

Oregon Department of Transportation

Report on the Use of Federal Funds to Increase Diversity and Prepare those Entering the Highway Construction Workforce (ORS 184.866)

INTRODUCTION

Oregon law (ORS 184.866) requires ODOT to expend one-half of one percent up to an amount of \$2,100,000 of the federal funds received each biennium by the Department of Transportation pursuant to 23 U.S.C. 140(b), to increase diversity in the highway construction workforce and prepare those interested in entering the highway construction workforce.

ORS 184.866 requires the department to submit a report to the Legislative Assembly by December 1 of each even-numbered year with an analysis of the results of the agency's efforts; the amount available to the department from federal funds for on-the-job training supportive services activities and the amount expended by the department for those activities; and the performance outcomes achieved from each activity, including the numbers of persons receiving services, training and employment.

BACKGROUND

ODOT's Highway Construction Workforce Development Program helps build a diverse, skilled construction workforce that will meet the needs of the Oregon heavy-highway construction industry now and in the future. The program provides support and services to individuals who are either preparing to enter or have entered a trade associated with highway construction. ODOT has partnered with the Oregon Bureau of Labor & Industries to provide services to expand diversity in employment, increase apprenticeship participation and increase training resources and opportunities for highway construction jobs throughout the State of Oregon.

Services broadly cover outreach and recruitment, pre-apprenticeship classes, and case management for individuals preparing to enter a trade, as well as transportation (fuel), travel-related expenses (per diem for lodging and meals when traveling more than 60 miles from home and incurring an overnight stay), job readiness supplies (work tools, work boots, rain gear, and personal protective equipment not provided by employers), child care subsidies (for apprentice parents without a family member at home to care for young children), and one-time hardship assistance for apprentices who are in a trade associated with highway construction with a goal of covering each of the supportive services described in ORS 184.866:

- (a) Pre-apprenticeship programs;
- (b) Pre-employment counseling;
- (c) Orientations on the highway construction industry;
- (d) Basic skills improvement classes;
- (e) Career counseling;
- (f) Remedial training;
- (g) Entry requirements for training programs;
- (h) Supportive services and assistance with transportation;
- (i) Child care and other special needs; and
- (j) Job site mentoring and retention services.

To implement the Program, the ten “activities” listed in the statute are grouped into a range of service types that fall along a continuum based on where individuals are in the process of being prepared to enter the highway construction workforce from first hearing about the industry and its construction trades to becoming a journey worker in one of those trades. The service types are directed toward providing (A) career exploration (including career education with youth and reaching adults in career transitions); (B) preparation of apprenticeship seekers (including technical assistance to Local Joint Committees on selection procedures and technical assistance to contractors {training agents} to develop career ladders); (C) preparation of apprenticeship applicants and pre-apprentice graduates; and (D) support for and retention of registered apprentices.

Ultimately the Program is designed to increase the diversity of the pool of skilled journey workers in the highway construction trades¹. We find that we are accomplishing this goal when looking at it from a broad perspective and when looking at it in detail. From a broad perspective, we compared the number of apprentice completions (i.e., new journey workers) for the 12 years prior to the program (2000-2011²) and the 12 years during the Program’s operation (2012-2023). During the time before the Program, women and people of color accounted for 655 new journey workers out of a total of 2,565 in the highway construction trades (25.5%). During the time the Program has operated, there have been 1,454 women and people of color becoming journey workers out of 3,767 total in the highway construction trades (38.6%). At this broad perspective, the 12-year average share for white men declined from 74.5% to 61.4% as the number of women and people of color has increased.

¹ For this analysis, we exclude Inside Electricians, because they didn’t become a targeted trade for services until March 2021.

² While the Program resulted from legislation approved in 2009 with an interagency agreement signed in 2010, the contracted services didn’t begin until March 2011. Of 1,142 apprentices who have received services and subsequently completed, only 1 became a journey worker in 2011, and that individual was a white male.

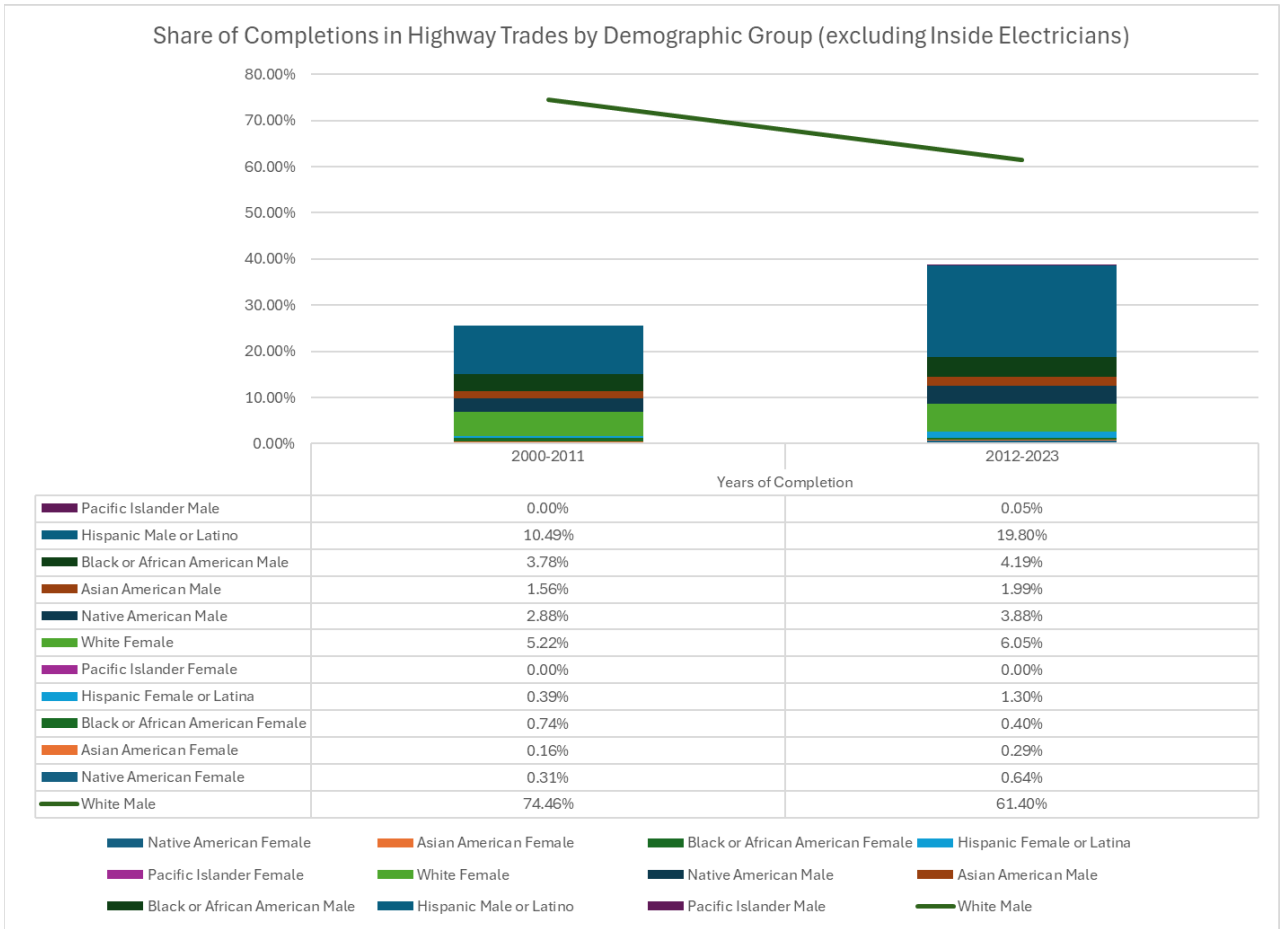


Figure 1 – New journey workers in highway construction trades in the 12 years prior to the Program and the 12 years during the Program.

Focusing just on trends during the Program’s operation, the two-year moving averages for highway construction trades (excluding Inside Electricians) have shown steady increases in the share of new journey workers represented by women and people of color with 45% of the completions in the two-year period of 2022-2023 being women and people of color. This compares favorably to changes for all construction trades, which also shows an increase of diversity but at a lower level of participation of women and people of color with 28% of the completions in the two-year period of 2022-2023 being women of color for all construction trades.

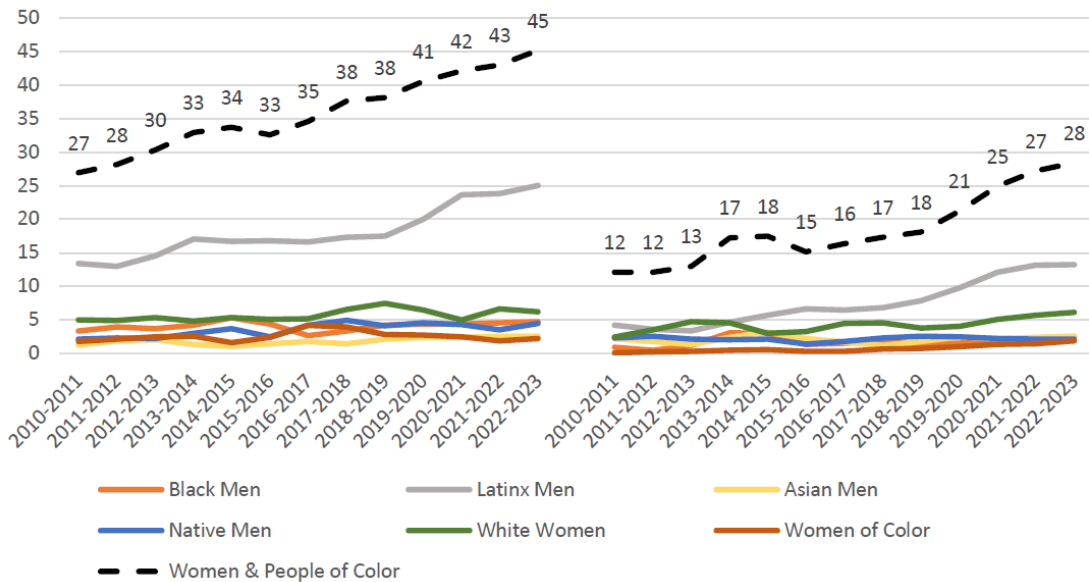


Figure 2 – Percentage of apprentices completing (i.e. new journey workers) who are women or people of color in highway construction trades (left graph) and in all construction trades (right graph), 2010-2023.

Portland State University recently evaluated the program using data about apprentices maintained by BOLI as the registration agency to explore in greater detail what is working and not working in the services currently offered. (See Wilkinson & Kelly, October 2024 in References). To measure the impact of services on completion rates, researchers focused on the cohorts who entered registered apprenticeship in the calendar years of 2016 and 2017, because they were expected to have completed by the end of 2023 when the research began.

The research found that the positive effects of receiving services remain after accounting for factors associated with both receiving services and completion, such as race/ethnicity, gender, age, trade and union status, prior credit, and region. **Among highway trades apprentices in the 2016-17 cohorts, on average, those receiving services were 10% (+/- 6%) more likely to complete their apprenticeship than those who did not receive services**

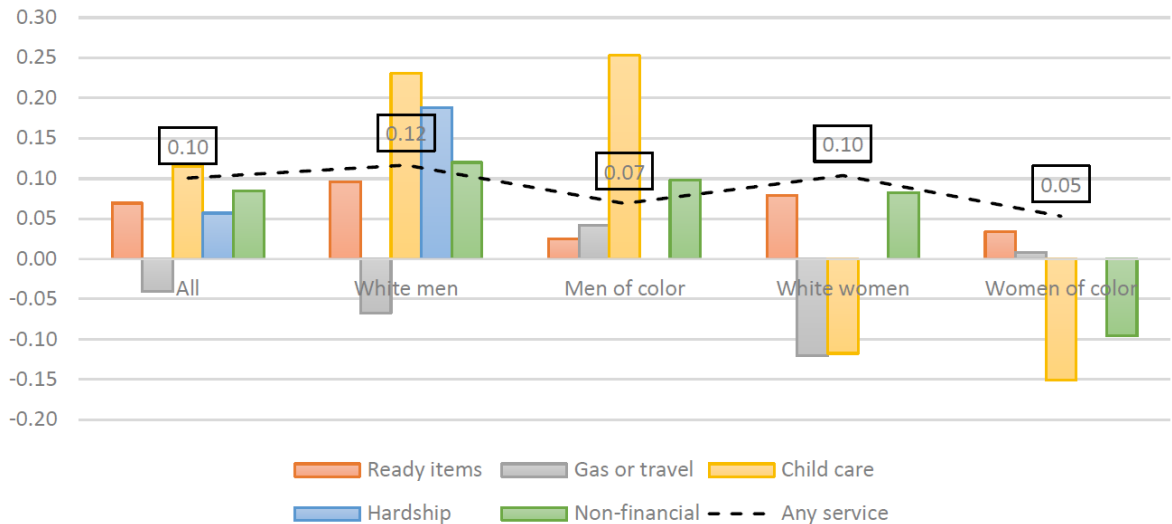


Figure 3 – Estimated adjusted marginal effects of receiving services on completion by race/ethnicity and sex/gender, 2016-2017 cohorts.

1. **An analysis of the results** of the department’s activities to:

- a) **increase diversity** (measure results by comparing the rate of remaining active and completing training based on sex and race/ethnicity) in the highway construction workforce;

Analysis of Improvements in Retention to Increase Diversity

Among the financial services, only the transportation assistance was found to be ineffective at improving completion rates.

They are also the services that were funded at the lowest level during the 2-year period covered by this report, accounting for only 3% of the assistance provided to registered apprenticeship. For the current biennium, the program is only providing a small one-time amount to most apprentices working out of town, while offering more for those working on ODOT jobs.

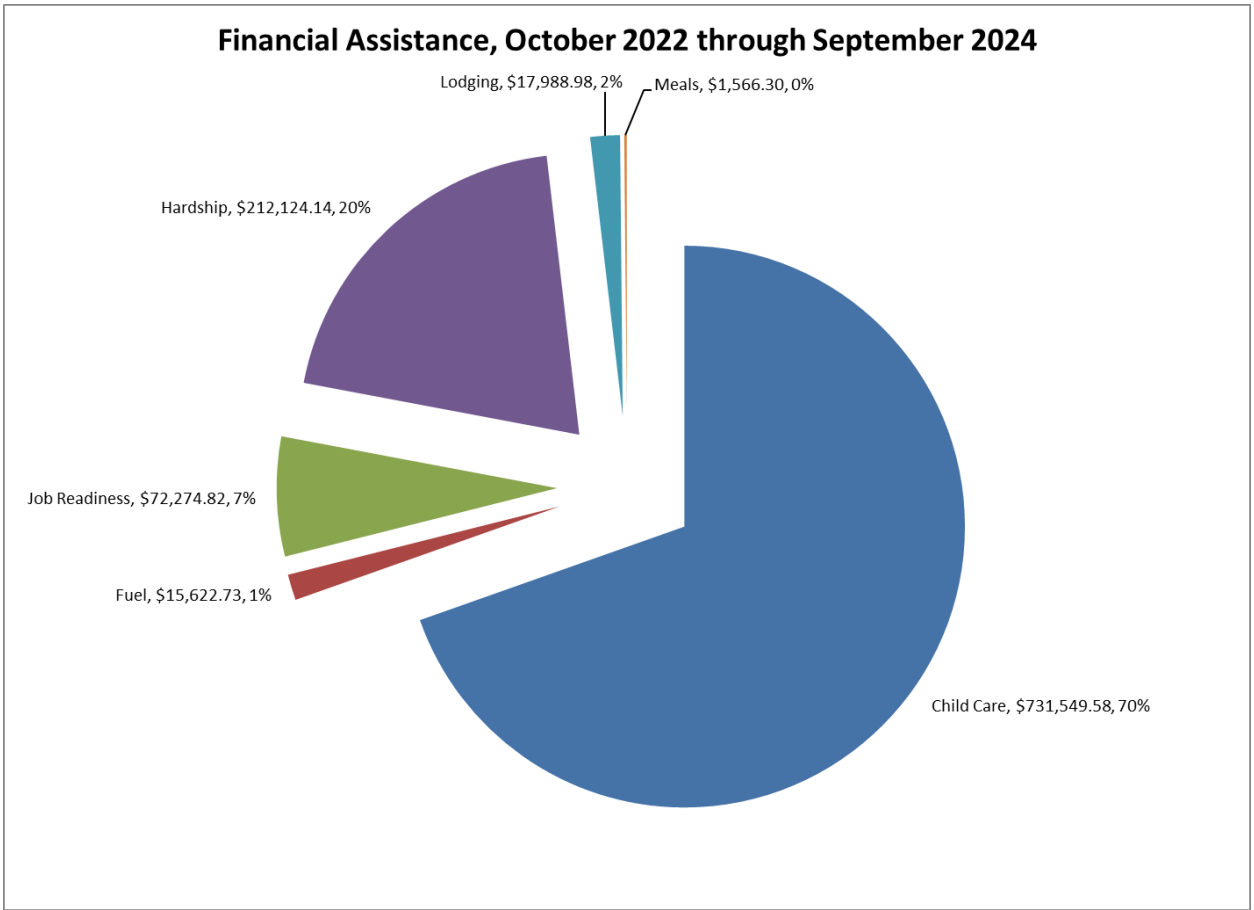


Figure 4 – Percentage of financial supports provided to apprentices by type of service.

The Program added Inside Electricians to the list of targeted trades in March 2021, and apprentices from those programs have contributed to increased demand for child care subsidies in particular with a one-year moving average approaching \$12,000 per month.

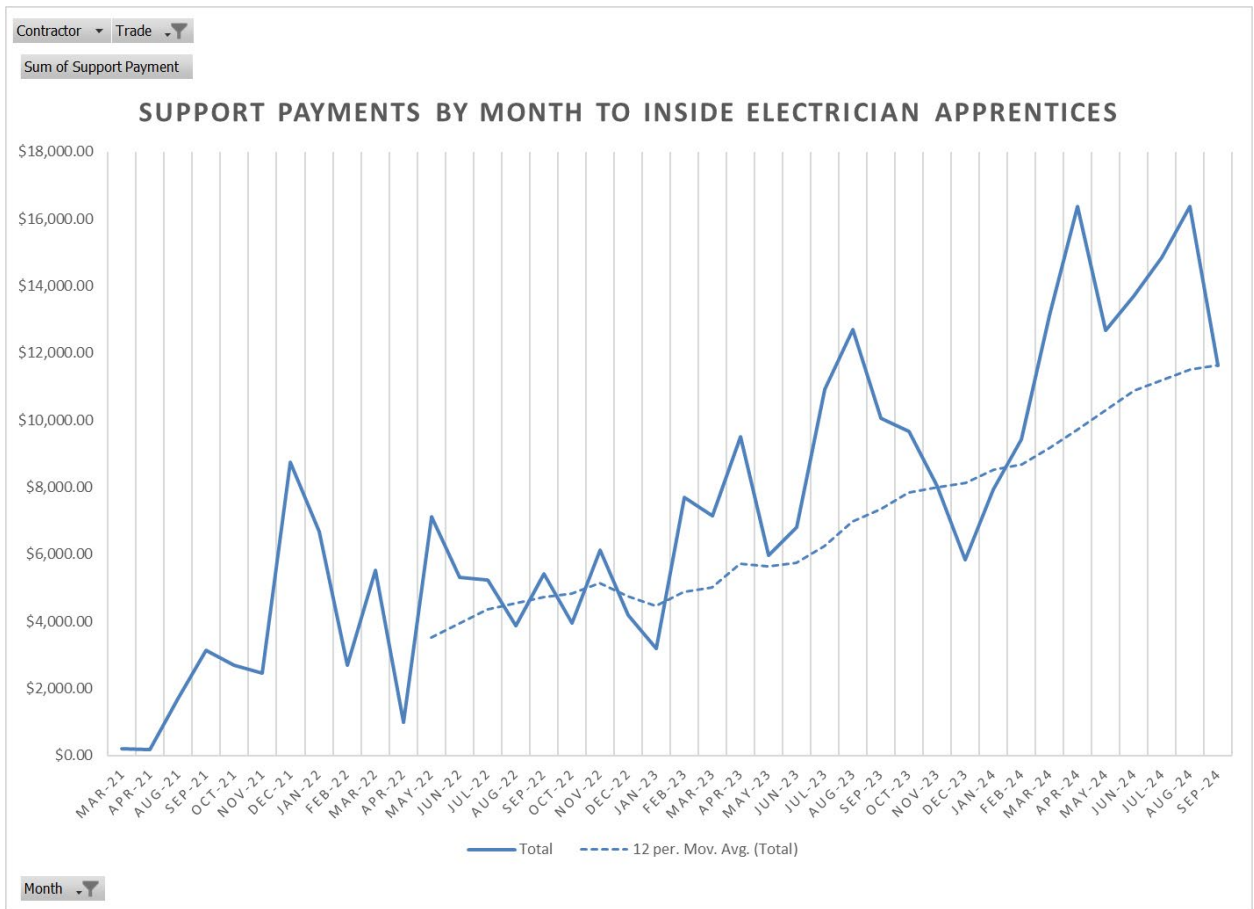


Figure 5 – Monthly support payments to inside electrician apprentices with 12-month moving average since March 2021 when inside electricians were added as a targeted trade.

Childcare Subsidies

Analysis of the 2016-2017 cohorts shows childcare subsidies increases the likelihood of completion for men. Men of color who receive childcare subsidies are 25% more likely to complete, and white men who received this support were 23% more likely to complete. Women receiving child care subsidies in these cohorts were less likely to complete than women in general (12% less likely for white women and 15% less likely for women of color).

The finding that child care support is positive only among men is similar to previous findings indicating a larger impact of child care support on men and a negative impact among women of color (Kelly and Wilkinson 2020). It is important to note, however, that apprentices receiving child care, especially mothers, are likely different from those not receiving child care, in ways impacting both child care receipt and on-time completion and in ways we are unable to account for in models using Oregon Apprenticeship System (OAS) data. In previous surveys of apprentices, we found that mothers were more likely than fathers to report being

single (40% vs. 11%) and were more likely to report an individual income below 226% of the federal poverty level. Mothers also reported a greater number of months out of work during their apprenticeship (1.9) than fathers (1.2). Mothers were more likely than fathers to rely on a paid child care provider or to state children were old enough to take care of themselves. In fact, 46% of fathers reported relying on a spouse or partner for child care, compared to only 18% of mothers. Not surprisingly, apprentices who are mothers appear to have fewer resources and to face more child care challenges than those who are fathers: mothers were more likely than fathers to report problems paying for child care and finding consistent child care (Wilkinson and Kelly 2018).

While men apprentices were more likely than women apprentices to report having dependent children living with them during their apprenticeship in our 2018 survey (51% vs. 37%), men were more likely than women to depend on a spouse or partner for child care (36% vs. 7%), reflecting the persistent gendered division of labor in which women are expected to work within the home whereas men are expected to work in the paid labor market (Kelly & Wilkinson 2018). In addition to gender as a factor impacting perceptions of child care challenges, household income was also identified as a factor in our 2018 survey: apprentices with household incomes less than \$30,000 were the most likely of all income groups to report the cost of childcare as a challenge (65%) and were also the most likely to report being out of work as a problem (64% vs. 34% for highest income group) (Wilkinson and Kelly 2018).

For the above reasons, the Program, in August 2022 changed the formula for allocating child care support to eligible apprentices. The allocation formula is now based on household income and no longer maintains a maximum benefit per apprentice, a maximum that was originally set at \$10,000 (plus additional \$2,000 for completing a budget class) and then increased to \$18,000 (plus an additional \$2,000 for those with one or more dependent children under the age of 3 or a special needs child). Table 2 summarizes the various changes made to the child care support since the Program's inception in 2010, including the number of agreements (not individual apprentices) served, that status of those agreements, and information about the child care support received. We include the percentage of agreements in which the child care support exceeded \$10,000 because one of the biggest changes to the allocation model in Phase 3 was the elimination of maximum limits of support. We can see the effect of this in Table by looking at "mean child care payment" and "child payment exceeded \$10,000" across the phases. The mean child care payment for agreements receiving child care support increased from \$4353 to \$14,584 between Phase 1 and Phase 3 of child care support implementation. A result of removing the maximum amount of child care support an apprentice can receive is that apprentices receiving child care in Phase

3 are receiving child care for, on average, a greater number of months than in earlier phases of the implementation.

There has been a positive association between receiving Phase 3 child care support and being active or complete is observed among all racial/ethnic and gender groups. While not all apprentices in this subgroup – those active in 2022-2024 – have had an opportunity to cancel, among all active apprentices in the highway trades active in this period, 87% are still active or/are completed, which is similar to what we see among those receiving Phase 3 child care support.

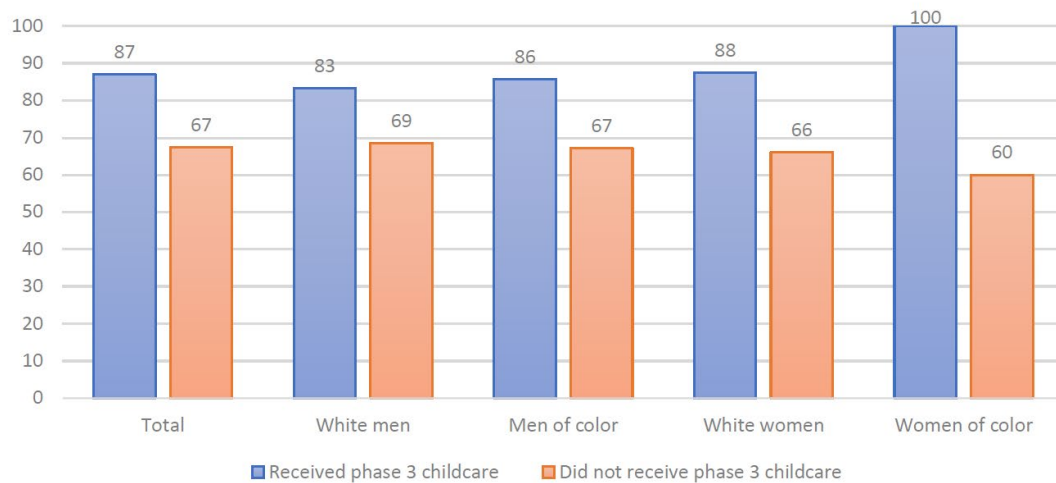


Figure 3 – Percentage of apprentice agreements completed or active by Phase 3 child care support, by race/ethnicity and gender, highway trades agreements active in 2022-2024.

Hardship Assistance

Those receiving hardship funds are 6% (+/- 14%) more likely to complete than those who have not received services. Notably, the impact of hardship funds is driven by the positive impact on white men and men of color. We do not see a similar effect of hardship funds on women, although the number of women, especially women of color, receiving hardship funds is small. In the 136 hardship fund records analyzed, the most common type of supports were related to housing: rent (83), mortgage (18), and utilities (10). The Program also provided support for vehicle repairs (14), help with replacing stolen or broken tools (2), medical bills (2), and, in one case, assistance with renting a storage unit (1). The records illustrate how hardship funds are being used to address a wide variety of situations that could prove destabilizing to apprentices' careers. Given the positive impact on completion, we recommend hardship funds be continued or expanded.

Job Readiness Supplies

The findings of this evaluation show that apprentices receiving ready items are 7% (+/- 6%) more likely to complete rather than cancel, relative to those not receiving services. As noted in previous reports, receiving ready items addresses an immediate need as well as connects apprentices to the Program, which, for some apprentices, serves as a source of support throughout their apprenticeship (Kelly and Wilkinson 2020). As a low dollar amount investment per apprentice with a strong impact, we recommend support for ready items be continued or expanded. As noted in the findings above, in some instances, the Program has paid for tools from the hardship funds when tools are stolen or damaged. Leveraging hardship funds is also an effective way to meet this need.

- b) **prepare individuals** (measure results by remaining active and completing an apprenticeship program) interested in entering the highway construction workforce [by providing:
- i) *Pre-apprenticeship programs;(preparation of apprenticeship seekers)*
 - ii) *Pre-employment counseling;(preparation of apprenticeship applicants and pre-apprentice graduates)*
 - iii) *Orientations on the highway construction industry;(career exploration)*
 - iv) *Basic skills improvement classes; (preparation of apprenticeship seekers)*
 - v) *Career counseling; (preparation of apprenticeship seekers)*
 - vi) *Remedial training; (preparation of apprenticeship seekers)*
 - vii) *Entry requirements for training programs; (preparation of apprenticeship seekers)*
 - viii) *Supportive services and assistance with transportation; (support for registered apprentices)*
 - ix) *Child care and other special needs; (support for registered apprentices) and*
 - x) *Job site mentoring and retention services (support for registered apprentices).*
- and,

Analysis of Improvements in Recruitment and Preparing Individuals

Pre-apprenticeship programs funded through the Highway Construction Workforce Development Program have contributed to the diversify of the construction trades, in particular with increased numbers of women in the highway construction trades. In the 2022-23 cohorts of new apprentices, 10% of all white women and 18% of all women of color apprentices entered a highway construction apprenticeship after completing a Program funded pre-apprenticeship. Notably, those who complete a pre-apprenticeship are less likely to complete an apprenticeship than those who did not complete a pre-apprenticeship. Previous evaluations have found that pre-apprenticeship students have more challenges than those who did not need to

seek this pathway into the trades. While some pre-apprentices receive ongoing support from their pre-apprenticeship program, not all do. Given the investment in these individuals through pre-apprenticeship, we recommend a coordinated services or “wrap around” approach here to provide additional support through the Program when needed to ensure completion, such as non-financial support and hardship funds (if needed).

2. **A description of:**

- a) The **amount available** to the department from federal funds for the activities and the **amount expended** by the department for those activities;

Program Funding

Oregon law requires ODOT to expend one-half of one percent up to \$2.1 million of the federal funds ODOT receives under 23 U.S.C. 140(b) to increase diversity in the highway construction workforce and prepare individuals interested in entering the highway construction workforce. ODOT is permitted to expend additional funds from other sources and has added \$1.5 million from funds authorized under the Bipartisan Infrastructure Law.

2021-2023 Biennium (complete):

Total Federal Funds Available for Activities: \$2,200,000.00

Total Amount Expended (July 1, 2021 – June 30, 2023): \$2,172,165.72

2023-2025 Biennium (partial):

Total Federal Funds Available for Activities: \$3,600,000.00

Total Amount Expended July 1, 2023 – September 30, 2024: \$1,737,002.21

and

- b) The **performance outcomes** achieved from each activity **including the numbers of persons receiving services, training and employment.**

- i) *Pre-apprenticeship programs;(preparation of apprenticeship seekers)*

Persons Receiving Service

October 1, 2022 – September 30, 2023: 185

October 1, 2023 – September 30, 2024: 0

- ii) *Pre-employment counseling;(preparation of apprenticeship applicants and pre-apprentice graduates)*

Persons Receiving Service

October 1, 2022 – September 30, 2023: 185

October 1, 2023 – September 30, 2024: 0

- iii) *Orientations on the highway construction industry;(career exploration)*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 2991
 October 1, 2023 – September 30, 2024: 2391

- iv) *Basic skills improvement classes; (preparation of apprenticeship seekers)*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 185
 October 1, 2023 – September 30, 2024: 0

- v) *Career counseling; (preparation of apprenticeship seekers)*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 137
 October 1, 2023 – September 30, 2024: 0

- vi) *Remedial training; (preparation of apprenticeship seekers)*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 185
 October 1, 2023 – September 30, 2024: 0

- vii) *Entry requirements for training programs; (preparation of apprenticeship seekers)*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 185
 October 1, 2023 – September 30, 2024: 0

- viii) *Supportive services and assistance with transportation; (support for registered apprentices)*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 33
 October 1, 2023 – September 30, 2024: 26

- ix) *Child care and other special needs; (support for registered apprentices) and*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 34
 October 1, 2023 – September 30, 2024: 41

- x) *Job site mentoring and retention services (support for registered apprentices).]*
Persons Receiving Service
 October 1, 2022 – September 30, 2023: 223
 October 1, 2023 – September 30, 2024: 176

3. The “activities” are arranged into a range of *service types* that fall along a continuum based on where individuals are in the process of being prepared to enter the highway construction workforce as journey workers. The service types are directed toward

providing (A) outreach, recruitment, and pre-apprenticeship training; and (B) apprentice retention.

Summary

Overall, pre-apprenticeship and supportive services funded by the Highway Construction Workforce Development Program are increasing the recruitment and retention of a diverse workforce and these efforts should be continued. About half of all apprentices who start an apprenticeship will complete it and completion rates are lower for women and some groups of men of color. In the current biennium there was an increase in completion rates among some race/gender groups. Previous research (Wilkinson and Kelly 2018, Kelly and Wilkinson 2020, Worksystems et al 2024) has identified a set of factors that impact the retention of apprentices, see Box 1. The higher frequency with which women and people of color experience many of these challenges sheds light on the lower completion rates in those race/gender groups. Some of the financial and non-financial challenges are currently being addressed through the Program and these efforts have been effective in increasing completion rates for those who receive the supportive services. However, there are industrywide efforts that will be needed to more fully address the issue of apprenticeship completion. While much attention has been placed on recruitment within the industry, we suggest increasing efforts to address retention as a critical strategy to maintain a strong construction pipeline.

Box 1. Factors impacting retention of apprentices

Jobsite issues impacting retention of apprentices:	Other challenges impacting the retention of apprentices:
Challenges accessing quality training	Being out of work
Harassment	Challenges accessing career mentorship and advancement opportunities
Exclusion and isolation	Financial challenges (e.g. transportation, housing, medical bills)
Lack of effective policies and practices to address jobsite harassment and discrimination incidents	Non-financial challenges (e.g. alcohol and drug use, legal issues, mental and physical health)
Issues with lack of clean restrooms and spaces for lactation	Cost of childcare and access to childcare
	Lack of flexibility in work hours
See Worksystems et al 2024	Inability to travel

In the current biennium, apprentices who received both financial and non-financial services were more likely to complete than those who received a single service type. Findings from previous evaluations (Kelly and Wilkinson 2020) also suggest that many apprentices would benefit from coordinated or “wrap-around” services that connect

apprentices with financial and non-financial support available through the Highway Construction Workforce Development Program as well as additional support available within the trades and in broader communities. As mentioned above, it may be particularly effective to provide coordinated services to apprentices who have already received significant investment, specifically, those who completed a pre-apprenticeship program and those receiving childcare services. Previous evaluations have found that the Program accomplishes this to some degree by having a single point of contact that apprentices can return to as issues arise during their apprenticeship (Kelly and Wilkinson 2020). A pilot expanding this type of approach is currently being implemented with the Operating Engineers in the Program's current biennium. Findings from these efforts should be evaluated for effectiveness.

Given the higher rates of cancellation among Black men in the probationary period and the particularly low rates of completion among Black men, we recommend the Program consider identifying targeted resources to support Black men and their unique needs. This could include professional counseling to support Black men transitioning out of prison, for example, or having advocates on site to support young Black apprentices with building support networks and retention plans. We also recommend the Program consider targeted support services for apprentices who may be experiencing separation, divorce, and/or domestic violence. Analysis of hardship support indicates that women experience hardships related to separation, divorce, and domestic violence at higher rates than men and that women experience less of a positive impact of receiving hardship funds on completion.

References

Kelly, Maura and Lindsey Wilkinson. 2020. *2020 Evaluation of the Highway Construction Workforce Development Program.*

Wilkinson, Lindsey and Maura Kelly, 2018. *Continuing to Build a More Diverse Workforce in the Highway Trades: 2018 Evaluation of the ODOT/BOLI Highway Construction Workforce Development Program.*

Wilkinson, Lindsey and Maura Kelly, October 2024. *Evaluation of the Highway Construction Workforce Development Program.*

Worksystems Inc., Clackamas Workforce Partnership, Estolano Advisors, Workforce Southwest Washington, and Portland State University. 2024. *Interstate Bridge Replacement Program Regional Infrastructure Workforce Market Study.* Final report submitted to the Interstate Bridge Replacement Program.