

2022 Needs Assessment for Oregon's Highway Trades Apprenticeship

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November 2022



Portland State UNIVERSITY

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The authors offer thanks to the research assistants who aided with the data collection and analysis for this project: Ned Tilbrook, Anne Johnson, and Cameron Arnold.

PROJECT FUNDERS

This project was funded through the Highway Construction Workforce Development Program by the Oregon Bureau of Labor and Industries and the Oregon Department of Transportation.



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Executive summary

This research was conducted for The Oregon Department of Transportation (ODOT) and Oregon Bureau of Labor and Industries (BOLI) to assess the current needs of the construction industry in order to support ongoing work to increase the recruitment and retention of a diverse highway construction workforce.

Overview of findings from administrative data

BOLI's administrative data from the Oregon Apprenticeship System (OAS) was analyzed to examine the trends in recruitment and retention for highway construction trades and all construction trades.

- **Recruitment:** The Oregon highway trades workforce continues to significantly overrepresent white men, relative to the population of Oregon. In 2020-2021, there was a *decrease* in the percent of new apprentices who are women and people of color (38%), compared to 2018-2019 (48%).
- **Retention:** The overall completion rates for apprentices who started a highway trades apprenticeship in 2014-2015 was 49%. Asian and white men in the 2014-2015 cohort were more likely to complete their apprenticeships compared to most other race/gender groups.
- It is critical to note that this time period included the beginning of the Covid-19 pandemic, which impacted recruitment and retention in both known and unknown ways. For example, recruitment was impacted by reduced pre-apprenticeship opportunities and retention was impacted by issues of unemployment, lack of childcare, and remote learning in K-12 schools. These issues disproportionately impacted women and people of color.

Overview of findings from the survey of apprentices

The research team conducted a text and telephone survey of Oregon apprentices who had completed and terminated in 2020 and 2021. A total of 231 former apprentices completed the survey.

- **Reasons for leaving:** The survey of apprentices found that most common reasons why apprentices did not complete were: leaving for another opportunity; financial challenges of accessing OJT hours or receiving low pay; problematic jobsite culture; illness, injury, or concerns about safety (not explicitly related to Covid-19); and poor-quality training.
- **Financial challenges:** Apprentices reported a variety of financial challenges, including issues related to access to OJT hours, pay rates, and housing. Apprentices also reported challenges with costs associated with work, such as childcare; buying tools, clothing, and PPE; paying for gas; and paying for travel for out-of-town work.
- **Jobsite issues:** The most common jobsite issues were: Being treated disrespectfully on the jobsite; lack of mentorship and learning on the job; being yelled at; being unfairly assigned tasks not related to the skills of the trade; and hearing offensive jokes or comments. While jobsite challenges impacted apprentices across all race and gender groups, women and people of color disproportionately reported these issues.

Overview of findings from the survey of apprentices (continued)

- **Covid-19:** We found that 52% of survey participants reported that Covid-19 was a major or minor problem during their apprenticeship. A small number of apprentices reported leaving their apprenticeship mainly because of Covid-19.
- **Parenting:** Both finding consistent childcare and paying for the cost of childcare were a problem for many apprentices. Fathers had a higher completion rate than men who are not fathers while mothers had a lower completion rate than women who are not mothers. Those who completed an apprenticeship were more likely to use unpaid childcare, relying on either a partner, children's other parent, family, or friends.

Overview of findings from contractor and labor partner interviews

In total, thirteen individuals were interviewed for this report: Six contractors, two general contractors, one representative from a minority association, one union representative, and two representatives from pre-apprenticeship programs. Several contractors and labor partners expressed their excitement in being asked their thoughts and ideas, and many offered to be available for further conversations if the report were to lead to more. Two major points that emerged were the need to be forward thinking and to work collectively. Several contractors and labor partners largely agreed that issues of retention and recruitment have been attacked individually as opposed to collectively. As one labor partner shared, *"It takes all of us. I think there's not going to be one group that's going to be able to solve the issue. It takes all of us hitting it hard. All of us partnered together."*

- **Anticipated workforce needs:** Contractors and labor partners anticipate workforce needs upwards of 50% increase over the next 5-years, particularly with women workers and workers of color.
- **Perceptions of apprentices' reasons for leaving:** Perceptions on why apprentices are not retained were largely attributed to issues of travel and transportation, jobsite safety and culture, Covid-19, lack of work ethic, and societal changes in perceptions of work. These same themes were echoed in contractors and labor partners' biggest concerns and challenges about apprenticeship.
- **Current retention efforts:** Contractors and labor partners are making several efforts to retain workers on several fronts. The top responses related to creating more trainings, offering more financial support, partnering with outside groups, improving jobsite culture, creating more flexible workplaces, and building relationships with workers, labor partners, and stakeholders.
- **Recommendations for recruitment:** Recommendations for recruitment involved early recruitment and changing the image of the trades.
- **Recommendations for retention:** Contractor and labor partners' recommendations for retention revolved almost completely around shifting jobsite culture
- **Recommendations for support needed from the industry:** Participants reported that in order to take the lead in retention and recruitment, they would need the industry to: address shifting or changing mandates, offer incentives, provide readily available resources, listen to contractors and labor partners, and work collectively.

Full report available at www.maura-kelly.com

Anticipated workforce needs

Across the board, all contractor and labor partner interviewees agreed that within the short term (next five years) many more workers would be needed. Estimates for the additional workers needed range from 5%-10%, 25%-30%, and as high as 50%. Interviewees ascribed the current labor shortage to retirement, Covid-19, and retention and recruitment issues. These are discussed in detail in this report.

When asked what type of workforce would be needed, top responses were women, workers of color, journey workers, and workers willing to travel. Other workforce needs included project engineers, project managers, and superintendents.

Recruitment into apprenticeship

Trends in recruitment

In this section, we review trends in recruitment into apprenticeship over the last ten years, with a focus on 2020-2021, our current study period.

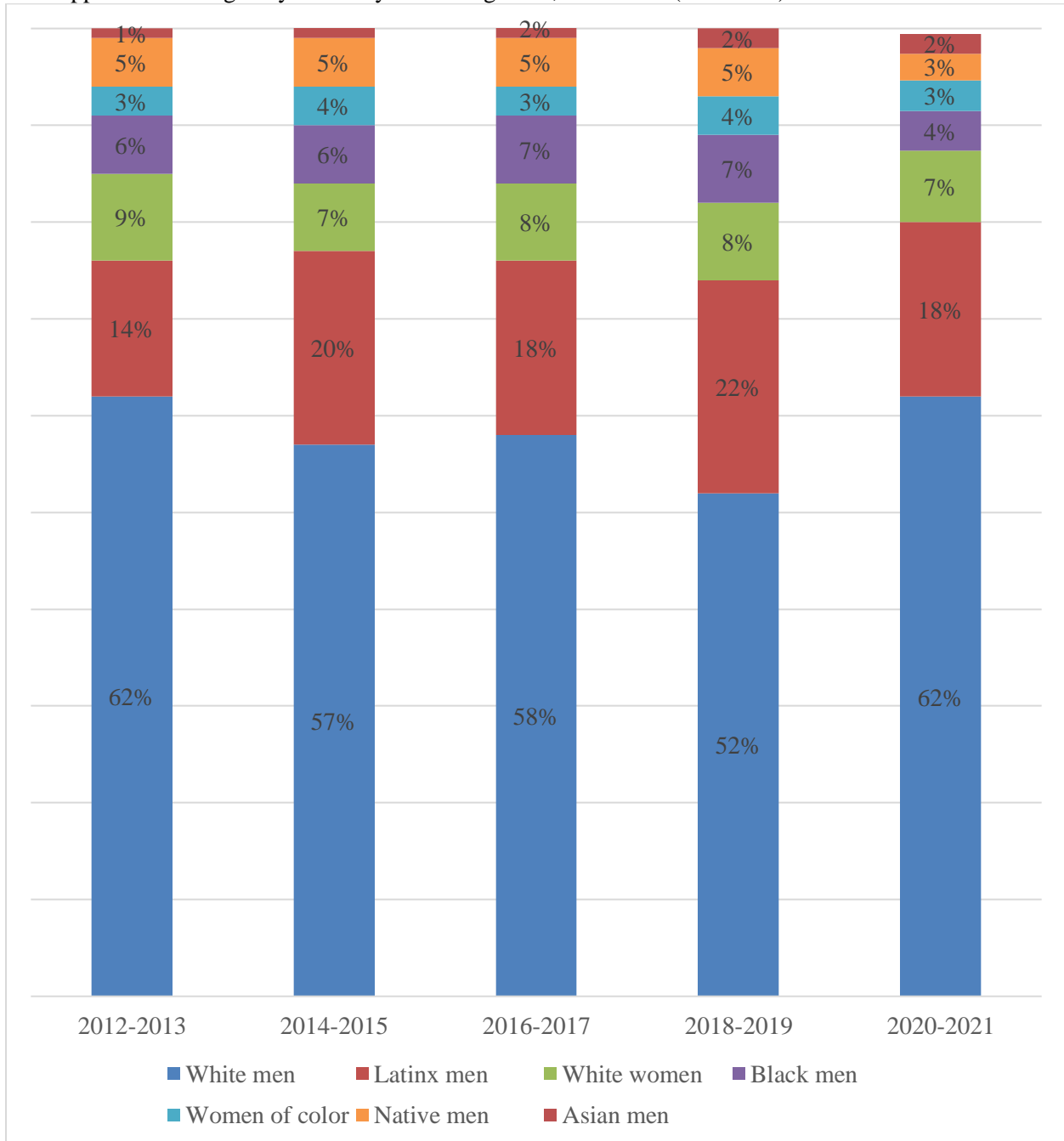
The Oregon highway trades workforce continues to be significantly overrepresented by white men, relative to the population of Oregon.¹ In the 2020-2021 cohort of apprentices in the highway trades, 62% were white men and 38% were women and people of color. Given the small number of Latinx, Black, Native, Asian, and Hawaiian or Pacific Islander² women (less than 1% of all new apprentices for each group in 2020-2021), women of color are presented in aggregate. Hawaiian or Pacific islander men also represented a small fraction of new apprentices (17 men or 0.6% of all new apprentices in the highway trades in 2020-2021) and are not included in the figure below.

¹ White men make up about 43% of the population of Oregon, see <https://www.census.gov/quickfacts/OR>.

² The option to select Hawaiian or Pacific Islander was added to the registration form in 2021.

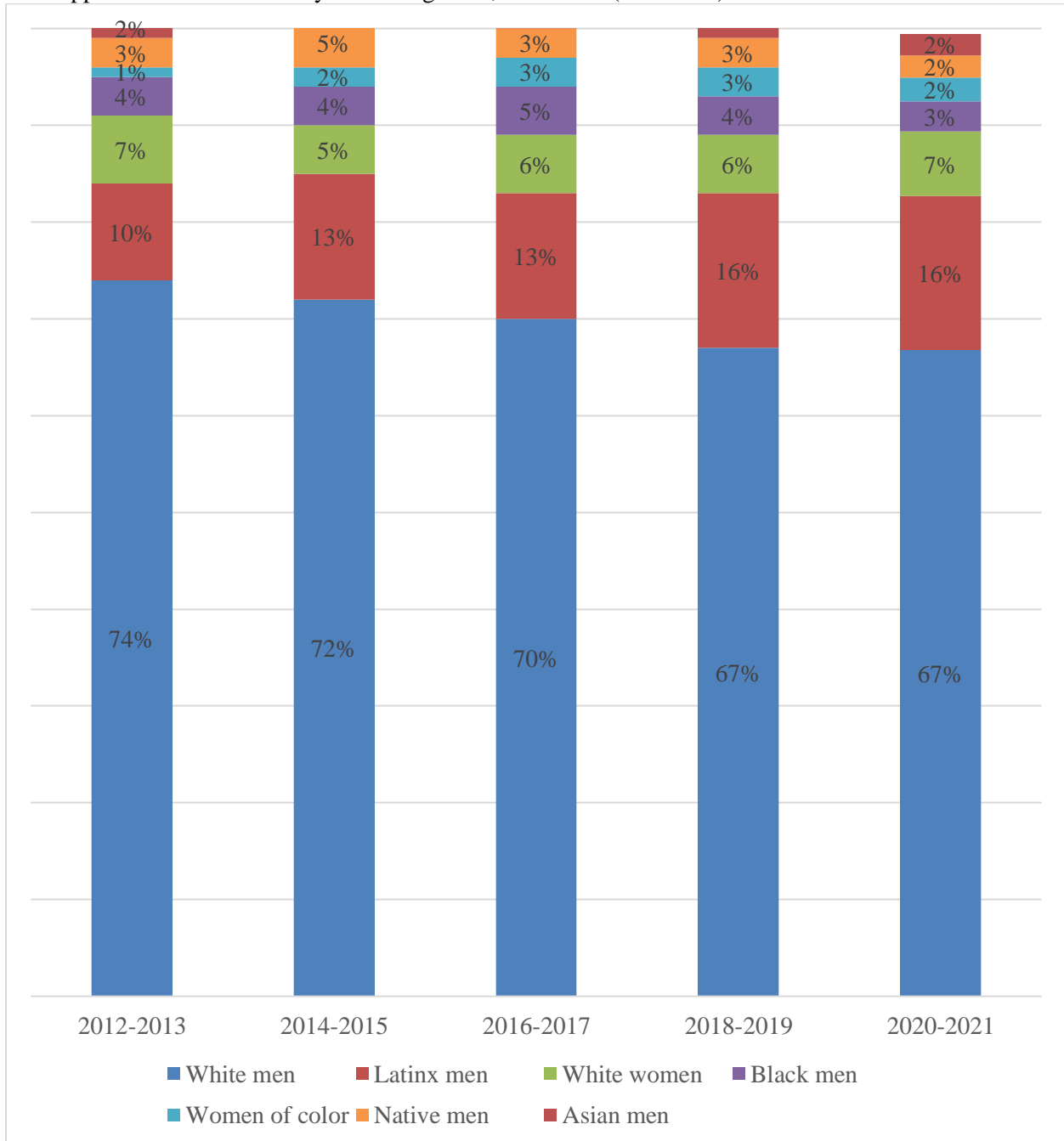
In 2020-2021, there was a decrease in the percent of new apprentices who are women and people of color (38%), compared to 2018-2019 (48%). From 2018-2019 to 2020-2021, there were fewer Latinx men and Black men entering the trades (with smaller decreases for white women, women of color, and Native men). During the Covid-19 pandemic, recruitment was impacted by reduced pre-apprenticeship opportunities, which disproportionately impacted women and people of color.

New apprentices in highway trades by race and gender, 2012-2021(OAS data)



When looking at all trades, 67% of new apprentices were white men 33% were women and/or people of color, which represents no change from 2018-2019. Given the small number of Latinx, Black, Native, Asian, and Hawaiian or Pacific Islander women (less than 1% of all new apprentices for each group in 2020-2021), women of color are presented in aggregate. Hawaiian or Pacific islander men also represented a small fraction of new apprentices (34 men or 0.6% of all new apprentices in all trades in 2020-2021) and are not included in the figure below.

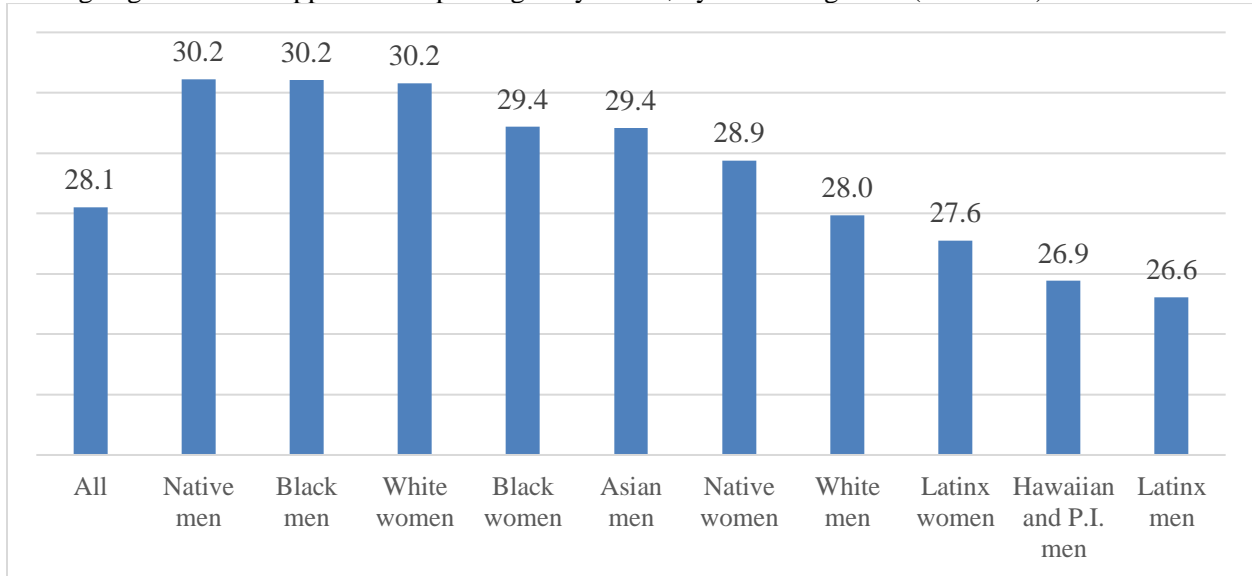
New apprentices in all trades by race and gender, 2018-2021(OAS data)



Recruitment by age

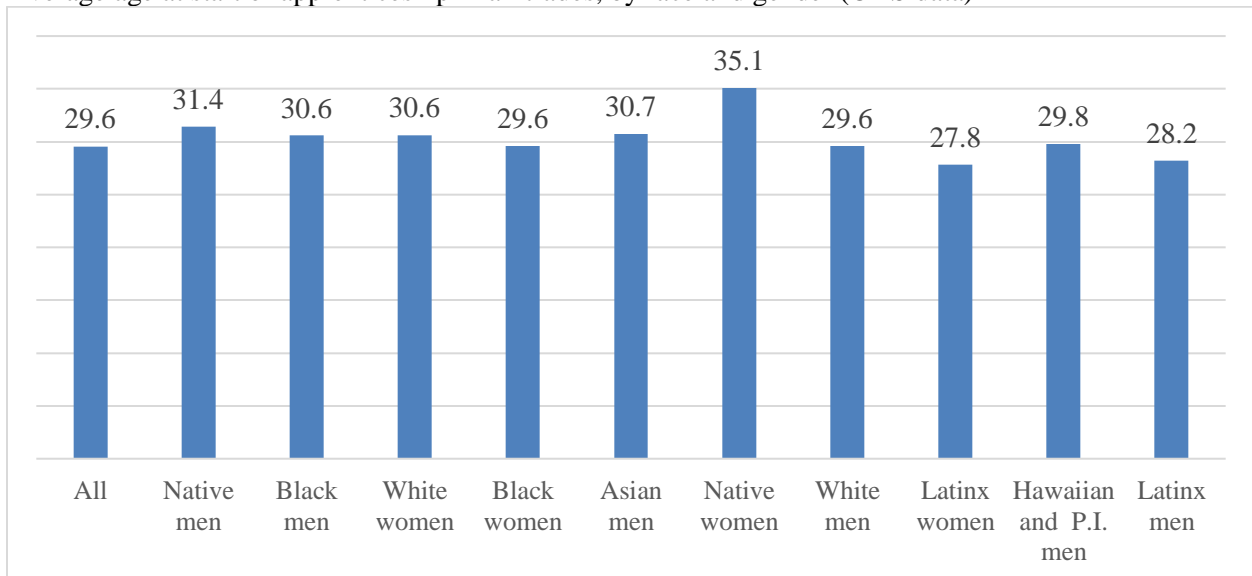
In highway trades, the average age for all apprentices starting an apprenticeship in 2020-2021 was about 28 years old. This is largely driven by the fact that white and Latinx men enter the trades earlier (and in larger numbers) compared to other race/gender groups. For highway trades, there were too few Asian women and Hawaiian or Pacific Islander women to calculate average ages for these race/gender groups.

Average age at start of apprenticeship in highway trades, by race and gender (OAS data)



In all trades, the average age for all apprentices starting an apprenticeship in 2020-2021 was about 30 years old, slightly older than the average age for highway trades. For all trades, there were too few Hawaiian or Pacific Islander women to calculate an average age.

Average age at start of apprenticeship in all trades, by race and gender (OAS data)



Apprenticeship completion

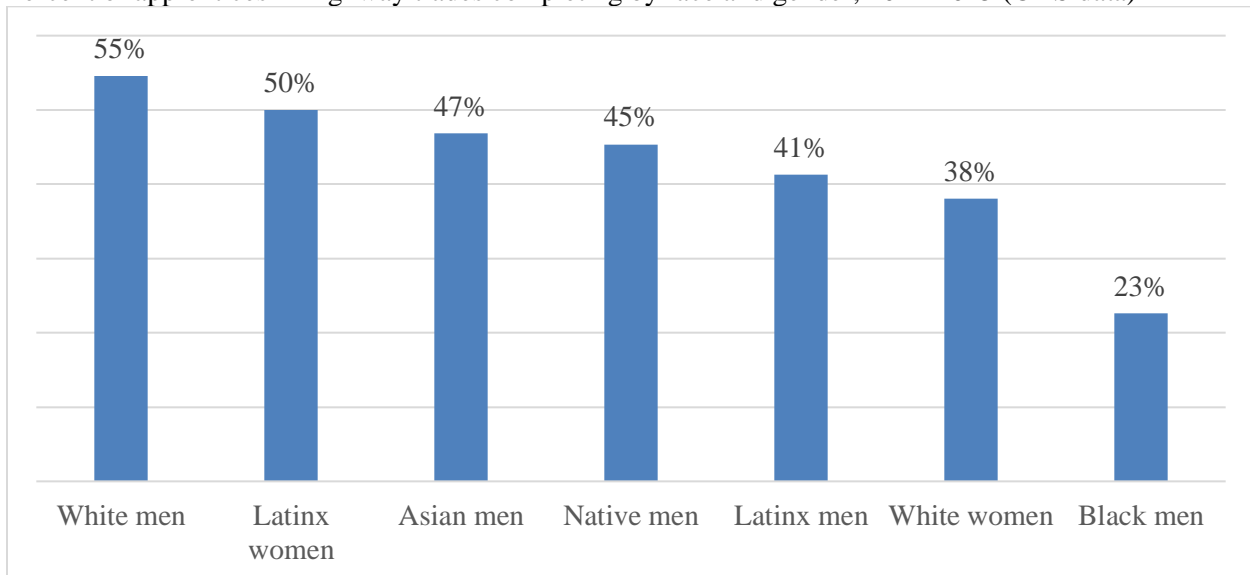
Completion rates

In this section, we examine completion rates for the 2014-2015 cohort of Oregon apprentices. Analyses are presented for highway trades (carpenter, cement mason, ironworker, laborer, operating engineer, and painter) as well as all trades. We examine apprentices who started in 2014-2015 to ensure a majority of apprentices have either completed or terminated by the end of 2021, which is the end of our current study period. By the end of 2021, only 13 apprentices in highway trades and 36 of apprentices in all trades from the 2014-2015 cohort were still active (these apprentices are excluded from completion rate analyses).

The overall completion rates for apprentices who started a highway trades apprenticeship in 2014-2015 was 49%. Asian and white men in the 2014-2015 cohort were more likely to complete their apprenticeships compared to most other race/gender groups. During the Covid-19 pandemic, retention was impacted by issues of unemployment, lack of childcare, and remote learning in K-12 schools. These issues disproportionately impacted women and people of color.

Completion rates are presented for Latinx women but this represents only thirteen individuals who completed; there were too few Black, Asian, and Native women as well as too few Hawaiian and Pacific Islander women and men in highway trades to calculate completion rates for these groups. In highway trades apprenticeships, 55% of terminations were in the first period and 83% of terminations occurred in the first three periods of apprenticeship (analysis not shown).

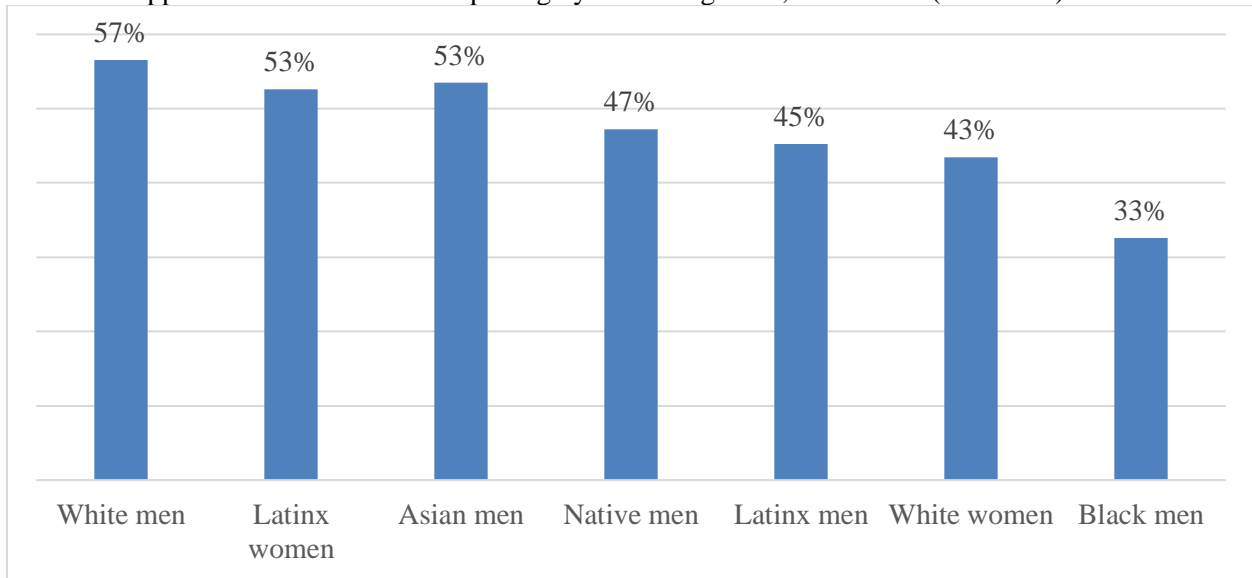
Percent of apprentices in highway trades completing by race and gender, 2014-2015 (OAS data)



Overall, **the completion rate for apprentices in all trades who started in 2014-2015 was 53%.** In assessing completion rates by race/gender for all trades, white and Asian men were more likely to complete than most other race/gender groups. Completion rates are presented for Latinx women but this represents only 20 individuals; there were too few Black, Asian, and Native women as

well as too few Hawaiian and Pacific Islander women and men in all trades to calculate completion rates for these groups.

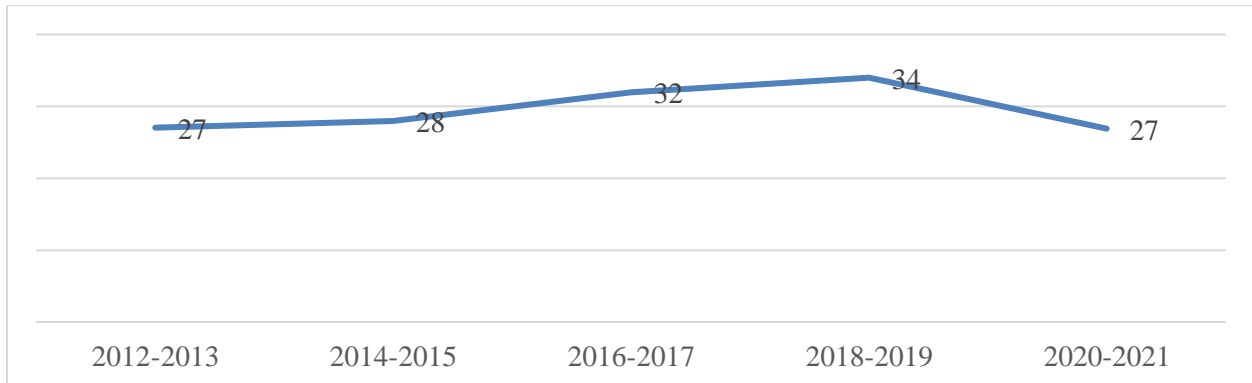
Percent of apprentices in all trades completing by race and gender, 2014-2015 (OAS data)



Newly credentialed journey workers

The percent of newly credentialed journey workers in highway trades who were women and/or people of color slowly but steadily increased between 2012 and 2019. However, **the percent of newly credentialed highway trades journey workers in 2020-2021³ who were women and/or people of color declined from previous years.**

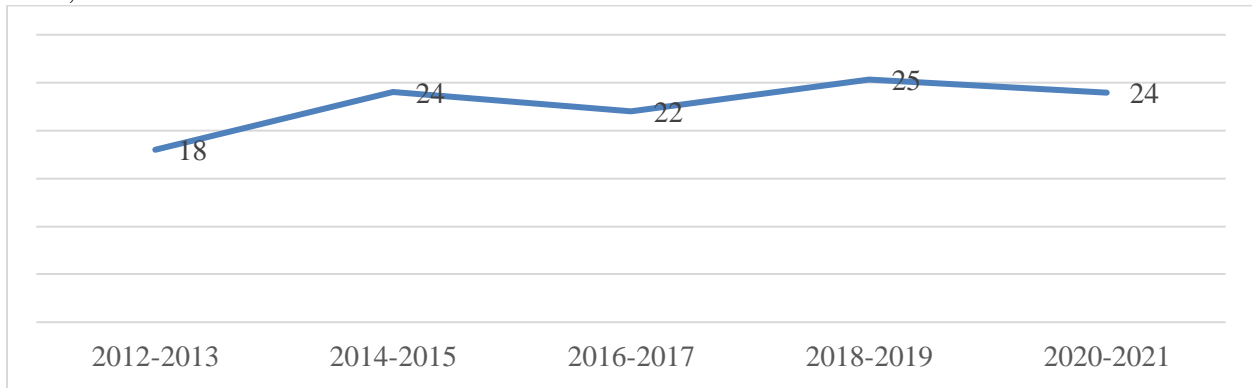
Percent of newly credentialed journey workers in highway trades who are women and/or people of color, 2012-2021



³ This includes apprentices who started in any year and completed in 2020 or 2021.

As shown below, the percent of *all* newly credentialed journey workers in 2020-2021 who were women and/or people of color did not show the same large decline. However, there were consistently more newly credentialed journey workers who were women and people of color in highway trades compared to all trades over all the years analyzed here.

Percent of newly credentialed journey workers in all trades completing who are women and/or people of color, 2012-2021

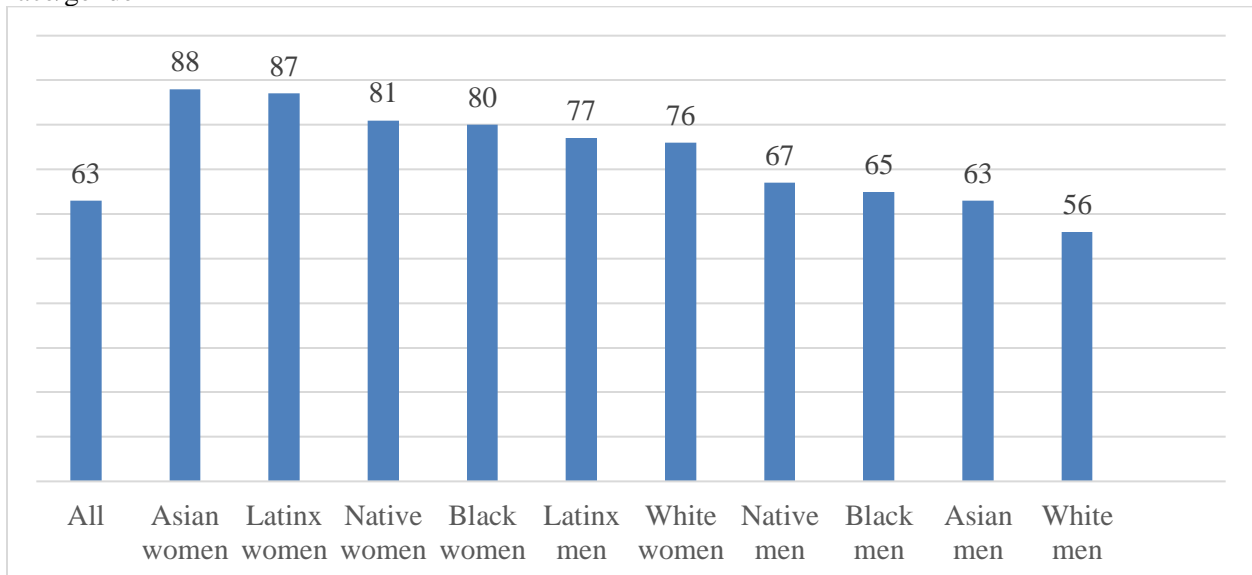


Recruitment and retention trends in union and non-union apprenticeship programs

Recruitment into union and non-union programs

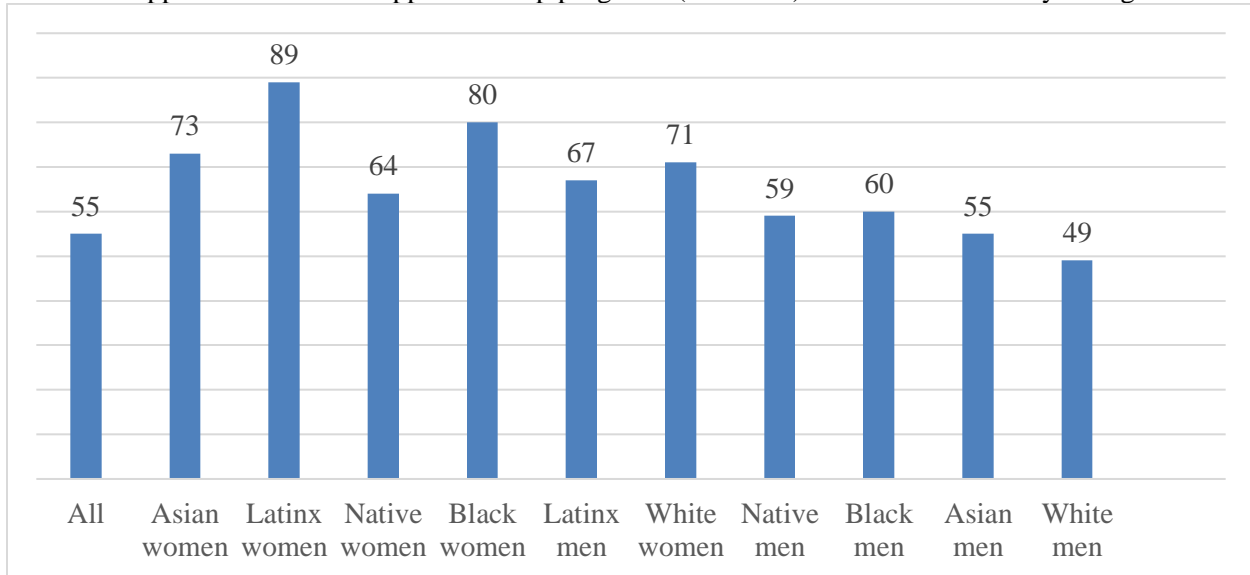
In the 2014-2015 cohort of highway trades apprentices, 63% of apprentices are in union programs and 37% are in non-union programs (this excludes programs classified as “mixed”). A higher percent of apprentices who are women and people of color chose union over non-union programs, compared to white men.

Percent of apprentices in highway trades union apprenticeship programs 2014-2015 cohort, by race/gender



The trend for all trades is similar, with white men less likely than women and people of color to choose union programs. Notably, **the overall percent of apprentices in union programs is lower for all trades (55%) compared to highway trades (63%).**

Percent of apprentices in union apprenticeship programs (all trades) 2014-2015 cohort by race/gender



Apprentices' reasons for choosing union and non-union programs

Construction apprentices select union or non-union apprenticeships for varied reasons. Union apprentices most frequently cited the pay, benefits, and retirement as the reasons they selected union programs. Union apprentices also described personal connections that led them to the union, union culture, the superior training offered by the union, as well as the opportunity for career advancement as primary reasons for selecting a union apprenticeship. Positive jobsite conditions (including safety) and free classes were also cited, but less frequently.

Apprentices who selected non-union apprenticeships did so most often because of their ability to start more quickly than if they had attempted to join a union program. After the ability to begin their apprenticeship more quickly, in descending order, non-union apprentices then mentioned a dislike of unions, prior non-union employment, a lack of awareness of a union option, and the shorter time to complete their apprenticeship (reported by six non-union electricians and one non-union plumber). Finally, apprentices cited the location of non-union training, as well as the pay, as other reasons they selected a non-union program.

Reasons for choosing a union program

<i>Reason (Frequency)</i>	<i>Selected quotes</i>
Pay, benefits, and retirement (84)	<i>Because they pay well, good benefits. Better money, better retirement, better benefits. Good wages, benefits, and job protection.</i>
Referral or personal connection to unions (22)	<i>A friend recommended it. Blessing in disguise, I was just led there by a friend, and they pointed me in the right direction. Family lineage, fifth generation union membership.</i>
Union culture (20)	<i>Solidarity of workers. More inclusive toward women. Unions remind me of families.</i>
Better training (16)	<i>Best quality training. Excellent training program.</i>
Career opportunities (10)	<i>I could learn a trade and still do really well and live anywhere. A career where you grow and go up a scale and not be stuck in the same position or wage.</i>

Reasons for choosing a non-union program

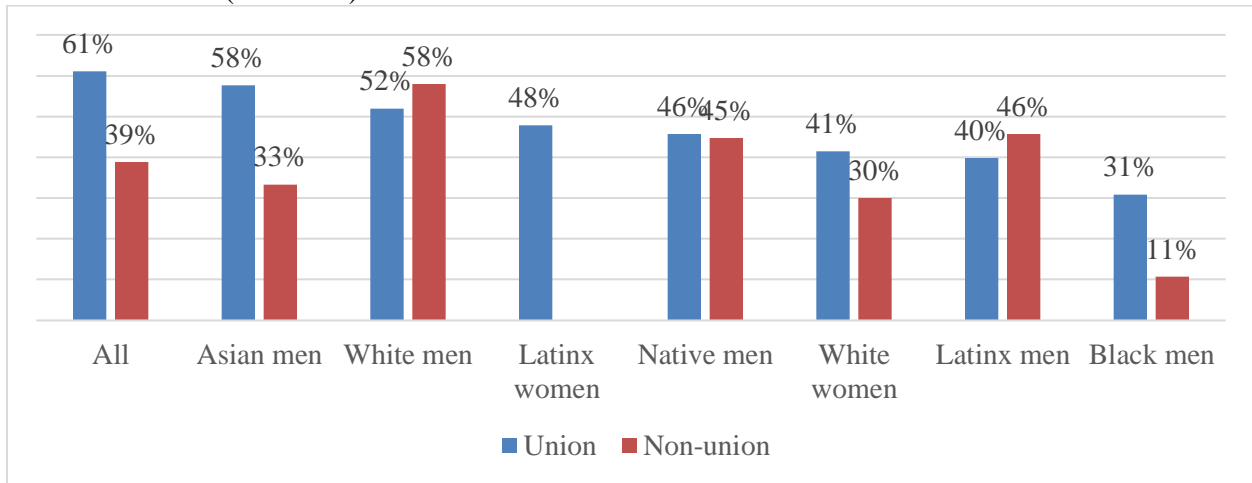
<i>Reason (Frequency)</i>	<i>Selected quotes</i>
Earlier openings (21)	<i>It was the only one that had a job opening at the time. The waitlist for union in 2016 was two plus years. Non-union was four months.</i>
Dislike unions (15)	<i>The union is power hungry. Never been a proponent of unions. Not into unions, they protect lazy workers.</i>
Prior non-union job or connection (14)	<i>Because I had an in, my boss at the time wanted to hire me on. I already had a job as a building engineer and this apprenticeship was to advance my position within my own company. I was familiar with non-union companies I wanted to work with.</i>
Lack of awareness about union program (8)	<i>I wasn't aware of the [union] option at the time of applying. I didn't know there was a union program when I started.</i>
Quicker program completion ⁴ (7)	<i>Four year apprenticeship for non-union vs five for union. Was told by people it would have taken longer to receive my license [if I were in the union electrician program]. Less apprenticeship time [for the non-union plumber apprenticeship].</i>

⁴ Union and non-union programs in the same trade require similar or the same number of OJT hours. This is 8,000 hours for electricians. Union programs have five years of related training classes while non-union program have apprentices complete their classes in four years. Thus, non-union electricians could theoretically complete in four years but realistically it may take five or six years for both union and non-union apprentices to accumulate the required number of hours. Similarly, plumbers require 7,700-8,000 hours of on-the-job training. The speed at which any apprentice completes an apprenticeship largely depends on their ability to remain consistently employed.

Retention in union and non-union apprenticeship programs

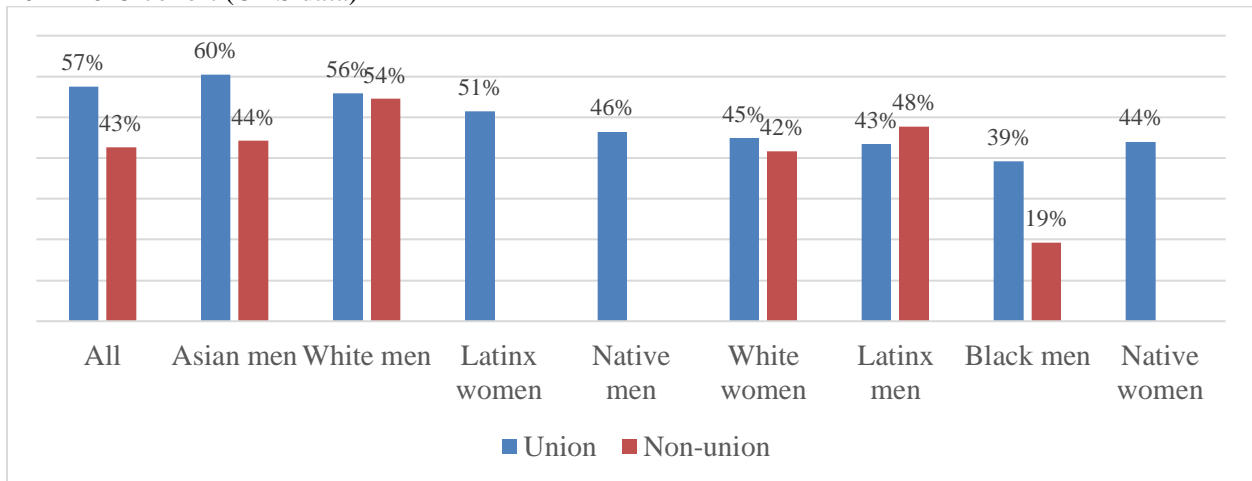
Among those who started apprenticeships in the highway trades in 2014-2015, completion rates varied by union status. As shown below, **white and Latinx men were more likely to complete in non-union programs, other race/gender groups were more likely to complete in union programs** (there were too few Black, Asian, and Native women in union programs and too few Black, Asian, Native, and Latinx women in non-union programs to calculate completion rates). Overall, union programs had higher completion rates (61%) than non-union programs (38%).

Percent of apprentices completing apprenticeship in the highway trades, by union status and race/gender, 2014-2015 cohort (OAS data)



For all trades, only Latinx men were more likely to complete in non-union programs, all other race/gender groups were more likely to complete in union programs (there were too few Black and Asian women in union programs and too few Black, Asian, Native, and Latinx women and too few native men in non-union programs to calculate completion rates).

Percent of apprentices completing apprenticeship in the highway trades, by union status and race/gender, 2014-2015 cohort (OAS data)



Apprentices' perspectives on retention

Apprentices' reasons for leaving their apprenticeship

To better understand apprentices' reasons for leaving an apprenticeship, we turn to the findings from the 2022 Survey of Oregon Apprentices. On the survey, apprentices who had terminated an apprenticeship in 2020 or 2021 were asked why they did not complete. On the survey, ten apprentices reported being asked to leave their apprenticeship while 59 terminated apprentices reported choosing to leave.

The table below shows a summary of the most common reasons for choosing to leave an apprenticeship among the 59 participants who responded to the question about why they left their apprenticeship. **The most common reasons why apprentices did not complete were: (1) leaving for another opportunity; (2) financial challenges of accessing OJT hours or receiving low pay; (3) problematic jobsite culture; (4) illness, injury, or concerns about safety (not explicitly related to Covid-19); and (5) poor-quality training.** Additional reasons for leaving that were less frequently mentioned include: Covid; relocating; travel (e.g. *"Lack of local work"* and *"Demanding hours and travel"*); family issues; work hours (e.g. *"The hours were really crazy"* and *"Took up a lot of my life"*); and military service (e.g. *"I'm a reservist, so my military training would pull me away, and that made me one of the first guys they'd lay off."*)

The most common reason fell into the category of leaving for another opportunity. In reviewing apprentices' comments on their reasons for leaving as well as the other challenges reported on the survey, many of these former apprentices' experiences are best understood as including factors that "pull" them towards another job as well as factors that "push" them out of the trades. For several participants, having another opportunity outside the trades as well as disliking the jobsite culture, contributed to their leaving. For example, one participant responded to the question "What was the main reason you left" by stating *"I already had a Master's degree, and decided to put that to use instead."* When asked if there were any other factories, they said *"A little bit of workplace environment."* Another reported that the main reasons they left was that they *"Chose a different career path"* and additional reasons included *"I decided I didn't want to do it for the rest of my life and I wasn't a big fan of the atmosphere."* In both examples, participants reported a factor that pulled them towards another job and a factor that pushed them out of the trades; here the push factor in both cases was jobsite culture.

Apprentices' reasons for leaving apprenticeship (2022 Oregon Survey of Apprentices)

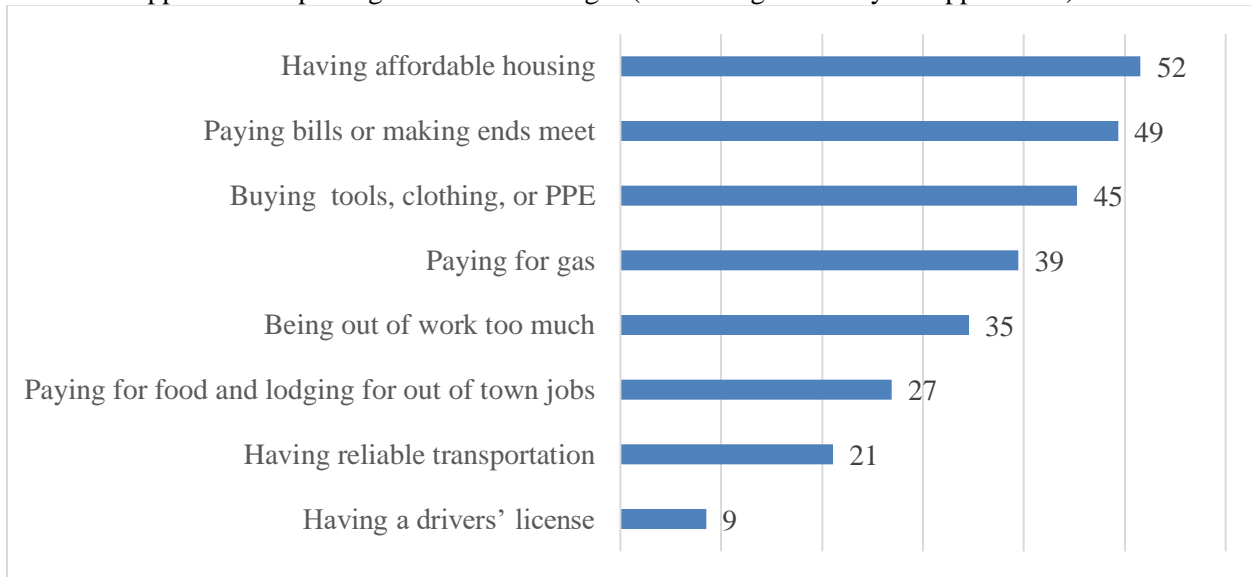
<i>Reason (Frequency)</i>	<i>Selected quotes</i>
Left for another opportunity (27)	<p><i>That specific career wasn't for me.</i></p> <p><i>Wanted to go into a different field of work.</i></p> <p><i>I already had two years of experience and wanted to work in rebar.</i></p> <p><i>Opportunity to work at the railroad.</i></p>
Needed more OJT hours and/or pay (25)	<p><i>It was really hard to find work.</i></p> <p><i>Kept getting laid off and every two or three months would have a lull in work.</i></p> <p><i>Inconsistency in pay.</i></p> <p><i>It was a cut in pay from my current profession.</i></p>
Jobsite culture (24)	<p><i>Felt disrespected.</i></p> <p><i>Constant belittling, other harassment .</i></p> <p><i>Mistreatment from employer.</i></p> <p><i>Owner and others would periodically drink on site after work and once during work hours and I don't drink.</i></p>
Illness, injury, or concerns about safety (22)	<p><i>Back injury.</i></p> <p><i>Kept getting injured but feeling like I couldn't report it.</i></p> <p><i>Work got too physically demanding.</i></p> <p><i>The company I was working for had a lot of dangerous circumstances, and safety was not paramount to them.</i></p>
Poor training on the job or in the classroom (19)	<p><i>It was a joke! I didn't learn anything other than picking up wood and keeping the jobsite tidy. The contractor had no intention of teaching me about the trade.</i></p> <p><i>My journeymen did not want to train apprentices, so they made that pretty clear and treated me awful.</i></p> <p><i>Not enough class time.</i></p>

The negative aspects of working the trades that lead apprentices to leave their apprenticeship (e.g. not enough work, jobsite culture, and poor training) disproportionately impact women and people of color, as demonstrated in the following sections.

Financial challenges

Apprentices reported a variety of financial challenges, including issues related to housing, income, and access to work hours. Apprentices also reported challenges with costs associated with work, such as buying tools, clothing, and PPE, paying for gas, and paying for travel. Being out of work too much was one of the factors most highly correlated with termination.

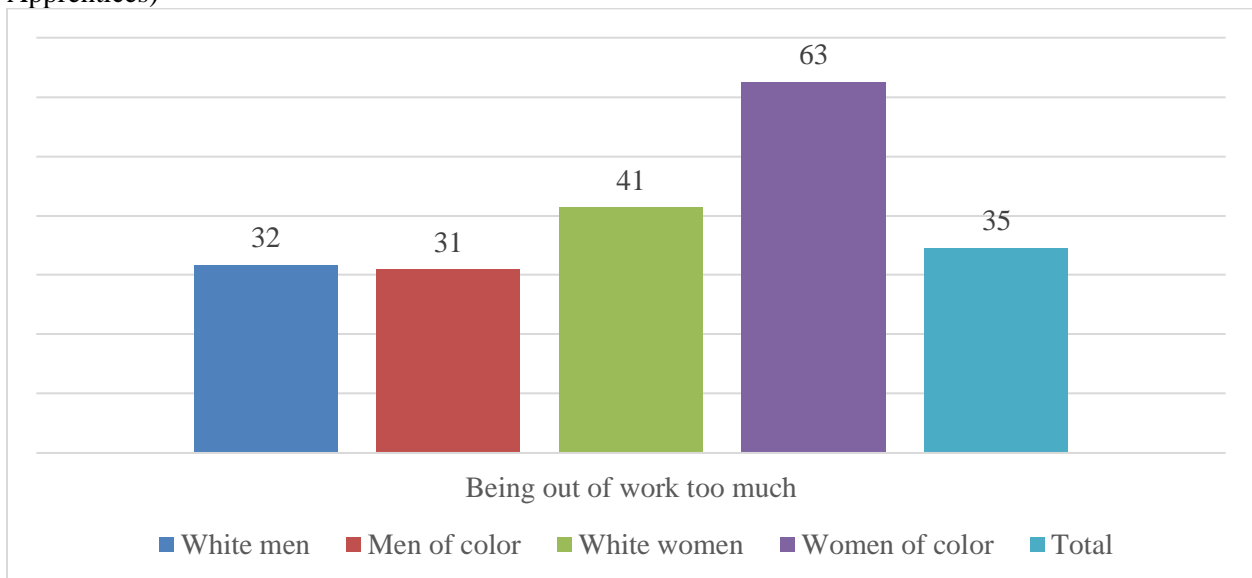
Percent of apprentices reporting financial challenges (2022 Oregon Survey of Apprentices)



Apprentices were asked an open-ended question about challenges they faced. In addition to the challenges shown above, apprentices reported some additional financial challenges in an open-ended question, such as the cost of living, cost of parking, and low pay.

Women were more likely than men to report that being out of work too much was a problem. Not having access to enough OJT hours was one of the most common reasons why apprentices left their apprenticeship.

Percent of apprentices reporting being out of work too much was a challenge (2022 Oregon Survey of Apprentices)



Additional analyses examined the challenges most highly correlated with terminating an apprenticeship, shown below. **The problems most highly correlated with termination related**

to access to OJT hours and mentorship on jobsites. A correlation of 0.1 to 0.3 represents a “small” positive correlation; these findings are statistically significant.

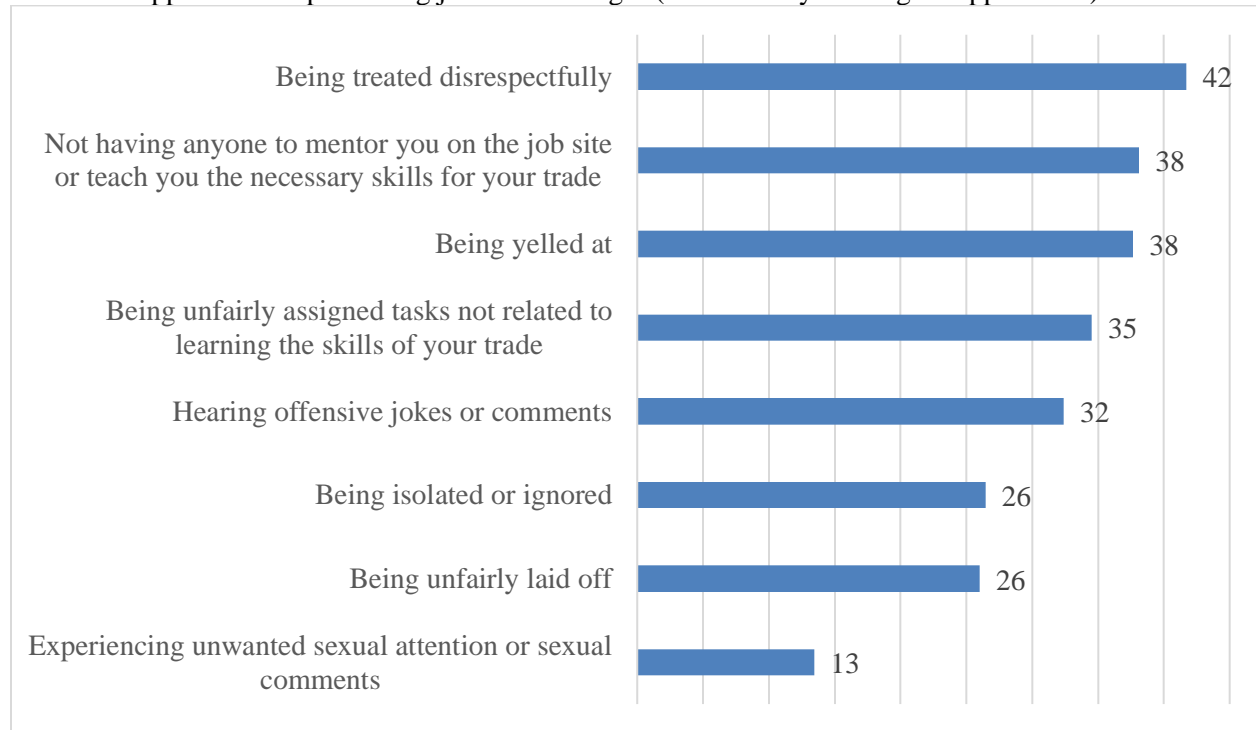
Problems during apprenticeship most highly correlated with termination

<i>Problem</i>	<i>Corr</i>
Being unfairly laid off	0.27
Being out of work too much	0.22
Not having anyone to mentor you on the jobsite or teach you the necessary skills for your trade	0.21
Being unfairly assigned tasks not related to learning the skills of your trade	0.20

Challenges on the job

Interpersonal issues on jobsites were challenges for many apprentices. **The most common jobsite issues were (1) Being treated disrespectfully on the jobsite; (2) Lack of mentorship and learning on the job; (3) Being yelled at; (4) Being unfairly assigned tasks not related to the skills of the trade; and (5) Hearing offensive jokes or comments.** A lack of mentorship and being unfairly assigned tasks were two of the problems most correlated with termination.

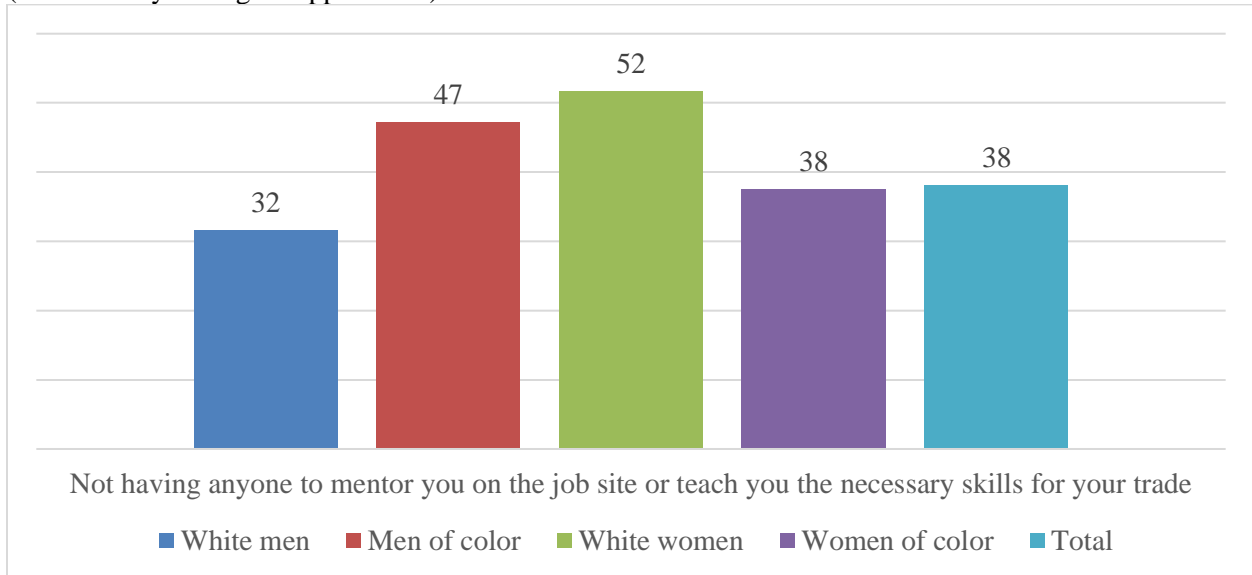
Percent of apprentices experiencing jobsite challenges (2022 Survey of Oregon Apprentices)



While jobsite challenges impacted apprentices across race and gender groups, women and people of color disproportionately reported these issues.

White women, men of color, and women of color were more likely to report that not having someone to mentor or teach them on the jobsite was a major or minor problem during apprenticeship. A lack of training was one of the most common reasons why apprentices left their apprenticeship.

Percent of apprentices reporting that not having a mentor on the job was a problem, by race and gender (2022 Survey of Oregon Apprentices)



Apprentices were asked an open-ended question about challenges they faced. Below we report a representative selection of participant responses related to on-the-job training. These responses primarily fall into the category of “not having anyone to mentor you on the jobsite or teach you the necessary skills for your trade.”

Apprentices’ challenges with on-the-job training during apprenticeship

I was the only person of color and they always wanted me to clean up. (Black heterosexual woman)

I had to dig a ditch with a shovel for six months because I had to prove I was able to tough it out. (white heterosexual woman)

Being expected to know what to do when you’re new and don’t know anything. (white heterosexual woman)

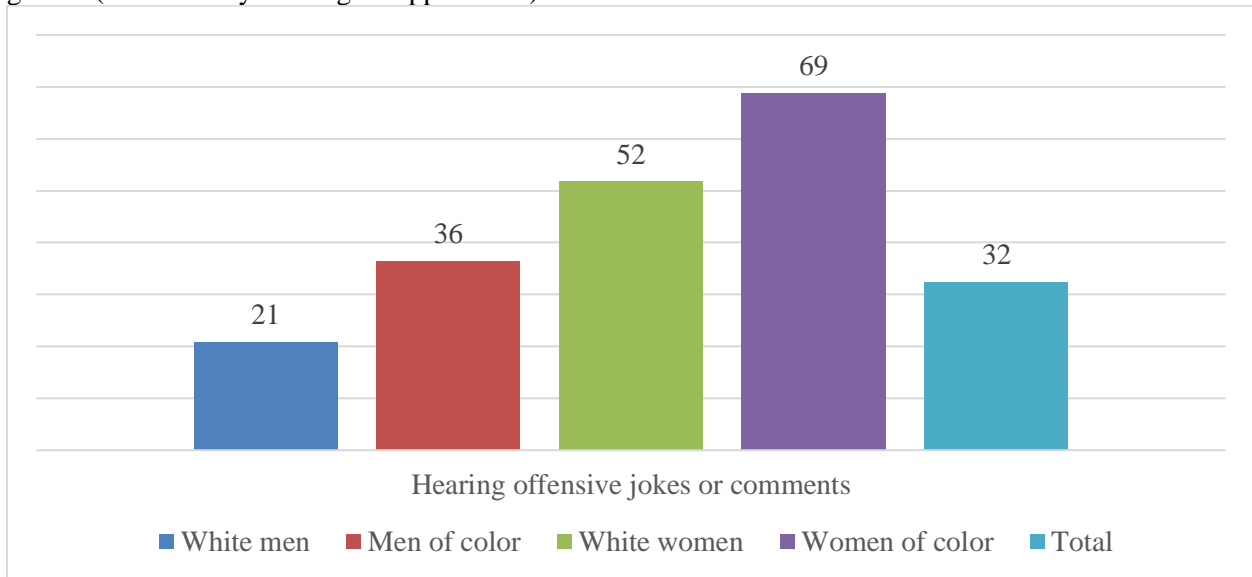
Journeyman I worked under didn’t have the ability to provide detailed explanation of how something works and why it is done a certain way as it pertains to being an electrician. (white heterosexual man)

The biggest problem for me was not having any support on the job. Not having anyone to talk to about your approach or how to have a mindset to be successful. No charitable interpretations of thoughts or behaviors. No compassion was ever extended on jobsites. If you want to talk about how you were struggling, no one wanted to hear it. There were times that I really wanted to succeed, but no one wanted to talk about it. And, I would say, the people in power were very punitive. If there was any infraction, they wanted to punish you rather than help you. (white man)

I don’t think there’s enough one-on-one to help apprentices learn the skills. A lot of times, the apprentice is sent on a smaller task just so the job can get done. Because of that, the apprentice can’t learn the important and crucial parts of the job. (white heterosexual man)

Another common problem was harassment on the jobsite. **White men were the least likely to report hearing offensive jokes or comments as a problem during their apprenticeship.**

Percent of apprentices reporting that hearing offensive jokes or comments was a problem, by race and gender (2022 Survey of Oregon Apprentices)



Additionally, while 4% of white men and 7% of men of color reported experiencing unwanted sexual attention or sexual comments (i.e. sexual harassment), 41% of white women and 50% of women of color reported this experience (analysis not shown).

Apprentices were asked an open-ended question about the harassment and discrimination they faced. In the box below, we report a representative selection of participant responses related to harassment and discrimination. Respondents described a jobsite culture where violent jokes were common and actual violence or dangerous situations were not uncommon. Citing discrimination particularly based on gender and race, those surveyed explained that journey workers and some would-be mentors treated them unequally. Furthermore, several respondents stated feeling uncomfortable reporting the discrimination or harassment because they feared being “black-balled” in the construction industry.

Apprentices' experiences with harassment and discrimination during apprenticeship

Being asked if I was the cleaning lady even though I was clearly wearing electrical company logo. People looking me up and down and smirking or sniggering. A guy said “ugh, now I have to watch what I say” when I arrived and introduced myself. Hearing guys discuss whether or not they would want to date me while I’m working in the area; one guy said he would not want to date me because he prefers “American girls.” SMH. [shaking my head] I am American, but I’m not white. Multiple other small things like that. (Hispanic heterosexual woman)

Someone took photos of my butt while I was bent over and shared it with co-workers/friends. That same person was my journeyman and later a lead on a job where he mentioned to a co-worker that he could get me beat up. (multiracial heterosexual woman)

Stigma about being Mexican; racist Mexican jokes; automatic isolation because I’m not the same “color” as them. (Hispanic heterosexual man)

I was let go because I wouldn’t do sexual favors for a foreman. I had a journeyman kiss me. (white heterosexual woman)

A foreman talked about how funny it would be to punch me. (white heterosexual woman)

I brought the sexism and discrimination to my foreman and superintendent’s attention and I was told that “discrimination is a big word,” then I got laid off the next week due to “lack of work.” (white queer woman)

My sexuality was questioned one too many times, and too many jokes were made about it. (white queer man)

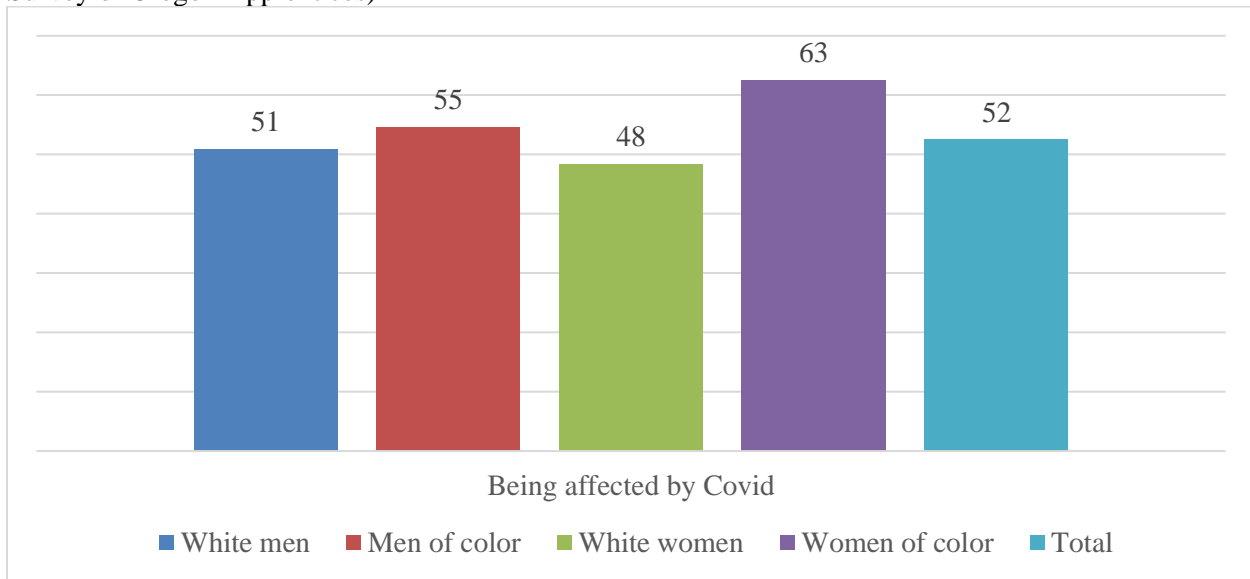
The tradesmen are quick to make fun of men who aren’t masculine or who aren’t already experienced in a trade. (white heterosexual man)

Impact of Covid-19 on Apprentices

As shown in the analysis above, both the recruitment and retention of women and people of color were negatively impacted during the pandemic time frame. Covid-19 was *not* one of the *most* common reasons for leaving an apprenticeship (only six participants described Covid-19 as one of the main reasons for leaving their apprenticeship). However, it may be that Covid-19 was related directly to the reason for leaving for some apprentices, for example, many apprentices who left described not having enough work, some of these cases may be attributed to the pandemic.

In our analysis, we found that **52% of survey participants reported that Covid-19 was a major or minor problem during their apprenticeship**. Women of color were the most likely to report being impacted, followed by men of color, white men, and white women.

Percent of apprentices who reported being affected by Covid was a problem, by race and gender (2022 Survey of Oregon Apprentices)



Participants were also asked the open-ended question: How did Covid-19 impact your apprenticeship? A total of 228 survey participants provided a response to this question and **a majority of participants reported that Covid had impacted their apprenticeships to some degree**. Overall, 60% reported some impact of Covid on their apprenticeship; the most common types of impacts were on classes or testing, the work available, and interactions on the jobsite. Additionally, 7% reported that Covid delayed their completion of their program and 3% reported that the pandemic contributed to them terminating their apprenticeship program. In contrast, 32% reported that Covid did not impact them or minimally impacted them (e.g. *“Not too much, just had to miss a week of classes”*). Another 8% reported that they had completed or left their apprenticeship before the pandemic started.

The most commonly reported impact of Covid was related to classes moving online. Most participants reported that their classes were online in a neutral way (e.g. *“Online school for one year”*) or negative way (e.g. *“It made the classes horrible when they switched to online and zoom. The quality of education was terrible, we didn't get great discussion or interaction”*).

Only two participants reported any (partially) positive experience with online classes: *“Classes went online, which was nice, and my motors and controls lab was canceled, which was disappointing.”* and *“Disrupted heavily, transitioned to online which didn't work with the hands-on aspect. It was more convenient because I didn't have to drive.”*. As noted in these responses, **apprentices felt they learned less in online classes and a lack of access to hands-on learning was particularly challenging**. The concern about insufficient hands-on classroom training also came up in responses to the question about challenges during apprenticeship, such as: *“I started as a fresh apprentice, and I think the classroom training didn't prepare us for using big tools, like a forklift. We needed more time. When we got to the jobsite, we were expected to know how to do things that we didn't always know.”* and *“The apprenticeship program was not great, no hands-on training. They didn't prepare you for the tests.”*

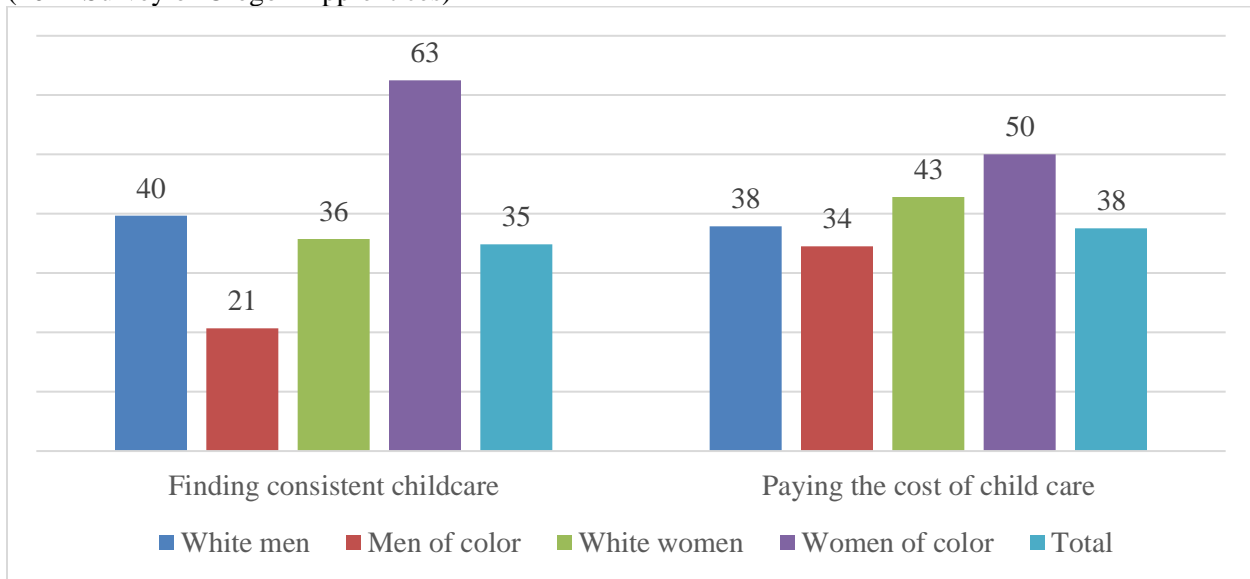
Ways that the Covid-19 pandemic impacted apprentices (2022 survey of Oregon apprentices)

<i>Impact (Frequency)</i>	<i>Selected quotes</i>
Impacted classes or testing (66)	<p><i>School was delayed for a bit.</i></p> <p><i>I had to take remote classes.</i></p> <p><i>I had to take all of my second year courses from home which was difficult for the dry semester of electrical code. Also made it very difficult to schedule and take my license exam.</i></p> <p><i>Online school was much less beneficial than in school learning. I feel like I only got half of what was being taught.</i></p> <p><i>It severely limited my exposure to hands-on training.</i></p>
Impacted available work (28)	<p><i>Was hard to find work.</i></p> <p><i>Work was slow.</i></p> <p><i>I just didn't work. I had a job in the beginning of it, but I didn't get another one.</i></p>
Impacted the jobsite (14)	<p><i>Wearing masks on the jobsite.</i></p> <p><i>During the end, I was doing Covid cleaning on the job, very stressful.</i></p> <p><i>It led to confrontation with my employer about safety policies, which led to a voluntary layoff/firing.</i></p> <p><i>Made work environment uncomfortable.</i></p>
Delayed completion of apprenticeship (16)	<p><i>I was set back about three months to completion.</i></p> <p><i>It put me behind in getting my hours almost a full year.</i></p> <p><i>It extended the program about a year because of the classes and scheduling and work being shut down.</i></p> <p><i>I couldn't test once I had achieved my hours. All the testing centers were closed. Then when they did open, it would close again before my test date.</i></p>
Reason for leaving apprenticeship (6)	<p><i>I was called to Covid emergency response by the military.</i></p> <p><i>I went on furlough for the first year or so of Covid and decided not to return.</i></p> <p><i>[The main reason I left was the] Covid-19 pandemic.</i></p>

Apprentices and parenting

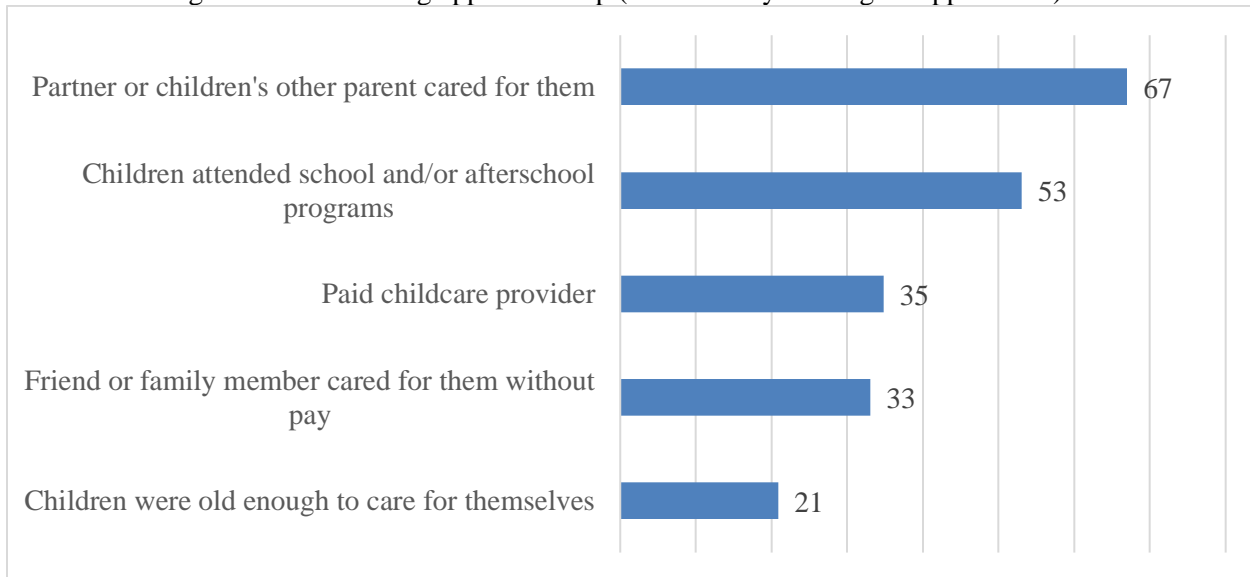
Finding consistent childcare was a problem for many apprentices, as was paying the cost when childcare was available. Women of color were most likely to report these challenges, followed by white men, white women, and men of color. Additionally, eight of the 22 survey participants (36%) who were divorced or separated with children noted that paying child support was a problem (analysis not shown).

Percent of apprentices with children who reported challenges related to childcare, by race and gender (2022 Survey of Oregon Apprentices)



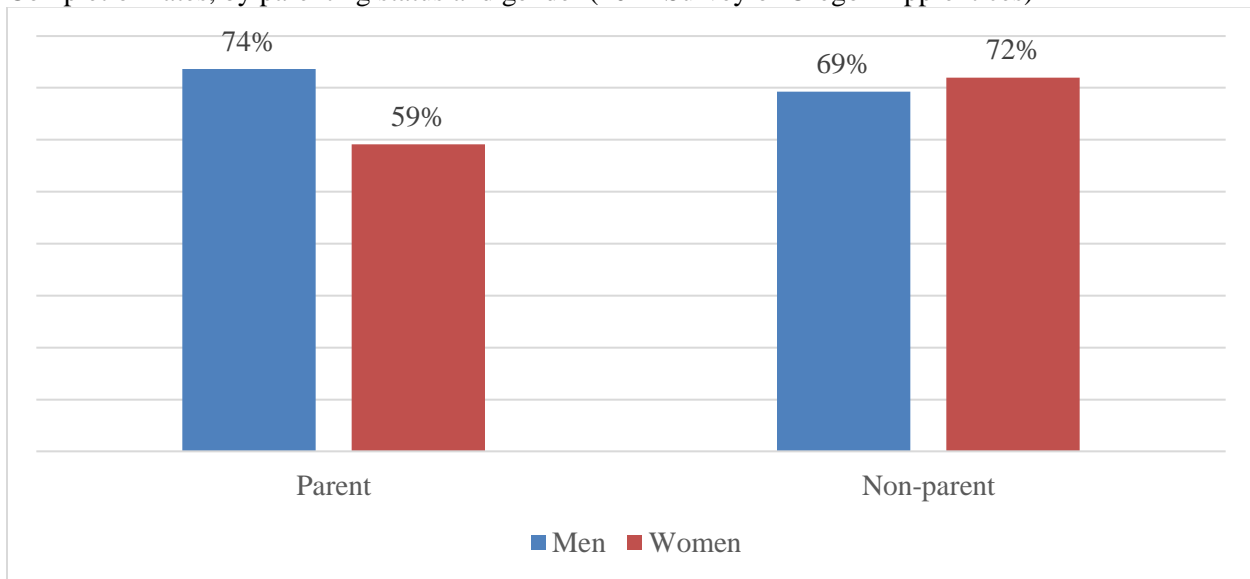
The figure below shows the types of childcare arrangements that apprentices with children age 0-17 reported using during their apprenticeship (apprentices could choose multiple types so these percentages total over 100). The most frequently used types of primary childcare arrangements were having a partner or the child’s other parent care for them and school or afterschool programs.

Childcare arrangements used during apprenticeship (2022 Survey of Oregon Apprentices)



The intersection of parenting status and gender has unique impacts on completion. **Fathers had a higher completion rate than men who are not fathers while mothers had a lower completion rate than women who are not mothers.** Additionally, fathers are more likely than mothers to complete; among non-parents, men are slightly less likely than women to complete.

Completion rates, by parenting status and gender (2022 Survey of Oregon Apprentices)



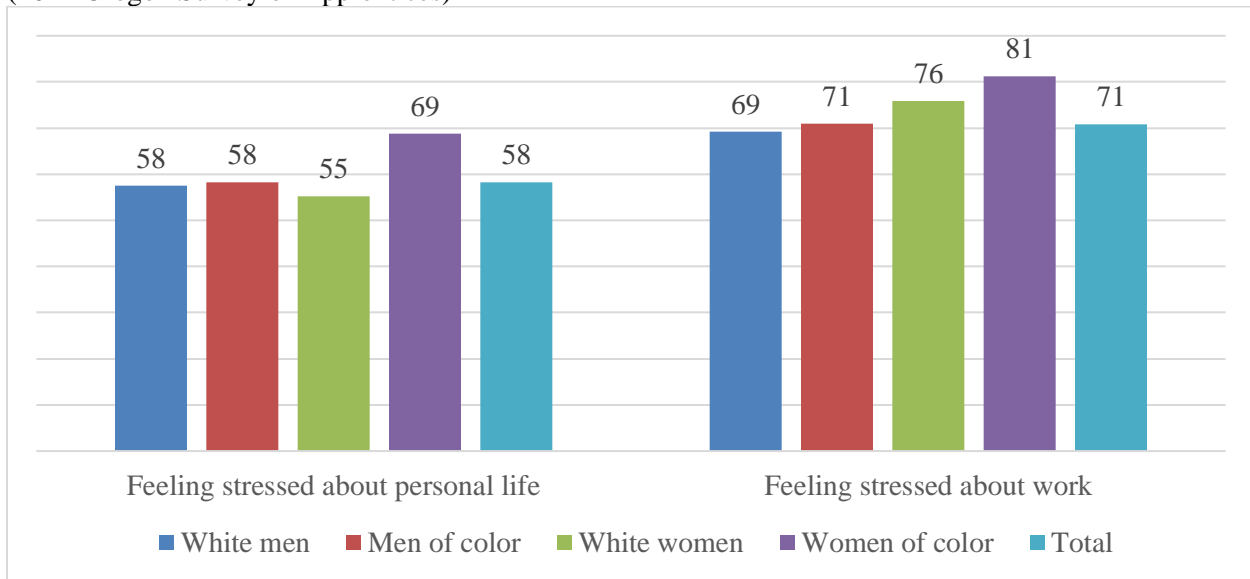
Those who completed an apprenticeship were more likely than those who terminated to use *unpaid* childcare, relying on either a partner, children’s other parent, family, or friends. Those who terminated were more likely to rely on paid childcare (analyses not shown). These findings indicate, not surprisingly, that paying for childcare is a challenge that contributes to pushing some apprentices out of the trades. Challenges with paying for childcare were more highly correlated with termination than challenges accessing consistent childcare (analysis not shown). Additionally, childcare provided by a partner, children’s other parent, family, or friends may be more flexible and accommodating of apprentices’ irregular work hours than paid childcare arrangements.

In additional analyses (not shown), **fathers had different childcare patterns than mothers, with fathers more likely to report that a partner or children’s other parent provided childcare.** Overall, 76% of fathers relied on a partner or children’s other parent for childcare and 30% of fathers relied on other family or friends to provide unpaid childcare (apprentices could choose multiple childcare arrangements, thus these figures total over 100). On the other hand, only 19% of mothers reported relying on a partner or children’s other parent for childcare and 48% of mothers had other family or friends that provided unpaid childcare.

Stress from personal life and work

Stress related to personal life and stress related to work were problems for many apprentices during their apprenticeship; overall, more apprentices reported stress about work than about their personal lives. Women of color were the most likely to be stressed about both their personal lives and their work lives. White women were more likely to be stressed about work than white men or men of color, but were somewhat less likely to be stressed about their personal lives. Being stressed about work was more highly correlated with termination than being stressed about personal life (analysis not shown).

Percent of apprentices reporting personal and work-based stress were problems, by race and gender (2022 Oregon Survey of Apprentices)



Contractor and labor partners' perspectives on retention

Below are contractor and labor partners' responses to apprentices' top five reasons for termination of apprenticeship. Some themes had been previously brought up through discussion, e.g., poor training, jobsite culture, and pay. The responses have been culled from direct questions about the survey findings or from the larger interviews when the topics were brought up by contractors. One labor partner stated, *"I trust that group to know their experiences. I would never say, 'that's not what I'm seeing'. I absolutely believe what they're saying without questions."*

Contractor and labor partners' responses to findings of the 2022 Oregon Apprenticeship Survey

<i>Reason for leaving</i>	<i>Selected quotes</i>
Left for another opportunity	<p><i>The moving on is throughout... We have a lot of thirty and forty-year people who have just said, "I don't want to fight this battle anymore."</i></p> <p><i>The pandemic time has created in those folks, the desire to find a way to work at home all the time.</i></p> <p><i>Covid gave people the idea that there are things better out there than what they are doing.</i></p>
Need more OJT hours and/or pay	<p><i>They need continuous employment in order for it to be their full-time job. And if they do not get that, then they are going to have to find work elsewhere.</i></p> <p><i>I feel a little bit like we have a societal problem in that regard. "[Apprentices think] I should be earning as much as somebody who spent their life doing this." Part of that is kind of like, pay your dues, you know?</i></p> <p><i>I think that pay, you know, in the future it's going to come down to money.</i></p>

Contractor and labor partners’ responses to findings of the 2022 Oregon Apprenticeship Survey
(continued)

Job site culture	<p><i>When you go on a jobsite and you don't see women and people of color that are in the higher positions...It doesn't feel very welcoming to go on to a jobsite and you stick out like a sore thumb.</i></p> <p><i>If you look at jobsite culture, if you look at that, it's not only women and people of color, Blacks in particular are leaving because of the jobsite culture.</i></p> <p><i>[For] a lot of them it's not money. It's about, you know, the treatment or the lack of training.</i></p>
Illness, injury, or concerns about safety	<p><i>Safety, you know, twenty-five years in... we still have a long way to go.</i></p> <p><i>Safety is something that we talk about. I'd agree that there's the fear...if something is not being done right, you know, if they speak up there's potential for them to be put on a blacklist or laid off.</i></p>
Poor training on the job or in the classroom	<p><i>The one I would assume is the lack of training. You know, where it's just basically, we're just going to give you menial tasks [material handler].</i></p> <p><i>I've spoken with apprentices where they have done nothing but sweep for the last six months.</i></p> <p><i>Part of that is having better expectations when folks are in pre-apprenticeship programs that maybe the first year will not be glamorous work...[you're] kinda doing grunt work.</i></p>

Contractor and labor partner interviewees had a number of reasons they believe apprentices were not being retained. In the following section we give details on the most common perceptions. While there was a general consensus on the main reasons (i.e. lack of work ethic, jobsite culture, and travel/transportation) there were a few outliers. One interviewee stated that school fees were a barrier to retention while another respondent stated that they were not having a problem with retention.⁵

Lack of work ethic

By far the most popular answer, referenced by over half of the interviewees, related to a lack of work ethic. As stated above, some referenced Covid-19 as causing a cultural shift that moved many to rely on unemployment and look for jobs in which they could work from home. Others attributed this to a generational shift in work ethic—younger workers don’t value hard work. One contractor stated that the quality of workers was less than what we had seen five to ten years ago while another stated, “*It’s like they’re doing it because it’s a job but they really don’t want to be there.*” Several interviewees commented that not everyone is cut out for the “*very physical, very demanding*” (contractor) work involved in a trades career.

⁵ This interviewee is located in Eastern Oregon.

Job site culture

The biggest concern for many interviewees was jobsite culture and workers ability to feel safe and respected at work. Apprentices have the least amount of power on the jobsite and thus *“there’s a power dynamic that doesn’t allow for them to speak up when they have an issue, probably rightfully so [because] they’re afraid of retaliation”* (labor partner). As one interviewee shared, retaining apprentices is highly dependent on their quality of experience which for many apprentices of color can be a challenge. If apprentices are *“stretching themselves”* to fit their job which may include finding adequate childcare, decisions about how to spend limited money, travel, and a hostile work environment, then as one labor partner stated, *“the likelihood that you’re going to continue to make those harder choices is going to be reduced and minimized because that future doesn’t look so great, even if there’s money attached to it.”*

Stretching yourself

Stretching yourself means getting your child to a daycare at six in the morning or having a family friend, or a family member take care of your child, and then you're racing there after work. You've got to make some choices about how you spend money so that you can afford work boots and tools. You're investing in the future but the investment is a very difficult one and you're having a bad experience. It's just a trade, right? Like money is your time and your skill and your sweat and your muscle. We're just trading different things and so those trades start to not feel so balanced when on the other side of that scale are all of these other things that apprentices have to put into maintaining that apprenticeship. If you tip that balance even further because they're not treated very well or they're not getting particularly interesting work or work that really helps to develop their skills. They're having to commute really far and they don't know really where they're going to be from one week to the next, and if they have other family responsibilities... then you get really out of balance. Because it's easier to go get your \$1,000 signing bonus and work at the warehouse at Amazon. Maybe you're making some less money and maybe the trajectory for your increased wages isn't the same but in the now, when people are living hand-to-mouth and the future isn't like... that's a privilege to invest in your future. That is a privilege and not everybody has that privilege. When you're living in the now... those are your primary concerns.” (Labor Partner)

Interviewees spoke about the lack of diversity on the jobsite, amongst workers and upper management, that leads to apprentices of color feeling out of place and isolated. One respondent stated, *“You’re not going to retain those individuals if they go onto a jobsite and they’re the only one in the workspace”* (contractor). While efforts have been made to bring in diverse apprentices, many agreed that progress is slow. Jobsite safety and culture also relates to first-generation trades workers. One interviewee spoke in depth of the lack of support for first-generation trades workers who do not have connections or anyone to “look out” for them. *“We have a horrific history in our industry of pushing people that aren’t familiar out. It may be the way you look, it may be the way you talk, it may be where you’re from, but if you aren’t connected it is really hard to break in”* (contractor).

Travel and Transportation

Travel and transportation prove to be a difficulty, specifically with contractors who work throughout the state. Many of these difficulties were related back to apprentices who may be facing more barriers due to responsibilities toward childcare, classes, and court appearances. Additionally, interviewees stated that travel work was hard on families. Other reasons included

not owning a car, lack of public transportation (specifically in rural Oregon), and lack of funds for gas.

Some concerns related to the difficulty of constant travel that takes workers away from their families. *“It’s difficult to travel as much as people do and be away from home and family”* (contractor). One labor partner shared the difficulty of getting some apprentices to take up work 25-miles away from their home let alone across the state. For some contractors who work across several states, retention becomes difficult when workers are not licensed to work in a neighboring state.

Cultural shift regarding concepts of work

Three interviewees attributed the loss of apprentices to a cultural shift of in cultural understanding of work. Younger generations are demanding more from their workplaces and something different from their work-life experience. They refuse to be abused, treated badly, or work in hostile environments. *“Young people now would rather not come to work and be mistreated”* (labor partner). One labor partner explained how this shift in concepts of work particularly impacts communities of color.

Cultural shift regarding concepts of work

They [young people] want meaningful lives and why shouldn't they? They don't want to be a cog in the machine of a capitalistic economy that, for specifically communities of color, has never done anything for [them]. We don't want to be a part of complying with a system that is designed to encourage and enforce our oppression and to not provide us the benefits and privileges of a dominant culture class. That's never been good. Even if we become part of the workforce, do we even get a business ownership opportunity? Even if we get a business ownership opportunity. Do we get the same opportunities as other similarly-situated companies that are owned by white men? No. So, there's always a level of disparity and it's not like dissatisfaction, it's...what's the word I'm looking for? It's protest, is what it is. (Labor partner)

Covid-19

Several interviewees listed the impacts of Covid-19 as reasons for loss of workers. The impacts fit within two main frameworks. First, the shifts in our everyday lives due to shut-downs and sickness led many long-term trades workers either into retirement or to leave the field altogether for a different career path. *“Covid gave people the idea that there are things better out there than what they are doing”* (contractor). A second reason given by three different contractors related to society’s learned dependence on *“government subsidies.”* Some contractors believe that a reliance on unemployment led to many workers refusing to come back to work. Contractors did not focus on impact of the material challenges of Covid-19, such as childcare and school closures that required some parents to be home with children.

Workplace policies

Labor partners, particularly those working with apprentices in support capacities stated that one of the challenges to recruitment and retention was drug testing. One contractor explained that while smoking marijuana is legal in Oregon, it is against federal contract guidelines. Another labor

partner stated that drug testing for THC has disqualified a large number of potential workers. One contractor estimates that loss of employees due to drug testing sits at about 40%-50%. E-verify was also named as a policy or rule that disqualified potential workers who are undocumented.

Contractor and labor partners' current efforts to address retention

Contractor and labor partners alike have put forth efforts to retain workers. Efforts range from offering more trainings, pairing with groups and labor partners across the industry, and financial support. The top efforts have been categorized into six main categories detailed below.

Trainings

Several contractors and labor partners reported that one tool for retention has been offering a variety of trainings to better equip workers. Trainings include: positive jobsite training, safety meetings, leadership class, suicide awareness, and gate-keeper training. These trainings along with superintendent and foreman training, are offered to management as well. As one labor partner stated, *“there has to be that buy-in from the top and making sure that the messaging is coming from the top and working its way down and not from the bottom up.”* One contractor has implemented mentorship training for all workers including journey workers. *“A lot of times people that are good at their job wind up being put in positions of authority and leadership but they haven't had any leadership training. It makes them less effective leaders”* (contractor).

Financial support

Several contractors utilized various financial supports to address retention. Three interviewees stated that their companies have additional pools of money for extra support such as emergency funds and gas money. Additionally, some contractors reported paying over scale for apprentices. *“If an apprentice comes to us at 60% and they are working really hard and they are showing up on time and they got that go-getter attitude, it is not unusual for us to pay them more”* (contractor).

Trajectory Summer Math Program

We have started engaging through efforts with Portland Public Schools. They have a summer program called project trajectory (Trajectory Summer Math Program), it's a six-week program run during the summer. So, we invested and we participate in teaching, as part of the six-week curriculum, how math is applicable to construction. Angles, layout, and then it culminates in a build project. So, all hundred and sixty students come out to our facility and we build a project in a day. So, last year we built homeless shelters, this year we built all of the planter boxes and benches for the Arleta Square. The kids get to use hammers and nails and drills and lay out and do the math leading up to it. We're exposing a community that isn't historically exposed to construction, because there's very low representation. (Contractor)

Partnerships

All the contractors and labor partners work with or have partnered with outside groups in an effort to support retention. Many interviewees partnered with Portland Public Schools (PPS) as well as schools throughout Oregon state and colleges. Work with educational institutions range from speaking to students, inviting students to jobsites to see “work in action,” as well as funding

a number of programs. Additionally, several interviewees partner with pre-apprenticeship programs such as Oregon Tradeswoman, Carpenter Trade Preparation, Constructing Hope, and more.

All the contractor and labor partners interviewed are working with outside groups and stakeholders across the industry to different extents. Some contractors listed three or four groups while others work with upwards of 10 to 15. The Associated General Contractors of America (AGC) was named by every interviewee.

Other groups or stakeholders in no particular order (not including Portland Public Schools): Safe From Hate, Construction Career Pathways Project (C2P2), Northwest College of Construction, Lane Community College, Carpenters of Construction, Oregon Tradeswomen, Constructing Hope, Independent Electrical Contractors of Oregon (IEC), Portland Opportunities Industrialization Center (POIC), Central Eastside Industrial Council (CEIC), Portland Equity and Inclusion Oversight Committee, Prosper Portland, Fair Contractors Plus Forum, Allied Coordinators Group, Naya, Urban League, Coalition of Communities of Color, Latino Build, Oregon Native American Chamber (ONAC), Hispanic-Oregon Small Business Association, and various Joint Apprenticeship & Training Committees (JATC).

Several contractors and labor partners stated that they did not know of any contractor who was not working with outside groups, *“they’d be crazy not to...I can’t think of any contractor that isn’t trying to step out of their boundaries”* (contractor). By far the largest recommendation was to create resources and support networks that would make it easier for contractors and labor partners to find each other (see resource and outreach groups above). Some interviewees suggest a monetary incentive. One labor partner stated, *“I know that Oregon did pass...I don’t know exactly what it was, some type of policy that they could compensate groups for their engagement and I’ve yet to see them actually implement that, at least with respect to our organization.”*

Jobsite Culture

Improving jobsite culture was reported as one main area in which contractors and labor partners are working to improve retention. Many contractors and labor partners have implemented a number of trainings centering workplace equity and inclusion.

Addressing jobsite culture

We hired a sociologist with two doctorate degrees and put him in our office. Doing that, it’s actually helping us learn more about communication and understanding and awareness of the workforce perception. I think we’re (as an industry) going to have to change a like that in order... because you got to think about this too, the construction industry has probably one of the highest suicide counts in the nation. And so how do you address that without putting somebody in the office who can build support around that? The focus is on the cultural development sites of the company and then learn processes that help us communicate changes in the company. One of the things we do is when an employee is being disciplined, instead of going out and outright disciplining them we study what took place first, and then we bring them in the office and we have somebody represent them like an attorney and we dive into it... You know, we’ll have a panel on one side and support on the other side and allow some sort of deliberation until we come up with what’s the right thing to do next. That just shows that we care and sometimes we’re able to correct an issue. (Contractor)

Several contractors addressed their efforts to make apprentices feel valued and supported. *“Supervisors tend to call people out when something doesn’t go well and they forget that they ought to recognize them when it goes well”* (contractor). Recognition of apprentices includes praising them for a job well-done and celebrating them in the workplace in front of others. One contractor has brought a sociologist on staff to support their efforts of making the workplace more welcoming to workers, particularly workers of color (see box above).

Flexibility

Several contractors reported flexibility as an effort towards retention. Flexibility was described in two ways, flexible with work hours and flexibility within the workplace. Several contractors, particularly those whose employees travel reported shifting work hours to accommodate the popularity of flex work weeks. *“When you have a company like Airbnb saying you never have to work at an office—you can go anywhere in the world and work. That’s tough to compete with when we literally need people to be in a place cuz you can’t pour concrete from your living room”* (contractor). While some contractors reported being flexible with start times, two contractors reported shifting to a 4/10 (four days, ten-hour days) work week. A 4/10 work week allows employees to spend more time at home. *“There’s 50 working weeks [two weeks off for holidays], that’s 250 working days a year. If you go to 4/10’s that moves it to 200 working days a year. That’s 50 days we give back. That’s 50 days less of having to travel”* (contractor).

Interviewees also reported that flexibility in the workplace was necessary for retention. This includes understanding that “life happens” such as childcare needs and family sickness and that contractors need to evolve with current times. *“If any contractors aren’t out there adjusting... I mean the days when there were three builders on the sidewalk waiting for one individual to mess up so they could take his job, those days are gone. You have to adjust what you’re asking your people to perform. In other words, you gotta be more flexible”* (contractor).

Relationships

Several contractors and labor partners stressed the importance of building relationships within the workplace. This includes taking time to listen and talk with apprentices, engaging apprentices during meetings, and asking for their input. Labor partners stressed the importance of building a rapport with apprentices so they feel comfortable asking for support. One contractor has established mentorship programs *“which is really just communication training for apprentices and Journey folks who are teaching our apprentices. [They’re] sort of front-loading accountability, when it comes to what your responsibilities are”* (contractor).

Apprentices’ recommendations for recruitment and retention

When asked about what changes they would like to see in the industry, respondents expressed the desire for increased recruitment of women and people of color. Many reported the need to address jobsite issues, including addressing racism and sexism on jobsites and as well as seeing members of underrepresented groups in mentorship and supervisory positions. A small number of apprentices reported that they preferred that jobsite culture *not* change or preferred return to the jobsite culture of the past. Apprentices also offered suggestions for changes to assist apprentices

with financial issues and recommendations for changes to apprenticeship and union policies and practices. A summary of apprentices’ suggestions are shown in the table below, more specific suggestions are provided in Appendix C

Suggestions for improving jobsite culture

<i>Area for improvement</i>	<i>Suggestions</i>
Recruitment	Improve or continue efforts to recruit of a diverse workforce
Jobsite issues	Improve or continue efforts to address jobsite culture Improve jobsite mentoring and training
Financial issues	Increase pay rates Increase access to work Expand benefits
Apprenticeship and union policies and practices	Improve classroom training Change how apprentices access work

Contractor and labor partners recommendations for recruitment and retention

Contractors and labor partners had several recommendations for recruitment. Nearly all interviewees recommended putting more money towards recruitment including better funding of pre-apprenticeship programs. The following section details two main areas of improvement for recruitment.

Every interviewee stressed the importance of recruiting early. Several contractors felt that trades and craft labor was not well represented with younger students and thus middle schools should be included with high school and college recruitment. *“I think the biggest issue with recruitment is communication and education at the middle school, high school, and college level”* (labor partner). Several interviewees referenced reaching out to those who are “not college bound.” Several interviewees suggested educating parents about their children’s options aside from college. *“My own personal opinion is that it’s a little bit of a parenting problem. Everybody tells all of their kids, you’re going to go to college, and you’re going to go study, and you’re going to get a biology degree but you’ll work at T.J. Maxx or wherever you can get the job”* (contractor). One contractor stated that trades workers are amongst those encouraging their children to go to college instead of craft labor. A list of specific suggestions for better recruitment can be found below.

Several contractors reported that the “bad” image associated with trades work led to low recruitment. *“There’s a stigma that comes along with construction that they’re [trades workers] all Neanderthals. They’re uncivilized or unintelligent. That they’re not a welcoming group”* (labor partner). One contractor stated, *“the construction industry has a negative persona...you know, they’re guys that when a gal walks down the street they whistle at ‘em. That’s craziness. We don’t see that happening but I think kids grow up maybe hearing stuff like that or maybe their parents felt that way.”* One contractor suggested shifting the image of trades work and workers from a “negative persona” to an image similar to athletes based on pride, teamwork, and creating bonds. *“It’s an opportunity to create some real bonds with some people and when you build something together, when you construct something together with someone, you feel, you share the success of that team...everybody out there is a construction athlete. You have to be in good shape to do the*

work. You get to exercise your body. You get to use your mind to solve problems and so you are truly a construction athlete” (contractor).

Contractor and labor partners’ suggestions for recruitment

<i>Recruitment strategy</i>	<i>Recommendations</i>
Recruit in schools	Send craftsman to talk with students not people who sit behind desks Bring prospective students to a jobsite Recruiting should be done in every school district Educate parents that college is not the only option for their children Celebrate when students choose a trades career the way that college admissions are celebrated Build relationships with students vs. one-time conversations.
Recruit in communities	Recruit in rural areas where other industries are slowing down Relational recruitment- Recruit from within your communities
General recommendations	Change the image of the trades Focus on the value of trades skills

Contractor and labor partners’ suggestions for improving jobsite culture

<i>Area for improvement</i>	<i>Suggestions</i>
Create a mentorship program	On-site mentorship helps apprentices build relationships Supports workers build necessary skills making them more valuable workers Leads to better jobsite experience Participants should be vetted and approved Minimize isolation
Buy in from management, contractors, and agencies	Positive jobsite culture has to come from the top down Contractors should be part of apprenticeship training programs Praise workers instead of belittling them Willing to hire and train workers of color and women Must be honest about their jobsite cultural problems
Update from old ways	Older forms are outdated and have built in bias Update language that may be offensive Move towards digital forms vs. paper and pen Update communication modalities e.g. texts vs. phone calls
Anonymous reporting	Anonymous reporting mediates fear of retaliation or job loss Anonymous reporting controlled by third-party Make the grievance process more accessible
Apprentice voice at the table	Apprentices/apprentice perspective should be more involved Apprentice opinions should be valued and sought after Apprentices bring a newer perspective Apprentices are most knowledgeable about resolving apprenticeship retention issues

The biggest recommendation for retention suggested by half of those interviewed revolved around changing jobsite culture. As one contractor stated: *“We need more cultural shifting to continue to occur towards making it a safer environment, not physically but mentally and socially”* A labor partner reported *“I think we lose more workers to harassment, discrimination, racism, and bullying.”*

Aside from jobsite culture, three contractors stated that more money would retain workers. Several recommended that flexibility in the jobsite would help retain workers (see discussion above). When specifically speaking about overnight work, one contractor suggested, although highly unlikely, shifting away from overnight work. Seasonal contractors suggested financial management classes. As one contractor stated, *“It's tough for people to learn how to budget accordingly. You know they get the big checks in the summer and they think that's what it is”* but without financial planning these workers are left with minimal funds during the off season. Seasonal contractors also suggested improvement of unemployment benefits and making health and welfare benefits carry through the winter.

What contractors and labor partner need to better take on recruitment and retention

There were four main areas of support or change that contractors and labor partners identified that would help them take the lead on recruitment: addressing shifting mandates, incentives, resource and outreach groups, and working with contractors and labor partners. All of the areas relate back to change. We cannot continue to do things the way they have always been done—it has been unsuccessful. When speaking about retention and recruitment, one contractor stated, *“It's kind of like Einstein's theory of insanity. We keep doing the same thing and expecting a different result. We've been trying that for like fifty years and we have a zero success rates. We need to come up with a new approach.”* Contractors and labor partner's suggested changes or new programs/support opportunities are detailed in the following sections.

Address shifting mandates

The largest response to contractors and labor partner's needs from the industry revolved around problems associated with mandates and suggested that mandates have more flexibility or be changed completely. *“As an industry we've done the bare minimum to meet requirements. It's the letter as opposed to the intention of the law. I think it's time to change the letter to better meet the intentions”* (contractor).

Loopholes

“I think that the program now is endlessly full of loopholes, right? And so, here's how it works. There's a target for the number of apprentices on a project. So, companies are incentivized to say, “if you award us this contract, we're going to bring this many apprentices on the project.” We go, “oh, that's great.” But oftentimes what happens are they're filling up their roster with apprentices but not doing productive work. They're bringing on apprentices... and they've actually started a new classification, ‘Material Handling’. They go, “Okay, your job is just, you got to move the pipe.” Which is a job and I don't want to minimize that, but over the course of their four years of apprenticing, they don't get any skill development. They get the bare minimum.” (Contractor)

A focus on enforcement of mandates rather than developing better solutions often has the unwanted effect of contractors utilizing loopholes (see box above). *“Anytime you’re mandating a contractor-this trade, this many hours by trade, by person, by craft, by class, anytime you do that now you’re introducing gamesmanship and I personally think it does more harm to the apprentice than whatever ODOT’s goal is”* (contractor).

Flexibility was suggested for times when fulfilling mandates is nearly impossible. *“Everybody right now is asking for a female or a minority or someone from a specific zip-code or whatever characteristic. So now we have folks on our list that might be Caucasian males that could be apprentices out working but they don’t meet the specific requirements. So instead, what happens? There’s no solution. It’d be different if you were bypassing somebody with that characteristic but [instead] you just have nobody doing workforce”* (labor partner). Contractors and labor partners also related that many mandates negatively impact small contractors who may be unable to meet the standards of some mandates.

One contractor noted that mandates often go into play before the jobsite is sufficiently prepared. *“I think the cities need to back off a little bit on the goals and make more realistic visions on what the goals should look like ”* (contractor). One example given was the mandate on workers pf color. Workers of color are mandated on jobsites yet we haven’t created a jobsite that welcomes them. *“How are you going to recruit and build safety around them while they come onto the jobsite? What’s the plan for that? Because you’re not going to retain those individuals”* (contractor).

Incentives

Several contractors suggested incentivizing aspects of the industry, mandates, or programs. Incentives include tax credits, RFP points (Request for Proposal), bonuses, and good press.

Area for improvement	Suggestions
RFP points	Include RFP points for retention in contracts that are best value, CM/GC (Construction Manager/ General Contractor), or another alternative method of procurement (not low bid). <i>“I’m going to get more points and hopefully get awarded this project because I do this very intentional recruitment and retention. I’m going to get recognized for that value”</i> (labor partner). Contractors also suggested having a <i>“fund of dollars you can apply against the value of your bid”</i> or <i>“get a buy down on their labor rate”</i> (contractor) as contract incentives
Tax write-offs/credit	Contractors should be allowed tax write-offs/credit for financial support of pre-apprenticeship programs, construction courses, and high school programs.
Bonuses	<i>“Let’s make it a huge incentive to contractors to keep apprentices and journey them into year 5”</i> (contractor). Several contractors suggested a monetary bonus such as \$1000 or more for every apprentice retained through year 5.
Good Press	Recognize contractors who retain apprentices. Give them press. Publicize a list (best contractors, great contractors to work for, etc.). <i>“Everyone responds to competition”</i> (contractor).

Resources and outreach groups

“Well, contractors by most part are tapped out. Very often, [they] don't have very much time to spend on the most important part, which is recruitment” (contractor). Several contractors reported that locating resources, programs, or partners can be hard to do and time consuming. Oftentimes smaller contractors need additional technical or office assistance for some of the mandating requirements. Offering trainings for these contractors as well as support and enough time before roll-out would benefit many contractors.

Contractors and labor partners also suggested creating outreach or collaboration groups. One contractor cited the Puget Sound’s Regional Pre-Apprenticeship Collaboration (RPAC) group as an example to look towards. The RPAC is a “grouping of contractors, unions, public owners, community-based organizations, and pre-apprenticeships that come to the table and talk about workforce needs, how to make trainings more efficacious, etc. Something like that in Oregon would be great” (contractor). Another suggestion to support contractors is a BOLI or ODOT funded outreach group.

Outreach Group

What I would ask to be considered is I think that BOLI via ODOT, or however they want to handle it... I think that there is the potential to create an outreach group. A resource provider because there are so many different groups out there. And if you're in the work every day ...it's not that you don't want to know, that's your job... Most Construction Companies don't have the scale and mass to be so forward thinking. They just don't. It takes a lot of resources to do it. I'm talking about a network of people that are going out and meeting with every contractor. “Hey, let me take you to lunch, I want to tell you about how we can get you connected and get you involved. Here's all the programs that we're offering. Here's the best way to do it. This is where we see the most success.” People will go “Awesome. I got somebody, I have a person.” In the absence of that, the rest of it is just crap. Just bag it. It has to be an outreach program to the contractors...invest in contractor awareness.” (Contractor)

Listen to us and work with us

Many contractors stated that although skeptical they were glad BOLI and ODOT were asking them for their thoughts (referencing this interview). “We’ve been operating for 72 years and I’ve never heard from BOLI, unless we have an issue” (contractor). Contractors and labor partners suggested more opportunities to express their needs, ideas, and thoughts—their voices to be heard. Several interviewees are hopeful that their feedback will make an impression. “I hope this information comes back and what I really hope is that they go, “we want to put together a team and figure out what can we do?” How can we initiate some of these things?” (contractor). Additionally, several interviewees welcomed a call back to discuss these issues and their ideas further.

Many contractors reported that BOLI and ODOT do not come to the table as partners. “We’re all a team. We’re all different levels of that team but we all have one job to do...get the project done” (contractor). They want their insights listened to. When mandates can’t be met beyond circumstances of their own, contractors are often told “it’s your problem, figure it out” (contractor). Instead, contractors want BOLI and ODOT to work with them. “It’s all of our problems. This is a team problem. How do we think outside the box together?” (contractor). As one labor partner suggested, “join us, but let us lead...and support us” (labor partner).

Comparison of the perspectives of apprentices, contractors, and labor partners

In this section, we compare apprentices’ perceptions to the perceptions of contractors and labor partners. First, in reflecting on the factors impacting apprentices’ ability to complete their apprenticeship, apprentices, contractors, and labor partners noted that jobsite culture was a key factor. However, views of these two groups diverged on the relative importance of other issues impacting completion.

Contractors primarily emphasized the lack of a work ethic among apprentices. Not surprisingly, apprentices very rarely reported their own lack of a work ethic as the reason they left their apprenticeship! While certainly some apprentices avoid working hard, it is more likely that behaviors that contractors interpret as a lack of work ethic (e.g. slow to complete tasks, being unhappy at work, absenteeism) may, from the apprentices’ perspective, be due to other factors (e.g. lack of training, poor jobsite culture). Interestingly, labor partners did not cite lack of work ethic as a reason but that newer generations of workers expect more from their jobs e.g. expect to be treated with respect, be safe on the job, and have a healthy work/life balance and will not settle for less.

Major factors impacting apprenticeship completion

	<i>Apprentices</i>	<i>Contractors and labor partners</i>
Most common factors	Left for other opportunities Financial challenges of accessing OJT hours or receiving low pay Jobsite culture Illness, injury, or concerns about safety (not explicitly related to Covid-19) Poor-quality training on the job or in the classroom	Jobsite culture Lack of work ethic
Additional factors	Covid-19 Relocating Travel Family issues Work hours Military service	Cultural shifts regarding concepts of work Travel and transportation Covid-19 Workplace policies Safety Lack of training on the job

When contractors and labor partners were asked their thoughts about apprentices’ reports that they left due to a lack of OJT hours or low pay, contractors primarily focused on the issue of pay rather than engaging with apprentices’ reports that inconsistent work was the primary reason that they left. Labor partners were more likely to address inconsistent work as a reason for leaving primarily regarding who is first to be laid off or sent back because they are no longer needed. When asked about apprentices’ reports about illness, injury and safety as well as poor quality training, contractors acknowledged that these may be issues for apprentices. However, these were not central to contractor and labor partners’ understanding of retention of apprentices except where it related to jobsite culture e.g. feeling unsafe due to being the only person of color or bullying.

Additionally, poor quality training on the job and in the classroom were issues consistently brought up by apprentices but seldomly by contractors and labor partners.

As shown below, while apprentices’ suggestions for changes to the industry had some overlap with contractor and labor partners’ suggestions (e.g. addressing jobsite culture, improve mentoring on the jobsite), the two groups also had some significant differences.

Suggestions for the industry to improve recruitment and retention

	<i>Apprentices’ suggestions</i>	<i>Contractors and labor partners’ suggestions</i>
<i>For contractors</i>	Address jobsite culture (e.g. more women and people of color in leadership, trainings) Improve mentoring and training on the jobsite (e.g. contractor commitment to training apprentices, mentors need more training on how to each effectively) Expand benefits	Address jobsite culture (e.g. update policies and practices, anonymous reporting, include apprentices at the table) Address stigma of working in the trades Improve mentoring and training on the jobsite (e.g. create mentorship programs)
<i>For unions, apprenticeship programs, and pre-apprenticeship programs</i>	Change how apprentices access work (for equity in access to work) Increase pay rates Improve apprenticeship classes (e.g. more hands-on training)	Early and expanded recruiting, with a primary focus on recruiting in educational settings Mentorship (outside of jobsites)
<i>For public agencies</i>		Address loopholes in industry policies Address shifting mandates Provide incentives for contractors who are successful with recruitment and retention Better communication and collaboration between public agencies and contractors

Recommendations

Data collected for this needs assessment provide insight into how the retention of apprentices might be better supported through structural changes to the apprenticeship system. These recommendations are consistent with the recommendations from previous evaluations of the ODOT/BOLI Highway Workforce Development Program (Kelly and Wilkinson 2020, Wilkinson and Kelly 2018) as well as the recent Metro Market Study (2018). Many of the specific suggestions below are also components of the Safe From Hate Alliance. Contractor, public agency, union, and apprenticeship program participants in the Safe From Hate Alliance commit to four components of the jobsite culture pledge: “1) We will enforce a zero-tolerance policy; 2) We will implement and expand positive jobsite culture education on all our jobsites; 3) We will continue to work with

our community partners to support and recruit diverse talent; 4) We will cultivate retention and leadership development efforts.”

Recommended changes to the industry

Increase efforts to recruit a diverse construction workforce through expanding pre-apprenticeship and partnering with community organizations.

Revise current processes for assigning work to ensure equitable access to on-the-job hours for women and people of color

Promote respectful workplaces through employer policies and worker trainings

Create a system for reporting harassment and discrimination across jobsites

Ensure teaching and mentorship on the job through worker training, employer policies, and public agency oversight

Provide opportunities for apprentices to rotate out of jobs where they are not learning the skills of the trade

Provide additional flexibility in work schedules and provide opportunities for apprentices to rotate out of jobs that are not a good fit because of the schedule or location of the jobsite

Increase understanding of challenges across stakeholder groups

Expand efforts to recruit a diverse construction workforce

The findings of this report show that the recruitment of women and people of color into highway trades apprenticeship *declined* in 2020-2021. Pre-apprenticeship remains, to date, the only approach that has been empirically documented to increase the recruitment of women into the trades in Oregon (the impact of other approaches, such as school outreach and women in trades fairs has not been assessed). This is a critical tool for increasing the recruitment of a diverse workforce and pre-apprenticeship programs should be expanded. Additional ways of recruiting, such as engaging with community partners, will need to be expanded to increase the access of women and people of color to apprenticeship.

Revise current processes for assigning work to ensure equitable access to on-the-job hours for women and people of color

Being out of work and being unfairly let go were among the problems most highly correlated with termination and a lack of access to on-the-job hours was a common reason for leaving apprenticeship. Our analysis shows that white women and women of color were more likely to experience these problems than men. A review of the processes for assigning work and ensuring equal access to on-the-job hours should include using an equity lens to think through who’s first to get laid off, who gets sent back to the hall or told they are no longer needed, and who gets bounced from jobsite to jobsite.

Promote respectful workplaces through employer policies and worker training

Being negatively impacted by jobsite culture was also among the problems most highly correlated with termination and was a common reason why apprentices left the trades. Apprentices, contractors, and labor partners agreed that addressing jobsite culture will be critical for improving retention of a diverse workforce. Respectful workplace models such as RISE Up and Green Dot

for the Trades hold promise as approaches to addressing jobsite culture (see Haines et al 2020). While employer policies and trainings were listed as important to improving workplace culture, labor partners and contractors also stated that all upper management needs to buy into the importance of these trainings. Policies and trainings need to include upper management as they set the tone for the workplace. These trainings and policies should also be implemented throughout companies, not simply on one jobsite.

Create a system for reporting harassment and discrimination across jobsites

Contractor and labor partner interviewees suggested a specific way to improve jobsite culture would be to implement a system for apprentices to report harassment and discrimination. Contractor and labor partner interviewees noted that any system for reporting harassment and discrimination would likely need to be anonymous due to fear of retaliation. As an alternative, some interviewees suggested that a third-party be responsible for overseeing reporting systems allowing the system to be impartial and further mitigate opportunities for retaliation. One option would be to have a statewide ombuds office responsible for receiving and resolving complaints of harassment and discrimination from workers in the trades. This could be either a new office dedicated to the construction industry or an expansion of the current Ombuds Office for Oregon Workers.⁶

Ensure teaching and mentorship on the job through worker training, employer policies, and public agency oversight

A lack of quality training on the jobsite was a common reason for why apprentices left the trades. Additionally, having poorly trained apprentices journey out is a problem for both workers and the industry. Key changes will include ensuring that each apprentice has a more senior worker to teach them and that those who mentor apprentices receive appropriate training on how to teach apprentices the skills of the trade. While teaching and mentorship is highly recommended for apprenticeship, contractor and labor partner interviewees also suggested that all employees, not just apprentices, should have a mentor, that mentors be vetted to assure that they have the leadership skills to mentor, and that the mentors be paid for their time, particularly mentors that hold marginalized identities, such as people of color and women. One way to ensure the necessary teaching and mentorship occurs would be through BOLI oversight. For example, BOLI might require an agreement between apprenticeship committees and contractors that describes the contractor's responsibilities as a training agent.

Provide opportunities for apprentices to rotate out of jobs where they are not learning the skills of the trade

Poor quality training on jobsites is one of the most common reasons why apprentices leave. While improving the overall quality of jobsite training for the industry is an important long-term goal, a short-term goal would be to ensure that individual apprentices are not stuck on jobsite where they do not have opportunities to learn. It's been suggested that allowing apprentices to gain a wide view of their field can help with retention. Along with learning new skills, rotating apprentices

⁶ More information on the Ombuds Office for Oregon Workers available at <https://www.oregon.gov/dcbs/OOW/Pages/index.aspx>

also offers apprentices opportunities to work with different co-workers and helps remedy situations wherein apprentices find themselves flagging, cleaning, or performing a menial task for the majority of their training.

Provide additional flexibility in work schedules and provide opportunities for apprentices to rotate out of jobs that are not a good fit because of the schedule or location of the jobsite

Some apprentices left the trades when a specific jobsite was not a good fit for them, such as jobsites too far from home, jobs with long hours, or jobs with problematic schedules. These apprentices could have been retained if they had some flexibility or the opportunity to rotate onto other jobs without negatively impacting their ability to stay consistently employed. Some contractor and labor partner interviewees suggested finding ways to be flexible where possible. They discussed the difficulty of competing with jobs with flexible hours and work from home options. Some contractors are experimenting with four ten-hour shifts per week, minimizing travel when possible, and having more flexibility for days off.

Increase understanding of challenges across stakeholder groups

As shown by the findings of this study, there is a gap between the experiences of apprentices that lead them to leave the trades and perceptions contractors and some labor partners about why apprentices leave. For example, contractors and labor partners agreed with apprentices that jobsite culture was a major factor impacting retention; contractors and labor partners were not as aware that access to on-the-job hours and poor-quality training on jobsites were other common reasons why apprentices left the trades. With an increased understanding of the problems apprentices experience and the reasons why apprentices leave, contractors and labor partners may be better able to make structural changes to employment and the apprenticeship system that would improve the retention of a diverse workforce. Additionally, both contractors and labor partners alike stressed that working together was key to solving issues within the field. Key stakeholder groups interviewees identified included ODOT, BOLI, contractors, and apprenticeship programs. It's evident through these interviews that contractors and labor partners are devising creative solutions to recruitment and retention issues and have valuable insights. Interviewees appreciated being asked their thoughts and welcomed further conversations.

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APPENDIX A. Research Design

Administrative data

This evaluation draws on data from BOLI's Oregon Apprenticeship System (OAS) database of registered apprentices. This data includes apprentices' gender, race, age, status (completed, terminated, active), start and end dates, union status, and trade. Additional Program participation data includes the type of service provided. Apprentices who canceled with zero credit hours and apprentices with a status other than completed, terminated, or active were excluded from analyses. Missing data was accounted for using the multiple imputation by the MICE system of chained equations (White, Royston, and Wood 2011).

2022 Survey of Oregon Apprentices

The 2022 Survey of Oregon Apprentices was funded by the Oregon Department of Transportation and the Oregon Bureau of Labor and Industries through the Program. This data was gathered to evaluate the impact of the financial and non-financial services to apprentices offered through the Highway Construction Workforce Development Program (See the 2022 report on Program Evaluation) as well as obtain information about apprentices' perceptions about apprentices' challenges and the needs of the industry. The survey was developed and conducted by the author with additional assistance from graduate research assistants.

Data collection occurred between April and June 2022. Participants were initially offered a \$5 incentive for completing the survey. After a low response rate in the first two weeks of administering the survey, the incentive was increased to \$10.

The population for the survey was all individuals who either completed or terminated a registered apprenticeship in Oregon in 2020 or 2021. OAS data included names and telephone numbers for all apprentices in the population. An unknown percent of these telephone numbers were no longer correct when called by the research team, because apprentices moved (landlines) or changed numbers (cell phone) since leaving their apprenticeship. Many, but not all, phone numbers in the OAS data were cell phones.

All apprentices in the population were sent a link to the Qualtrics survey via text (N=5886). A total of 134 apprentices completed the survey after being contacted via text (2.3% response rate for text survey). A stratified sample of apprentices who did not respond to the initial text (and did not opt out of additional contact from the research team) were sent a second text. Those who didn't respond to the second text were contacted via telephone. This stratified sample included all apprentices who received services through the Program, all women apprentices, all apprentices of color, and a random sample of white men apprentices. A total of 1033 apprentices were called and 97 participants completed the survey over the telephone with a member of the research team (9.4% response rate for telephone survey). A total of 231 former apprentices completed the survey.

Apprentice who received services were asked questions about how the services helped them and suggested changes to the program. All apprentices were asked questions about the reasons they left their program (for those who terminated), their job after apprenticeship, why they chose a

union or non-union program, the challenges they experienced, experiences of jobsite harassment, how Covid impacted their apprenticeship experience, childcare arrangements, suggested changes to the industry, and demographic questions (gender, race, age, status (completed, terminated, active), start and end dates, union status, and trade.

Interviews

Interviewees were chosen by the Oregon Bureau of Labor and Industries (BOLI) and Oregon Department of Transportation (ODOT) or were recommended by other interviewees or labor partners. In total, thirteen⁷ individuals were interviewed for this report: Six contractors, two general contractors, one representative from a minority association, one union representative, and two representatives from pre-apprenticeship programs. Those interviewed held positions such as recruiting manager, human resource manager, chief executive officer, director of apprenticeship, workforce development specialist, and construction services manager. Contractor's craft specialty ranged from bridge building, drywall & framing, heavy civil infrastructure, asphalt paving, highway construction and concrete. Contractors and labor partners were asked their thoughts on issues of recruitment and retention and what recommendations they had, if any, on how to improve both.

⁷ Two employees working for one contractor were interviewed. Employees held two different positions that could speak to apprenticeship retention and recruitment.

Demographics

Demographics of apprentices completing or terminating in 2020-2021

<i>Demographic</i>	<i>Survey sample</i>	<i>All trades</i>	<i>Highway trades</i>
Status (%)			
Completed		70	56
Pre-apprentice (%)			
Completed pre-app		13	1
Program services (%)			
Received services		20	6
Union status (%)			
Union		63	53
Non-union		37	40
Mixed		-	6
Race (%)			
White		67	75
Latinx		18	16
Black		5	4
Asian		3	2
Native		4	3
Hawaiian/PI		-	<1
Other		1	-
Multiracial		1	-
Gender (%)			
Men		77	93
Women		21	7
Non-binary		2	-
Sexual identity (%)			
Straight		91	-
Queer		9	-
Parenting status (%)			
Not a parent		50	-
Parent to child under 5		37	-
Parent of children 6-17		35	-
Age at start (Avg)			
Average age		35	30
Total apprentices (N)			
Total		231	5888

Demographics of apprentices starting in 2014-2015

<i>Demographic</i>	<i>All trades</i>	<i>Highway trades</i>
Status (%)		
Completed	58	53
Terminated	42	46
Active	1	1
Pre-apprentice (%)		
Completed pre-app	2	4
Program services (%)		
Received services	7	13
Union status (%)		
Union	53	61
Non-union	39	39
Mixed	8	-
Race (%)		
White	79	72
Latinx	12	15
Black	4	6
Asian	2	2
Native	3	4
Hawaiian/PI	-	-
Gender (%)		
Men	94	92
Age at start (Avg)		
Average age	29	28
Total apprentices (N)		
Total	4811	2363

Demographics of apprentices starting in 2020-2021

<i>Demographic</i>	<i>All trades</i>	<i>Highway trades</i>
Status (%)		
Completed	4	<1
Terminated	17	17
Active	77	81
Pre-apprentice (%)		
Completed pre-app	<1	<1
Program services (%)		
Received services	4	8
Union status (%)		
Union	52	63
Non-union	42	37
Mixed	6	
Race (%)		
White	73	69
Latinx	17	19
Black	4	5
Asian	2	5
Native	3	3
Hawaiian/PI	<1	<1
Gender (%)		
Men	91	89
Age at start (Avg)		
Average age	30	28
Total apprentices (N)		
Total	6165	3031

APPENDIX B. Experiences of harassment and discrimination

Below are all responses from the 2022 Survey of Oregon Apprentices to the open-ended question: “Could you briefly describe how you were harassed or discriminated against?”

Women of color

Given less than desirable jobs or being told there was no work for me when everyone else was overworked. (Native heterosexual woman)

I was the only person of color, they always wanted me to clean up. (Black heterosexual woman)

This guy on my first jobsite invited me to a beach alone with him--I was 19 at the time and his was 40--and I make a list of reasons why I couldn't go with him, but it was hard. (Black heterosexual woman)

Being asked if I was the cleaning lady even though I was clearly wearing electrical company logo. People looking me up and down and smirking/ sniggering. Guy says “ugh, now I have to watch what I say” when I arrived and introduced myself. Hearing guys discuss whether or not they would want to date me while I'm working in the area, guy said he would not want to date me because he prefers “American girls”. SMH [shaking my head]. I am American, but I'm not white. Multiple other small things like that. (Latinx heterosexual woman)

My first job my superintendent slapped my butt and constantly made comments about my body and what I ate. I was fired. In another company two superintendents would made unwanted sexual comments and continued after I reported. The second supervisor was considered more valuable to the company than I was and as a result of me reporting being called a bitch in front of coworkers I was put on leave instead of him and fired shortly after. There is no point in perusing legal action because in this industry everyone eventually works together and you will be black balled. Meaning no one will hire you. (Latinx heterosexual woman)

Men of color

Religious differences (Native heterosexual man)

Called discriminatory names. Sometimes in front of the class. (Asian heterosexual man)

I wouldn't wear a mask because I have a note from my doctor about my disability and was segregated for two months and then fired. (Asian heterosexual man)

I'm a person of color in a mainly white person trade (Black heterosexual man)

Racial jokes and slurs, but there has been positive culture shifts (Black heterosexual man)

Racially (Black heterosexual man)

Being new, it was tough to keep up with everyone. I'd have run ins with guys who had issues with you not being able to keep up, a lot of bullying (Latinx heterosexual man)

Essentially you're just treated like a freshman in high school. Your word doesn't mean much, and even if you have some experience, no one treats you like you do. (Latinx heterosexual man)

If you weren't able to speak their language correctly, that'd call you all sorts of names. Some of the old journeymen would be extra with the whole sexual harassment. (Latinx heterosexual man)

Race (Latinx heterosexual man)

Stigma about being Mexican; racist Mexican jokes; automatic isolation because I'm not the same "color" as them. Elitism; old racist mentality, non-union shops tend to have personnel like this (Latinx heterosexual man)

Bullying, constant bickering. When they saw that you were reacting, they would push harder (Latinx heterosexual man)

In Deschutes county the Hispanic community is very small and being a minority in a very white dominant trade, people made jokes, push political views that would talk bad about Hispanic (Latinx heterosexual man)

White women

A foreman talked about how funny it would be to punch me. (white heterosexual woman)

Being told that they don't know how to work with a female. No one wanting to work with me because I wasn't strong enough or talked too much, but no one letting me know but complaining to everyone else including the owner. (white heterosexual woman)

Giving me "female tasks" like cleaning up. (white heterosexual woman)

I had some guys make comments about my sexuality or ask inappropriate questions. Confronted racism as well and didn't receive support from supervisors. No HR to deal with that. (white queer woman)

I was let go because I wouldn't do sexual favors for a foreman; I had a journeyman kiss me; I had to dig a ditch with a shovel for six months because I had to prove I was able to tough it out. I was constantly having the things that I did get taken apart and degraded. (white heterosexual woman)

I was the journey level carpenter , but my foreman put a fourth term apprentice in charge...that apprentice messed up a lot of the layout and grading. After a while I found I was secluded from my crew (literally working a few hundred yards away). I'd ask my crew for help but they wouldn't help me. I later found out that the apprentices were telling other crew members not to help me. I brought this to my superintendent's attention [name] and he told me that discrimination is a big word. Then I was laid off the next week for lack of work. I talked to my union reps who were, again, no help. Apparently, the contract says that BOTH parties has to agree it's discrimination; needless to say [name] and [contractor name] did not agree that it was discrimination. Just typing this stuff out is causing me to cry and become upset. And this is just one of the many many horrible experiences I've had during my apprenticeship. I learned NOTHING from commercial employers during my apprenticeship. The lack of support for women on the worksites is appalling (white queer woman)

Just random one-off comments, or belittling. Nothing grand or remarkable (white heterosexual woman)

On one job, I had WD-40 and a guy asked to use it and I said sure. Later that day he took it out of my box and hid it, pretending I was crazy when I tried to look for it. He also took my tools and dumped my tool bag into a mud hole. The job foreman also asked me to do stuff I shouldn't have done alone, walking across ice or snow with long beams. I stepped into a hole I couldn't see and had to lift that beam out. Once I was told to climb a 40-foot ladder with no safety rigging. When I asked for safety material, they told me they'd move me to another jobsite. I was hazed and discriminated the whole time. And when I complained, I was moved off jobsites and told I would be black-balled if I filed a lawsuit. I also worked in logistics and there was nothing to do: they just made me sweep the whole time, no learning involved. If I couldn't lift something heavy I'd hear "get out of here, throw your purse at it, put your CHEST into it" jokes like that. My husband was abusive, so when men would use certain tones with me, I would feel really scared and upset. (white heterosexual woman)

One day I was working out of town, and my boss had told me I needed to get a hold of him on Sunday to learn about more work. I messaged him on Sunday as I was told to do. Then my boss had been drinking, and sent out a group text to 13 other workers, complaining that I had reached out, how I was so annoying, a bitch, and wouldn't leave him alone. I let it go. Then he tried to bully me to switch apprenticeships. At a meeting, I was asking questions about switching apprenticeships, and someone texted my boss saying that I was asking questions. Then he messaged me and told me to find another job. (white heterosexual woman)

Physically and told a boss about that in strict and explicit confidence which they betrayed and may have effectively ended my career based on the info. By boss I mean company owner, whom I told during a breakfast meeting for the women in his company to discuss these issues so that they could be good allies (white heterosexual woman)

Sexual comments, given tasks not relevant to the job, assumptions I wouldn't be able to do the work (white queer woman)

Sexual harassment happened pretty much everywhere I worked. Supervisors didn't want to train me and assumed I was incapable of doing my job. I had to prove myself repeatedly to be worthy of a chance. (white heterosexual woman)

I was assigned sweeping for months on end while other male apprentices newer to the company were trained, someone took photos of my butt while I was bent over and shared with co-workers/friends, same person was my journeyman and later a lead on a job where he mentioned to a co-worker he could get me beat up. (multiracial heterosexual woman)

White men

Being treated as property and scapegoated for all supervisors' shortcomings (white heterosexual man)

Called the project manager because the foreman was sitting in the trailer on his phone and smoking his vape while I was a third-year apprentice doing the work for the foreman. (white heterosexual man)

Felt isolated because I wasn't loud and obnoxious (white heterosexual man)

I'm a white male was put on the back burner (white heterosexual man)

Just being made fun of for lack of knowledge (white heterosexual man)

Just obvious that I was more liberal and people would comment on that (white queer man)

Just seemed like there always needed to be a certain hat one could wear to get things easier but it's good in a way (white heterosexual man)

Mainly for political views (white heterosexual man)

More on the jobsite, just the construction realm. You're around a bunch of rough fellows (white heterosexual man)

My sexuality was questioned one too many times, and too many jokes were made about it. (white queer man)

Saw something unsafe, nothing was done to ease my concern. I said OSHA and the person got mad and hit me with their hard hat on mine. Another time I witnessed someone tell another "not to be a Mexican" (white heterosexual man)

The company was major religious and I was not and harassed into going to church (white heterosexual man)

The tradesmen are quick to make fun of men who aren't masculine or who aren't already experienced in a trade. (white heterosexual man)

There were comments made in fashionable ways. (white heterosexual man)

There were times when I was around a specific individual or two and they treated me like absolute crap. I ended up reporting one person to my union rep. He would scream at you all day long, call you every name he could think of. The reason I reported him was because I was [working], and because of my experience, I was doing well, and my foreman walked over and looked at it, and said to his journeyman: how does it feel to be beat by an apprentice? Right after that, the foreman took a can of break clean and started squirting on the metal that I was cutting. I saw a liquid splashing on the plate in front of me. I kept working and took a breath, and I went down, suffocating. The foreman is standing there with this horrified look on his face, like, don't die. After that, he came up and apologized. He was squirting non-flammable break clean, and it could have killed me. (white heterosexual man)

You get harassed as an apprentice. But when you are working your heart out and leadership is down in the office working out other problems. To call me on the phone and tell me you are going to fire me, that just is damaging. (white man)

APPENDIX C Apprentices' recommendations for changes to the industry

Below are selected responses from the 2022 Survey of Oregon Apprentices to the open-ended question: “What changes to the industry would help with the challenges you experienced?”

Changes to industry to address recruitment

<i>Change (Frequency)</i>	<i>Selected quotes</i>
Improve or continue efforts to recruit of a diverse workforce (8)	<p><i>I think that apprenticeship programs need to get out there more, fewer people are going into the trades. Not many people know about trades as an option</i></p> <p><i>The field is becoming more and more diverse and it is awesome to be able to tell my customers that women in the field are becoming more of a thing. I think we are moving in the right direction; we just have to keep moving that way.</i></p> <p><i>More women entering the field.</i></p> <p><i>More women, queer people, and other minorities in the trade.</i></p>

Changes to industry to address jobsite issues

<i>Change (Frequency)</i>	<i>Selected quotes</i>
Improve jobsite mentoring and training (18)	<p><i>There's a mentality that the journeymen were treated like shit during their apprenticeship, so my apprentices should be treated like shit. Trainers need a mentality shift.</i></p> <p><i>Contractors need to be held accountable to really commit to teaching apprentices the trade they signed up for.</i></p> <p><i>Need to be properly trained with time under supervision on the job.</i></p> <p><i>We need female mentors.</i></p>
Do not change to jobsite culture (6)	<p><i>People are getting too sensitive.</i></p> <p><i>The industry is going soft, everyone's getting a participation award, not being held to a high standard.</i></p> <p><i>We need to weed the weak out the first year, nothing racial, nothing sexist, but if we have a lazy apprentice, I should be able to yell at them.</i></p>

Changes to industry to address financial issues

<i>Change (Frequency)</i>	<i>Selected quotes</i>
Increase access to work (4)	<i>Being able to find work</i> <i>None of the companies are looking for first or second term apprentices.</i> <i>"How can I get better if no one is giving me a shot?" It took me eight weeks to get my first job, until the union rep called someone and I got a job right away.</i> <i>Every single time I brought a problem to my boss's attention I was laid off due to "lack of work". I could never get established with a commercial company because I was always laid off first.</i>
Expand benefits (3)	<i>The trades workers don't get sick days or mental health days-we need that.</i> <i>The industry should get more of a maternity leave. I was laid off when I was six months pregnant, and when I came back there was no work for me</i>
Other financial assistance (12)	<i>In a non-union program, it would be nice if companies paid for school</i> <i>Employers should purchase the clothes or tools that they require employees to have</i> <i>If the union could buy RVs so that apprentices could buy or rent it from the union so they wouldn't have to sleep in their cars for the first couple years</i> <i>Not being charged to park outside of work</i> <i>Provide or endorse reliable child care</i> <i>Administrative changes at the CJATC training center would open up the program to a wider group of people at later stages of life that have existing financial obligations. Currently those people are priced out of the opportunity by being unable to cover expenses initially.</i>

Changes to apprenticeship and union policies and practices

<i>Change (Frequency)</i>	<i>Selected quotes</i>
Change how apprentices access work (7)	<p><i>Ensuring that both journeymen and apprentices can take jobs from the out of work lists, rather than companies selecting people which lets them blacklist people.</i></p> <p><i>When contractors put apprentices on, there should be commitment to a company. If you've been loyal to a company for 2 1/2 years, you should be able to keep working there</i></p> <p><i>A more streamlined system of getting onto a jobsite.</i></p>
Other changes to apprenticeship policies and practices (12)	<p><i>Program directors checking in with apprentices about their employers</i></p> <p><i>Better apprenticeship management. The person wasn't good at keep records, had to turn things in multiple times</i></p> <p><i>Hours should transfer from any relevant field work</i></p> <p><i>My biggest thing was just how we enter our hours for our apprenticeship. It was all manual, you had to enter everything in, and it wasn't on a computer. I</i></p> <p><i>Not being able to consume marijuana was a problem. Alcoholism was an accepted issue in the trade. The trades just expect that you'll drink away your problems.</i></p>
Other changes to union policies and practices (4)	<p><i>Maybe reminding union members that there are resources available either through the union, state or other entities.</i></p> <p><i>I do know that we have the programs available, but we need to make those programs easier to access (like sisters in the brotherhood). I think it would be better to have more community in the union and have more people talk to each other.</i></p>

APPENDIX D. Collaborative problem solving across stakeholder groups

As described throughout the report, there are a variety of issues impacting the recruitment and retention of a diverse workforce that will require collaborative efforts to address. Future conversations may benefit by the articulation of a specific problem statement and then brainstorming how each stakeholder group might contribute to solving the problem. Below is a template that might be used to facilitate these discussions as well as an example of a problem statement and potential solutions.

Template for collaborative problem solving across stakeholder groups

Problem statement:

<i>Group</i>	<i>Contribution to solution</i>
Apprentices	
Contractor	
Union (if present)	
Training Center	
Public Owners	
Supportive services providers (e.g. ODOT/BOLI Program, pre-apprenticeship, other non-profit)	

Example for collaborative problem solving across stakeholder groups

Problem statement: Apprentices do not have equal access to OJT training hours, women apprentices and apprentices of color are disproportionately impacted by a lack of access to work

<i>Group</i>	<i>Contribution to solution</i>
Apprentices	Regularly check-in with dispatcher, increase efforts to solicit work (if permitted)
Contractor	Include diverse apprentices as part of core crews to ensure ongoing employment; ensure that white men apprentices are not favored in layoff decisions
Union (if present)	Reduce apprentices' out of work time by having transition plans; provide hardship funds for out-of-work apprentices
Training Center	Track OJT rotation and work with training agents to have a clear training plan, including an on-site mentor who can be held accountable
Public Owners	Create incentives for contractors to keep diverse apprentices employed, for example, an incentive for advancing diverse apprentices at least two periods toward completion.
Supportive services providers (e.g. ODOT/BOLI Program, pre-apprenticeship, other non-profit)	Educate apprentices about the cyclical nature of employment in the industry, provide budgeting skills

APPENDIX E. Fact sheets for industry partners

On the following pages are fact sheets intended for industry partners that summarize key findings from this report. These fact sheets were developed in partnership with the PSU Graphic Design Lab.