

EXPANDING APPRENTICESHIP PATHWAYS

One Tool to Help Meet Wisconsin's Future Workforce Needs

Wisconsin has a record number of registered apprentices but still may have room to increase participation in certain regions and occupations. Northwest and west central Wisconsin have fewer apprentices relative to projected regional job openings. Several in-demand fields such as nursing, teaching, home health care, and early childhood education offer limited apprenticeship options. Additional opportunities may also exist to introduce apprenticeship programs in occupations that lack them in Wisconsin but are already operating in other states.

Our July 2025 report, [Mastering Apprenticeships](#), found that the number of people employed as registered apprentices in Wisconsin reached an all-time high in 2024, but that participation varied considerably by occupation and county. That was welcome news given employers in the state continue to report struggles to find needed workers in many occupations.

In this follow-up, we seek to identify potential opportunities to strengthen Wisconsin's workforce by analyzing registered apprenticeship participation figures alongside job projection and wage data from the state's Department of Workforce Development. This analysis offers insight into the extent to which apprenticeships are helping to meet statewide and regional demand for workers in key occupations with large numbers of expected job openings – and where there may be unmet needs. We supplemented this analysis with stakeholder interviews that provided on-the-ground perspectives from economic and workforce development leaders and labor unions across the state.

Overall, though several construction and manufacturing occupations have relatively high registered apprenticeship participation and wages due to their longstanding ties to the state's apprenticeship system, most other occupations with large numbers of job openings have limited apprenticeship opportunities, lower participation levels, or lower wages. Our analysis also shows that some areas of the state have far stronger apprenticeship numbers than others relative to projected regional job openings across sectors. South central and northeast Wisconsin have the highest ratios of new apprentices to projected job openings among the state's 11 [workforce development areas](#), while

northwest and west central Wisconsin have the lowest ratios.

We also find that apprenticeship pathways do not exist in Wisconsin for several occupations with large numbers of job openings and federally registered apprenticeship programs operating in other states. For several additional occupations, apprenticeship programs in Wisconsin are currently only offered by employers in a limited area or capacity. As we will discuss, not all of these occupations or areas will be suitable for fostering apprenticeships. Still, these findings may indicate opportunities for developing or expanding apprenticeship pathways in some of these occupations.

UNEVEN PARTICIPATION AND PAY

The number of Wisconsinites participating in the state's registered apprenticeship programs differs widely by

WRTP | BIG STEP's Apprenticeship Pathway Initiative

This is the second in a series of reports we will produce in the coming years on apprenticeship pathways in Wisconsin for an initiative led by [WRTP | BIG STEP](#), a Milwaukee-based, nonprofit workforce development organization. That initiative, and our associated research, is supported by a generous grant from the Madison-based [Ascendium Education Group](#).

Upcoming research in this series will include a survey of Wisconsin employers that will gauge their awareness and understanding of apprenticeship programs, barriers to creating or adding apprenticeship positions, and potential opportunities to strengthen apprenticeship readiness and participation in Wisconsin.

occupation and region – as do wages for those occupations. Our analysis begins with a look at 22 top occupations with registered apprenticeship pathways in Wisconsin that are [projected](#) by the state Department of Workforce Development to have at least 1,000 annual job openings statewide through 2032.

Relatively strong participation and pay in several construction and production occupations

The three occupations with the highest apprenticeship participation totals in Wisconsin in 2024 – electricians, carpenters, and construction laborers – are all in construction, as shown in Figure 1. Some production (manufacturing) occupations such as welders also had relatively strong participation. Six of the 22 selected occupations included in Figure 1 are in one of those two categories, accounting for an estimated 1,618 new apprentices in Wisconsin in 2024 – nearly three-

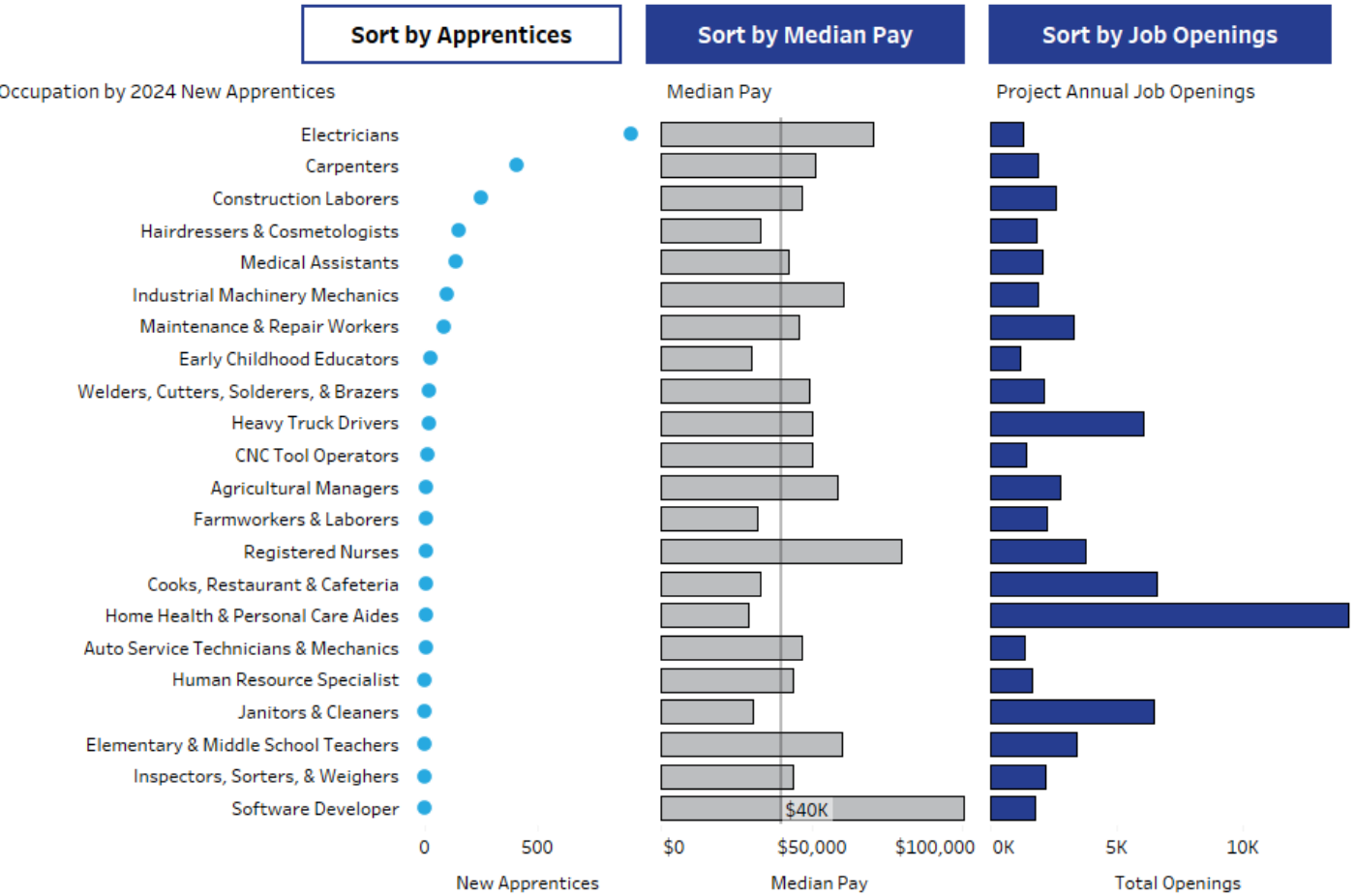
quarters of the combined total across the selected occupations (see sidebar for how we estimated the numbers of new apprentices in 2024 in this report). All six of those occupations had median annual wages above \$40,000 as of 2022.

In construction, electricians had both the highest participation and pay, with an estimated 921 new apprentices in 2024 and annual median wages of \$70,350. Carpenters and construction laborers also had strong participation and median annual wages above \$40,000.

The production occupation with the highest participation was welding, with an estimated 23 new registered apprentices in 2024. Other production occupations have smaller apprenticeship programs, including “inspectors, testers, sorters, samplers, and weighers,” which had only one participant.

Figure 1: Participation and Pay Vary Greatly for Top Occupations with Apprenticeship Pathways

Projected annual job openings, estimated new apprentices, and median annual wages for top occupations in Wisconsin with apprenticeship pathways



Source: WPF analysis of data from the Wisconsin Department of Workforce Development



State job projections show an annual total of 11,393 job openings in Wisconsin from 2022 to 2032 across these six selected construction and production occupations. Demand is especially strong for construction laborers (2,547), inspectors (2,151), and welders (2,088).

Varied participation and wages in other occupations

By contrast, apprenticeship participation and pay in other occupations are far more uneven. We estimate that for nine of the 16 selected occupations in Figure 1 that are not in construction or production, fewer than 10 new apprentices were added statewide in 2024. This includes several occupations with large numbers of job openings such as home health and personal care aides, cooks, janitors, and registered nurses.

Multiple factors may contribute to low apprenticeship participation rates for these occupations, including low pay in some cases. Six of these 16 occupations have median annual wages below \$40,000. For example, with more than 14,000 annual projected job openings statewide, there is greater demand for home health and personal care aides than any other occupation with an apprenticeship pathway in Wisconsin, but we estimate that in 2024, only six new apprentices were added statewide. The median annual wages for home health and personal care aides are roughly \$29,000.

Beyond wages, state law, a lack of employer interest, and training and licensing requirements can also limit apprenticeship participation in some occupations. In home health care, for instance, only more advanced roles require enough training to meet the one-year training minimum for registered apprenticeships.

A few occupations with lower wages still manage to attract relatively strong apprenticeship participation, due in part to regulatory requirements and additional grant assistance. Those include cosmetologists and early childhood educators, which had 151 and 26 estimated new apprentices in 2024, respectively, despite median annual wages below \$33,000. Notably, cosmetology is a licensed occupation that requires apprenticeship training by law. Additionally, the early childhood apprenticeship program received federal grant funding through the Department of Workforce Development.

Apprenticeship programs for several other occupations are only offered in a limited capacity, such as

How Our Analysis Was Done

Our analysis compares registered apprenticeship participation figures provided to us by the Wisconsin Department of Workforce Development with the same department's 2022-2032 employment [projections](#) by occupation and geography. For each occupation, the employment projections estimate the annual number of job openings expected statewide and by workforce development region.

To do this analysis, we matched each apprenticeship program with its corresponding federal Standard Occupational Classification (SOC) code. That federal system of classifying workers into categories is used by the Department of Workforce Development for its employment projections. In several cases, we combined participation numbers from multiple apprenticeship programs to align with one corresponding occupational category in the SOC system. We then merged the apprenticeship data with the occupational employment projections and associated wage data.

To provide rough estimates of the number of *new* apprentices by occupation and region in 2024, we divided the total number of active apprentices that year with the number of years it takes to complete each program.

elementary and middle school teachers (currently only available as a [pilot](#) program), or only through employment opportunities with the Wisconsin Department of Corrections (janitors and horticulturalists, the latter of which is associated with farmworkers and laborers).

PARTICIPATION WEAKER IN SOME REGIONS, OCCUPATIONS

To zero in on how well apprenticeship participation is keeping pace with employer demand, we compared estimated numbers of new apprentices in 2024 with projected annual job openings across Wisconsin's 11 workforce development regions in 10 key occupations.

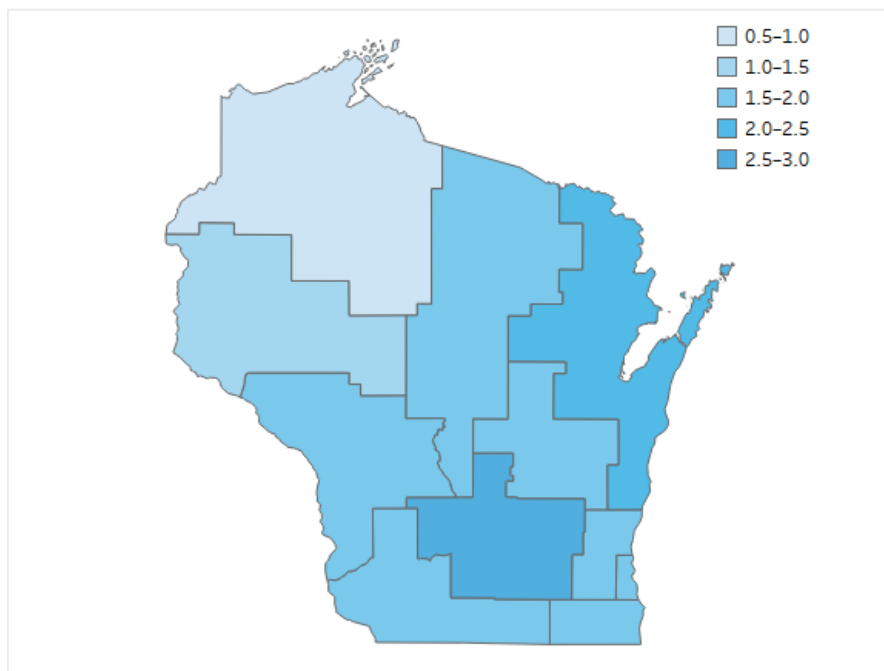
As Figure 2 on the next page shows, these apprentice-to-job opening ratios vary greatly by area, revealing potential opportunities to strengthen participation in regions with weaker ratios in some or all of these occupations. The selected occupations in Figure 2 each had at least 100 active apprentices in Wisconsin in 2024 and are projected to have at least 500 annual job openings statewide. They include electricians;



Figure 2: Fewer Apprentices in Some Regions and Occupations

Estimated new apprentices in 2024 per 10 projected annual job openings in selected occupations, by Workforce Development Area

Total (Top 10 Occupations)



Source: WPF analysis of Wisconsin Department of Workforce Development data

plumbers, pipefitters, and steamfitters; carpenters; operating engineers and equipment operators; construction laborers; industrial machinery mechanics; HVAC mechanics and installers; cosmetologists; machinists; and medical assistants. The “Total (Top 10 Occupations)” layer combines all 10 of those occupations into one broad measure.

Northwest and west central Wisconsin have lowest apprentice-to-job ratios

In 2024, northwest Wisconsin had just 0.8 estimated new apprentices for every 10 projected annual job openings across these 10 selected occupations. That was less than half the statewide ratio of 2.1 and lower than every other workforce development area in the state. The northwest region also had the lowest total participation by far among Wisconsin’s 11 workforce development areas, with only 32 estimated new apprentices in the selected occupations. All other regions had at least 100 estimated new apprentices in these occupations that year.

Participation lagged in the northwest region even in construction occupations that have strong apprentice-to-job opening ratios statewide. For example,

electricians had 7.1 estimated new apprentices for every 10 annual projected job openings in 2024, but that ratio was only 1.8 in northwest Wisconsin. That program had the most estimated new apprentices statewide among the selected occupations that year, at 921, but only five of those were in the northwest region. The trends were similar for carpenters.

While west central Wisconsin had the second-lowest ratio (1.5) among the state’s workforce development areas in 2024, it had far more (over 160) estimated new apprentices than northwest Wisconsin in the selected occupations that year. It is also notable that Northwoods Technical College in west central Wisconsin is providing the related training for the first [surgical technology](#) apprenticeship program in the state. While individual colleges within the Wisconsin Technical College System often provide related instruction, new apprenticeship programs are

established based on the needs and preferences of local employers, who often play a role by providing access to facilities, lab space, or specialized equipment. Northwoods Technical College offers an associate degree program in surgical technology as well, which can be advantageous as classes serve both apprentices and degree-seeking students.

Occupations with low apprentice-to-job ratios statewide

Certain occupations also stand out as having low numbers of apprentices relative to job demand in Wisconsin. Construction laborers, cosmetologists, machinists, HVAC mechanics and installers, and industrial machine mechanics each had 1.0 estimated new apprentices or fewer in 2024 for every 10 annual projected job openings. While these occupations do draw apprentices, they account for small percentages of projected job demand. For example, machinists only had a statewide ratio of 0.7, though certain regions such as the Fox Valley (2.7) and north central Wisconsin (2.0) had higher ratios.



MORE SUCCESSFUL REGIONS, NEWER PROGRAMS MAY OFFER MODELS

South central and northeast Wisconsin have strongest apprentice-to-job ratios

South central and northeast Wisconsin had the strongest ratios in the state for the 10 selected occupations combined in 2024, at 2.6 and 2.5 estimated new apprentices for every 10 projected annual job openings, respectively. Northeast Wisconsin also had the highest overall demand for workers in these roles, with 2,478 annual estimated job openings, and the strongest apprenticeship participation in 2024, with an estimated 618 new apprentices. The pipe trades (9.4), electricians (8.9), operating engineers (3.7), and carpenters (3.3) had particularly strong apprenticeship ratios in that region.

A northeast Wisconsin workforce development leader we interviewed pointed to strong employer demand, effective long-term collaboration among regional stakeholders, and robust local [Youth Apprenticeship](#) programming as some of the factors contributing to the region's high registered apprenticeship numbers. Area leaders have made a particular effort to help connect high school students in youth apprenticeships with registered apprenticeship opportunities.

South central Wisconsin had the highest ratios in the state for plumbers (10.1), HVAC mechanics and installers (1.9), and cosmetologists (1.7). Another thing that stands out in south central Wisconsin is its strong ratio for medical assistants (4.3), which is an occupation with very high employer demand statewide. Nearly all of the medical assistant apprentices in Wisconsin (132 of 136) in 2024 were in south central Wisconsin, with the remaining four in the west central region. We discuss this further below.

Pipe trade apprenticeship program keeping up with statewide and regional demand

Among the 10 occupations included in this analysis, the pipe trades (plumbers, pipefitters, and steamfitters) had the strongest ratio of 9.1 estimated new apprentices in 2024 per 10 annual projected job openings statewide. Those occupations also had strong ratios in all regions of the state, ranging from 5.8 in southwest Wisconsin to 10.1 in the south central region. Even northwest Wisconsin, which lags other areas of the state in most other occupations, had a strong ratio (7.6). The pipe

trades had the second-highest apprenticeship participation statewide in 2024, with an estimated 686 new apprentices, and fewer projected annual job openings than electricians (which ranked first), contributing to its consistently high ratios.

A union leader we interviewed pointed to a number of factors behind these high ratios, including a well-established apprenticeship program rooted in strong relationships in every region of the state between unions, employers, and educational partners. Extensive and ongoing recruitment efforts across the state help to produce a strong pool of qualified candidates and extensive waitlists, which contributes to high completion rates. Training is tailored to the needs of area employers. Competitive wage and benefit packages for workers in the pipe trades are another contributing factor.

LIMITED OR NO APPRENTICESHIPS AVAILABLE IN SOME KEY OCCUPATIONS

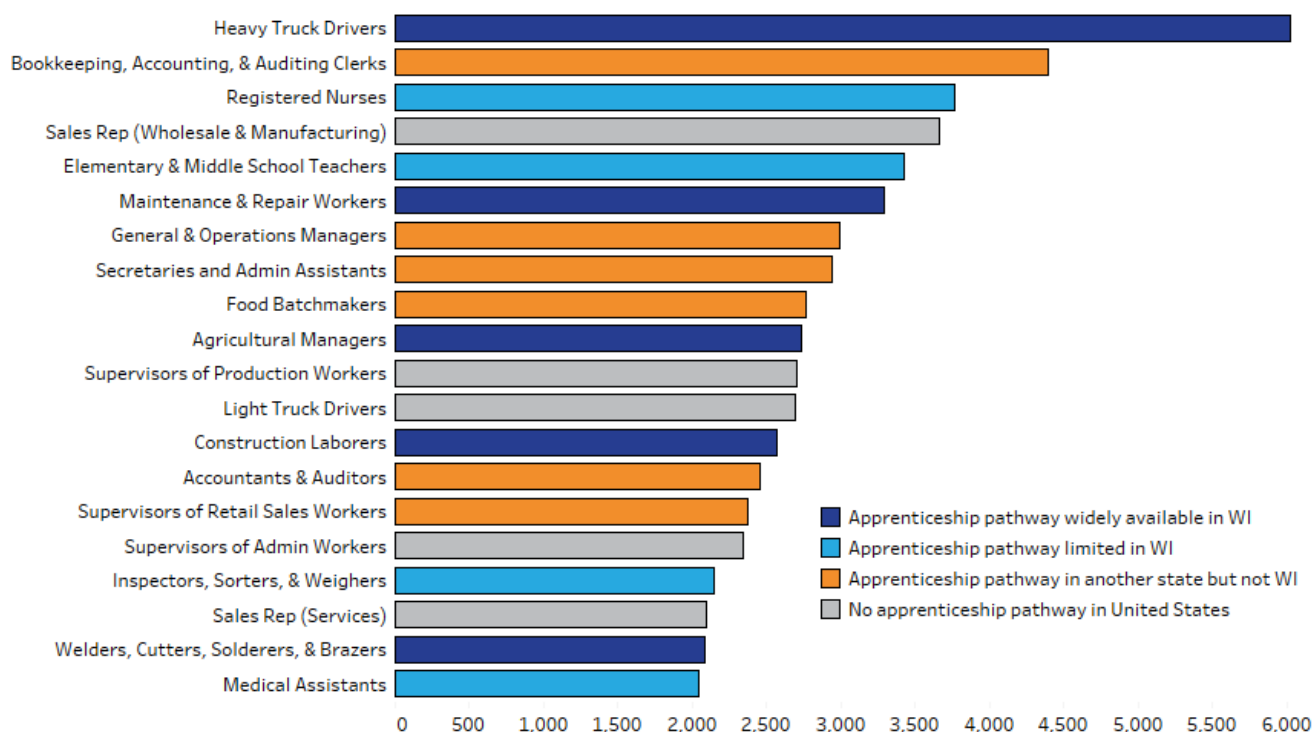
Other potential opportunities to strengthen Wisconsin's apprenticeship system are to expand existing programs that are currently limited in scale, or to establish programs in occupations that currently lack them. Decisions to develop an apprenticeship program in a given occupation are primarily guided by whether employers are willing to take on an apprenticeship program and whether an occupation is "apprenticeable," meaning the model of paid on-the-job work coupled with classroom instruction is deemed an effective means of training new workers in a given role. Programs must meet state apprenticeship standards, which require at least one year of training, a 1:1 mentor-to-apprentice ratio, 144 hours of paid classroom instruction, and a progressive wage scale.

For many occupations with very high employer demand for workers in Wisconsin and relatively strong wages, limited or no apprenticeship opportunities exist, as shown in Figure 3 on the next page. The 26 occupations included in this analysis are projected to have at least 2,000 annual job openings statewide and offer median annual wages of at least \$40,000. We determined whether each occupation has an apprenticeship pathway in Wisconsin based on data provided by the state Department of Workforce Development. Figure 3 also identifies occupations with limited apprenticeship pathways, which include programs that are only offered in specific regions of the state or as pilot programs with



Figure 3: Apprenticeship Pathways Limited or Not Available For Many In-Demand Occupations

Availability of apprenticeship pathways in WI for occupations with 2,000+ projected annual job openings and median wages above \$40,000



Source: WPF analysis of Wisconsin Department of Workforce Development data

selected employers – or that have very low participation statewide. While some of these occupations may be well suited to support new or expanded apprenticeship opportunities, we note that strong employer demand for workers does not necessarily indicate employer interest or ability to take on apprentices.

For additional context, we also identified occupations with no apprenticeship program in Wisconsin that have a nationally registered apprenticeship program through the U.S. Department of Labor. Given their strong job demand and wages in the state, these occupations may be worthy of consideration for new apprenticeship pathways.

Apprenticeship pathways in some critical occupations are limited in scale

Many in-demand occupations in Wisconsin have apprenticeship pathways with participation that is limited geographically or to select employers. While the Department of Workforce Development does not restrict apprenticeship programs to specific regions or employers, expanding these pathways would require sufficient employer interest and capacity.

For example, apprenticeship programs for health care occupations remain limited in Wisconsin. As we highlighted in our [previous report](#), newer pathways for medical assistants, registered nurses, and several other occupations are primarily or exclusively offered in Dane County. Those include programs for pharmacy technicians (also available in Milwaukee County), respiratory therapists, and ophthalmology assistants. Employer demand is high for all of these occupations, and for many of them, wages are relatively strong. These programs were developed by UW Health in partnership with Madison College and the Workforce Development Board of South Central Wisconsin, and with support from government and philanthropic grants. Expanding them to other parts of the state could help to meet employer demand for workers, but would require similar partnerships, resources, and employer willingness to take on the apprenticeship training model, which has not traditionally been used in health care.

Several other programs only offer apprenticeships with one employer, including those for manufacturing quality assurance inspectors. A few other programs that appear to be widely available in Wisconsin had fewer than 20 estimated new apprentices statewide in 2024, including



those for heavy truck drivers and agricultural managers. Low participation reflects limited employer use of the apprenticeship training model in these occupations.

Some occupations have nationally registered apprenticeship pathways but no program in Wisconsin

Several production, finance, and service occupations included in Figure 3 have a nationally registered apprenticeship pathway that does not currently exist in Wisconsin. One example is bookkeeping, accounting, and auditing; many job opportunities exist in this occupation in Wisconsin, but no apprenticeship opportunities are available. The existence of federal standards may reduce barriers to establishing programs in this or other occupations in Wisconsin, provided there are employers interested in taking on apprentices.

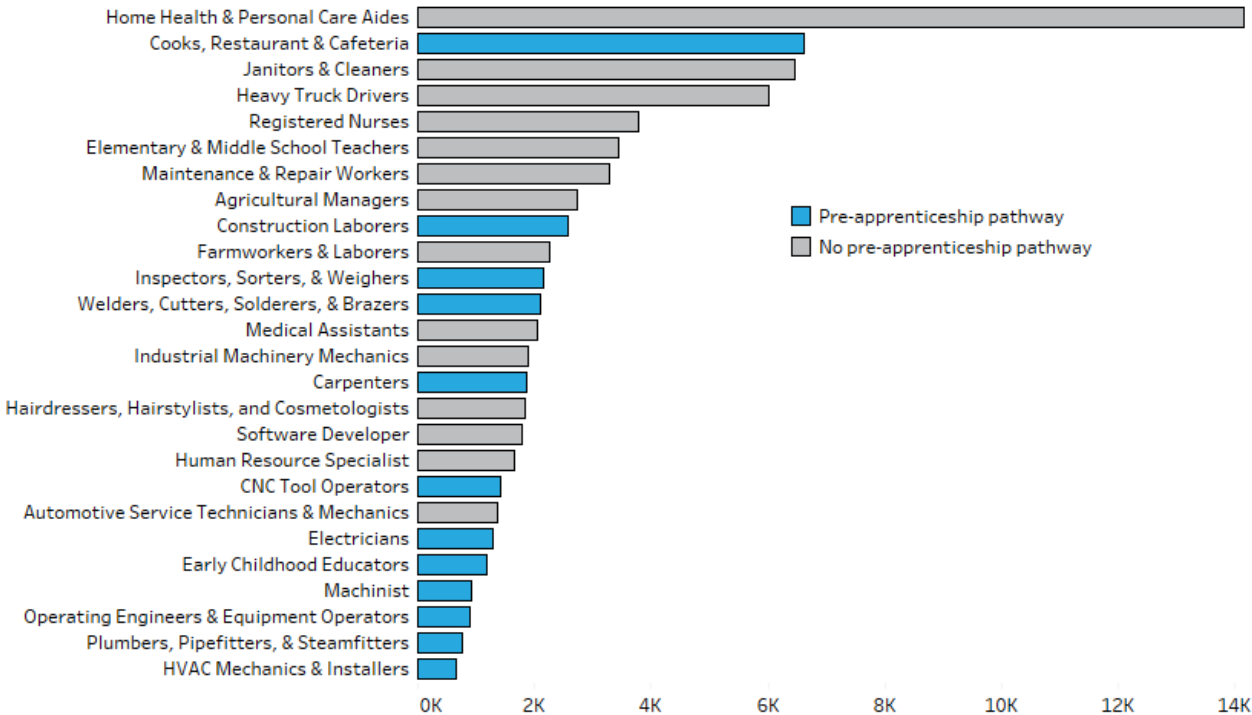
Other occupations with strong employer demand and median wages over \$40,000 do not have registered apprenticeship pathways at either the state or national level. These include light truck drivers, sales representative roles, and supervisor roles in administration and production settings.

LIMITED AVAILABILITY OF PRE-APPRENTICESHIP TRAINING PROGRAMS

Our Mastering Apprenticeships report found that state-certified [pre-apprenticeship](#) programs, which provide foundational training to prepare individuals for registered apprenticeships and connect them to employers, are only available in select occupations in Wisconsin and only in Milwaukee, Dane, and a few other counties. In Figure 4, we examine the availability of these programs in Wisconsin for occupations with registered apprenticeship programs and at least 500 annual projected job openings statewide. In contrast to registered apprenticeship programs, which are focused on a single occupation, pre-apprenticeship training programs often introduce participants to multiple occupations within the same industry.

A pre-apprenticeship training program exists somewhere in Wisconsin for nearly half of the 26 occupations included in Figure 4. Consistent with our previous findings, most occupations with available pre-apprenticeship programs are in construction or production. There is also a program for early childhood educators in Dane County and one for cooks in

Figure 4: Pre-Apprenticeship Programs Exist for Nearly Half of WI's Most In-Demand Occupations
Annual projected job openings and availability of pre-apprenticeship program in WI



Source: WPF analysis of Wisconsin Department of Workforce Development data



Milwaukee County, though the latter was offered by the Social Development Commission as of 2024 and does not appear to be operating currently.

Overall, this analysis shows that pre-apprenticeship training programs already exist in limited areas of Wisconsin for many in-demand occupations with registered apprenticeship pathways. For many other occupations on this list, a pre-apprenticeship program currently does not exist anywhere in the state.

In collaboration with state workforce development leaders, employers could consider expanding some of these pre-apprenticeship programs geographically or creating programs to help strengthen the pipeline of individuals entering these occupations. As registered apprenticeship opportunities expand outside of the traditional construction trades, pre-apprenticeship training programs may help orient prospective apprentices to programs that best match their career interests and skills. These programs may also help to increase the number of apprentices in regions with lower participation.

CONCLUSION

Our analysis of state registered apprenticeship data and job projections reveal several potential opportunities to further increase apprenticeship participation in Wisconsin in cases where there is employer willingness to adopt this training model. There may be opportunities to create or expand apprenticeship programs in specific areas of the state, or in occupations that have weaker apprentice-to-job ratios or that currently have limited or no apprenticeship pathways.

For example, northwest and west central Wisconsin lag behind other areas of the state with the lowest ratios of apprentices-to-jobs across 10 occupations that pay relatively strong wages. Other areas of the state with stronger apprentice-to-job ratios – including south central and northeast Wisconsin – may offer lessons for how to strengthen partnerships among regional stakeholders and recruit workers that could help to increase participation in these other regions. As we have noted, these expansion opportunities and occupations will need to be a good fit with the apprenticeship model and be met with adequate employer demand.

We also find that while several longstanding apprenticeship programs in construction and production

occupations have robust participation and relatively high wages, many occupations in other categories have low apprenticeship participation rates, offer lower wages, or both. For some occupations with strong employer demand for workers and wages but low apprenticeship participation, such as registered nurses and teachers, existing programs are currently limited to small numbers of select employers. These occupations could be considered for expansion in cases where there is strong commitment to doing so, but challenges such as licensing requirements may require more resources to overcome. In other occupations where employer demand is high but participation and wages are relatively low, such as early childhood educators, increasing participation may require raising wages or providing other incentives.

Additional opportunities may exist to help strengthen Wisconsin's workforce by creating apprenticeship pathways for occupations that have federally registered programs operating in other states. Expanding or establishing new certified pre-apprenticeship programs, which can serve as an on-ramp into registered apprenticeships, also could help support workforce pipelines in Wisconsin – particularly in regions and occupations with low participation currently.

Though not the only pathway into many in-demand, good-paying careers, apprenticeships are a critical tool for addressing Wisconsin's workforce demand in many industries and could be further expanded. We hope that determining where gaps exist between projected job demand and apprenticeship participation – at both the occupational and regional levels – will provide both state and private-sector leaders with a valuable tool for identifying expansion opportunities and strengthening the state's workforce.

