



Summer Fellowship Students

Building the U.S. Construction Workforce

THE PROJECT ON
WORKFORCE

BUILDING THE U.S. CONSTRUCTION WORKFORCE

Recruiting and Retaining Women, Opportunity Youth,
and People with Disabilities into Construction Trades

S U M M E R F E L L O W S H I P S E R I E S

The Project on Workforce at Harvard Summer Fellowship Series

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Executive Summary

The construction industry faces a looming workforce crisis that is only expected to widen, as federal money flows into new infrastructure projects around the country, increasing demand for labor. Supporting pathways for underrepresented groups provides a path to prosperity for populations traditionally excluded while helping to close the gap of a half million workers the construction industry faces.

This report analyzes and discusses best practices that unions, nonprofit organizations, and government agencies have taken to recruit and retain women, opportunity youth, and people with disabilities in construction trades. Eleven organizations were identified as leading in recruitment, retention, and placement for women, youth, and people with disabilities, based on analyses of outcome data for the populations of interest. Semi-structured interviews with each organization were conducted to answer the question: "How did you achieve success in bringing this population into the construction industry?".

We include an in-depth analysis of barriers unique to women, youth, and people with disabilities, respectively, and highlight strategies to address these barriers informed by interviews across organizations. For the purpose of this report, the recommendations were summarized into the most prevalent themes to appear in the data and were organized by the type of organization best suited to implement each specific strategy. To increase underrepresented populations working in the construction trades we recommend: (1) Increasing data tracking capacity, (2) Strengthening recruitment mechanisms, (3) Providing accessible wraparound services and (4) Advocating for a fair and inclusive workplace.

Introduction

The United States construction industry faces a looming workforce crisis that is only expected to widen as federal money flows into new infrastructure projects around the country, increasing demand for labor. There are a number of diverse populations that are underrepresented in the construction workforce. This report focuses on women, opportunity youth, and people with disabilities; highlighting key barriers that each of these populations faces when entering the construction trades, strategies currently employed by organizations to mitigate these barriers, and recommendations focused on diversifying the talent pool of the construction workforce.

Women experience low representation in the trades, making up 11% of the construction industry as a whole and roughly 4% of those currently employed in construction occupations in the United States,[1] despite making up 47% of the total workforce in 2022.[2] Opportunity youth, understood to be youth aged 16-24 who are disconnected from school or work, measure at over 5 million in the United States or 1 of 9 members of the United States population. Yet the average age of a new apprentice in the United States is 29,[3] suggesting that few youth are accessing construction trades apprenticeships and subsequent career opportunities. Further, 2022 saw an employment rate for people with disabilities of 21.3%. However, people with disabilities made up just 4.7% of construction and extraction occupations, 3.3% of installation, maintenance, and repair occupations, and 9.8% of transportation and material moving occupations.[4] Supporting pathways for these populations into the trades provides a path to prosperity while helping to close the gap of a half million workers the construction industry faces.

Background and Project Overview

The Department of Transportation and Department of Labor identified three key criteria to identify programs serving women and youth:

1. Programs place participants in career-sustaining jobs with an exit wage that is 200% or more of the federal poverty level for a single-income family of 2 for the year(s) the program took place.
2. Programs have comprehensive data for participants and track recruitment, retention, and placement outcomes for the sub-population of interest with a demonstrated level of success.
3. Programs represent geographic diversity and regional differences across the country.

The following programs were identified as meeting all or nearly all of the above criteria. Organizations provided quantitative longitudinal data for the population(s) of interest and agreed to a one-hour semi-structured interview to share best practices, barriers, and strategies. Unions, nonprofits, and government agencies were interviewed to obtain information from diverse actors in the space. Some organizations had programs dedicated to a specific subpopulation, while others administered city or state-wide programs with legislation focused on increasing specific subpopulations over time. Only one of the organizations researched maintains a specific focus on people with disabilities, as promoting access to the construction trades for this subpopulation is an emerging field.

Organization Name	Organization Type	Population Served	Specific Program (if applicable)
Able-Disabled Advocacy	Nonprofit	Opportunity Youth and People with Disabilities	YouthBuild
Baltimore Civic Works	Nonprofit	Opportunity Youth	Center for Sustainable Careers
Building Pathways Boston	Nonprofit	Women	N/A
Chicago Women in Trades	Nonprofit	Women	N/A
The Cannon Project	Nonprofit	Opportunity Youth	N/A
Ironworkers Local 86 Pre-Apprenticeship	Union	Opportunity Youth	N/A
Local 49 Operating Engineers	Union	Women	N/A
Oregon Bureau of Labor & Industries	Government	Women	Workforce Development Program
City of Seattle	Government	Women	Priority Hire Program

Vermont Agency of Transportation	Government	Women	Trans Training Program
Wisconsin Regional Training Program	Nonprofit	Opportunity Youth	Big Step

Methods

Quantitative and qualitative methods were used to collect data to examine the strategies to encourage the subpopulations of women, opportunity youth, and people with disabilities to join the construction trades.

Data Analysis

Each organization shared data on their program participation and outcomes, including attrition, retention, graduation rate, placement wages for the population of interest, and diversity within the overall program to highlight intersectionality (percent of program participants identifying as BIPOC, women, youth, etc.). After cleaning the data, programs were evaluated on whether their average placement wage was 200% of the federal poverty level for a single-income family of two, and their success in placing and retaining populations of interest (see appendix for data analysis summary). This process allowed for a more accurate comparison of the organizations and their accomplishments in this industry. Data were included in a one-page summary of each organization and shared internally with the Department of Labor and Department of Transportation. These one-page summaries highlighted the fact that many of the opportunity youth-focused organizations were broadly multi-disciplinary, while the women's organizations focused largely on construction trades, providing their data with additional specificity.

Interviews

Organizations that met the wage requirement and had demonstrated success in retaining and recruiting an underrepresented population were invited to an hour-long, semi-structured interview. The interview protocol asked program representatives to highlight their most effective strategies for recruiting and retaining individuals in the targeted populations. The interviews also centered on the barriers these populations faced and factors of intersectionality between underrepresented populations. The interviews were transcribed and coded for themes related to intake, retention, barriers, intersectionality, and support services. The codebook used to analyze this qualitative data, as well as the summary document created to compare the organizations' various strategies and barriers, are featured in the appendix.

Findings: Population-specific Barriers and Strategies

Our research suggests that each underrepresented population faces unique barriers and focuses on highlighting effective strategies that address barriers unique to women, opportunity youth, or people with disabilities pursuing a career in the construction trades.

Women

Access to Childcare

Access to affordable childcare is considered one of the leading barriers for women in the construction fields, particularly for female-led, single-income households. Two organizations discussed the common occurrence of women "self-selecting" out of an apprenticeship program because they lacked access to childcare or were provided insufficient funding. Additionally, some areas, such as Minnesota, have weather restrictions, where construction jobs take place during moderate weather, coinciding with children's Summer break.[5] Organizations have addressed these barriers by providing childcare stipends as part of training programming. Oregon BOLI provides retention service programs focused on childcare and transportation, which include per diem reimbursements for participants traveling more than 60 miles to work/class, and childcare subsidies for children under 13 years of age.[6]

On-the-Job Harassment

Instances of harassment, discrimination, stigmatization, and behavioral issues toward women were mentioned by four of the women's organizations. [7] Additionally, many entities lack a standardized procedure to anonymously report cases of harassment, and women may not speak up for fear of retribution or due to a lack of awareness of the reporting process. Organizations cited some strategies to address these issues. Chicago Women in Trades[8] mandates three workplace harassment informational training sessions for participants as they go through the intake process which outlines reporting procedures, and Oregon BOLI has an anonymous report and investigation protocol.[9]

Financial Instability and Compensation

The inability to sustain periods of training without financial compensation is a barrier across populations but is particularly challenging for women in the trades, who are more likely to have additional financial demands from childcare and other caretaking responsibilities. Some organizations use individualized case management to maintain realistic expectations and facilitate job site placements. For example, Building Pathways[10]

individualized service plan and social service referral plan with community partners help to address any needs ahead of the apprenticeship, and Local 49's one-to-one career exploration allows for conversations on individualized needs.[11]

Youth

Low Industry Career Exposure

A key barrier for opportunity youth is making them aware of the opportunities in the trades. Given their disconnected status, opportunity youth can be difficult to identify and recruit.[12] Strong youth programs built early, multi-faceted career exploration and goal setting into their programming. For example, The Dannon Project[13] starts its program by asking participants to set goals, and Baltimore Civic Works[14] offers a menu of programs that can be layered, creating a more individualized experience to ensure youth feel prepared to enter into a full-time apprenticeship opportunity.

GED Credentials and Job Readiness

Many youths are earlier in their careers and may have less experience in the workforce compared to the average apprentice, resulting in less clarity for their own career goals[15] and a less competitive application for employers.[16] Furthermore, many opportunity youth lack academic credentials, and the academic pressure can serve as an additional challenge for youth trying to complete high school equivalency *and* hands-on training. Organizations can develop youth's "soft skills" to increase their competitiveness while working with employers to set up interviews where youth succeed. For example, Baltimore Civic Works Center for Sustainable Careers offers on-site interviews where participants work with a team for a day to evaluate whether it's a good fit for both participant and employer.

Organizations can also incorporate earn-and-learn programming, celebrations, and mixed schedules to encourage youth to stick with training while helping them fulfill their financial obligations. Able-Disabled Advocacy provides youth with stipends as they reach programmatic milestones and celebrates youth for completing certifications and academic achievements. Wisconsin's Regional Training Program, "Big Step," offers academic programming in the morning and hands-on training in the afternoon and hosts weekly cookouts and other events to celebrate participants and encourage community-building.[17]

Mental Health and Effects of Trauma

Youth mental health has been steadily degrading since 2009.[18] This decline was accelerated during the pandemic,[19] and opportunity youth are disproportionately more likely to experience mental health challenges relative to their connected peers.[20] Youth, therefore, are more likely to require additional support to manage mental health challenges or to work through any trauma they've experienced and are less equipped to process.[21] The majority of youth-serving organizations stated that they partner with local health providers to offer licensed mental health support for participants. The Dannon Project offers support in-house, with licensed social workers available to meet anytime a participant may need them.

People with Disabilities

Safety

Safety is the predominant concern of employers and workers on a construction site. Workers with disabilities may face limitations in navigating or responding to a worksite safely due to apparent or non-apparent disabilities. Safety concerns have been addressed in two ways by organizations supporting this population. First, some organizations utilize entrance exams replicating the physical and academic requirements of a construction site during pre-apprenticeship or apprenticeship applications. These exams support people with disabilities to determine if the job responsibilities are a good fit for their interests and abilities.[22] Additionally, individuals who may have remained undiagnosed in school and lacked access to reasonable accommodations may be less prepared for the academic elements of an entrance exam while still being strong candidates in the industry. These individuals are frequently provided with learning support to address this limitation while simultaneously providing access to a career that is a good fit. For example, Chicago Women in Trades[23] advocates for tutoring services in programs broadly, and Operating Engineers Local 49 utilizes reasonable accommodations such as read-a-loud technology to support participants in taking exams.[24] Second, construction workforce development programs and employers are growing their use of adaptive technology as a means of providing legally mandated reasonable accommodations. The use of adaptive technology to support workers with disabilities in performing their roles safely and effectively is an emerging field and is continuing to expand to support a broader range of abilities.

Stigma & Discrimination

As mentioned above, people with disabilities face stigma and discrimination in the workplace. Many employers and workers in the trades lack awareness of the full range of apparent and non-apparent disabilities and accommodations that can be made to support workers with disabilities on a construction worksite.[25] Workers with disabilities face an increased risk of experiencing discrimination, regardless of legal policies forbidding discrimination toward qualified workers in the workplace. Types of discrimination include inequitable hiring, discharge, or discipline, failure to provide reasonable accommodations, and inequitable wages.[26]

Many workforce development organizations are changing the prevalence of stigma and discrimination through increased advocacy. Workforce development organizations perform advocacy efforts to support people with disabilities in two ways: reducing stigma within construction workplaces and encouraging voluntary self-identification to ensure access to reasonable accommodations. By communicating openly with individuals in the construction industry, more awareness of the various types of disabilities present among workers and the reasonable accommodations available to them occurs. This supports the removal of harmful stigma towards this population. People with disabilities also have the legal right to voluntarily self-disclose their disability when applying for a pre-apprenticeship or apprenticeship program or for a job in the trades. Organizations like Able-Disabled Advocacy educate youth with disabilities on this right to self-disclose their disability status, including the benefit of receiving reasonable accommodations when a disability is identified and the risk of facing stigma from an employer once a disability is

known.[27] Receiving reasonable accommodations as a result of self-disclosing a disability status supports participants in remaining in the construction industry, as these accommodations are provided to promote fair and equal opportunities for them.

Findings: Common Barriers and Strategies

While we focus our findings on strategies that address population-specific barriers, universal challenges across underrepresented communities emerged and are included below. We also highlight effective strategies that were employed across women, opportunity youth, and disability-serving organizations.

Barriers Across Populations	Strategies Across Populations	Explanation
Industry Awareness	Pre-Apprenticeships and Trust Building	Several organizations cited pre-apprenticeship and training programs as a way to raise awareness and address misconceptions about the construction industry. Building trust within these programs allows for more positive word-of-mouth recruitment of new participants.
Workplace Culture: Stigma, Workplace Expectations	Community-Specific Supports	Each subpopulation faces stigma from others in the industry and must undergo proactive training to become aware of workplace expectations. Community-specific supports like mentorship, support groups or blended-age learning, and job shadowing have been effective at mitigating this barrier.
Systemic Barriers: Transportation, Family Assistance, Consistent Financial Compensation	Comprehensive Wraparound Supports	Wraparound supports and supportive services were utilized by every organization to address barriers such as low access to transportation, the need for family assistance, and accessibility of consistent financial compensation.

Recommendations

The findings yielded several recommendations specific to each population this research was targeting. For the purpose of this report, the recommendations were summarized into the most prevalent themes to appear in the data. Each recommendation has been organized by the type of organization best suited to implement each specific strategy.

Recommendation 1: Increase data tracking capacity

Many programs track participants through pre-apprenticeship training but are inconsistent in tracking them through journey-level status. This is particularly important for retaining underrepresented populations to understand when and why participants are exiting, allowing programs to evolve support systems and address new barriers.

Governments:

Track participants across various trades and careers by improving data systems. For example, The City of Seattle uses local and state funds to employ a data team who is responsible for reviewing apprenticeship outcomes across the city.[28] Oregon's workforce development program administers follow-up surveys to capture reasons women were not retained across trades, informing their grant and stipend funding strategies to better address concerns.[29] Finally, many non-profit and community-based organizations cited capacity concerns regarding data suggesting that there is a role for government entities to open additional funding to support increased staff capacity in this area.

Nonprofit Organizations:

Encourage participants to stay in contact and employ an open-door policy. WRTP Big Step and Civic Works provide additional support and services for participants at any point in their career journey. Vermont's Agency of Transportation also maintains a comprehensive tracking system as participants enter their subsequent occupations.[30]

Recommendation 2: Strengthen recruitment mechanisms

To address misconceptions about the trades and reach potential participants earlier, organizations must intentionally target recruitment to underrepresented populations and increase awareness about the benefits of a career in the trades for traditionally underrepresented communities.

Nonprofit Organizations:

Increase recruitment efforts by highlighting past participants and encouraging referrals within the community. Many of the providers interviewed stressed that the best recruitment mechanisms are via word-of-mouth. Additionally, nonprofits can ensure their workforce is representative of the population they are serving. For example: Baltimore Civic Works employs a majority of people of color, who are from the same communities that their participants live in.[31]

Unions:

Break down traditional silos between workforce and educational systems to encourage information sharing between systems about apprenticeship and pre-apprenticeship opportunities. For example, Operating Engineers Local 49 partners with public and private schools to administer a high school pathway program that gives high school students early exposure to the trades and elective and articulated college credit through a partnership between unions and the school system.[32]

Recommendation 3: Provide accessible wraparound services

Underrepresented populations, and opportunity youth in particular, are likely to face transportation barriers that prevent them from accessing additional services. There may also be a general distrust of traditional systems or a lack of confidence in confidential processes. Therefore, it is imperative that participants can easily access wraparound support services in a space where they feel comfortable asking for help.

Governments:

Open grant funding that allows partnerships between unions and community-based organizations to empower a trusted entity to continue to provide services for an individual throughout their apprenticeship journey. For example, The Washington State Department of Transportation partnered with the Ironworkers and R3 community services to offer the pilot program WSDOT Youth Direct.[33]

Nonprofit Organizations:

Provide the majority of services in-house to increase access and trust in services. For example, Baltimore Civic Works[34] and Able-Disabled Advocacy[35] employ a one-stop shop model where youth can access most or all services on-site. However, few of the women's organizations offered such services and instead partnered with external organizations, demonstrating the difficulty of providing each service in-house. This recommendation should be applied if feasible.

Recommendation 4: Advocate for a fair and inclusive workplace

Retention of women, opportunity youth, and people with disabilities is supported by efforts to advocate for a workplace that is safer and more inclusive.

Governments:

Utilize the city or state ADA coordinator proactively to promote and enforce fair and inclusive construction workplaces. For example, the Vermont Agency of Transportation utilizes its ADA coordinator to ensure ADA transition plans are in place, spaces are accessible to people with disabilities, and to respond to complaints of disability-related discrimination.[36] Government agencies can also leverage the city or state's position to hold employers accountable for equitable hiring practices and ensure hiring is in alignment with city or state mandates. For example, Seattle's Priority Hire Program enforces equitable hiring practices among private employers by holding regular meetings with contractors to review their hiring practices.[37]

Nonprofit Organizations:

Advocate for a better workforce environment by supplying materials on successful strategies and building partnerships with other actors in the industry. For example, Building Pathways in Boston acts as a co-computer of Boston's policy group on trades women's issues. They also created a best practices manual called "Finishing the Job", which highlights ways organizations across the industry can better support women entering the trades, and their project labor agreements with the Boston Building Trades ensure protections for participants, including provisions for an Ombudsman, as one example.[38]

Limitations and Next Steps

Increasing representation in the trades is an evolving field. Many of the organizations we interviewed are relatively new in this space, and rigorous statistical analyses of programs serving underrepresented populations are limited. These recommendations represent findings from the data collected and from interviews with organizations leading in the recruitment and retention of opportunity youth, women, and people with disabilities. However, given our small sample size, and the qualitative nature of our analysis, we acknowledge there are likely additional strategies and best practices not captured here. We view these recommendations as a starting point for government agencies, non-profits, and unions seeking to increase diversity within the construction trades, and hope this report serves to prompt debate and dialogue between practitioners on how to best serve underrepresented populations in the trades to meet the growing workforce gap the industry faces.

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About the Project on Workforce at Harvard

The Project on Workforce is an interdisciplinary, collaborative project between the Harvard Kennedy School's Malcolm Wiener Center for Social Policy, the Harvard Business School Managing the Future of Work Project, and the Harvard Graduate School of Education. The Project produces and catalyzes basic and applied research at the intersection of education and labor markets for leaders in business, education, and policy. The Project's research aims to help shape a postsecondary system of the future that creates more and better pathways to economic mobility and forges smoother transitions between education and careers. Learn more at www.pw.hks.harvard.edu/our-work.

Appendix

1. Example One-Pager

Ironworkers Local 86: Youth Pilot

LOCATION:	Washington State				
ORGANIZATION TYPE:	Union / Trades Association	Government	Research / Advocacy	Community-Based	
UNDERREPRESENTED POPULATIONS SERVED:	Women 15%	Opportunity Youth 100%	BIPOC 62%	People with Convictions Data not Available	People with Disabilities Data not Available
PROGRAM SCALE:	Pre-Apprenticeship Program: 13 participants each year 2 program cycles each year		Apprenticeship Program: participants per year: N/A		

Funding

Ironworkers Local 86 pre-apprenticeship is primarily funded by the Washington State Department of Transportation. This funding is allocated to Pacific Northwest Ironworkers and R3 Community Services.

Recruitment

Strategies used to encourage individuals from underrepresented populations to apply to trades programs

- Multi-trade Exposure
- High-quality Education Programs
- Multi-Channel Outreach Strategies for Recruiting Diverse Populations
- Exposure to the Trades at Young Ages
- Clear Application Process and Hiring Transparency

Retention

Strategies used to support individuals from underrepresented populations in achieving journey level status

- Diverse Representation
- High-quality Instructors
- Individualized Accommodations
- Pre-Apprenticeship Program
- Mentorship
- Educating Workers on Their Rights

Supportive Services

Accommodations provided to meet the needs of underrepresented populations in the trades

- Case Management
- Transportation Support
- Financial Assistance
- Access to Materials/Housing
- Childcare Services
- Mediation or Ombud Services
- Labor Management Training Partnerships

Pre-Apprenticeship Youth Outcomes

Graduation Rate: 77% (10/13)

Attrition Rate: 23% (3/13)

Apprenticeship Placement: 100% (10/10)

Starting Apprenticeship Salary: \$30 per hour

Youth Apprenticeship Outcomes

Active Apprentices: 40% (4/10)

Attrition Rate: 60% (6/10)

Journey Status: N/A

2. Table of Specific Barriers and Strategies for Each Subpopulation

2a. Women

Barrier

Strategy

Access to Childcare	Providing childcare stipends as part of training programming; offering a robust retention services program with childcare service resources
Access to Transportation	Vouchers or transit passes for the use of public transportation, fuel cards, and a program-based loan system for the purchase of automobiles
On-the-Job Harassment	Having a designated reporting system, built-in onboarding training on confidential reporting, and job site removal of problematic employees
Financial Compensation	Paid training through stipends; case management, mentorship programs, individualized career exploration for job site placements

2b. Opportunity Youth

Barrier	Strategy
Lack of Awareness	Build in career exploration and goal setting into training programming; offer multi-trade pre-apprenticeships
Job Readiness Skills	Develop youth's interview and advocacy capacity in addition to "soft skills" to increase competitiveness
Transportation	Offer one-stop shop for wraparound services and support youth by providing transportation stipends (short-term) and obtaining a driver's license (long-term)
Diploma/GED Credentials or Entrance Exams	Incorporate consecutive programming, celebrations, and earn-and-learn programming to encourage youth to stick with training and help them fulfill financial obligations AND Invest in high-quality instructors with high school teaching experience
Mental Health	Partner with local health providers to offer licensed mental health supports
Recreational Drug Use	Educate youth on employment requirements and offer addiction counseling services

2c. People with Disabilities

Barrier	Strategy
Safety	Providing adaptive technology that makes spaces safer for workers with disabilities; Including different types of disabilities in safety training
Voluntary Self-Disclosure	Educating workers on their right to voluntarily self-disclose their disability status
Discrimination	Providing support such as case managers, support groups, or ombud services
Stigma	Educating construction community members (employers, contractors, unions, etc.) on workers with disabilities and their rights
Diploma/GED Credentials	Providing learning support and reasonable accommodations

Lack of Adaptive Technology or Reasonable Accommodations	Providing technology or other legally mandated reasonable accommodations to support workers in achieving credentials or reducing workplace barriers caused by a disability
Non-Continuous Disability Status	Providing supportive services that aid workers who develop an occupational disability

3. Data Analysis Metrics

Percentages

Began Pre- Apprenticeship/Program

Percent Don't Complete

Complete Pre-Apprenticeship

Placed in Apprenticeship

1 Year Retention

2 Year Retention (if Applicable)

Active Apprentice/Employed

Average Wage

4. Sample of Codebook

Category/Subcategory	Code
Recruitment	
Actions	Canvasing
	Organizational Partnerships
	Broad Outreach
	Exposure/Transparency to process
	Exposure of young ages
	Providing credit (coursework)
	Career Exploration
	Proactive Training/Skill Development
Beneficial Qualities	Role Models
	Representation/Leadership Representation
	Curiosity/Interest

5. Sample of Codebook Summary

Category/Subcategory	Code	Women		
		Union	City of Seattle	Government
Recruitment		Operating Engineers	City of Seattle	State of Vermont
Actions	Canvasing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Organizational Partnerships	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Broad Outreach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Exposure/Transparency to process	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Exposure at young ages	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Providing credit (coursework)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Career Exploration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Proactive Training/Skill Development	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Word of Mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beneficial Qualities	Role Models	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Representation/Leadership Representation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Curiosity/Interest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Endnotes

[1] Center for American Progress, How To Support Good Jobs and Workforce Equity on Federal Infrastructure Projects (2023): <https://www.americanprogress.org/article/how-to-support-good-jobs-and-workforce-equity-on-federal-infrastructure-projects/>.

- [2] National Bureau of Labor Statistics, Statistics of Women in Construction (2022): <https://www.nawic.org/statistics>.
- [3] <https://www.thirdway.org/report/apprenticeship-america-an-idea-to-reinvent-postsecondary-skills-for-the-digital-age>.
- [4] US Department of Transportation, Bureau of Labor Statistics, "Persons with a Disability: Labor Force Characteristics - 2022", February 23, 2023, <https://www.bls.gov/news.release/pdf/disabl.pdf>.
- [5] Jenny Winkelaar (Local 49 Program Lead), June 13, 2023, interview by Richard Flahive, Tracey Matheny, and Richard Falhiv, Interview 2, recording.
- [6] Larry Williams (Operations and Policy Analyst 2, ODOT-BOLI Workforce Development Program Apprenticeship and Training Division), June 22, 2023, interview by Richard Flahive, Tracey Matheny, and Rachel Snyder, Interview 5, recording.
- [7] Cited in interviews with Building Pathways Boston, City of Seattle, Oregon BOLI and Chicago Women in Trades.
- [8] Lark Jackson (Program Director, Chicago Women in Trades) and Lauren Sugarman (National Center Director, Chicago Women in Trades), June 21, 2023, interview by Richard Flahive, Tracey Matheny, and Rachel Snyder, Interview 4, recording.
- [9] Larry Williams (Operations and Policy Analyst 2, ODOT-BOLI Workforce Development Program Apprenticeship and Training Division), June 22, 2023, interview by Richard Flahive, Tracey Matheny, and Rachel Snyder, Interview 5, recording.
- [10] Mary Vogel (Executive Director, Building Pathways MA) June 20, 2023, interview by Richard Flahive, Tracey Matheny, and Rachel Snyder, Interview 3, recording.
- [11] Jenny Winkelaar (Local 49 Program Lead), June 13, 2023, interview by Richard Flahive, Tracey Matheny, and Richard Falhiv, Interview 2, recording.
- [12] Cited as a challenge in interviews with WRTP Big Step, Baltimore Civic Works, and Able-Disabled Advocacy. Notably, the Dannon Project did not cite difficulty in identifying youth, likely because they partner with juvenile justice facilities to begin programming six months prior to exit.
- [13] Kerri Pruitt (Executive Director, Dannon Project), July 6, 2023, interview by Rachel Snyder and Richard Flahive, Interview 10, recording.
- [14] Eli Allen (Senior Program Director, Baltimore Civic Works) and J.H. Winfield (Program Manager, Youth Build, Baltimore Civic Works), June 29, 2023, interview by Rachel Snyder, Tracey Matheny and Richard Flahive, Interview 9, recording.
- [15] Kerri Pruitt (Executive Director, Dannon Project), July 6, 2023, interview by Rachel Snyder and Richard Flahive, Interview 10, recording.
- [16] James Owens (Ironworkers Youth Direct Pilot Program Lead), June 13, 2023, interview by Rachel Snyder and Richard Flahive, Interview 1, recording.
- [17] Lindsay Blumer (Chief Executive Officer and President, Wisconsin Regional Training Program (WRTP) Big Step) July 6, 2023, interview by Rachel Snyder and Richard Flahive, Interview 11, recording.
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- [28] Anna Pavlik (Labor Equity Manager, City of Seattle) and Jeanne Fulcher (Labor Equity Analyst, City of Seattle), June 26, 2023, interview by Richard Flahive and Rachel Snyder, Interview 7, recording.
- [29] Larry Williams (Operations and Policy Analyst 2, ODOT-BOLI Workforce Development Program Apprenticeship and Training Division), June 22, 2023, interview by Richard Flahive, Tracey Matheny, and Rachel Snyder, Interview 5, recording.
- [30] Colleen Montague (Agency of Transportation Civil Rights Deputy Director, Vermont Department of Transportation), June 22, 2023, interview by Richard Flahive, Tracey Matheny, Interview 6, recording.
- [31] Eli Allen (Senior Program Director, Baltimore Civic Works) and J.H. Winfield (Program Manager, Youth Build, Baltimore Civic Works), June 29, 2023, interview by Rachel Snyder, Tracey Matheny and Richard Flahive, Interview 9, recording.
- [32] James Owens (Ironworkers Youth Direct Pilot Program Lead), June 13, 2023, interview by Rachel Snyder and Richard Flahive, Interview 1, recording.
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- [38] Mary Vogel (Executive Director, Building Pathways MA) June 20, 2023, interview by Richard Flahive, Tracey Matheny, and Rachel Snyder, Interview 3, recording.