
AGC Oregon-Columbia Chapter Construction Training Sector Analysis: Final Report

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Prepared for:
Associated General Contractors – Oregon Columbia Chapter

DRAFT

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ECONorthwest

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AGC Oregon-Columbia Chapter

Construction Training Sector Analysis:

Final Report

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Executive Summary

AGC Oregon-Columbia Chapter contractor members are finding it increasingly difficult to identify and retain skilled workers to meet current demand. At the same time, construction employment in Oregon is expected to grow 17 percent by 2027. One way to address these two seemingly contradictory trends—how can this growth be realized if contractors cannot find enough skilled workers to even meet current demand—is to focus on improving the training system.

In this context AGC Oregon-Columbia Chapter contracted with ECONorthwest to perform a comprehensive construction training analysis to better understand the interaction between construction demand (contractors) and workforce supply (training providers). In particular, AGC Oregon-Columbia Chapter sought two main outcomes from the study:

- 1) to identify gaps between workforce demand and supply, as well as areas of friction and successful initiatives; and
- 2) to propose a set of action-orientated recommendations on how AGC can support and optimize Oregon and SW Washington’s training system to meet current and future skilled worker demand.

ECONorthwest conducted 30-minute telephone interviews with 29 contractors and 23 training providers in late 2019 and early 2020. The interviews were conducted with different types of contractors (general, specialty, heavy civil; union and non-union) and different types of training providers (pre-apprenticeship, apprenticeship, community colleges, and internal company programs).

From the interviews with contractors (demand side) ECONorthwest heard that a key challenge within the skilled trades generally, and within the training system specifically, is the existence of an information gap with respect to the desirability of a career in the skilled trades. The “college is for everyone” mentality has permeated and persisted within middle and high schools, to the point where students are being actively steered away from the skilled trades. Contractors stated that higher (and high) compensation has not been, and likely cannot be, enough to counter the narrative. More needs to be done systematically at younger ages to incentivize more students to enter the construction industry.

From the interviews with training providers (supply side) ECONorthwest heard that training providers are generally not at capacity, an interesting juxtaposition relative to contractors’ needs for skilled workers. For training providers, the strong economy was viewed as benefiting recruitment and placement, but not to the point of market saturation. As a counterbalance, the strong economy was viewed as being detrimental to operations, as it creates headwinds to retaining instructors. Near perfect alignment existed between contractors and providers with respect to the role of information gaps hindering the trades. And near perfect malalignment existed with respect to gender and ethnic diversity. While contractors widely viewed gender and racial discrimination as a thing of the past, providers expressed concerns about

opportunities and experiences for women and underrepresented minorities in the skilled trades.

ECONorthwest put the two sides together and arrived at a series of action-oriented recommendations. The recommendations address systematic changes, with some focused on specific stages of the training process and others focused on the training system more generally.

The recommendations are as follows:

- Improve recruitment into the trades by closing information gaps about the desirability of a career in the skilled trades through a public awareness campaign;
- Increase public support for training programs by launching a lobbying effort targeted toward educating public officials about the demand for the skilled trades, desirability of a career in the skilled trades, and the role of training systems;
- Improve training system placements upon program completion by leveraging technological advances to match skilled workers with contractors;
- Minimize the impact of demographic changes on the training system by promoting workplace flexibility options that will help attract Millennials into the industry and slow Baby Boomer retirements from the industry;
- Support diversity within the training system by promoting an industry-wide culture that is welcoming to gender and ethnic minorities; and
- Smooth long-term disruptions to the training system by taking a long-term view on economic cycles.

AGC plans to implement the recommendations with regional partners over the long-term to help ease contractors' concerns over their current and future skilled workforce.

1 Introduction

AGC Oregon-Columbia Chapter contractor members are finding it increasingly difficult to identify and retain skilled workers to meet current demand. In a 2018 survey, 84 percent of AGC Oregon-Columbia Chapter members rated the skill level of craft workers in the current pipeline as “fair” or “poor.” In the same survey, 80 percent of contractors reported having a difficult time filling some or all of their craft labor positions, and 86 percent of surveyed members expect it to remain difficult to hire craft workers for at least the next 12 months. Meanwhile, construction employment in Oregon is expected to grow 17 percent by 2027. An obvious question is how can this expected growth be realized when such frictions already exist in the current system?

The expected growth in Oregon and Southwest Washington is unlikely to be met with skilled workers from other areas of the country. The challenges that contractors are facing locally are also being felt nationwide. AGC’s 2019 Construction Outlook Survey found that 78 percent of contractors nationally said that they had a hard time filling positions—only two percentage points lower than Oregon—and that they also expected worker shortages to continue for at least another 12 months.¹ When asked about their biggest concern, nearly one in three contractors nationally (30%) stated, “worker shortages.” This response was three times more common than the next most-common category (increased competition for projects).

While Oregon’s and Southwest Washington’s contractors have similar outlooks as contractors nationally, local solutions are likely to have the most impact on resolving local challenges. With this objective in mind, AGC Oregon-Columbia Chapter contracted with ECONorthwest to perform a comprehensive construction training analysis. ECONorthwest’s task was to identify and examine gaps and frictions between contractors and the training system locally, as well as to identify areas of success. ECONorthwest was then tasked with proposing concrete, actionable recommendations to AGC Oregon-Columbia Chapter.

This report documents the methods and findings of ECONorthwest’s study and the recommendations that came from it.

2 Data and Methods

ECONorthwest took a qualitative approach to the study that focused on targeted interviews of contractors and training providers in the Oregon and Southwest Washington area. The interviews were conducted in late 2019 and early 2020 and consisted of more than 50 30-minute conversations that followed a script, one for contractors and another for training providers. The contractor interviews included different types—general, specialty, and heavy civil; union and

¹ Associated General Contractors of America. (2019). Contractors Remain Confident about Demand, Worried About Labor Supply: The 2019 Construction Hiring and Business Outlook. Eighty Percent of Contractors Report Difficulty Finding Qualified Craft Workers to Hire. Arlington, VA: The Associated General Contractors (AGC) of America, Inc. <https://www.agc.org/news/2019/08/27/eighty-percent-contractors-report-difficulty-finding-qualified-craft-workers-hire>

non-union—as did the training provider interviews—pre-apprenticeship, apprenticeship, community colleges, and internal company programs.

In this section we briefly describe the study sample and survey design.

2.1 Study Sample

In October 2019, ECONorthwest drafted an email invitation and telephone survey that formed the basis of the contractor interviews (see Appendix A). Before the invitations were sent, AGC Oregon-Columbia Chapter obtained permission from each contractor to share their information with ECONorthwest. Invitations were then sent to general contractors, specialty contractors, and heavy civil contractors from both union and non-union organizations. ECONorthwest invited a total of 33 contractors to participate and conducted interviews with 29 of them (87.9% response rate). Of the remaining four contractors, three (3) did not respond to the initial invitation or follow-up emails, and one individual declined to participate (Table 1).

ECONorthwest drafted a separate email invitation and telephone survey that formed the basis of the training provider interviews (see Appendix B). In addition to the email invitation and questionnaire, AGC prepared a one-page document for training providers summarizing the purpose of the study and how AGC intended to use the information gathered from the interviews to help support ongoing training efforts throughout the region (see Appendix C).

Invitations and the summary document were sent to respondents from high school, pre-apprenticeship, apprenticeship, community college, and internal company programs from both union and non-union organizations. ECONorthwest invited a total of 32 training providers to participate and conducted interviews with 23 of them (71.9% response rate). The remaining 9 training providers did not respond to the initial invitation or follow-up emails (Table 1).

Table 1: Status of interviews

Stage	Demand Side	Supply Side
Invites	33	32
Completions	29	23
Scheduled	0	0
No response	3	9
Refused	1	0

2.2 Survey Design

The demand-side questionnaire focused on contractors' perceived challenges in finding and retaining skilled workers and offered contractors the opportunity to discuss the reasons for these difficulties. In particular, respondents were asked about the current economic climate, compensation, and the quality of training programs, and how these three factors might be related to the skilled worker shortages they face. Respondents were also asked about the availability of training programs in their areas, the effectiveness of these programs (if applicable), and their perception about diversity within the construction industry. The same interview script was used for each respondent, though many open-ended questions provided contractors with substantial leeway in how they addressed these topics (see Appendix A).

The supply-side questionnaire focused on training providers' programs and their partnerships with outside organizations. The questionnaire offered training providers the opportunity to discuss their satisfaction with their program's recruiting, retention, completion, and placement efforts. Similar to the demand-side respondents, training providers were asked about the current economic climate and compensation. In addition to these factors, training providers were asked about how their training program operations might be related to their successes or challenges. Finally, respondents were asked about the alignment of their training programs with contractors' need, as well as their perception about diversity within the construction industry. Similar to the demand side interviews, many questions were open-ended, giving training providers substantial leeway in how they addressed these topics.

3 Results

The survey responses were analyzed to identify themes and were coded to assess the extent to which respondents agreed or disagreed with various topics raised during the interviews. These themes and responses were then used to construct a narrative about contractors' and training providers' views.

3.1 Demand-Side Analysis

Not surprisingly, the majority of contractors reported having difficulty finding qualified workers, with the strong economic climate being a main contributor (Figure 1). The impact of the economy was viewed as twofold, with skilled workers are currently being lured into other occupations and, longer term, skilled workers being unavailable due to residual effects from layoffs during the Great Recession and its aftermath.

Much to our surprise, contractors reported that compensation was not a factor in attracting skilled workers. Contractors reported, by and large, that further increases to base pay, benefits, or some combination of the two would not alleviate their current challenges. Many felt that compensation was already very competitive in today's market and that further increases would not enhance the quality of the existing workforce or their ability to attract skilled workers. Beyond wages, some contractors identified worksite and company culture as key components to attracting and retaining employees.

Wide variation in contractor responses existed with respect to the role that training programs play in helping to alleviate workforce challenges. More than half of contractors were satisfied with the effectiveness of training programs generally. Additionally, when asked to rate the training programs they use, a majority of contractors reported being satisfied or very satisfied (Figure 2). Contractors differed with respect to the skills for which they use programs—carpentry and laborers were most frequently cited—and regarding the programs that are available that they do not use—electrical and plumbing were most frequently cited (Table 2). These differences can be expected given the various types of contractors who were interviewed. Importantly, however, despite these differences, a total of 20 contractors (69%) reported using informal training programs.

Several important topics were raised as part of the open-ended feedback we requested. First, many contractors noted that information gaps were a key challenge, with the desirability of the trades not well-communicated to students, young adults, and the population at large. For example, contractors mentioned that a lack of construction training education (CTE) classes and early exposure to the trades in schools makes it difficult to attract young adults to the industry. Some respondents commented on the “college for everyone” mentality that seems to persist in schools today, with higher education touted as the primary (or only) pathway to career success. Contractors noted that this message is extremely detrimental to attracting students and young adults into the skilled trades.

Additionally, contractors identified an aging workforce as a challenge. Some respondents noted that the pace at which the Baby Boomers are exiting the labor market is creating a generational gap, making it difficult to train newer employees in an industry that has historically relied on on-the-job training to develop its workforce.

When asked about diversity, contractors’ views were generally positive, with the majority of contractors indicating that racist and sexist attitudes within the trades are a thing of the past. Contractors also, by and large, did not believe that training opportunities are limited for women and within communities of color. Although some respondents noted that the construction industry is male dominated and that they would like to see more women involved in the trades.

When time permitted, contractors were asked additional questions about how skilled-worker shortages have impacted their internal operations. Contractors generally agreed that the inability to attract and retain qualified workers negatively impacted their decisions to undertake projects and negatively impacted the growth of their organization but did not negatively impact safety. One interpretation of this finding is that contractors would prefer to forego projects than to take them on at the expense of safety. Responses were generally mixed with respect to the impact of skilled-worker challenges on completing projects on time and on budget.

3.2 Supply-Side Analysis

Overall, training providers reported that their programs were not at capacity and nearly all stated they partnered with multiple outside organizations (e.g., pre-apprenticeship programs)

(Figure 3). Training providers generally viewed the impact of the economy as beneficial for both recruitment and placement but detrimental to operations. Some respondents felt the strong economy negatively impacted their ability to retain experienced instructors both because of instructors' desire to return to the industry and training providers' inability to keep pace with wage increases. While the strong economic climate was generally viewed as having a positive effect on recruitment, some training providers believed the immediate need for workers lowered the quality of their applicant pool.

Intuitively, training providers stated that the construction industry's current wages made their recruitment efforts easier, but some noted that Oregon's high minimum wage presented challenges when attracting younger job seekers. Respondents felt those who did not see the long-term value of beginning a career in the skilled trades would settle for "easier" jobs (i.e., less labor intensive) with similar near-term levels of compensation. When some training providers took these concerns to contractors in their area, contractors responded by increasing wages to become more competitive with other less labor-intensive, entry-level positions. Training providers also mentioned that many of their students were changing career paths to the construction industry because of the available wages. In addition to wage increases, respondents identified other ways to attract prospective job seekers to the skilled trades, including signing or performance bonuses, flexible work hours, health coverage, and retirement plans. Notably, some respondents identified poverty as an issue for program participants and suggested solutions like travel stipends for low-income students who must take out-of-town work as a part of their apprenticeship.

When asked about the impact their internal operations have on the challenges they face, respondents expressed mixed views about the role of their programs and the operations of the construction training system generally. Some training providers felt there was an unwillingness on behalf of contractors to take on more apprentices, which impacted their placement efforts. Nonprofit organizations and some training providers mentioned a need for additional funding to continue building the talent pipeline. In general, views about program quality were positive and respondents felt their curricula were well aligned with contractors' needs (Figure 4).

Several important topics were raised as part of the open-ended feedback. Similar to contractors, training providers identified a lack of exposure to the skilled trades for younger generations as a key barrier to entry into the industry. Some respondents commented that limited trade-skills learning opportunities in schools decreased industry visibility for students. Other respondents felt that schools were not well versed in the skilled trades and therefore did not have the knowledge to help students access resources for pursuing careers in the construction industry. Training providers agreed that the focus on college as the primary pathway to career success inhibits young people from viewing the construction industry as a viable option, perpetuating the generational gap between younger job seekers and older workers exiting the labor force.

When asked about diversity, training providers' views were generally negative—in contrast to contractors' views—with the majority of respondents indicating they did not believe racist and sexist attitudes within the trades are a thing of the past. Their responses revealed that gender diversity within the construction industry remains a key issue, stemming in part from cultural

barriers and social expectations. Overall, training providers felt a lack of social networks exist for women and communities of color and that training opportunities are limited for these groups.

When time permitted, training providers were asked additional questions about perceived mismatches between skills and demand in the construction industry and what they believed could be done to rectify these issues. Training providers had varied responses to these questions, but most agreed that more exposure to the construction industry in schools would help bridge the information gap. Some respondents felt better coordination was necessary between their organizations and public schools while others mentioned that contractors needed to develop a strategic plan for workforce development targeting younger generations and possibly offering paid internships for students who demonstrate high-level competencies and skills. Respondents also commented on institutional barriers to bringing young people onto job sites, and several noted that formalized partnerships with industry professionals would help them put together a more appealing applicant pool for prospective employers.

These findings provide a foundation of understanding with respect to the demand and supply side of the skilled trade labor market in Oregon and Southwest Washington, and form the basis for ECONorthwest's recommendations.

4 Recommendations

ECONorthwest compared the narratives from the demand and supply side surveys and developed a series of action-oriented recommendations. These recommendations are described below.

1. *Improve recruitment into training programs by closing information gaps about the desirability of a career in the skilled trades through a public awareness campaign.*

Information gaps present a critical challenge to addressing the skilled worker shortage, in part because the “college is for everyone” message is instilled at early ages. This signal to middle and high school students actively steers individuals away from the skilled trades when, in reality, a career in the skilled trades is likely to be the optimal outcome for a good segment of the student population. Our educational system should present to students the full array of options they have when it comes to career opportunities. And the best way to do this is to explain the positives and negatives of different career pathways, and let students decide what might be the best fit for them. In this spirit, Recommendation #1 is for AGC Oregon-Columbia Chapter to launch a public awareness campaign that targets teachers, parents, and students and promotes the advantages of pursuing a career in the skilled trades.

2. *Increase public support for training programs by launching a lobbying effort targeted toward educating public officials about the desirability of a career in the skilled trades and the role of training systems.*

The training system can also be improved through a top-down approach to address the misconception that “college is for everyone.” Not only are our community leaders the key decision makers when it comes to resource allocation and funding, they also help to create our local culture. If our leaders can change local culture, then the behaviors we desire, and the outcomes that depend on these behaviors will follow. These changes in cultural and perceptions are likely to be much more impactful than one-off initiatives, which tend to fade without cultural change.

Moreover, lower-level leaders take cues from senior ones; if senior leaders are on board with an initiative, other leaders will follow. Conversely, if senior leaders are not or, worse, if they actively work against an initiative, the chances of successfully improving the training system for skilled workers is greatly diminished.

From this perspective, leadership buy-in can be an effective way to instill a cultural shift in how we teach and inform young adults about the opportunities within the trades. Recommendation #2 is, therefore, for AGC Oregon-Columbia Chapter to initiate an educational campaign that targets community leaders and elected officials, with a message about what the skilled trades can offer young Oregonians. As part of this recommendation, AGC Oregon-Columbia Chapter could create a series of marketing materials that succinctly explains the benefits of a career in the trades, perhaps even with a series of testimonials from those who have excelled in their careers.

3. *Improve training system placements by leveraging technological advances to match skilled workers with contractors.*

The past decade has been near-revolutionary with respect to data collection and data analysis, and many of the training providers suggested leveraging these technologies to improve the placement prospects of those who recently completed their programs. Recommendation #3 is for AGC Oregon-Columbia Chapter to explore ways to work with training providers to implement technologies that facilitate matches between contractors and recent graduates.² A technology-based matching system is unlikely to be a substitute for traditional word-of-mouth or personal connections, but such a system can certainly help improve upon the way the labor market currently operates and reduce frictions between demand and supply.

4. *Minimize the impact of demographic changes on the training system by promoting workplace flexibility options that will help attract Millennials into the industry and slow Baby Boomer retirements from the industry.*

² Web-based matching systems are used in an array of industries to increase connection efficiency and accuracy between suppliers and consumers. See, for example, Fabret, F., et al. (2000). “Efficient Matching for Content-based Publish/Subscribe Systems.”; Di Martino, S., Ferruci, F., and Sarro, F. (2011). “A matching-algorithm based on the cloud and positioning systems to improve carpooling”; Hiriyanna, S., et al. (2018). “Design and Development of a Web Application Matching Drug Addiction Treatment Services with Substance Users.”

One topic raised during both the contractor and training provider interviews is the importance of intergenerational differences in the workplace, especially with respect to worksite culture. In particular, several contractors and training providers noted differences in the way Millennials view the importance of child care options and workplace flexibility. As such, the promotion of workplace practices that improve worklife balance or worklife fit could help recruit younger individuals into training programs and the skilled trades.

Workplace flexibility initiatives can also help slow Baby Boomer retirements from the industry, by providing an alternative to the traditional all-or-nothing approach to work later in life in which one is working full time or not working at all. Another benefit of retaining older workers is the extended timeframe in which younger generations can absorb skills from their more seasoned counterparts.

Recommendation #4, therefore, is for AGC Oregon-Columbia Chapter to work with contractors on providing workplace flexibility initiatives, and follow up with training providers so they are aware that such options are being offered to those interested in the skilled trades.

5. *Support diversity within the training system by promoting an industry-wide culture that is welcoming to gender and ethnic minorities.*

Despite the overall positive outlook contractors held regarding diversity within the trades, the majority of training providers highlighted substantial gender disparities. One training provider who works with students in primary school, for example, pointed out two factors that hinder female participation in the construction industry: 1) a lack of gender diversity among CTE instructors specializing in the skilled trades, and 2) social pressures that encourage young girls to seek traditionally female occupations. National data appears to support this perspective, as women remain underrepresented in construction, making up just 10 percent of the industry's labor force.³

To address these barriers early on, AGC Oregon-Columbia Chapter could focus a portion of the messaging noted in Recommendations #1 and #2 above on gender inclusivity in the trades. What would be optimal is to do so in middle and high school, but also to carry the message of inclusivity onto the job site.

Similar to the findings regarding gender, training providers' views on the status of racial and ethnic diversity within the trades were more negative than the views held by contractors. These differences in opinion signal an opportunity to communicate the welcoming nature of the industry. This can also be accomplished in coordination with Recommendation #1, by conducting an informational campaign within communities of color to recruit potential candidates.

³ Bureau of Labor Statistics. (2019, December). BLS Reports: Women in the labor force: a databook. Washington, DC: US Department of Labor. <https://www.bls.gov/opub/reports/womens-databook/2019/home.htm>

6. *Smooth long-term disruptions to the training system by taking a long-term view on economic cycles.*

The skilled worker challenges faced by contractors today have been exacerbated by the layoffs of skilled workers during the Great Recession, as the construction industry experienced the greatest percentage decline in jobs.⁴ AGC Oregon-Columbia Chapter can work with contractors now on recession planning strategies. And, when the next downturn surfaces, AGC Oregon-Columbia Chapter can work with contractors to minimize layoffs of skilled workers by, for example, implementing hours reductions strategies.

Recommendation #6, therefore, would help mitigate the negative impacts of the next recession with respect to losing skilled workers, and also signal to new recruits that steps are being taken now to ensure that a long career in the industry is possible.

All six recommendations are action-oriented with the goal of improving the training system and its role in reducing current frictions between labor demand and supply in the skilled trades.

5 Conclusion

Today's strong economic climate is clearly straining the labor market for skilled workers, but other factors are important as well. Demographic challenges, such as the retirements of the Baby Boomers and the relative paucity of younger workers entering the pipeline, are key factors that will impact contractors over the medium and longer term. Contractors also highlighted information gaps with respect to the desirability of the trades, with a "college is for everyone" narrative being relayed to younger generations. Like contractors, training providers identified the lack of industry knowledge and visibility in schools as a substantial barrier to recruiting younger generations to the construction industry, furthering the generational gap between those who are entering the labor force for the first time and older workers who are leaving it.

Contractors have adapted to current conditions in a variety of ways, by increasing wages and benefits, by implementing in-house training programs that catered to their specific needs, and by not bidding on projects that they otherwise would have. Training providers, meanwhile, report not being at capacity. Clearly, recruitment into the skilled trades is a problem on both the demand side and the supply side of this labor market, and many of the training system recommendations noted in this report focus on recruitment.

AGC Oregon-Columbia Chapter can also impact the training system in other ways, some direct and some indirect. AGC Oregon-Columbia Chapter can help educate community leaders and elected officials about the desirability of a career in the skilled trades, thereby helping to provide much-needed funding for training systems. Leaders can also influence societal culture and challenges the current "college is for everyone" mindset that permeates middle and high school, and steers young individuals away from training in the skilled trades and the skilled trades generally.

⁴ Goodman, C.J., & Mance, S.M. (2011). Employment loss and the 2007-09 recession: an overview. *Monthly Labor Review*. <https://www.bls.gov/opub/mlr/2011/04/art1full.pdf>, p. 5.

AGC Oregon-Columbia Chapter can also work with training providers to implement technological advances to help improve placement rates and the quality of placements following program completion.

Finally, society has changed fundamentally over the past several decades—for the better—with respect to the importance of worklife balance, the role of older workers in the labor force, and gender and ethnic diversity. AGC Oregon-Columbia Chapter can help promote a welcoming culture within the skilled trades along each of these dimensions, and help alleviate skilled worker shortages in the process.

Many options exist to improve the training system and the labor market challenges that AGC Oregon-Columbia Chapter members currently face.

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Figure 1: Summary of themes addressed in the demand-side interviews

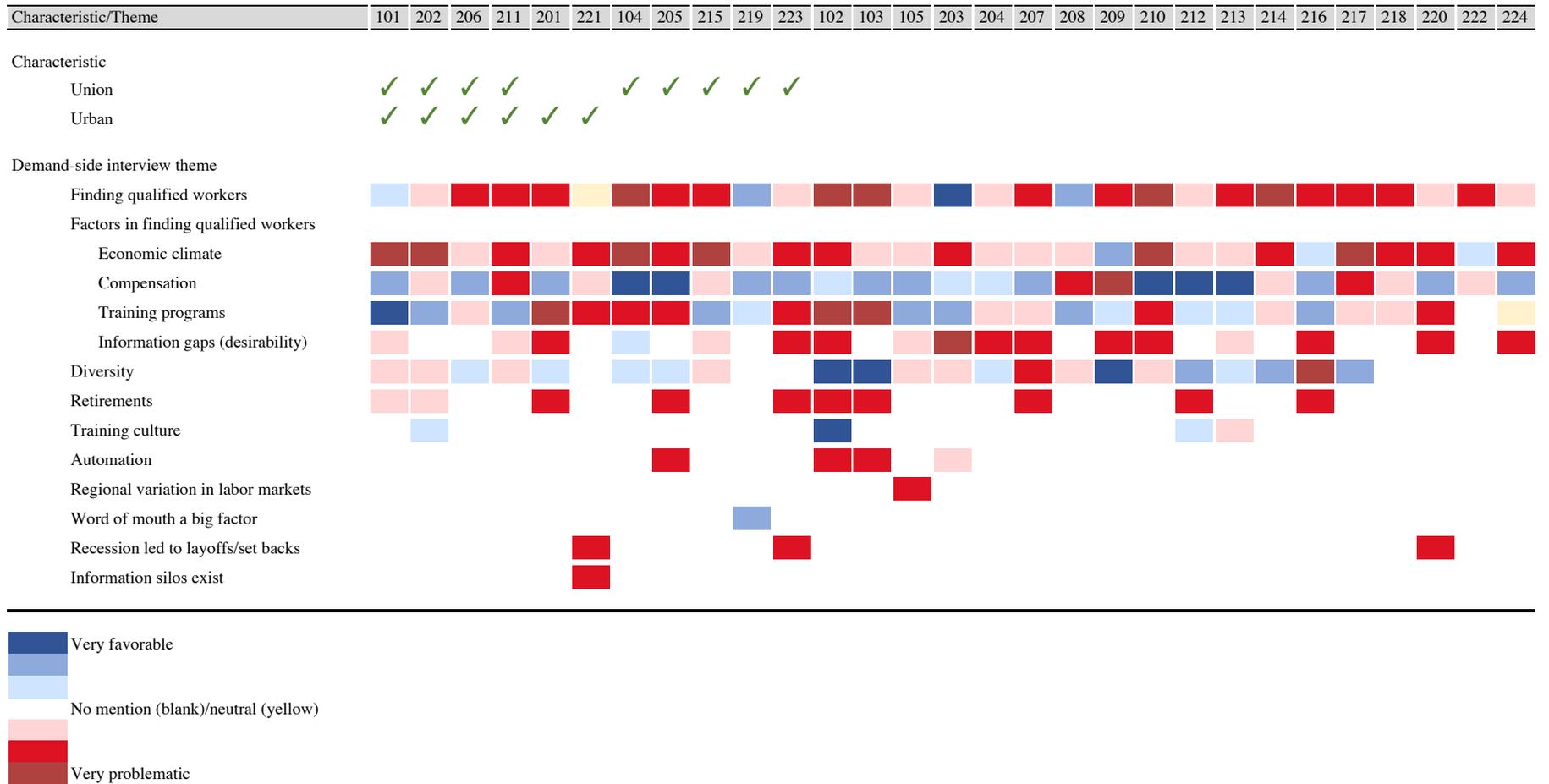


Figure 2: Responses to categorical questions in the demand-side interviews

Characteristic/Question	101	202	206	211	201	221	104	205	215	219	223	102	103	105	203	204	207	208	209	210	212	213	214	216	217	218	220	222	224
Characteristic																													
Union	✓	✓	✓	✓			✓	✓	✓	✓	✓																		
Urban	✓	✓	✓	✓	✓	✓																							
Demand-side interview question																													
5i How would you rate the effectiveness of training	7	8	8	7	7.5	2	7	3	8	8	7	1	0	8	7	1	5	8	5.5	2	8	7	3	3	6	7	2.5	9	4
6ai How would you rate the program(s) that you use?	6	8	8	7	8	N/A	9	8	9	8	7	NA	NA	8	8	7	7	8	5	NA	8	7.5	NA	10	8.5	6	5	9	N/A
To what extent do you agree with the following statements:																													
9a Racist and sexist attitudes within the trades are a thing of the past.	4	6	7	4	8.5	8	8	8	3	10	9	10	10	4.5	8	5	3	5	10	7	8	6	7	1	8	3	5	7	5
9b Removing barriers to diversification within the trades would improve contractors' ability to	9	4	7	4	4.5	8	8	3	7	8	9	1		8.5	3	7	10	7	1	8	4	8	2	8	8	5	7	7	2
9c A lack of social networks for women and communities of color limit training	8	3	5	3	2.5	5	5	8	RF	1	1	1	10	9	9	2	RF	2	1	1	2	6	2	1	6	6	3	4	2
Additional questions (time permitting)																													
To what extent has the inability to attract and retain qualified workers impacted the following:																													
Your organization's ability to grow.	7	5	8	5	7	8		10	6	5	8	10	1	7	7	3	10	3	7	7	1	10	8		9	10	8		7
Your ability to complete projects on time.	7	3	5	2	3	4		6	7	1	2	5	3	1	4	1	3	1	8	3	1	7	8		7	2	6		4
Your ability to complete projects on budget.	4	6	7	4	5.5	6		7	7	5	5	7	3	6	4	1.5	8	2	8	1	4	7	5		10	2	8.5		6
Your decisions to undertake projects	8	6	8	8	8	9		10	7	10	7	8	8	7.5	6	4	8	3	7	8	7	10	8		9	8	10		8
Your ability to retain your most skilled workers.	5	3	5	2	5	3		4	5	8	7	8	1	3.5	2	1.5	2	3	10	7	1	5	7		6	6	6.5		8
Your ability to provide a safe environment.	8	2	7	2	6	2		10	4	10	1	2	1	2	2	1	1	1	5	1	1	4	3		7	2	2.5		2

Very favorable

No mention (blank)/neutral (yellow)

Very problematic

Figure 3: Summary of themes addressed in the supply-side interviews



Figure 4: Responses to categorical questions in the supply-side interviews

Characteristic/Question	303	304	310	314	319	302	308	312	315	317	318	311	309	320	321	301	305	306	307	313	316	322	
Characteristic																							
Union										✓	✓					✓	✓	✓	✓				
High school	✓	✓	✓	✓	✓																		
Pre-apprenticeship						✓	✓	✓	✓	✓	✓	✓											
Apprenticeship										✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Community colleges												✓										✓	✓
Internal program																							✓

Supply-side interview question

2. How would you rate the challenges you face with respect to the following characteristics of your training programs? (Scale 1 to 5)

2.i	Recruiting	4	1	4	1	3	5	1	3	3.5	2	2.5	3	2	4	5	2.5	4	1	4	1	5	2
2.ii	Retention	1	1	2	1	3.5	3	2	4	2	3.5	3	2	3.5	1	2	4	4	4	2	1	3	3
2.iii	Completion	2	1	5	1	4	3	2	3.5	2	3	2	3	2	1	2	3	4	3	2	2	4	3
2.iv	Placement	2	4	3	3	4	2	2	3.5	2	4	1	1-4	1	2	2	3	3	5	1	3	2	1

8.a.i. How would you rate your construction training program(s) overall? (Scale 1 to 10)

7	8	7	10	7	8	8	8.5	8.5	10	10	8	8.5	8	8.5	8	7	8	8	9	10	8
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8.a.ii. How would you rate the extent to which your training programs are aligned with the relevant skills needed by contractors?

9	9	8	10	8.5	8	10	9	9	9.5	10	10	9	8	8	8	8	10	8	9	8.8	9
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8.a.iii. How would you rate the quality of your programs?

8	9	7	10	7	8	9	9	8.5	9.5	10	8	8.5	8	8	8	8	10	7	9	10	8
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10. To what extent do you agree with the following statements (Scale 1 to 10):

10.a. Racist and sexist attitudes within the trades are a thing of the past.

1	5.5	5	5	1	1	3	3	6	3	7	2-4	6	2	5	4	4	1	2	1	3	
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10.b. Removing barriers to diversification within the trades would improve contractors' ability to identify and retain qualified workers.

6	4	3	10	10	5	10		8.5	7	7	8		10	8	6	7	8	9	10	8	10
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10.c. A lack of social networks for women and communities of color limit training opportunities for diverse workers.

6	8	9	10	10	7	4	10	7	8.5	10	8	7	2	5	8	8	1	7	8	4	7
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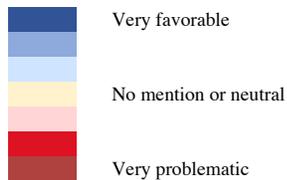


Table 2: Summary of contractors' use of training programs

[1]	Use a Program for this Skill [2]	Programs Available but Not Used [3]	Unable to Find Workers with this Skill [4]	Offer Internal Training Programs	
				Formal [5]	Informal [6]
[1] Carpentry	7	1	7		2
[2] Laborer	4		2		
[3] Masonry			5		
[4] Equipment Operator	1		4		
[5] Eletrical	2	4	3	1	
[6] Plumbing		2	3		
[7] Drywall Finishing	1		3		
[8] Framing			3		
[9] Metal Fabrication	1	1	2		
[10] Plastering	1		2		
[11] Painting	1		2		
[12] Roofing			2		
[13] Project management/engineering	1		2		
[14] Administration	1		1		
[15] Window Glazing			1		
[16] HVAC		1	1		
[17] Doors and Hardware	1		1		
[18] Fireproofing	1				
[19] Flooring			1		
[20] Pipelaying			1		
[21] All			2		
[22] General					18

Source: ECONorthwest interviews with contractors and training providers.

7 Appendix A – Demand Side Invitation and Questionnaire

DRAFT

DATE: October 15, 2019
TO: Files
FROM: Kevin E. Cahill
SUBJECT: AGC Training Sector Analysis Demand-Side Questionnaire

This memorandum presents a proposed script for the demand side of the training sector analysis, focusing on contractors' utilization of construction training programs. This analysis will consist of 20-30 interviews, the actual number dependent on response rates, and will be conducted via telephone by research analysts at ECONorthwest. Potential respondents will be identified using a stratified sampling design to ensure that union and non-union general contractors, specialty contractors, and heavy civil contractors are included.

The near-term goal of the demand-side analysis is a memorandum to the AGC Workforce Committee that describes contractors' views on training programs and how effective they are in meeting current needs. This information will then inform a broader analysis examining the interaction between the supply and demand of the construction training sector. The following key questions will be addressed in the supply-demand analysis: 1) are current training programs operating at capacity; 2) are training programs successful in recruiting enough candidates; and 3) what do non-registered training programs look like?

Generally speaking, the contractors who are surveyed will be asked to assess the degree to which the training programs in their area satisfy their needs and to identify areas in which gaps exist. Depending on the responses to the first several interviews we might adjust the script to target specific themes that we can identify early in the process.

What follows is some proposed text for the email invitations and interviews.

I. Email Invitation

SUBJECT: Request from AGC to Discuss Construction Training Program Challenges

Dear [NAME]:

My name is <NAME> and I am a research analyst with ECONorthwest, a public policy and economics consulting firm based in Portland. I received your name from AGC Oregon-Columbia Chapter as a good person to speak with about construction training programs.

ECONorthwest is currently working with AGC Oregon-Columbia Chapter to perform a comprehensive construction training analysis to better understand the interaction between construction workforce supply (training providers) and demand (contractors). The study is motivated by a perception among some AGC contractor members that it is increasingly difficult to identify and retain skilled workers to meet current demand.

We are interested in hearing your perspective on this topic, and are hoping you might be able to share 20 to 30 minutes of your time for a telephone interview. Interviews are currently being scheduled for Tuesdays and Thursdays from 10am to 4pm, though we could accommodate an alternative time if this schedule does not work for you.

Please note that we are only reaching out to a limited number of AGC Oregon Columbia Chapter members, so we do hope you will be able to participate in this survey.

Could you please let me know if you might be available and, if so, what dates/times work best for you? I look forward to hearing from you.

Sincerely,

<NAME>

II. Questionnaire

Thank you for taking the time to speak with me (us) today.

My name is <NAME> and I work for ECONorthwest. As I mentioned in the email invitation, ECONorthwest is currently working with AGC Oregon-Columbia Chapter to better understand the interaction between construction workforce supply (training providers) and demand (contractors). In particular, AGC is seeking to understand training supply and demand gaps, friction, and areas of success.

Our conversation should take approximately 20 minutes. Is this OK with you? [*Wait for answer.*]

Great. First, I would like to mention that your participation is voluntary. Please do not feel obligated to answer every question. If you prefer not to answer a question just let me know and we will move on. Second, our conversation will *not* be recorded and your name will be kept confidential. ECONorthwest will not use your name in any of our communications or written documentation with AGC without your permission.

Does that sound OK? [*Wait for response.*]

Questions

- 1) Generally speaking, do you have difficulty identifying and retaining qualified workers to complete your projects successfully?
- 2) To what extent do you think the challenges to finding qualified workers is a function of the **strong economic climate** straining the labor market?
 - a. Do you think the skills gap will dissipate if economic conditions soften?
 - b. Do you see any new skills gaps emerging in the near future? How about the medium or longer term?

- 3) To what extent do you think the challenges in finding qualified workers is a function of **compensation**? That is, if you could reasonably increase base pay, bonuses, or benefits—or some combination of the three— you would be able to attract the types of workers you need?
- 4) To what extent do you think the challenges in finding qualified workers is a function of the shortcomings of construction **training programs**?
- 5) Generally speaking, how effective are construction training programs in meeting your current needs?
 - i. On a scale from 1 to 10, with 1 being not at all satisfied and 10 being completely satisfied, how would you rate the effectiveness of training programs in meeting your current needs?
- 6) What training programs are available in your area?

[If NONE, proceed to Question 7.]

 - a. Which of these programs do you use [*cap at five, if more than five are mentioned*]?
 - i. On a scale from 1 to 10, with 1 being poor and 10 being excellent, how would you rate the program(s) that you use?
 - b. What skills do these programs provide, both good and bad?
 - c. For the programs that exist in your area but you do not use [if any], what is the main reason?
 - i. Training does not provide skills relevant to your needs.
 - ii. Not confident in the quality of the program.
 - iii. Other reason [*Specify.*]
- 7) Are there *particular* skilled trades that you need but are unable to find because of a lack of trained workers?
 - i. What are these skilled trades?
 - ii. What do you think can be done so that training programs in your area can provide these skilled trades?
- 8) Does your organization offer non-registered internal training programs?
 - a. Can you please describe these programs? What are the key attribute(s) of them?
 - b. Have you thought about pursuing state registration for this/these program(s)? Why or why not?
- 9) On a scale of 1 to 10, with 1 being strongly disagree and 10 being strongly agree, to what extent do you agree with the following statements:
 - a. Racist and sexist attitudes within the trades are a thing of the past.

- b. Removing barriers to diversification within the trades would improve contractors' ability to identify and retain qualified workers.
 - c. A lack of social networks for women and communities of color limit training opportunities for diverse workers.
- 10) Is there anything else about training programs, or the other topics we have discussed, that you would like to mention?

[TIME PERMITTING: *If the survey time is under 25 minutes, the interviewer will ask the respondent if they are open to answering more questions. If so, the following questions will be asked, in order, until 30 minutes has been reached.*]

- 1) [IF YES] On a scale from 1 to 10, with 1 being not at all and 10 being strongly, to what extent has the inability to attract and retain qualified workers impacted the following:
 - a. Your organization's ability to grow.
 - b. Your ability to complete projects on time.
 - c. Your ability to complete projects on budget.
 - d. Your decisions to undertake projects (i.e., to bid on them).
 - e. Your ability to retain your most skilled workers.
 - f. Your ability to provide a safe working environment for all workers.
- 2) Thinking about retention, can you talk about any differences you have observed among workers pre- and post-training? Are these differences substantial?
- 3) Thinking about the workers' perspective, how can job seekers access construction-related entry-level jobs that lead to career advancements and wage increases?

That concludes our survey. Thank you very much for your time today.

8 Appendix B – Supply Side Invitation and Questionnaire

DRAFT

DATE: December 3, 2019
TO: Files
FROM: Kevin E. Cahill
SUBJECT: AGC Training Sector Analysis Supply-Side Questionnaire

This memorandum presents a proposed script for the supply side of the training sector analysis, focusing on understanding operations of construction training programs. This analysis will consist of 20-30 interviews, the actual number dependent on response rates, and will be conducted via telephone by research analysts at ECONorthwest. Potential respondents will be identified using a stratified sampling design to ensure that programs across the state of Oregon and SW Washington are included, and span pre-apprenticeship, apprenticeship, community colleges, and internal company programs.

The near-term goal of the supply-side analysis is a memorandum to the AGC Workforce Committee that describes the successes and challenges of the construction training system in Oregon and SW Washington. This information will then inform a broader analysis examining the interaction between the supply and demand of the construction training sector. The following key questions will be addressed in the supply-demand analysis: 1) are current training programs operating at capacity; 2) are training programs successful in recruiting enough candidates; and 3) what do non-registered training programs look like?

Generally speaking, the supply-side interviews will focus on recruiting, retention, completion, and placement, and on training providers' interactions with contractors and their best practices. Depending on the responses to the first several interviews we might adjust the script to target specific themes that we can identify early in the process.

What follows is some proposed text for the email invitations and interviews.

I. Email Invitation

SUBJECT: Request from AGC to Discuss the Construction Training System

Dear [NAME]:

My name is <NAME> and I am a research analyst with ECONorthwest, a public policy and economics consulting firm based in Portland. I received your name from AGC Oregon-Columbia Chapter as a good person to speak with about construction training programs.

ECONorthwest is currently working with AGC Oregon-Columbia Chapter to perform a comprehensive construction training analysis to better understand the interaction between construction workforce supply (training providers) and demand (contractors). AGC, in

particular, is interested in identifying ways in which the organization can help support your efforts. The attached one-page document provides more information about the study.

We are interested in hearing your perspective, and are hoping you might be able to share 20 to 30 minutes of your time for a telephone interview. Interviews are currently being scheduled for Tuesdays and Thursdays from 10am to 4pm, though we could accommodate an alternative time if this schedule does not work for you.

Please note that we are only reaching out to a limited number of individuals, so we do hope you will be able to participate in this survey.

Could you please let me know if you might be available and, if so, what dates/times work best for you? I look forward to hearing from you.

Sincerely,

<NAME>

II. Questionnaire

Thank you for taking the time to speak with me (us) today.

My name is <NAME> and I work for ECONorthwest. As I mentioned in the email invitation, ECONorthwest is currently working with AGC Oregon-Columbia Chapter to better understand the interaction between construction workforce supply (training providers) and demand (contractors). AGC, in particular, is interested in identifying ways in which the organization can help support your efforts.

Our conversation should take approximately 20 to 30 minutes. Is this OK with you? [*Wait for answer.*]

Great. First, I would like to mention that your participation is voluntary. Please do not feel obligated to answer every question. If you prefer not to answer a question just let me know and we will move on. Second, our conversation will *not* be recorded and your name will be kept confidential. ECONorthwest will not use your name in any of our communications or written documentation with AGC without your permission.

Does that sound OK? [*Wait for response.*]

Questions

- 1) I'd like to start with a few questions about your training programs.
 - a. Do you specialize in a particular population or skilled trade?
 - b. What certifications do you offer?
 - c. Are you at capacity? [If not, ask: "Why do you think that is?"]

- d. Do you partner with other organizations?
- 2) On a scale from 1 to 5, with 1 being none and 5 being severely challenged, how would you rate the challenges you face with respect to the following characteristics of your training programs:
- i. Recruiting
 - ii. Retention
 - iii. Completion
 - iv. Placement

What would you say are your biggest challenges with respect to [lowest ranked item]?

- 3) Can you please tell me a little about your recruiting process? Would you say this process is working well?
- 4) [If completion rates are not 100%] What are the main reasons why individuals do not complete your training programs?
- 5) Can you please tell me a little about your placement process? Would you say this process is working well?
- 6) Generally speaking, to what extent do you think the **strong economic climate** has impacted your success (or challenges)?
- a. Do you think these successes (or challenges) will dissipate if economic conditions soften?
- 7) Again, generally speaking, to what extent do you think the **compensation offered by contractors** has impacted your success (or challenges)?
- a. Do you think that if contractors increased base pay, bonuses, or benefits—or some combination of the three— you would be able to attract, retain, and place students more successfully?
- 8) To what extent do you think the challenges you face are a product of your operations or the operations of the construction training system generally?
- a. On a scale from 1 to 10, with 1 being poor and 10 being excellent:
 - i. How would you rate your construction training program(s) overall?
 - ii. How would you rate the extent to which your training programs are aligned with the relevant skills needed by contractors?
 - iii. How would you rate the quality of your programs?
- 9) From your perspective, would you say there are *particular* skilled trades where there is strong demand in the marketplace but limited training opportunities to meet this demand? [TIME PERMITTING]

- a. What are these skilled trades?
 - b. What do you think can be done so that training programs in your area can provide these skilled trades?
- 10) On a scale of 1 to 10, with 1 being strongly disagree and 10 being strongly agree, to what extent do you agree with the following statements:
- a. Racist and sexist attitudes within the trades are a thing of the past.
 - b. Removing barriers to diversification within the trades would improve contractors' ability to identify and retain qualified workers.
 - c. A lack of social networks for women and communities of color limit training opportunities for diverse workers.
- 11) Is there anything else about training programs, or the other topics we have discussed, that you would like to mention?

That concludes our survey. Thank you very much for your time today.

9 Appendix C – One-Page Project Description

DRAFT

Construction Training Sector Analysis

Overview

Through an AGC of America construction workforce survey conducted in 2019, Oregon contractors rated the skill level of craft workers in the current pipeline as “poor” or “fair.” In the same survey, 80% of contractors reported having a difficult time filling some or all of their craft labor positions, and 86% of surveyed members expect it to remain difficult to hire craft workers for at least the next 12 months. It is clear that contractors across Oregon have concerns over their current and future skilled trade workforce.

AGC has contracted with ECONorthwest to perform a comprehensive construction training analysis to better understand the interaction between construction workforce supply (training providers) and demand (contractors). Through this analysis AGC is seeking to understand training supply and demand gaps, areas of friction, and successful initiatives. AGC will then use the findings of this analysis to inform how the organization can best support on-going training activities and organizations to meet current and future construction workforce demand across Oregon and SW Washington.

Process and Timeline

ECONorthwest will conduct approximately 30 interviews with contractors of all sizes and types across Oregon and SW Washington, and corresponding training entities, which include high school construction programs, registered pre-apprenticeship, registered apprenticeship, in-house training programs, and community college construction training courses. Upon completion of the surveys, ECONorthwest will deliver a report summarizing findings and provide a list of recommendations on how AGC can help support Oregon and SW Washington’s training system.

ECONorthwest is in the process of conducting both the demand and supply-side interviews, and it is expected that the full analysis will be completed by early 2020.

Outcomes

AGC Oregon-Columbia Chapter seeks two main outcomes:

- 1) A better understanding of the interaction between construction workforce demand and supply. The goal is to identify gaps, areas of friction, and successful initiatives.
- 2) A set of action-orientated recommendations on how AGC can support and optimize Oregon and SW Washington’s training system to meet current and future skilled worker demand.

AGC plans to implement the recommendations with regional partners over the long-term to help ease contractors’ concerns over their current and future skilled workforce.

If you have any questions or concerns, please contact Aaron Bouchane, aaronb@agc-oregon.org or 503-685-8304.

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