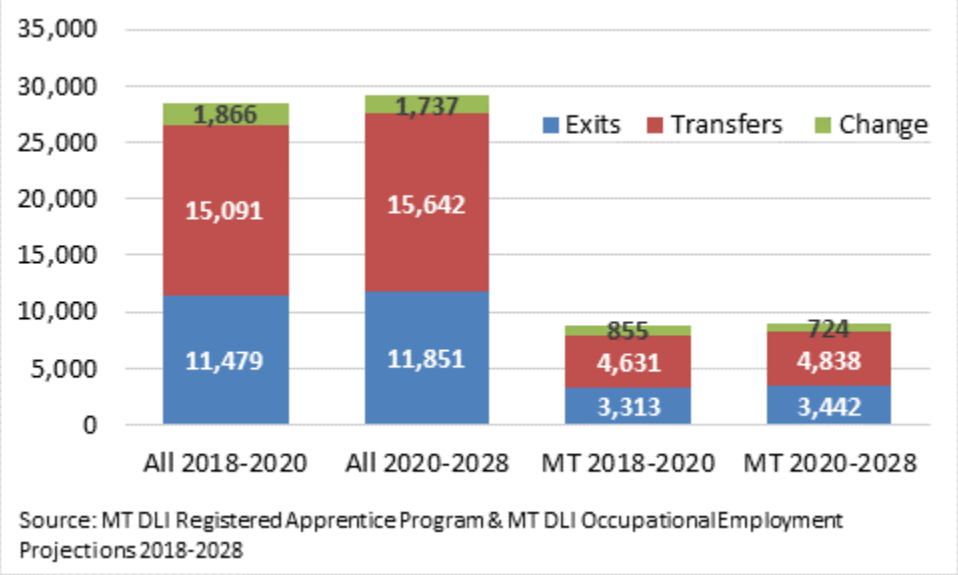
These high wages suggest apprentices are getting a good return on their investment, which is consistent with other research on apprenticeship. One study found that the returns to apprenticeship training exceed the return on investment for other types of training, with the long-term gains or apprenticeship training of about $266,000 over the worker's career compared to only $130,000 for a community college degree.[vi]

Apprenticeships in the Future - Expected Worker Demand for Apprenticeable Jobs

The Montana Department of Labor & Industry's forecasts for 2019-2020 and 2020-2028 show that workers are needed in apprenticeable occupations. Looking at the national list of all possible occupations that are apprenticeable, the total workforce demand in Montana for those occupations is 28,000 for the next two years with 1,860 of those jobs coming from growth and the rest coming from job openings (exits or transfers).[vii] Apprenticeable occupations represent nearly 47% of Montana's total worker demand.

Montana apprentices have trained in over 100 occupations, compared with over 1,000 that are on the national list of apprenticeable occupations. If the projections only include occupations for which Montana has had a program, there is demand for 8,800 new apprentices annually for the next two years, representing 14% of total worker demand. Figure 23 illustrates the forecasted worker demand for all apprenticeable jobs and the forecasted worker demand for occupations that Montana has an apprentice program to train.

Figure 23: Annual Employment Needs for Apprenticeable



Source: MT DLI Registered Apprentice Program & MT DLI Occupational Employment Projections 2018-2028

Apprenticeship Tax Credit

The 2017 Legislature passed HB308, which created a tax credit for employers that employ apprentices. The first year that businesses were eligible to claim this credit was in 2019 for apprentices hired in 2018. The credit is available to employers for apprentices that have completed their training probationary period or six months, whichever is earlier. The amount of the credit is $750 for each apprentice employed. The amount of the credit is $1,500 if the apprentice is a veteran.

In tax year 2018, 249 businesses were eligible to claim the tax credit. These 249 businesses employed a total of 436 apprentices that met the tax credit criteria – 33 of these apprentices were veterans. The combined tax credits available for all eligible employers was $351,750 in tax year 2019.

Appendix: Data Tables

Figure 24: Apprenticeships by County - January 1, 2000 to September 30, 2019

FIPS	County	Total Apprenticeships	FIPS	County	Total Apprenticeships
49	LEWIS AND CLARK	1,710	7	BROADWATER	31
31	GALLATIN	1,195	73	PONDERA	28
111	YELLOWSTONE	974	91	SHERIDAN	24
29	FLATHEAD	716	77	POWELL	23
93	SILVER BOW	712	89	SANDERS	22
63	MISSOULA	583	5	BLAINE	20
13	CASCADE	447	35	GLACIER	19
81	RAVALLI	320	55	MCCONE	19
67	PARK	217	71	PHILLIPS	19
17	CUSTER	204	99	TETON	16
41	HILL	140	15	CHOUTEAU	13
83	RICHLAND	106	65	MUSSELSHELL	13
53	LINCOLN	82	19	DANIELS	10
43	JEFFERSON	73	59	MEAGHER	10
47	LAKE	68	97	SWEET GRASS	10
87	ROSEBUD	59	45	JUDITH BASIN	9
1	BEAVERHEAD	58	75	POWDER RIVER	9
23	DEER LODGE	50	79	PRAIRIE	9
57	MADISON	49	101	TOOLE	8
21	DAWSON	48	51	LIBERTY	7
85	ROOSEVELT	48	109	WIBAUX	6
27	FERGUS	45	37	GOLDEN VALLEY	4
9	CARBON	41	107	WHEATLAND	4
105	VALLEY	41	11	CARTER	3
3	BIG HORN	39	61	MINERAL	3
95	STILLWATER	35	33	GARFIELD	2
25	FALLON	33	39	GRANITE	2

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

Figure 25: New Apprenticeships by County

FIPS	County	2015	2016	2017	2018	2019 through Sep 30
49	LEWIS AND CLARK	99	112	95	168	101
17	CUSTER	5	2	39	47	80
31	GALLATIN	75	94	108	109	75
29	FLATHEAD	43	37	47	86	58
111	YELLOWSTONE	85	75	44	72	52
63	MISSOULA	45	43	40	49	41
81	RAVALLI	18	27	33	25	41
93	SILVER BOW	54	50	63	42	33
13	CASCADE	16	23	36	40	28
67	PARK	9	23	13	26	17
43	JEFFERSON	3	4	8	7	10
27	FERGUS	2	2	4	6	9
41	HILL	9	2	17	6	9
87	ROSEBUD	12	7	6	14	6
91	SHERIDAN	0	0	0	0	5
47	LAKE	1	4	8	9	4
53	LINCOLN	2	7	6	8	4
5	BLAINE	0	0	7	8	3
11	CARTER	0	0	0	0	3
15	CHOUTEAU	0	0	0	2	3
105	VALLEY	3	0	9	5	3
7	BROADWATER	3	2	1	2	2
9	CARBON	0	2	4	1	2
19	DANIELS	0	0	0	0	2
21	DAWSON	0	2	1	9	2
51	LIBERTY	1	0	4	0	2
85	ROOSEVELT	0	15	11	0	2

FIPS	County	2015	2016	2017	2018	2019 through Sep 30
95	STILLWATER	2	1	3	4	2
1	BEAVERHEAD	5	1	1	13	1
3	BIG HORN	0	4	12	5	1
25	FALLON	3	0	4	2	1
39	GRANITE	0	1	0	0	1
57	MADISON	2	6	8	5	1
73	PONDERA	2	1	3	3	1
77	POWELL	1	1	1	3	1
89	SANDERS	1	2	3	0	1
97	SWEET GRASS	0	0	0	1	1
23	DEER LODGE	0	0	4	1	0
33	GARFIELD	1	0	0	0	0
35	GLACIER	0	0	1	2	0
37	GOLDEN VALLEY	0	0	0	0	0
45	JUDITH BASIN	1	1	0	1	0
55	MCCONE	1	0	2	0	0
59	MEAGHER	1	0	1	3	0
61	MINERAL	0	0	0	0	0
65	MUSSELSHELL	1	1	1	1	0
71	PHILLIPS	1	0	3	1	0
75	POWDER RIVER	0	2	0	1	0
79	PRAIRIE	0	0	1	2	0
83	RICHLAND	9	1	4	4	0
99	TETON	1	2	1	1	0
101	TOOLE	1	1	0	0	0
107	WHEATLAND	0	0	1	2	0
109	WIBAUX	1	0	1	1	0

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

Figure 26: New Apprenticeships by Occupation

ONET	Occupation	2013	2014	2015	2016	2017	2018	2019	Total Trained since 2000
47-2111.00	ELECTRICIANS	162	185	219	230	230	269	188	3,248
47-2152.02	PLUMBERS	105	116	109	147	131	158	114	1,964
47-2031.01	CARPENTER	15	22	28	28	39	79	46	463
47-2221.00	STRUCTURAL IRON AND STEEL WORKERS	17	33	10	18	22	35	26	452
47-2152.01	PIPE FITTERS	23	35	28	34	34	32	16	366
39-9011.00	CHILD CARE WORKERS	4	1	5	7	14	15	4	352
47-2211.00	SHEET METAL WORKERS	20	23	16	26	22	21	15	342
47-2011.00	BOILERMAKER	16	6	21	3	15	10	14	256
31-1014.00	NURSE ASSISTANT CERTIFIED	0	0	2	34	87	55	57	235
49-9051.00	ELECTRICAL POWER-LINE INSTALLERS AND REPAIRERS	4	10	18	9	19	8	8	231
51-8021.00	STATIONARY ENGINEERS & BOILER OPERATORS	2	14	7	4	4	9	4	124
47-2073.00	OPERATING ENGINEERS	7	0	0	0	9	2	18	119
47-2181.00	ROOFERS	7	17	14	13	5	5	0	105
49-9021.01	HEATING & AIR CONDITIONING MECHANIC & INSTALLER	3	6	5	8	19	25	17	102
47-2021.00	BRICKLAYER/BRICKMASONS & BLOCKMASONS	1	4	5	4	4	11	8	100
47-2061.00	CONSTRUCTION LABORERS	4	2	6	2	2	1	1	94
33-2011.01	MUNICIPAL FIRE FIGHTERS	6	1	2	0	1	0	0	76
29-2071.00	MEDICAL RECORD AND HEALTH INFORMATION TECHNICIAN/MEDICAL CODERS	0	0	0	0	7	41	25	73
49-9041.00	INDUSTRIAL MACHINERY MECHANICS	2	9	2	0	0	0	0	69
49-2022.00	TELECOMMUNICATIONS TECHNICIAN	0	0	4	3	2	1	3	66
47-4021.00	ELEVATOR INSTALLERS AND REPAIRERS	1	3	7	3	5	5	7	65
49-2098.00	SECURITY AND FIRE ALARM SYSTEMS INSTALLERS	1	1	0	0	0	0	0	36
17-3011.01	DRAFTER, HEATING & VENTILATE	1	5	5	4	4	4	2	25
49-9052.00	TELECOMMUNICATIONS LINE INSTALLERS AND REPAIRERS	2	2	3	0	3	5	2	24
49-3021.00	AUTOMOTIVE BODY AND RELATED REPAIRERS	0	0	1	0	7	2	3	18
47-2051.00	CEMENT MASONS AND CONCRETE FINISHERS	0	0	0	0	0	0	0	17
49-9021.02	REFRIGERATION MECHANICS	0	0	3	0	2	2	1	17
49-9044.00	MILLWRIGHTS	0	0	0	0	0	0	14	17
90073	POWERHOUSE MECHANIC	0	3	5	3	2	2	1	17
49-2095.00	ELECTRICAL AND ELECTRONICS REPAIRERS, POWERHOUSE, SUBSTATION, AND RELAY	0	0	2	0	1	1	1	16

ONET	Occupation	2013	2014	2015	2016	2017	2018	2019	Total Trained since 2000
49-2096.00	ELECTRONIC EQUIPMENT INSTALLERS AND REPAIRERS, MOTOR VEHICLES	1	1	2	0	5	5	1	15
31-9092.00	MEDICAL ASSISTANTS	0	0	0	0	2	3	9	14
49-9071.00	MAINTENANCE AND REPAIR WORKERS, GENERAL	1	0	1	0	0	0	1	14
51-3023.00	SLAUGHTERERS AND MEAT PACKERS	0	1	0	4	0	1	0	13
51-8012.00	POWER DISTRIBUTORS AND DISPATCHERS	0	0	3	1	1	0	0	12
51-3021.00	BUTCHERS AND MEAT CUTTERS	2	1	0	2	1	3	2	11
51-8013.00	POWER GENERATING PLANT OPERATORS, EXCEPT AUXILIARY EQUIPMENT OPERATORS	0	0	0	0	0	0	0	11
29-2061.00	LICENSED PRACTICAL AND LICENSED VOCATIONAL NURSES	0	0	0	0	1	2	6	9
43-3031.00	BOOKKEEPING, ACCOUNTING, AND AUDITING CLERKS	0	0	0	0	1	6	2	9
47-2082.00	TAPERS	0	0	0	0	0	0	9	9
47-2141.00	PAINTERS, CONSTRUCTION AND MAINTENANCE	0	0	1	0	0	0	0	9
49-2093.00	ELECTRICAL AND ELECTRONICS INSTALLERS AND REPAIRERS, TRANSPORTATION EQUIPMENT	0	6	3	0	0	0	0	9
29-2041.00	EMERGENCY MEDICAL TECHNICIANS AND PARAMEDICS	0	0	0	0	0	0	8	8
47-2044.00	TILE AND MARBLE SETTERS	0	0	0	0	0	0	0	8
49-3023.02	AUTOMOTIVE SPECIALTY TECHNICIANS	0	0	1	0	5	2	0	8
49-9097.00	SIGNAL AND TRACK SWITCH REPAIRERS	0	3	5	0	0	0	0	8
51-4041.00	MACHINISTS	0	3	3	0	0	0	0	7
15-1151.00	COMPUTER USER SUPPORT SPECIALISTS	0	0	0	0	0	4	2	6
29-2099.00	HEALTH TECHNOLOGISTS AND TECHNICIANS, ALL OTHER	0	0	0	0	0	0	6	6
49-3043.00	RAIL CAR REPAIRERS	0	2	4	0	0	0	0	6
49-3052.00	MOTORCYCLE MECHANICS	0	0	1	0	0	0	0	6
11-9111.00	MEDICAL AND HEALTH SERVICES MANAGERS	0	0	0	2	2	1	0	5
17-3029.09	MANUFACTURING PRODUCTION TECHNICIANS	0	0	0	0	0	2	3	5
31-9094.00	MEDICAL TRANSCRIPTIONISTS	0	0	0	0	5	0	0	5
41-3041.00	TRAVEL AGENTS	0	0	0	0	0	4	1	5
49-3031.00	BUS AND TRUCK MECHANICS AND DIESEL ENGINE SPECIALISTS	0	0	0	1	0	0	0	5
51-6041.00	SHOE AND LEATHER WORKERS AND REPAIRERS	1	0	0	0	0	3	1	5
51-9061.00	INSPECTORS, TESTERS, SORTERS, SAMPLERS, AND WEIGHERS	0	0	1	1	2	0	0	5
21-1091.00	HEALTH EDUCATORS	0	0	0	0	0	2	2	4

ONET	Occupation	2013	2014	2015	2016	2017	2018	2019	Total Trained since 2000
31-9095.00	PHARMACY AIDES	0	0	0	0	0	0	1	4
47-2132.00	INSULATION WORKERS, MECHANICAL	0	0	0	0	1	0	1	4
13-1031.00	CLAIMS ADJUSTERS, EXAMINERS, AND INVESTIGATORS	0	0	0	0	2	1	0	3
29-2012.00	MEDICAL AND CLINICAL LABORATORY TECHNICIANS	0	0	0	0	0	1	2	3
29-2053.00	PSYCHIATRIC TECHNICIANS	0	0	0	0	0	1	2	3
49-2092.00	ELECTRIC MOTOR, POWER TOOL, AND RELATED REPAIRERS	0	0	0	0	1	0	2	3
49-3023.01	AUTOMOTIVE MASTER MECHANICS	0	0	0	0	0	0	0	3
51-6093.00	UPHOLSTERERS	0	0	0	0	0	2	1	3
51-9199.00	PRODUCTION WORKERS, ALL OTHER	0	0	1	0	1	0	1	3
53-5011.00	ABLE SEAMEN	1	0	0	0	0	0	0	3
90159	MASTER BREWER	0	0	0	0	0	3	0	3
11-9081.00	LODGING MANAGERS	0	0	0	0	0	2	0	2
13-2021.02	APPRAISERS, REAL ESTATE	0	0	0	0	0	0	0	2
15-1131.00	COMPUTER PROGRAMMERS	0	0	0	1	0	0	1	2
17-3012.02	ELECTRICAL DRAFTERS	0	1	0	1	0	0	0	2
31-9097.00	PHLEBOTOMISTS	0	0	0	0	0	1	1	2
47-2022.00	STONEMASONS	0	0	2	0	0	0	0	2
49-2011.00	COMPUTER, AUTOMATED TELLER, AND OFFICE MACHINE REPAIRERS	0	0	0	0	0	2	0	2
49-2094.00	ELECTRICAL AND ELECTRONICS REPAIRERS, COMMERCIAL AND INDUSTRIAL EQUIPMENT	0	1	0	0	0	0	0	2
49-3022.00	AUTOMOTIVE GLASS INSTALLERS AND REPAIRERS	0	0	0	0	0	2	0	2
49-9012.00	METER MECHANICS	0	0	2	0	0	0	0	2
49-9031.00	ELECTRIC HOME APPLIANCE AND POWER TOOL REPAIRERS	0	0	0	0	0	0	0	2
49-9094.00	LOCKSMITHS AND SAFE REPAIRERS	0	0	0	0	0	2	0	2
51-2041.00	STRUCTURAL METAL FABRICATORS AND FITTERS	0	0	0	0	0	0	2	2
51-4121.06	WELDERS AND CUTTERS	0	0	1	0	0	0	1	2
11-3021.00	COMPUTER AND INFORMATION SYSTEMS MANAGERS	0	0	0	0	0	1	0	1
11-9199.02	COMPLIANCE MANAGERS	0	0	0	0	0	0	1	1
13-1151.00	TRAINING AND DEVELOPMENT SPECIALISTS	0	0	0	0	0	0	1	1
15-1142.00	NETWORK AND COMPUTER SYSTEMS ADMINISTRATORS	0	0	0	0	0	1	0	1

ONET	Occupation	2013	2014	2015	2016	2017	2018	2019	Total Trained since 2000
17-3022.00	CIVIL ENGINEERING TECHNICIANS	1	0	0	0	0	0	0	1
17-3023.03	ELECTRICAL ENGINEERING TECHNICIANS	0	0	0	0	1	0	0	1
23-1022.00	ARBITRATORS, MEDIATORS, AND CONCILIATORS	0	0	0	0	0	0	1	1
27-1025.00	INTERIOR DESIGNERS	0	0	0	0	0	1	0	1
27-2042.02	MUSICIANS, INSTRUMENTAL	0	0	0	0	0	0	1	1
29-2034.02	RADIOLOGIC TECHNICIANS	0	0	0	1	0	0	0	1
29-2052.00	PHARMACY TECHNICIANS	0	0	0	0	1	0	0	1
29-2055.00	SURGICAL TECHNOLOGISTS	0	0	0	0	1	0	0	1
35-1011.00	CHEFS AND HEAD COOKS	0	0	0	0	0	0	1	1
41-2022.00	PARTS SALESPERSONS	0	0	0	0	0	0	0	1
49-3042.00	MOBILE HEAVY EQUIPMENT MECHANICS, EXCEPT ENGINES	0	0	0	0	0	0	0	1
49-3053.00	OUTDOOR POWER EQUIPMENT AND OTHER SMALL ENGINE MECHANICS	0	0	0	0	0	0	1	1
51-4011.00	NUMERICAL CONTROL MACHINE TOOL OPERATORS AND TENDERS, METAL AND PLASTIC	0	1	0	0	0	0	0	1
51-9012.00	SEPARATING, FILTERING, CLARIFYING, PRECIPITATING, AND STILL MACHINE SETTERS, OPERATORS, AND TENDERS	0	0	0	0	0	1	0	1
51-9021.00	CRUSHING, GRINDING, AND POLISHING MACHINE SETTERS, OPERATORS, AND TENDERS	0	0	0	0	0	0	0	1
53-3032.00	HEAVY AND TRACTOR-TRAILER TRUCK DRIVERS	0	0	0	0	0	0	1	1
90152	AUTOMOTIVE TECHNICIAN SPECIALIST	0	0	0	0	0	1	0	1

Source: MT DLI Registered Apprentice Program. Data from 2000 to September 30, 2019

[i] All apprenticeship data is from the Montana Department of Labor & Industry's Registered Apprenticeship Program as of October 1, 2019. Apprenticeship wages are calculated from the unemployment insurance wage match.
[ii] Montana University System, Graduation Rates, Available at https://mus.edu/data/dashboards/graduation-rates.asp.
[iii] Bureau of Labor Statistics Employee Tenure data, available at www.bls.gov.
[iv] Occupation counts are based on ONET codes.
[v] 2018 American Community Survey 1-Year Estimates, U.S. Census Bureau
[vi] Ibed.
[vii] Montana's Department of Labor and Industry Occupational Employment Projections. Exits are individuals that leave the workforce (possibly to retire, attend school, or care for family) and transfers are people that leave their current occupation for an occupation in a different field.