



# UNTAPPED RESOURCES, UNTAPPED LABOR POOL

USING FEDERAL HIGHWAY FUNDS TO PREPARE WOMEN FOR CAREERS IN CONSTRUCTION

December 2014





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*A portion of GreenWays is funded through a Green Jobs Innovation Fund grant provided by the U.S. Department of Labor's Employment and Training Administration. The opinions expressed here are those of the authors and do not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This solution is copyrighted by the institution that created it. Internal use by an organization and/or personal use by an individual for noncommercial purposes is permissible. All other uses require the prior authorization of the copyright owner.*

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# SUMMARY

Women are underrepresented in highway, street, and bridge construction where employment is projected to grow by more than 20 percent until 2022. Creating sustainable pathways into construction careers fills critical hiring needs for industry while improving economic security for women, as these jobs typically provide family-supporting wages with good benefits. Activities to improve women's recruitment and retention in skilled construction jobs are widely known, but dedicated funding for such activities is scarce. Federal highway funding offers states a stable resource that can support activities that improve women's entry into and success in the construction trades. This briefing highlights examples of how two

states, Maryland and Oregon, are using this funding to improve diversity in the highway construction workforce. The paper begins by discussing the lack of gender diversity in the construction workforce, describes the challenges and proven strategies for improving the pipeline into construction jobs for women, and outlines how federal highway dollars can be used to improve the diversity of this workforce by funding on-the-job training and support services.

The briefing paper is based on a review of literature, pre-apprenticeship state-level evaluations and progress reports, and interviews with key stakeholders from Oregon, the tradeswomen community, and the U.S. Department of Transportation.<sup>1</sup>

# THE LACK OF DIVERSITY IN THE HIGHWAY CONSTRUCTION WORKFORCE

Highway, street, and bridge construction includes a range of occupations, such as operating engineers, heavy truck drivers, pile drivers, carpenters, painters, and construction laborers, and many of the relevant skills are also in demand in other segments of the construction industry. While these jobs can be very physically demanding, they increasingly involve working with machines. Highway, street, and bridge construction employment is projected to increase by 23 percent through 2022—adding 67,500 jobs across the United States (USDOL 2014a). This estimate does not include job openings created by retiring workers, which are also prevalent in the industry. In 2012, almost one in five skilled construction workers were 55 years or older, and more than half were 45 years and older (Wright 2013). Women are a key labor pool that can help this sector meet its hiring needs. Many women already work in construction occupations—in 2012, there were more than 170,000 female construction workers, more than female pharmacists,

dental hygienists, veterinarians, or occupational therapists in the U.S.—yet women make up fewer than 3 percent of all construction workers (USDOL 2014b). To promote progress toward diversity in the industry, the federal government requires that contractors receiving federal funds for construction projects make good faith efforts to ensure that women work a minimum of 6.9 percent of total paid hours (USDOL 2009). While some contractors show that it is possible to exceed these targets, the large majority of construction employers fail to meet even this moderate target, or they employ no women at all.<sup>2</sup>

Women are also underrepresented in apprenticeship programs, which play an important role in creating a skilled workforce for the construction industry. Since 1978, apprenticeships have been “expected to set a goal for women for the entering year class [i.e. individuals beginning Registered Apprenticeship programs that year] at a rate which is not less than

50 percent of the proportion women are of the workforce” (29 CFR 30.4(f)).<sup>3</sup> Given that women are close to half of the workforce, this translates into a goal of 20 to 25 percent female participation in apprenticeships. In 2012, women were no more than

2.3 percent of apprentices in construction industry registered apprenticeships; women’s share ranged from 8.7 percent of operating engineering apprentices to fewer than 2 percent of electrical, plumbing, and sheet metal apprentices (USDOL 2013).<sup>4</sup>

## SUPPORTS FOR WOMEN’S RECRUITMENT AND RETENTION IN CONSTRUCTION

Women face a number of challenges and barriers to success and career advancement in the construction industry. These include lack of information about careers in the trades; fewer opportunities than men to learn how to use tools while growing up; less access to social networks that facilitate successful application to apprenticeship programs; harassment and discrimination in hiring, assignments, and on-the-job training during apprenticeships (California Apprenticeship Council 2006; Hegewisch & O’Farrell 2014; Moir, Thomson, & Kelleher 2011; National Women’s Law Center 2014). Some women may need additional physical conditioning to perform many required tasks (Reed et al. 2012). Women face barriers to placement in apprenticeship. They also experience greater difficulties in completing their apprenticeships and reaching journey worker level, often because they are not employed for enough hours to fulfill apprenticeship requirements (Bilginsoy 2003; Helmer & Altstadt 2013; Kelly & Wilkinson 2012; Reed et al. 2012).

These barriers can be addressed through a number of initiatives and public policies, including pre-apprenticeship programs, initiatives to support retention and completion, technical assistance for employers and apprenticeship programs, and importantly, the enforcement of non-discrimination and federal affirmative action targets. Pre-apprenticeship programs for women are a proven route for improving women’s access to construction careers (Westat 2003). They allow trainees to test whether, and which, aspects of construction trades

are for them, as well as help them prepare for tests that are typically required to enter apprenticeship programs (Conway, Gerber, & Helmer 2010). Pre-apprenticeship programs are especially valuable to first-generation apprentices, who often do not have the background knowledge that they need for success in the construction workforce (Kelly & Wilkinson 2012). Pre-apprenticeship programs create a foundation of support and competence, including strategies for working in a male-dominated and potentially hostile environment, which can promote retention as women progress in their careers (Kelly & Wilkinson 2012). Community benefits agreements and federal standards for hours worked on federally funded projects are also powerful incentives to hire women and other underrepresented minorities (Mulligan-Hansel 2008; Policy Group on Tradeswomen’s Issues 2013).

Regional examples prove that women can make up a larger share of the construction workforce, and demonstrate the potential impact of supports and initiatives designed to increase women’s representation in the construction workforce. Illinois accounts for over 10 percent of all women in federally registered electrical apprenticeships and 22 percent of all women in carpenter apprenticeships. In Oregon, the percentage of women in apprenticeships is double the national percentage due to comprehensive initiatives discussed in depth in another section of this brief. In New Haven, women comprise eight percent of construction workers citywide due to the City’s Equal Opportunity Ordinance<sup>5</sup>; Boston,

Minnesota, Portland, and San Francisco are other cities that are actively focusing on leveraging public contracts to ensure fair access to construction jobs

(National Taskforce on Tradeswomen's Issues 2014; Moir, Thomson, & Kelleher 2011).

# FEDERAL SUPPORT AND FUNDING FOR DIVERSITY IN THE HIGHWAY CONSTRUCTION WORKFORCE

There are a number of Federal initiatives and programs targeted at increasing the number of women in the construction workforce. The Federal Highway Administration (FHWA) requires state highway agencies to certify that apprenticeship, skill improvement, or other upgrading programs are available and registered with the U.S. Department of Labor or the appropriate state agency (Section 22 of the Federal-aid Highway Act of 1968; Public Law 90-495). FHWA notes that “states are expected to require highway contractors to make every effort to enroll minority and women trainees/apprentices in those trades and careers in which they are underrepresented” (USDOT FHWA 2012).<sup>6</sup>

Providing services for targeted outreach to women and girls, pre-apprenticeship training, and technical assistance to employers also requires resources. Since 1994, the U.S. Department of Labor has administered a small grant program specifically designed to support women's success in apprenticeships by funding technical assistance and pre-apprenticeship programs under the Women in Apprenticeship and Nontraditional Occupations (WANTO) Act (P.L. 102-530). In 2014, three community-based training organizations received grants of \$650,000 each for a two-year period to create regional partnerships for providing pre-apprenticeship training for women and technical assistance for employers, trade unions, and other organizations to improve their access to apprenticeships and nontraditional occupations (USDOL 2014).<sup>7</sup> WANTO funds have acted as a catalyst for the development of best practices and technical expertise on how to best support women's pathways into skilled construction jobs (Westat 2003). However,

given the modest level of funding, very few women directly benefit from WANTO-funded training and support services. Unfortunately, funding for WANTO is particularly vulnerable in the current budget climate.

Federal highway funding is potentially a more substantial and reliable source of funding for states to use to improve pathways for women and minorities into construction jobs, if they choose to do so. The FHWA On-the-Job Training Support Services (OJT/SS) Program requires State Transportation Agencies (STAs) to establish apprenticeship and training programs targeted at moving women, minorities, and disadvantaged individuals into journey-level positions, in order to ensure that a competent workforce is available to meet highway construction hiring needs, and to address the historical underrepresentation of these groups in highway construction skilled crafts. States can receive an allocation of funding from the U.S. DOT \$10 million annual fund for OJT/SS under 23 USC Section 140(b) (USDOT FHWA 2012, p. 131).

Funding to support the STAs OJT/SS Program and other transportation workforce activities is also available through the Highway Trust Fund Core Program, as provided for in 23 USC Section 504(e). The 504(e) provision was enacted through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU, P.L. 109-59) in 2005, and amended through enactment of the Moving Ahead for Progress in the 21st Century Act (MAP-21, P.L. 112-41) in 2012. Under Section 504(e), State Transportation Agencies may obligate funds from the four primary highway funding programs— the National Highway Performance Program (NHPP), the Surface

Transportation Program (STP), the Highway Safety Improvement Program (HSIP), and the Congestion Mitigation and Air Quality Improvement (CMAQ) Program—for surface transportation workforce development, training, and education. For FY 2014, the total funding for the four core programs is \$36.64 billion. This includes: \$21.9 billion for the NHPP; \$10.1 billion for the STP; \$2.41 billion for the HSIP; and \$2.23 billion for the CMAQ program. These four core fund programs provide the primary federal funding that the states use to support their managed capital investment highway programs.

Through Section 504(e), funds may be used to support a broad range of training and education activities, including training for state and local transportation agency employees (excluding salaries), university or community college support, and

outreach to promote surface transportation career awareness, among others. While there was previously a limitation on the portion of Surface Transportation Program funds that a State Transportation Agency could spend on OJT/SS (one half of one percent of their Surface Transportation Program funding allocation), Section 504(e) does not place a limit on the amount of funding that an STA can apply toward surface transportation workforce development activities from its core program funding, including STP. It is important to note that the application of the 504(e) funds for training, education, or workforce development is at the discretion of the state, with Federal Highway Administration approval. Any decision to use core funds through the 504(e) provision for these activities is influenced by a state's capital investment interests for its highways.

## STATE APPROPRIATIONS OF FEDERAL FUNDS TO SUPPORT HIGHWAY CONSTRUCTION WORKFORCE DIVERSITY

As noted above, four different programs can be used to support highway construction diversity through 23 USC Section 504(e): NHPP, STP, HSIP, and CMAQ. However, only a small number of states are known to have recently used funds from these programs to help women prepare for and advance in construction careers. The FHWA Office of Civil Rights does not keep comprehensive information on states' use of funds for diversity; it is aware of seven states (Alabama, Arkansas, Connecticut, Delaware, Michigan, Rhode Island, and Vermont) that used STP funds for this purpose under SAFETEA-LU (from 2005 to 2012). Since the reauthorization of the federal highways program through MAP-21, the Office of Civil Rights is aware of two states using STP funds, Rhode Island and Michigan.<sup>8</sup> Based on data compiled by an independent researcher, between FY 1992 and FY 2002, 29 states, Washington DC, and Puerto Rico

made use of STP funds to support women's access to the highway construction industry.<sup>9</sup> In those states where STP funds are being used to help increase workforce diversity, comprehensive and gender-specific monitoring of the use of these funds will be helpful to assess whether they are being used effectively to help women prepare for and enter construction careers. Collecting this data will also facilitate knowledge sharing on successful practices to address women's underrepresentation in the federal highway construction workforce.

Two states, Maryland and Oregon, have recently passed statutes to permanently dedicate a portion of their federal highway construction funds for training and support services for women and minorities. While a state Governor may request an allocation of funds for this purpose from the U.S.



Secretary of Transportation under Title 23 U.S.C. §140(b), the legislative route provides potentially greater continuity and accountability than a less formal approach. Maryland provides an example of

a state with a general emphasis on greater diversity, while Oregon has a more targeted focus on gender diversity.

## MARYLAND: BUILDUP PROGRAM

In 2012, Maryland passed a bill to permanently commit 0.5 percent of the state's Federal surface transportation and bridge building funds to training and related services for women, minorities, and other targeted populations. The state is dedicating \$1.1 million annually to these types of services, based on its current Federal allocation.<sup>10</sup> The law requires an annual report from the Maryland Department of Transportation and the Governor's Workforce Investment Board to Maryland's Assembly detailing the construction training, support services, and skill improvement programs provided with these funds. The report includes the individuals and organizations that received training and services, as well as the results of the training in each workforce investment area. During the first year, these funds primarily supported one initiative, the BuildUp program, which targeted traditionally underserved groups, including women, veterans, and ethnic minorities, as well as

under- or unemployed or otherwise economically disadvantaged individuals. The program consisted of 36-80 hours of technical instruction (depending on the provider) and covered topics such as introduction to carpentry, computer-aided design, and blueprint reading. The first annual report states: "Though the majority of applicants and trainees were male, the program made significant efforts to include female trainees in training courses to ensure diversity and equal opportunity." One-quarter of first-year program participants were women (Maryland DOT 2013).

In 2013, responsibility for administering the program was passed to Maryland's Department of Labor, Licensing, and Regulation, and the project was redesigned as a 15-week training program combining highway construction skills training with comprehensive case management and employment services. The 2013 report does not include participant data by gender (Maryland DOT 2014).

## OREGON: ODOT/BOLI INITIATIVE

Oregon recently developed a comprehensive program to improve both gender and racial/ethnic diversity in its highway construction workforce. In 2009, Oregon passed *§184.866 Highway Construction Workforce Development*, which mandates that state agencies use federal surface transportation funds for activities to increase diversity in its highway construction workforce. The law provides a detailed list of program activities aimed at helping individuals enter construction training, including pre-apprenticeship programs and retention services for trainees (see *Table 1 on page 6*). The law stipulates a detailed bi-

annual report to Oregon's Legislative Assembly on program activities and performance outcomes.

Oregon's bill was passed as a result of a coalition led by Oregon Tradeswomen Inc. (OTI), which included other community-based organizations Constructing Hope and Portland YouthBuilders, as well as Portland Community College.<sup>11</sup> Demonstrating the economic benefits of improved diversity in the construction workforce, including testimony from the Associated General Contractors and the Oregon Building Trades, played an important role in generating support for the bill.

**TABLE 1**

**OREGON AND FEDERAL STATUTES ON DIVERSIFYING THE HIGHWAY CONSTRUCTION, SKILLED TRADES, AND TRANSPORTATION WORKFORCES**

|   | <b>OREGON REVISED STATUTES, 2011, SECTION ON HIGHWAY CONSTRUCTION WORKFORCE DEVELOPMENT</b>   | <b>U.S. TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY, TITLE 23 U.S.C. §140(B)(1-4) AND 144(E), AS AMENDED BY MAP-21 §1109, 2012, NONDISCRIMINATION AND WORKFORCE DEVELOPMENT</b>  |
|---|---|---|
| <b>Objectives</b>                                     | Increase diversity in the highway construction workforce and prepare individuals interested in entering this workforce by providing trainings and apprenticeships to prepare them.  | Train and upgrade minorities and women into higher paying skilled trades and transportation technology related careers to meet the projected labor needs.<br><br>Under Section 22 of the Federal-aid Highway Act of 1968 (Public Law 90-495) State highway agencies are required to certify that there are available apprenticeship, skill improvement or other upgrading programs registered with the Department of Labor or the appropriate State agency.   |
| <b>Programs and Activities Funded Through Statute</b> | <ul style="list-style-type: none"> <li>&gt; Pre-apprenticeship programs</li> <li>&gt; Pre-employment counseling</li> <li>&gt; Orientations on the highway construction industry</li> <li>&gt; Basic skills improvement classes</li> <li>&gt; Career counseling</li> <li>&gt; Remedial training</li> <li>&gt; Entry requirements fulfillment for training programs</li> <li>&gt; Support services and assistance with transportation</li> <li>&gt; Child care and other special needs</li> <li>&gt; Job site mentoring and retention services</li> </ul> | <ul style="list-style-type: none"> <li>&gt; Skill training (not salaries)</li> <li>&gt; Student internships</li> <li>&gt; University or community college support</li> <li>&gt; Education activities including outreach</li> <li>&gt; Technology training</li> <li>&gt; Summer Transportation Institutes</li> <li>&gt; Support services eligible for funding include: recruitment, skills training, job placement, child care, outreach, transportation, post-graduation follow-up, and job-site mentoring</li> </ul> |
| <b>Monitoring Activities</b>                          | A report has to be submitted to the Legislative Assembly in each even-numbered year, providing performance outcomes for each of the activities listed above, including number of persons receiving services, training and employment.   | The Secretary of Transportation shall periodically obtain information from the State labor and transportation departments to be able to judge compliance.   |

Sources: Compiled by the Institute for Women’s Policy Research from Oregon Revised Statutes. 2011. ORS 184.866. Accessed on August 8, 2014. <http://www.oregonlaws.org/ors/184.866>; Moving Ahead for Progress in the 21st Century, Pub.L. 112-141, 126 Stat. 443 (2012); USDOT FHWA 2013; USDOT FHWA 2012. On-the-Job Training and On-the-Job Training and Supportive Services Programs. Accessed on August 8, 2014. <http://www.fhwa.dot.gov/civilrights/programs/ojt.cfm>

Funding of \$2.1 million is set for the 2013-2015 budget period.<sup>12</sup> Oregon also receives an additional \$90,000 per year from its allocation of the U.S. Secretary of Transportation's \$10 million fund for OJT/SS, creating a total budget of \$2.3 million.<sup>13</sup>

The program is overseen by a partnership of the Oregon Department of Transportation (ODOT) and the Oregon Bureau of Labor and Industries (BOLI). The efforts build on the agencies' prior activities to expand and diversify the state's heavy highway construction workforce: ODOT started a workforce development program in 2009 and BOLI established a set of partnerships with commercial businesses and nonprofits that could supply OJT and apprenticeships (ODOT 2010). Table 2 provides an overview of budget allocations for the new comprehensive program in the current 2013-2015 biennium. The two largest major funded activities for the current biennial period, accounting for more than two-thirds of the program's total budget, are "Sustaining Current Apprentices" to improve retention rates (\$800,000), and "Preparing Apprenticeship Seekers" (\$600,000).<sup>14</sup> Other major

funded activities include career advice and outreach (\$250,000), technical advice to apprenticeship programs (\$200,000), and program evaluation, research and planning (\$120,000).<sup>15</sup>

## RETENTION SERVICES

The major activity "Sustaining Current Apprentices" includes funding for costs such as fuel subsidies, child care expenses, per diems for apprentices who attend classes or work more than 60 miles from home, on-site mentoring services, and work-readiness expenses such as tools or clothing. Between July 2009-September 2012, 280 apprentices received support for transportation, 160 received support for child care, and 111 received non-financial support, such as mentoring.

While only 5.4 percent of Oregon's nearly 5,300 registered apprentices received any of these retention services (including support, child care, mentoring, and related services) through the program,

**TABLE 2**  
**OREGON 2013-2015 BIENNIAL BUDGET FOR HIGHWAY CONSTRUCTION DIVERSITY**

|   |                     |
|---|---------------------|
| <b>SUSTAINING CURRENT APPRENTICES</b>                                     | <b>\$800,000</b>    |
| > Support Services and Assistance with Transportation                     | \$300,000 (approx.) |
| > Child Care and Other Special Needs                                      | \$300,000 (approx.) |
| > Job Site Mentoring and Retention Services                               | \$200,000 (approx.) |
| <b>PREPARING APPRENTICESHIP SEEKERS</b>                                   | <b>\$600,000</b>    |
| > Pre-Apprenticeship Programs   | \$550,000 (approx.) |
| > Basic Skills Improvement Classes, Career Counseling, Remedial Training  | \$50,000 (approx.)  |
| <b>CAREER EXPLORATION</b>   | <b>\$250,000</b>    |
| <b>TECHNICAL ASSISTANCE TO LOCAL JOINT COMMITTEES AND TRAINING AGENTS</b> | <b>\$200,000</b>    |
| <b>PROGRAM EVALUATION, RESEARCH, AND PLANNING</b>                         | <b>\$120,000</b>    |
| <b>PRE-EMPLOYMENT COUNSELING</b>  | <b>\$50,000</b>     |

Note: Budget allocations under Oregon ORS 184.866(3) for biennial period beginning October 2013.  
Source: Email communication from the office of Oregon State Senator Shields, June 9, 2014.

female apprentices received retention services at significantly higher rates than other populations. Twenty-five percent of female apprentices of color, 16 percent of white female apprentices, nine percent of male apprentices of color, and 3.6 percent of white male apprentices received retention services. Data suggest that the services are having an impact, as apprentices who received them are less likely to cancel their apprenticeships. For example, six percent of women of color who received these services canceled their apprenticeships, compared to 39 percent of women of color who did not receive these services; 16 percent of white women who received these services cancelled their apprenticeships compared to 23 percent of white women who did not receive these services; and 13 percent of men of color who received these services canceled their apprenticeships compared to 24 percent who did not receive these services.<sup>16</sup>

## PRE-APPRENTICESHIPS

The major activity “Preparing Apprenticeship Seekers” primarily funds pre-apprenticeship programs, as well as other training and career counseling services to help individuals compete for apprenticeships. Other funds are used for outreach and career fairs.

The ODOT/BOLI program supports a number of pre-apprenticeship programs. While all these pre-apprenticeship programs are open to women, the majority of women who were placed into apprenticeship programs received services from OTI. OTI has a 25-year track record of supporting women in nontraditional careers and offers pre-apprenticeship programs for women, which typically run for 7 weeks full-time. OTI also runs mentoring programs and organizes annual career fairs on nontraditional careers for women and middle and high school girls.<sup>17</sup> OTI has received approximately \$150,000 annually under the ODOT/BOLI initiative. Funded activities include week-long intensive programs for women who complete the basic pre-apprenticeship program and want to learn more about key highway construction trades (cement masons, carpenters, and laborers). While ODOT/BOLI benefited from the pre-existing expertise of OTI in supporting

women in nontraditional trades in the Portland area, developing such services in other parts of the state has been more of a challenge. ODOT and BOLI have provided some funding to OTI to develop services in regions of Oregon that are not as well served by existing pre-apprenticeship providers.<sup>18</sup>

Outcomes for pre-apprenticeship activities funded through Oregon’s comprehensive program are promising. As a result of the support for pre-apprenticeship programs, 48 graduates were placed in highway construction apprenticeships in 2013. Of the 48 placed, 29 were women who had completed their pre-apprenticeship training with OTI (BOLI 2013). An evaluation conducted for ODOT/BOLI reported that women who had received OTI services were less likely to report problems with journeymen or supervisors in their apprenticeships and more likely to complete their apprenticeship than other women (ODOT 2012). In another regional success, through a partnership between OTI and Oregon Southern Idaho Laborers that ODOT/BOLI initiated, 5 OTI female graduates were accepted into a Laborer Apprenticeship program. OTI and the Laborers continue to recruit women, help them to build strength and master techniques, and otherwise prepare women for placement. However, the current capacity of pre-apprenticeship programs to provide quality candidates for apprenticeship is limited; both OTI and BOLI report that apprenticeship programs in Oregon can easily accommodate more graduates from pre-apprenticeship programs.

## CAREER ORIENTATION AND OUTREACH

Outreach, career orientation, and introduction to specific highway trades and more general awareness building for careers in highway construction are funded types of activities in this initiative. Outreach activities, including advertising, community meetings, career fairs, and summer camps, reached close to 4,500 people in the 2009-2011 budget period (ODOT 2012). According to Connie Ashbrook of OTI, there has been a marked increase in interest from women and girls in technical careers and OTI services since ODOT/BOLI increased their outreach and educational efforts. The ODOT/BOLI program has provided career skills screening and help with initial career plans in

the highway construction trades for 221 women. OTI provided orientation about the trades to 452 women. Another subcontractor for the ODOT/BOLI supportive services workforce program, Cooper Zietz Engineers, Inc., provided information requests and referrals to 262 individuals, 113 of who were female (BOLI 2013). Program activities also include continuing outreach and establishing relationships with education and workforce development professionals who may receive individuals interested in highway construction careers as referrals.

## AN EXPLICIT FOCUS ON EVALUATION AND RESEARCH

ODOT/BOLI worked closely with researchers at Portland University to identify barriers, develop performance measures, and evaluate outcomes for their comprehensive program. During the first biennial period, funding was made available for an apprenticeship needs assessment, based on a review of ODOT/BOLI's database of current and past apprentices from 2001-2010, as well as a survey of apprentices and interviews. The database included over 11,000 apprenticeship agreements, of which only 5.4 percent were initiated by non-Hispanic white women, and only 1.6 percent by women of color, as well as 14 percent by men of color (Kelly & Wilkinson 2012).<sup>19</sup> The needs analysis identified reasons for non-completion of apprenticeships, such as perceptions of harassment, the costs of transportation and child care, lack of employment opportunities for women and minority apprentices, and the lack of

supervised training on the job and mentoring off the job (ODOT 2012; Kelly 2013). Its recommendations informed further research and program development. In response to research findings that women and minority apprentices are particularly likely to encounter hostile work environments that are not conducive to staying gainfully employed in their apprenticeship trade, ODOT/BOLI have funded a pilot project to provide and evaluate supervisor skills training.

## PROGRESS TOWARD DIVERSITY IN OREGON'S HIGHWAY CONSTRUCTION WORKFORCE

The 2013 report by the Oregon Commissioner of Labor to the Oregon Legislature notes that women's participation in registered apprenticeships in the construction industry had reached 6.25 percent, a figure that is "both laudable and discouraging," because it presents a historic high, but is still far removed from the affirmative action goal of 24 percent female participation which is half of women's share of Oregon's labor force (Avakian 2013). However, women's share of apprenticeships is considerably higher, at 11 percent, in four trades targeted for services through the ODOT/BOLI initiative: carpenters, operators, cement masons, and iron workers (BOLI 2013). In Oregon's unionized apprenticeship program for cement masons, one of the trades in which OTI offered intensive one-week programs for women, women's share of apprenticeships has reached 17 percent.

# BUILDING ON BEST PRACTICES FOR INCREASING GENDER DIVERSITY IN HIGHWAY CONSTRUCTION

Jobs in highway construction are projected to show strong growth; unlike many growing occupations they offer the potential of family-supporting wages and, through apprenticeships, a pathway

to acquiring industry-recognized qualifications without incurring student debt. The potential of apprenticeship has been recognized by the U.S. Department of Labor's new \$100 million initiative to

promote apprenticeships: “87 percent of apprentices are employed after completing their programs and the average starting wage for apprenticeship graduates is over \$50,000” (White House 2014). Pre-apprenticeship programs and support services for apprentices are proven methods for increasing women’s success in construction jobs and growing their access to these well-paying jobs where they are currently underrepresented. However, for these programs to be successful, stable and dedicated funding streams are needed. Federal funding for highway construction provides a potential source of support for these programs. The Maryland and

Oregon initiatives cited above provide models for increasing gender diversity in highway construction through pre-apprenticeships and other strategies that states across the country can replicate. By using a portion of their federal highway allocations to develop and implement similar approaches, other states can improve gender diversity in the highway construction workforce. Industry stakeholders, including industry associations, unions, community-based organizations, and education and training providers should work with their state transportation agencies to explore the use of federal transportation funds to replicate similar initiatives within their state.

## ENDNOTES

<sup>1</sup> The following people generously gave their time for interviews: Connie Ashbrook, Oregon Tradeswomen Inc; Susan Crane, SkillUp Washington; Martha Kenney, DOT National DBE Program Manager; Federal Highway Administration Office of Civil Rights; Ronnie Sandler, Independent Consultant on Transportation; Oregon State Senator Chip Shields; Stephen Simms, Director, BOLI Apprenticeship and Training Division; Larry Williams, ODOT Support Services Coordinator.

<sup>2</sup> See for example the City of Boston, one of the few locations publicly posting compliance data on construction contracts by trade, sex, and by minority status, thanks to the efforts of the Policy Group on Tradeswomen’s Issue (see Moir, Thompson and Kelleher 2011). 82 percent of the 4218 contracts listed did not employ women and 90 percent failed to meet the 6.9 percent target for women. The 10 percent of contracts that exceeded the federal goal (including 161 contracts where women provided 20 percent or more of hours worked) together accounted for 22 percent of hours worked by women between 2009 and 2013. Author’s calculations based on City of Boston compliance data. Accessed on August 1, 2014. <http://www.cityofboston.gov/brjp/>

<sup>3</sup> 29 CFR 30.4–Affirmative action plans. Accessed on June 9, 2014. <http://www.law.cornell.edu/cfr/text/29/30.4>. The overall goal for women’s apprenticeship share was parity with annual improvements towards that point once the initial “quarter” point had been reached. The Equal Employment Opportunity in Apprenticeship and Training regulations for federally registered apprenticeships (28 CFR 30) have been unchanged since 1978; in 2010, the DOL announced its intention to revise the regulations (USDOL 2010). At the time of writing, new recommendations have not yet been published.

<sup>4</sup> The Office of Apprenticeship oversees the registration of apprenticeships in 25 states; in other states, such as Oregon, the development of training and skills standards for registration and the oversight of apprenticeships is a state level responsibility.

<sup>5</sup> See New Haven Commission on Equal Opportunity: Contract Compliance at <http://cityofnewhaven.com/EqualOpportunities/ContractCompliance.asp>

<sup>6</sup> The definition of “women” includes all women, irrespective of their race or ethnicity. Apprenticeship programs must also set participation goals for minority males; these are set in relation to the composition of the workforce in the local labor market.

<sup>7</sup> The three awardees are Chicago Women in the Trades, Nontraditional Employment for Women, and Oregon Tradeswomen Inc. (USDOLETA 2012). <http://www.dol.gov/opa/media/press/eta/ETA20141177.htm>

<sup>8</sup> Email communication from Martha Kenley, FHWA Office of Civil Rights, June 9, 2014.

<sup>9</sup> Data provided to IWPR by Ronnie Sandler, February 2014. Sandler is a transportation industry compliance consultant and cofounder of Northern New England Tradeswomen (now Vermont Works for Women). She independently monitored states' use of the previous provision that only half of one percent of their Surface Transportation Program funds could be used for their OJT/SS program.

<sup>10</sup> Maryland Legislature Chapter 664 (House Bill 457) Transportation—Highway or Capital Transit Construction Training and Supportive Services, effective date July 2012. Accessed on July 8, 2014. [http://mgaleg.maryland.gov/2012RS/chapters\\_noln/Ch\\_664\\_hb0457e.pdf](http://mgaleg.maryland.gov/2012RS/chapters_noln/Ch_664_hb0457e.pdf). The accompanying Fiscal and Policy Note is available at [http://mlis.state.md.us/2012rs/fnotes/bil\\_0007/hb0457.pdf](http://mlis.state.md.us/2012rs/fnotes/bil_0007/hb0457.pdf)

<sup>11</sup> According to State Senator Chip Shields, the fact that all pre-apprenticeship programs were on “the same page” played an important role in getting the Highway Construction Workforce Development bill passed (interview with IWPR staff on June 6, 2014).

<sup>12</sup> § 184.866 “Highway Construction Workforce Development.” Accessed on June 4, 2014. [https://www.oregonlegislature.gov/bills\\_laws/lawsstatutes/2013ors184.html](https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2013ors184.html)

<sup>13</sup> Email communication from Larry S. Williams, BOLI, Feb 28, 2014

<sup>14</sup> Email communication with the Office of State Senator Chip Shields and Stephen Simms, BOLI, June 9, 2014.

<sup>15</sup> Email communication with the Office of State Senator Chip Shields and Stephen Simms, BOLI, June 9, 2014.

<sup>16</sup> Data provided by Larry Williams (BOLI) based on a survey conducted for BOLI of 500 apprentices; available on request. White men overall are the least likely to cancel their apprenticeships (17 percent) and unexpectedly have higher rates of cancellation among men who received supports (25 percent) than those who did not.

<sup>17</sup> For more information on OTI, see: <http://www.tradeswomen.net>

<sup>18</sup> Funding so far has been limited to the support for strategic planning for a pilot program and four individual scholarships.

<sup>19</sup> In 2013, 77.5 percent of Oregon's total population was “white, non-Hispanic” (U.S. Census Bureau. “State Quick Facts.” Accessed on August 9, 2014. <http://quickfacts.census.gov/qfd/states/41000.html>)

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