

Summary of observations and findings on job forecast and labor demand analysis

Overview of 2016 current workforce supply

Data show that there are an estimated 23,000 nonresidential construction workers in the area. Nonresidential employment is a subset of the data provided in Section 1 of the Construction Workforce Market Study (all construction). It is used in this analysis since all of the 81 projects in this study fall into this category, allowing for a more realistic analysis of supply. In terms of demographics, across all construction occupations, women makeup just four percent of workers while minorities represent twenty percent.

Share of total construction employment between residential and non-residential, Portland MSA 2016

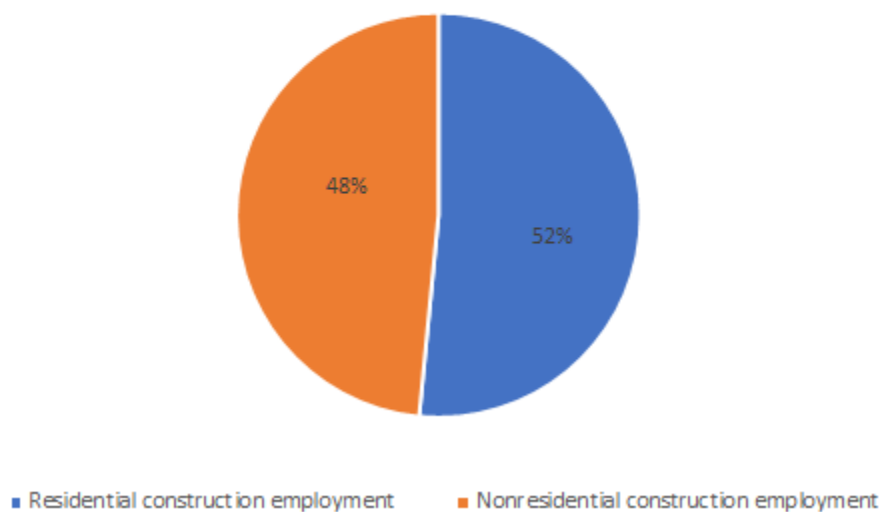


Figure 1. Residential vs nonresidential share of construction employment

The demographic makeup of apprentices currently registered with the Oregon State Bureau of Labor and Industries (BOLI) in the Portland Metro region over the last three years has not changed much, but the overall number has increased. In 2014, there were 5,129 registered active apprentices in the Portland Metro region. Of those, 8 percent were women, 28 percent were women and minorities, and 22 percent were minorities. In 2015, there were 5,527 registered active apprentices and the makeup was the same. In 2016, the number of registered apprentices increased to 6,555 and the demographic share had a slight increase. 29 percent were women and minorities, 8 percent were women, and 24 percent were minorities.

For more detail on the 2016 current construction workforce supply, please refer to Section 1 of this study.

5-year workforce demand for public projects over \$15 Million

Beginning in 2017 through 2021, the 81 known large public capital projects will require nearly 14,000 construction workers. Some of these projects have stated apprentice and workforce diversity goals. These average 20 percent apprentices, 25 percent minorities, and 14 percent women, which translates into demand for 2,000 apprentices, 1,200 minorities, and 700 women. Demand varies greatly by trade as illustrated in the Summary spreadsheet.

Many agencies did not state goals, or were unable to provide specifics (e.g. “TBD”). If we apply the average goals stated above to *all* 81 projects, the need increases. The 5-year demand increases to 2,700 apprentices, 3,400 minorities, and nearly 2,000 female construction workers.

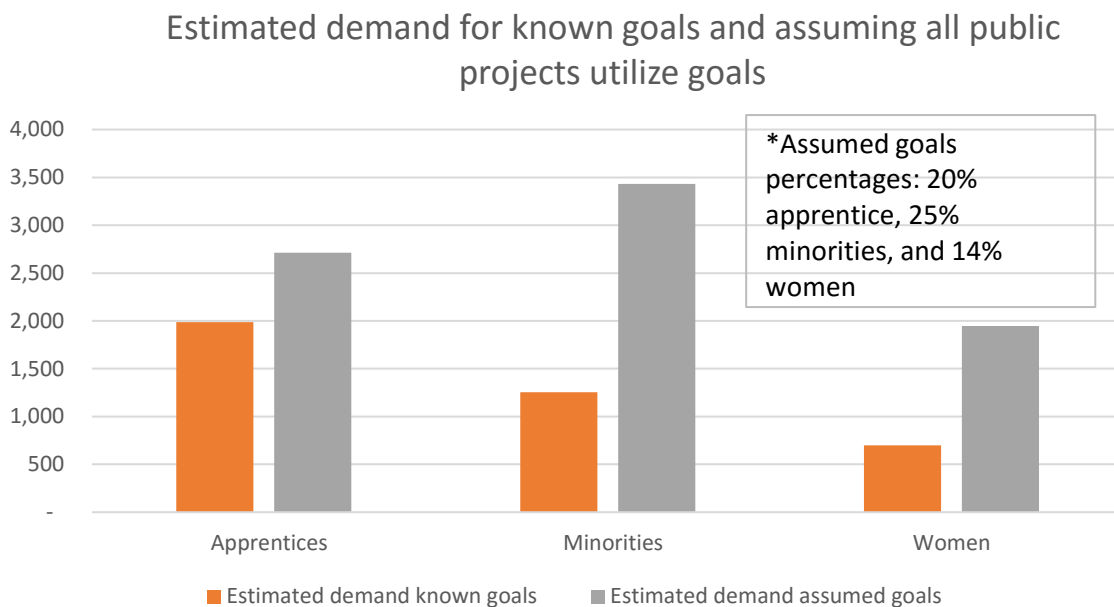


Figure 2. *Estimated demand for public projects through next 3-5 years*

The rest of this analysis utilizes the latter scenario: where all 81 major public projects have goals, and that these goals are the same as the average for those projects with stated goals (20% apprentices, 25% minorities, 14% female).

Methodology

The five-year construction workforce demand for public capital projects over \$15 million was estimated via extensive interviews with local public agencies responsible for 81 projects. Some agencies provided detailed information such as projected hourly demand by individual trade and apprenticeship, minority, and female hiring goals. However, most agencies were unable to provide anything more than project type and costs. To address the gaps in the data, the team worked with local contractors to develop staffing patterns and demand by project type. They used this, along with the known data, to estimate the future labor demand for these 81 capital projects.

Potential surplus/deficit

Overall, the current 2016 workforce of 23,000 nonresidential construction workers appears to meet the future 5-year demand of 14,000 workers for large capital projects, even when assuming all projects have goals. Broken out by stated apprentice and diversity goals, this is also true for apprentices and minorities. However, the region will need an additional 1,000 female construction workers.

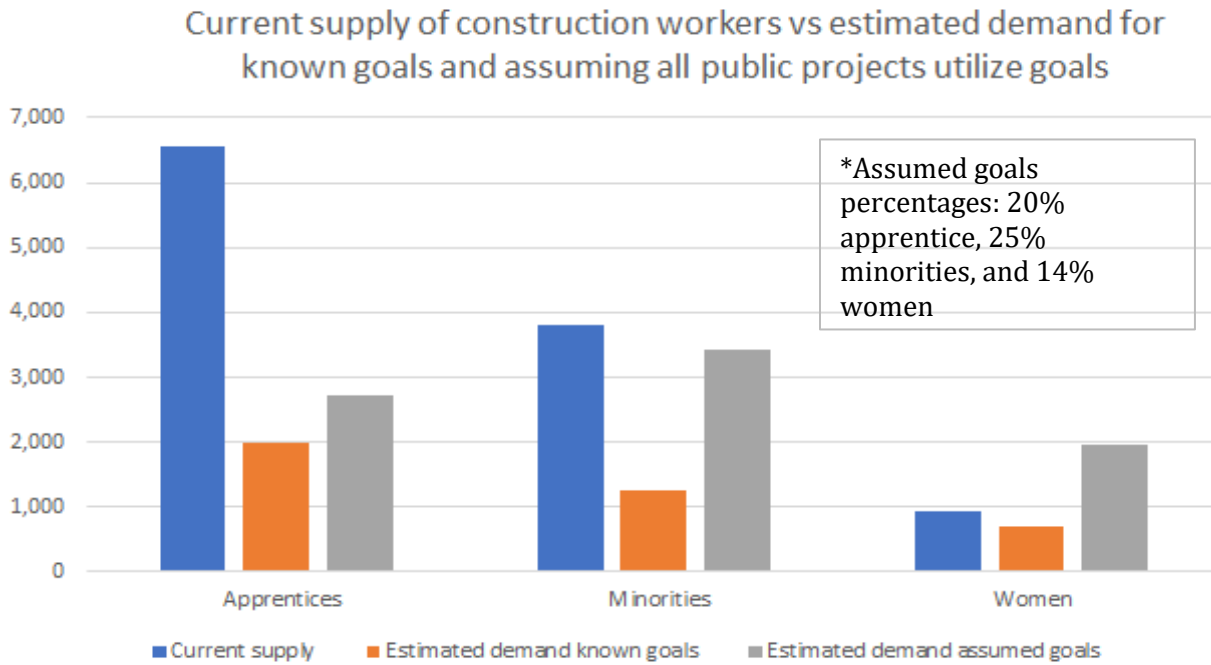


Figure 3. *Estimated demand for public projects compared to current supply*

Although most goals appear to be met at the sum total level, there is a lack of diversity at the individual occupational level. If diversity goals were applied to each individual trade, many occupations fall short. This can be better summarized if we add up all of the deficits by trade, which better illustrates the needs of specific trade occupations for the region. This analysis shows that the 2016 supply would fall short by 1,074 minorities, 1,416 females, and 445 apprentices to fill the needs for all trades in the region over the next 5 years.

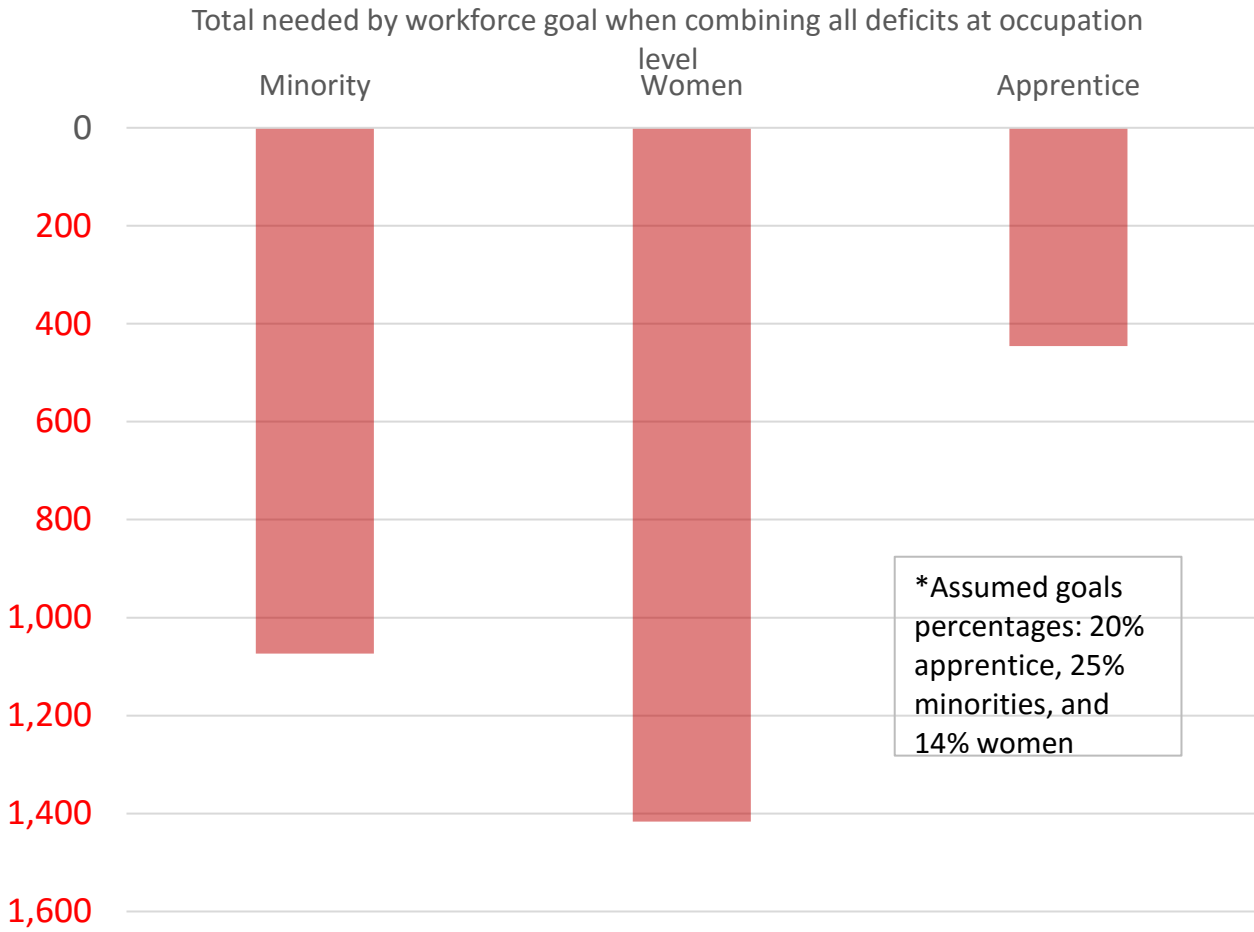


Figure 5. *Estimated need when combining all supply deficits broken down by trade*

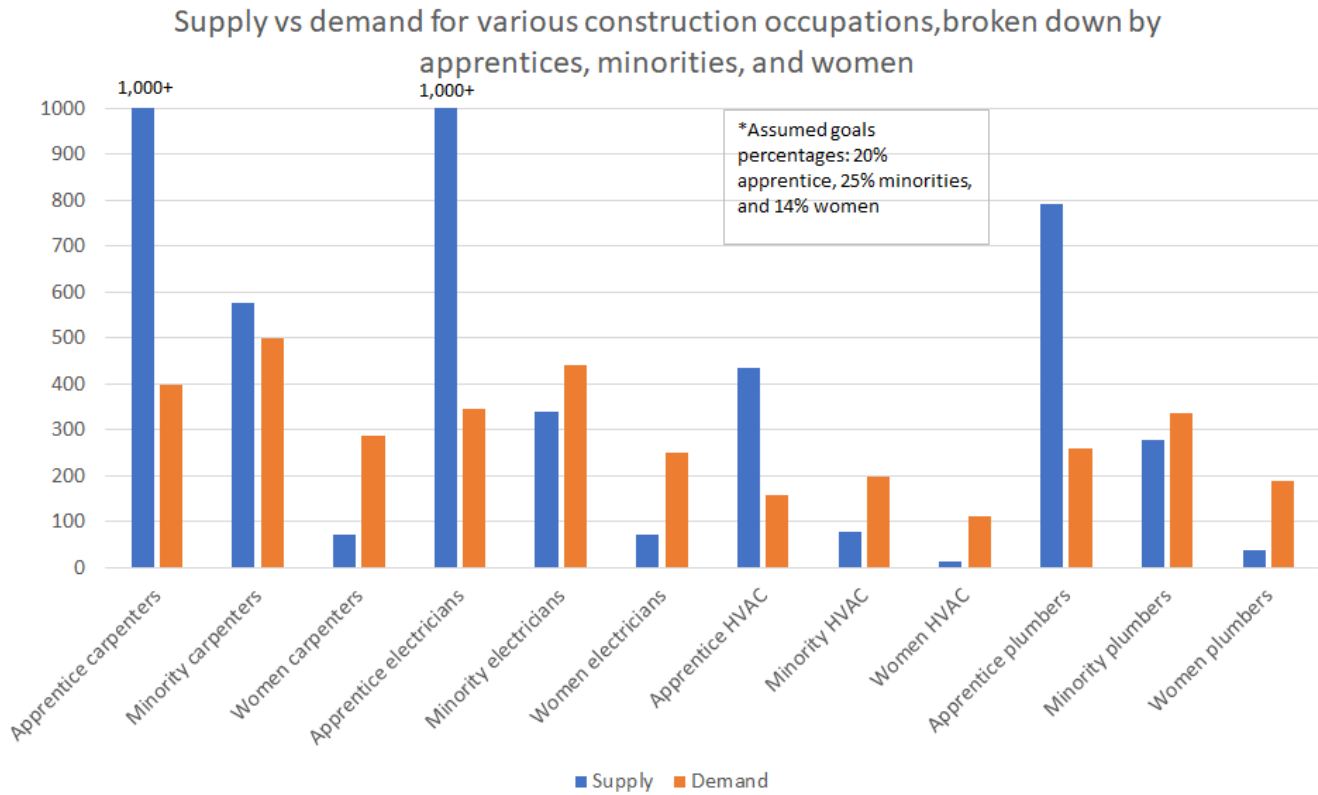


Figure 4. Estimated demand for public projects compared to current supply broken down by top occupations

Data Notes

1. It is critical to keep in mind these gaps are only looking at the *current* 2016 workforce supply and assuming no new workers are trained or move to the area and enter the workforce in the next five years. Given that, the estimated gaps should be interpreted with the knowledge that the industry can and will be training more people over the coming years to address the workforce demand of the market.
2. The projected demand included in this matrix only include public capital projects over \$15 million that were captured through our interviews. This analysis does not include a. Private projects b. Public projects under \$15 million and c. Any data that may not have been disclosed during the public agency interviews.
3. There is significant demand in the region for construction workers outside of the scope of this study (e.g. private market, smaller public projects, projects in nearby jurisdictions). However, this matrix *most likely* includes most of the projected demand for apprentices, minority and female workers in the region. This is because utilization goals for these types of workers primarily exist explicitly for only public capital projects, and are rarely present in the private market. This doesn't mean, however, that apprentices, women and minorities aren't employed elsewhere. Public sector projects for this workforce will still need to compete with other markets.
4. The methodology developed and applied to projects that didn't have labor data and resulting labor forecasts are based on multiple sources and processes, both with public agencies and with contractor estimators. These sources used different terminologies and definitions, including construction costs, labels for trade categories (HVAC versus Sheet Metal, Flaggers versus Laborers), and some public agencies simply

omitted categories such as truck drivers, HVAC, flaggers, all of which we could assume are critical trades involved in most large construction projects. Given that, this analysis has inherent limitations based on the data that was provided, or not.

5. The trade/occupation categories are not perfectly aligned across the sources used in this report: workforce supply and demographics; BOLI registered apprenticeship data, and the trades listed by the public agencies and contractors. For that reason, some similar trade categories were combined in order to do a comparison, for example with HVAC and Sheet Metal, Laborers and flaggers, All Electrician apprenticeship programs, among others.

6. The labor demand forecast was calculated into a full-time employment (FTE) number by dividing the total hours needed by 2,080 hours. Construction workers may or may not work full-time, year-round, depending on the project and the market. In some instances, they work overtime, in others, they are laid off during whole seasons. For the purposes of selecting the most acceptable and consistent measurement, this study used the 2,080 hour FTE calculation.

7. It is important to note that the labor forecast estimate methodology was directly informed by industry practices. The team convened estimators from three large contracting firms in the region and used historical data on their past projects, as well as current estimating methods used by contractors for insurance purposes. This information was helpful to fill in the data gaps of projects where no labor forecast data was provided.