



**Seattle Public Schools
Student and Community Workforce Agreement Task Force
Final Report**

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Thanks to Seattle Public Schools Board President Zachary DeWolf, Chief Operations Officer Fred Podesta, Director of Capital Projects and Planning Richard Best, Career Technical Education Curriculum Specialist Harvey Wright, Career and Technical Education Instructor Stephanie Colbert and Executive Administrative Assistant Mary Cauffman.

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Background

The Seattle Public Schools' Board of Directors passed legislation to establish a Student and Community Agreement (SCWA) Task Force on July 10, 2019.¹ As directed by the board's charter, Seattle Public Schools (SPS) appointed executives from construction trade labor unions, the construction industry, women and minority business organizations, construction training experts and SPS staff,² to study and make recommendations for an SCWA covering SPS' construction projects. The charter directed the task force to consider whether an SCWA can align and contribute to the SPS mission³.

An SCWA refers to an agreement between SPS and the construction trade unions, with contractors as assenting partners for SPS construction projects at or above \$5 million in construction value. Workers and contractors would be or "act as" a union for the project duration. They are not required to be or become unionized.

This report focuses on two major themes in the task force recommendations:

- adopt and implement an SCWA and
- expand of the Career and Technical Education (CTE) skilled trades program as currently offered by SPS to high school students.

These two themes are discussed consecutively in this report. Please note that the timelines and costs are situated mid-way in the report to allow a clear path for the reader, yet the timeline and cost materials also will reference the CTE program not discussed at length until the final report segment.

The task force convened from October 2019 through January 2020⁴. Stakeholders were invited to join certain meetings to share their perspectives including panel presentations with:

- Association of General Contractors (AGC), the National Association of Minority Contractors (NAMC) and Tabor 100
- The King County Building Trades and construction training programs
- SPS Capital Projects and Planning provided a presentation about upcoming projects
- SPS Career and Technical Education (CTE) program presented at Rainier Beach High School
- The district's Student Advisory Board (SAB)

The task force concluded with 13 recommendations and virtually unanimous agreement. Task force members were selected by a committee⁵. Task force members⁶ include Monty Anderson, Richard Best, Hannah Blackburn, Dale Bright, Stephanie Colbert, Karen Dove, David Hackney, Sandy Hanks, Tamara Harris, Bob Korth, Jane Mounsey, Tom Peterson, Keith Weir, Pastor Lawrence Willis and Harvey Wright.

¹ Appendix 1 is a copy of the authorizing charter

² Appendix 2 identifies task force members

³ Appendix 4 is a copy of the SPS Strategic Plan 2019-2024

⁴ Appendix 3 is a schedule and agenda of task force meetings

⁵ Former School Board Director Richard Burke, Chief Operations Officer Fred Podesta, School Board President Zachary DeWolf, City of Seattle Labor Equity Manager Anna Pavlik, Consultant Suzanne Dale Estey and Career Technical Education Curriculum Specialist Harvey Wright

⁶ See Appendix 2 for affiliations

Key Definitions

The task force recommends those who should be prioritized for employment. In priority order:

1. SPS students means former students, graduates, those attending a SPS high school regardless of graduation status;
2. SPS households means individuals who self-declare as having a SPS student in their household;
3. Residents of economically distressed zip codes (sometimes referred to as neighborhoods) means any resident of a zip code within Seattle that bears a significant share of residents with poverty indicators (as statistically compiled by the City of Seattle, see Appendix 20); and
4. Women and people of color.

Why do a Student and Community Workforce Agreement?

An SCWA creates an important and meaningful career pathway for high-wage, no-debt, health care and pension benefits to the SPS student community, their families and neighborhoods. In quick summation of the detail to follow, the following were important influences on the task force work and conclusions:

- SPS construction projects have virtually no workers on SPS projects who are people of color, women, attended SPS schools or are Seattle residents (per data sampling⁷).
- The SPS School Board of Directors has issued a strong commitment to creating avenues of career success for all students of color and particularly African American males.
- Union construction jobs ensure high-wages, no-debt training, health care and retirement benefits.
- An SCWA can successfully bring high-wage employment to African Americans, women and those from economically distressed areas of the city.
- Construction labor shortages for the next decade are projected. Current budget stressors are not likely to reduce the planned construction on which that projection was made.
- An SCWA builds a construction career pipeline to meet high demand and worker shortages.
- Union agreement provides greater project stability (no-strike, no lockouts), a trained workforce, improved schedule reliability (dispute resolution strategies, agreed-upon communication protocols).

What is a Student and Community Workforce Agreement?

It is a negotiated contract between the building construction trade unions and SPS. The SCWA agrees upon the value of projects that will be included (the task force recommends \$5 million in construction value to match other local agencies). An SCWA specifies safety rules, wages and worker protections.

Such agreements require contractors hire mostly union labor (such as plumbers, electricians, carpenters, equipment operators, masons, ironworkers and painters). It does not include engineers or architects.

The union is required to prioritize, train and dispatch workers with under-represented demographics (the task force recommends those who attended SPS schools, workers who have SPS students in their households, workers from economically distressed neighborhoods, women and people of color. As experience establishes a reliable data baseline for metrics, these demographics would have goals (for women and people of color) and requirements placed into the SCWA.

⁷ See Appendix 8

This SCWA would create an important and meaningful career pathway for high-wage, no-debt, health care and pension benefits to the SPS student community, their families and neighborhoods.

What are the benefits? This report identifies many benefits that the task force found convincing and compelling. The top three are: (1) a meaningful chance to bring workers on SPS construction that are former SPS students, SPS households, neighbors, women and people of color for high-wage work; (2) meaningful improvements in racial and social equity including financial stability and employment for SPS students, households and neighborhoods, and (3) business benefits to SPS by assuring highly skilled union labor despite the long-term regional construction labor shortage.

What are the risks? Risks also are discussed within this report: (1) potential for cost increases, (2) fewer interested subcontractors and (3) reduced participation by minority subcontractors. The task force studied these risks but found them weakly evidenced. This does not mean an SCWA is without risk, but the risks were unconvincing⁸.

Most local governments have such programs, called a Project Labor Agreements (PLA) or Community Workforce Agreements (CWA), including King County, City of Seattle, Sound Transit and Port of Seattle.

School districts have used such programs as well. Many California school districts and community colleges have similar agreements. The experiences of these agencies evidence significant success and allow SPS and the task force relative certainty about risks, effects and outcomes. In December 2018, the Washington Superintendent of Public Instruction issued a statement to school districts supporting a CWA/PLA⁹. SPS may be the most compelling district given local construction industry labor shortages¹⁰ and the demographic diversity of the district.

What does such an agreement say? Such agreements are typically 20 to 30 pages, with mostly standard boilerplate. The task force recommends that the City of Seattle CWA serve as the starting boilerplate (Appendix 7). The agreement is customized appropriate to SPS. The SCWA becomes an official bid and contract requirement for all contractors. The key provisions are:

- Contractors hire mostly union workers for projects at/above \$5 million;
- The union provides the skilled, trained workers;
- The union prioritizes certain workers and gives them priority access to apprenticeship employment;
- The union agrees to not strike or disrupt the construction schedules;
- Implements practices that protect worker conditions and pay, reduce conflicts and disputes, ensures contractors are prepared for their part of the project, and ensures skilled union workers are for the job. Examples include regular meetings between the parties to discuss the project, preparedness, schedules, issues and disputes.

What about the contractor?

- Contractors are notified by SPS in solicitation documents, that the SCWA applies.

⁸ Several concerns and risks are mitigated by specific technical provisions in the proposed SCWA. These are detailed within this report on page 11.

⁹ Appendix 19 is a copy of the OSPI letter

¹⁰ Appendix 15 shows labor shortage analysis for the region in construction

- Contractors do not need to be union but must primarily hire through the union dispatch for the project. The SCWA permits them to bring a few of their own workers if they wish.
- Open-shop generals continue to bid on such projects. At least in the local region, it does not statistically seem to discourage general contractors from bidding¹¹.
- There is virtually no use of women or minority-owned contractors, given a sampling of SPS construction projects. The SCWA would therefore not have the same consequence as might be feared, and instead City of Seattle analytics found little if any change to WMBE participation¹².
- Most (if not all) general contractors that work on SPS projects have worked within a PLA/CWA. There are perhaps two general contractors that have not verified work in the CWA environment. Those listed below are all experienced CWA contractors:
 - Western Ventures, Hensel Phelps, Skanska, Forma, Lydig, Bayley, Hoffman, Kiewit

How do the recommendations connect to students & education?

In addition to other functions such as establishing work rules, project stability and dispatch priorities, the proposed SCWA will (1) prioritize getting SPS students and families into these high-wage jobs; and (2) prioritize CTE students into union apprentice jobs.

These recommendations demand a cultural shift in perceptions about construction as a career, as noted by the task force and Student Advisory Board. Construction will need as robust of an emphasis as given to college pathways. Appendix 13 is an article that describes this gap.

The SPS Career and Technical Education (CTE) program, part of a statewide education initiative to prepare students for careers upon graduation, introduces students to career pathways. CTE offers courses and learning experiences that are integrated into various SPS high schools, summer learning academies and support for academic and life skills. The CTE program pathways include:

- Arts, Design and Graphics
- Culinary and Hospitality
- Business and Marketing
- Health and Medical
- Skilled Trades
- Science, Technology, Engineering and Math (STEM)

The SCWA will prioritize former SPS students graduating from various skilled trades program (including the recommended expansion of the SPS CTE skilled trades program into a state recognized pre-apprentice program), for apprenticeship placements and employment on SPS projects. Such placements into apprenticeship also give these students access to all local construction work, not just for SPS work. The task force recommends adding a certification option for direct employment into construction work. This certification would launch first at Rainier Beach High School and Ingraham High School as they are most equipped for such a program.

¹¹ Per Appendix 11 and Appendix 12.

¹² Appendix 10 shows City of Seattle WMBE utilization data for CWA vs. non-CWA.

Task Force Recommendations¹³

To benefit SPS students, families and communities, particularly those furthest from educational, racial and social justice, the task force recommends adopting an SCWA:

1. An SCWA makes sense for SPS.
2. The SCWA should be owner-negotiated, effective for five years, applicable to all appropriate projects¹⁴ and contain a provision for mutual review after two years.
3. The SCWA should be negotiated and executed rapidly to be effective prior to significant construction bidding on BEX V projects. Using the City of Seattle CWA as a boilerplate, execute the SCWA during second quarter allowing for implementation rapidly thereafter.
4. Have a \$5 million estimated construction cost threshold for the SCWA and apply to those projects bidding after implementation is complete.
5. The SCWA should recognize the following as priorities for dispatch and requirements for placement:
 - a. SPS students (former students, graduates, those who have a SPS as their high school of origin regardless of graduation status);
 - b. SPS affiliation (households, families or origin and of choice for SPS students);
 - c. Any resident of an economically disadvantaged zip code within Seattle; and
 - d. Goals for women and people of color, particularly African American males as designated in the SPS 2019-2024 Strategic Plan.
6. SPS should pursue women and minority business initiatives concurrent with and not dependent upon the SCWA, with a rapid launch of Business to Government (B2G) software for Women-and Minority-Owned Businesses (WMBE) utilization reporting.

With an intentional focus on students furthest from educational, racial and social justice, SPS should magnify the SCWA by strengthening the construction career pathway and intentionally create the cultural shift that embraces the value of the high-wage construction industry as a career path:

7. Seek state recognition as a pre-apprentice program, aligning the curriculum as needed to do so.
8. Review and supplement student recruitment strategies to increase participation interest, particularly for those within the prioritized demographics.
9. Offer the pre-apprenticeship program within the Skills Center and each comprehensive high school program that has a construction trades aligned shop, given appropriate planning to create and launch the program.
10. Establish a Pathway Advisory Board for the construction industry with a mission that includes ensuring successful recruitment, removing barriers, building inclusion and awareness in under-represented communities and effective construction training strategies.
11. Recruit prime contractors to support Career Connect Washington (<https://bit.ly/33dnHLt>) and assist with Career Awareness/Exploration, Preparation, Launch and Support (<https://bit.ly/2TFydrV>) as industry partners with SPS.
12. Explore a paid internship program for current SPS CTE students¹⁵.
13. Adopt and require data through LCP Tracker on all construction projects, for apprentice hires, adding new information about pre-apprentice program of origin (if any) and high school of origin.

¹³ No. 3 had one no vote due to concerns over rapid deployment; No. 4 had one abstaining due to unknowns in project costs; No. 9 received a no vote due to concern to sustain availability to woodworking and desiring a requirement for School Board Directors to issue a statement for cultural change.

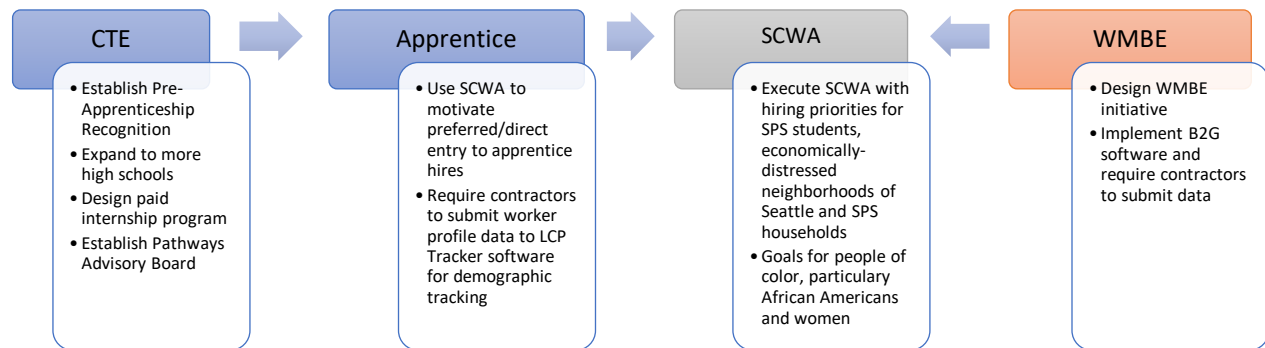
¹⁴ Applicable projects are those bid in the five-year window, except if prohibited by funding or contract, or as mutually agreed. The known instance is roof replacements performed by King County Directors' Association (KCDA) agreements. See Appendix 22.

¹⁵ See Appendix 14 for information about the Port of Seattle internship program that may serve as one of several models.

Context, Considerations and Conclusions

The task force unanimously recommends that SPS negotiate and execute an SCWA and strengthen the SPS CTE skilled trades program into a state recognized pre-apprenticeship for greatly magnified student and community benefit. The Student Advisory Board found similar compelling opportunity. Finally, the task force found that few if any women and minority owned business were on SPS projects and hope to initiate some work toward improving that utilization.

The recommendations create a pipeline, taking students from the SPS classroom to employment.



Student and Community Benefits

As previously noted, the task force and the Student Advisory Board repeatedly voiced the need for a strong initiative to recognize construction trades as a high-value, no-debt career choice. Both advised that this be a very visible marketing campaign for students, parents and SPS communities.

Construction trades provide high-paid, no-debt career paths with retirement, health care and equitable wages¹⁶. The average cumulative college debt for 2017 college graduates was \$26,900 (public) and \$32,600 (private) with 69% of college graduates having loan debt upon graduation of \$29,800. Typical construction trade earnings exceed a typical college graduate:

Seattle King-County	Annualized wage
Carpenter – Journey union	\$84,635
Electrician – Journey union	\$88,130
Bachelor of Arts degree	\$49,000

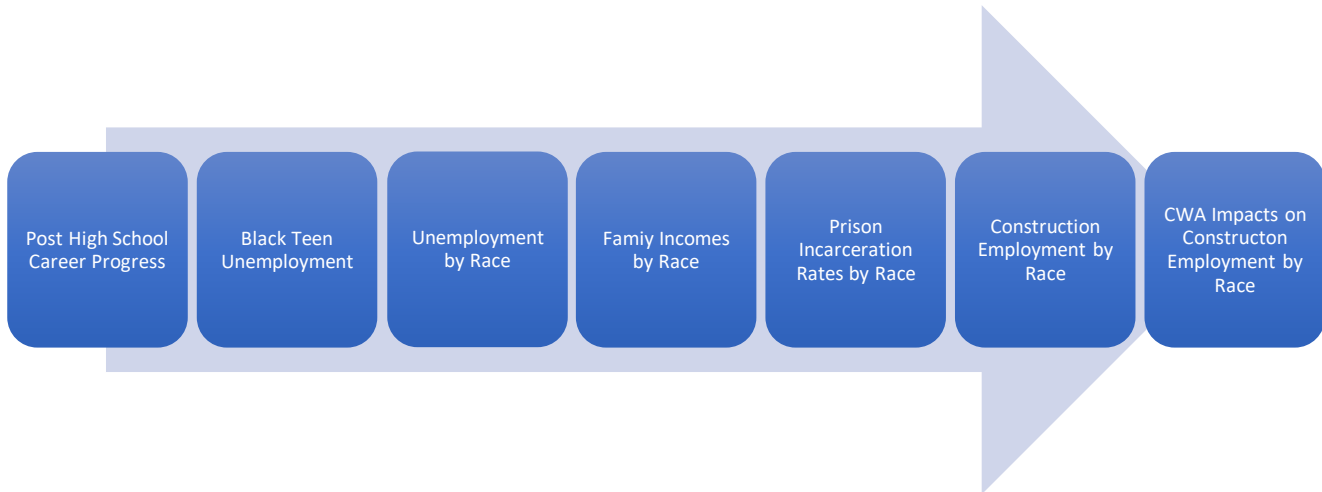
Such employment has been almost fully for white males. The SCWA is a proven model to improve race/gender outcomes and student/household benefits. Below, a study of five recently completed SPS school construction projects are compared to the City of Seattle and Sound Transit programs.¹⁷

¹⁶ Source: College Board, Research report 2019, Trends in Student Aid 2019 and page 3 of Appendix 5

¹⁷ Appendix 8 is a study of available data from five previous SPS projects. City of Seattle source data is Seattle 2018 Year-end Report and November 2019 Joint Administrative Committee (JAC) report. Sound Transit data is from the 2019 December JAC.

Comparison of five recently completed SPS school construction projects to the City of Seattle and Sound Transit programs								
	Apprentice				All Workers			
Hours served on construction projects in high-wage trade work (through 2018)	SPS Sample project averages	City of Seattle Pre-CWA	City of Seattle CWA projects	Sound Transit CWA projects	SPS Sample Project Averages	City of Seattle Pre-CWA	City of Seattle CWA Projects	Sound Transit CWA projects
All people of color (including African American)	3.8 %	32%	48%	35%	N/A	25%	28%	27.6%
Black (African American) ¹⁸	1%	10%	22%	N/A	N/A	4%	9%	N/A
All women ¹⁹	1%	9%	25%	15.1%	N/A	5%	10%	6.6%
Seattle residents	1%	N/A	N/A	N/A	N/A	5%	12%	N/A
Residents of Seattle (tier 1) economically distressed neighborhoods ²⁰	N/A	N/A	8.3%	N/A	N/A	3%	10%	N/A

These low representation rates on construction projects align with the other race-driven post-graduation differentials and social inequities.²¹



The SCWA: Business Benefits

The task force found the SCWA is likely to reduce construction risks and may even help stabilize costs, especially given the regional construction labor shortage. This capital investment forecast remains unchanged despite current operational budget stressors for public agencies. The task force heard and

¹⁸ Black (African American) is isolated as a separate measure due to the priority for African American males stated in the SPS Strategic Plan and the SCWA Charter. People of color, as used in this report, includes Black (African Americans).

¹⁹ No data is available locally or nationally for LGBTQIA+ in the construction workforce. However, this report is cognizant of the unique impacts on LGBTQIA+ workers in the construction industry, such as micro-aggressions and harassment, inadequate bathroom or personal safety equipment options.

²⁰ See Appendix 20. Economically Distressed Zip Codes (EDZ) refers to Seattle zip codes with the highest unemployment and poverty rates, lowest incomes and graduation rates, and similar indicators. The EDZ were identified by the City of Seattle for their CWA. The zip code also offers a functional criterion at time of dispatch.

²¹ Data on each step in the career flow was analyzed by the task force. See Appendix 17 and 18.

considered a range of studies, data and arguments that an SCWA could increase risks such as cost. The task force almost unanimously concluded that such studies were not convincing, the benefits of the SCWA remained significant and substantial.

Many studies reviewed by the task force evidenced that an SCWA improves efficiency, predictability and certainty on construction projects. For example, a Cornell University study reviewed 185 PLAs (<https://bit.ly/39IobM3>) and concluded PLAs “provide value for government and corporate purchasers of construction services – getting the best work for the money with far greater likelihood of on-time, on-budget performance.” The Port of Seattle robustly applies their CWA to projects, especially those that are is time-sensitive, such as airport runways.

The task force found the following compelling:

1. Ensuring the best access to workers and to contractors, given worker shortages for the region.²² Studies evidence that in our region, projects are demanding far more construction workers than are available, for the next twenty to thirty years. Absent priority to union labor, the risk becomes more likely that contractors will increase costs or reduce competition. Per Appendix 16, SPS Capital Program staff report that SPS contractors already struggle to get sufficient subcontractor bids. While the reasons for such limited subcontractor participation is unknown and has not been surveyed or studied, easier access to skilled labor may resolve that impediments to such subcontractors. Capital Projects and Planning staff report “... the union electrical contractor, Milne Electric, placed receipt of the Certificate of Occupancy in jeopardy at Ingraham High School - Summer 2019 due to their inability to get workers from the union hall.”
2. Union dispatch halls draw residents closest to the project, which could organically ensure more SPS families, students and communities can work on SPS projects.²³
3. Labor union apprentice programs have the highest graduation rates compared to the non-union programs.²⁴ The SCWA creates priority into such union apprentice programs.
4. The task force heard from SPS Capital department that schedules are critical for SPS projects. The SCWA will implement processes for addressing disputes early and prohibiting strike and lockouts. This is a common risk. For example, the 2017 concrete supplier strike impaired the City of Seattle bridge project (which was not under a CWA due to federal funding) or the 2018 crane operator strike.²⁵

Wage disputes or wage thefts were noted by several panelists and testimonials. Pay disputes are often invisible to the public agency. The SCWA protects worker pay. Pay classifications are identified and discussed prior to contractors initiating work, avoiding worker underpayments and disputes.

²² See Appendix 15 for studies on the regional labor shortage. Also see the AGC report: <https://bit.ly/39GmYF8>

²³ See Appendix 8

²⁴ See Appendix 6

²⁵ <https://www.usnews.com/news/best-states/washington/articles/2017-08-17/seattles-construction-projects-threatened-by-work-strike> and <https://www.seattletimes.com/business/real-estate/deal-reportedly-reached-to-end-17-day-strike-that-halted-western-washington-construction>

The SCWA: Risk Analysis

The task force found no convincing risks that impaired their full recommendation of an SCWA. That does not mean there is no risk. The task force studied such risk extensively but remained unconvinced that they were convincing, well-evidenced and/or outweighed benefits²⁶.

Risk in CWA-PLAs is a national discussion and point of academic study; many studies argue that they create cost increases; an equal share argue limited or no cost increases. These conflicting results likely reflect differences in ideology as well as the difficulty in differentiating cost variables. The AGC presented materials and information to the task force at length.²⁷ The most significant risks presented by the AGC were:

1. Risk of reduced interest in bidding by generals and/or subcontractors. SPS general contractors already report a difficult time attracting subcontractors. A recent SPS project averaged only two bidders per subcontract.²⁸ Although this risk cannot be dismissed, consultant studies hosted by the City of Seattle as to local market response to a CWA did not clearly evidence nor clearly dispute this possibility. Further, there are conditions that the task force found convincing to offset this risk:
 - a. The SCWA allows each contractor to bring up to three core employees for each contract they have within a project before seeking workers from the union hall. The City of Seattle analysis found that most contractors have fewer than three workers per contract.
 - b. Providing contractors robust assistance in understanding the forms and processes will reduce subcontractor reticence.
 - c. Most local public works are already performed under a CWA, so contractors are now generally knowledgeable and capable at performing such work and processes. Most prime contractors who typically win work for SPS already work under and have experience in the CWA/PLA environment and continue to successfully win such work.
 - d. Providing cost offsets, such as “dual benefit reimbursement,” can reimburse a contractor for any costs of health care that they must carry while they also pay into the union health care coverage for their workers. While a negligible cost to SPS projects, it can be encouraging to some subcontractors.

Anecdotal reports also did not indicate that the CWA posed unusual cost or reduced bid pools. Lydig Construction indicated that on four recent SPS projects, 55% of their subcontractors were open shop. However, Lydig Construction is active in the CWA/PLA marketplace and have worked on several PLA projects.

2. Risk that contractors would increase bid pricing due to administration and/or reduced competition.
 - a. The City of Seattle commissioned a consultant study that was unable to clearly evidence cost increases or reduced bid pools.²⁹ This study shows the difficulty in differentiating cost variables and provides no certainty that this is a compelling or evidenced risk.

²⁶ Appendix 5 is one of the studies explaining impacts of a PLA on a California school environment. There are an equal number of studies that argue significant negative cost impacts, which reflect the AGC stakeholder testimony and opinions as well; Appendix 6 lists these studies and reports considered by the task force in their review.

²⁷ See Appendix 13.

²⁸ See Appendix 16 that shows the result of that bid experience.

²⁹ Appendix 12 includes the CAI cost and bid analysis. See page 5 of Appendix 12 for facility projects.

- b. Despite no clear evidence, some comments talked of price increases: “For work with the port, there is already so much process.....that the extra layer of PLA procedure isn’t that big of deal. The majority of vendors understand the costs associated with the administration. (Forma).
3. AGC provided materials (Appendix 13) on cost increases. Of particular concern in these materials, members noted (1) black and Hispanic owners are most likely to come from the workforce in that same industry; access to the work is essential to creating future WMBE owners. Further, the task force noted that there are virtually no WMBE firms at SPS, so the greatest benefits can come from building a concurrent WMBE initiative that can instruct such firms on how to work in the CWA environment. (2) Citations of 27 studies were from 1998 to 2003, with about 10% as recent as 2008. (3) The 2019 citation provided by AGC referenced an analysis done on PLA projects since 2003, which are now 17 years old, and without differentiation between a traditional PLA and those within the recently adopted CWA programs. (4) Per Appendix 12, many states (primarily East Coast) have significant wage differentials between union wages and prevailing wages. Studies in AGC citations did not differentiate costs that were attributable to this variable as a project’s single-greatest construction cost.
4. Risk of concerns by women and/or minority businesses. Some stakeholders and data suggest WMBE firms are particularly concerned about an SCWA. City of Seattle analytics found little if any change to net WMBE participation³⁰.

A 2016 survey by the local consultant firm Community Attributes Institute (CAI) also showed conflicting answers. Nine of 16 WMBE firms indicated significant concern over an SCWA (compared to four out of 16 non-WMBE firms). Almost 40% of WMBE firms said a CWA/PLA reduced their interest in bidding, yet 75% of WMBE firms surveyed said they would bid again. There is no degradation on the net utilization of WMBE firms in City projects, although there is likely some WMBE firms opting out and others newly entering an SCWA bid environment. Additionally, the SCWA is not going to limit current utilization as there is little if any utilization of WMBE firms in current SPS construction projects.³¹ That does not mean an SCWA won’t discourage WMBE firms, but that other efforts are needed to encourage WMBE utilization before any meaningful improvement will be likely.

The SCWA: Design and Implementation

SCWA Boilerplate

The task force recommends the City of Seattle CWA as a starting boilerplate. SPS has prepared a draft version using the City boilerplate and can enter negotiations timely for implementation schedules.

SCWA Scope and Thresholds

The task force recommends the threshold be projects that are \$5 million or greater in construction value (as estimated by SPS prior to bid) regardless of fund source³², for bid or request for proposal

³⁰ Appendix 10 shows City of Seattle WMBE utilization data for CWA vs. non-CWA.

³¹ See Appendix 8.

³² There are no known projects funded with conditions that prohibit application of an SCWA. The King County Directors Association, established by RCW 28, is the most likely example of a pre-existing condition that would prohibit adding the SCWA onto the project. This limitation is most likely on small projects such as roofing.

(RFP) release dates within the five-year SCWA agreement duration, excluding any projects when or as mutually agreed between the signatories.

1. The city CWA and King County have a \$5 million threshold. Matching will reduce costs and create efficiencies through collaboration, administration, enforcement and outreach as well as reduce design and other start-up and ongoing costs. The Seattle City Council selected \$5 million to drive as much work as possible, while carving out less costly projects with relatively few labor hours for those contractors who are reluctant to work in the CWA environment.
2. School districts in California have lower thresholds. However, greater experience or a different construction climate may drive the lower thresholds.
3. A \$5 million threshold increases the likelihood of sufficient work to sustain apprentices for the duration of their apprenticeship.
4. A provision for a two-year review between SPS and the union signatories is recommended, in addition to amendments by mutual agreement. Two years provides time for some of the first of the covered projects to near completion. It creates a review window that would be prior to future levy initiatives.

Project owner	Threshold
City of Seattle	\$5M
Port of Seattle	\$5M
Sound Transit	All projects
King County	\$5M
Oakland Unified School District	\$400,000 and above
El Rancho School District	All work
Oxnard District	All work
Sacramento City Unified Schools	\$400,000 and above
Compton Unified School District	All work
Los Angeles Unified School District	\$175,000 and above

Proposed metrics and Key Performance Indicators

Top performance indicators should measure worker utilization by race and gender, sub-sectioned by SPS student, SPS households, those from economically distressed areas and workers who are residents within SPS boundaries. The proposed metric would be hours worked³³ by apprentice and journey.

Hours Worked as a percentage of total hours worked	Metrics and goals for Apprentice Metrics and goals for Journey			
	Seattle Residents	Residents of Economically Distressed Zips	SPS Students	SPS Affiliation (households)
Race/Ethnicity	✓	✓	✓	✓
Gender	✓	✓	✓	✓

³³ Using hours worked instead of “head count” is a more accurate measure of actual impact. Headcounts can be distorted by a worker hired for only few hours. Metrics for apprentices also would have a definition that requires a certain number of hours worked, so that the length of time is meaningful to the apprentice graduation requirements.

Instead of setting goals in advance, the task force proposes implementing data tracking to build a baseline, leaving a placeholder in the SCWA for SPS to add such goals or requirements in the future. Should the SPS board directors prefer immediate goals or requirements, the City of Seattle offers data from their own facility construction projects with identical worker populations and geography.

City of Seattle 2020 Requirements and Goals	City Facility Projects	SPS Sample Data ³⁴
Hours Worked out of Total Hours unless otherwise specified		
Requirements		
Total apprentice utilization out of all hours worked	20%	15%
Apprentice – Preferred Entry placements ³⁵ <i>Measured by headcount</i>	1 preferred entry apprentice out of every 5 apprentices placed	-0-
Apprentices from economically distressed zips	10%	0%
Journey workers from economically distressed zips ³⁶	22%	Not available
Aspirational Goals		
Apprentice women of all apprentices	20%	1%
Apprentice people of color of all apprentices	44%	3.8%
Journey level women of all journey workers	7%	Not available
Journey level people of color of all journey workers	29%	Not available

Key Partners

1. The Seattle-King County Building Trades Council, locals for United Brotherhood of Carpenters, and locals for International Union of Operating Engineers.
2. City of Seattle is a valuable partner with the same population, boundaries, workers and union signatories. Some potential opportunities for City of Seattle to create an adjoining and supporting initiative could include:
 - a. Adding tracking for hires of SPS students in their own projects.
 - b. Adopting priorities in the city authorizing ordinance and in the city's CWA, to prioritize SPS student and SPS affiliation hiring and placement;
 - c. Providing funding to support SPS in building recruitment and retention activities, especially through the existing non-profit organizations such as Urban League of Metropolitan Seattle, which is most effective at recruitment of African American workers into the construction trades;
 - d. Providing enhanced middle-school student orientation through the Seattle Parks Department summer programs.

³⁴ Appendix 8 is a study of available data from five previous SPS projects. City of Seattle source data is Seattle 2018 Year-end Report and November 2019 Joint Administrative Committee (JAC) report. Sound Transit data is from the 2019 December JAC.

³⁵ Preferred entry placements mean a graduate of a pre-apprentice program, such as, but not limited to: ANEW, Seattle Vocational Institute, PACE or PACT, for a full list see the Apprenticeship Guidebook at <https://www.seattle.gov/purchasing-and-contracting/priority-hire>

³⁶ See Definitions, page 4.

Likely SCWA Stakeholders (independent of or in conjunction with CTE stakeholders)

- National Association of Minority Contractors
- Tabor 100
- Sisters in the Brotherhood
- Association of General Contractors
- Association of Building Contractors

The Timelines

The task force vote was near unanimously for a rapid implementation, especially if it allows for thoughtful implementation. The recommendations interconnect so timing allows concurrent activity. The timing has been modified below to reflect current events during the virtual-only environment.

The first construction projects appropriate for the proposed SCWA are entering into GC/CM solicitations now. The task force recommends negotiation and execution of the proposed SCWA by end of second quarter 2020. Implementation tasks can be prepared for the early construction phase of likely covered projects (first quarter of 2021). This includes Rainier Beach High School and other larger GC/CM projects entering into early solicitations. Preparation includes early integration of LCP Tracker and B2G software for launching data metric gathering, finalizing forms, updating SPS contract provisions, project manager training, and integrating the technical enforcement staff from the proposed City of Seattle ILA.



The Costs

Below are cost estimates for the most significant components, although there are likely other SPS administration staff hours not necessarily captured below.

Program Element	Component	Estimated Annual Cost	Estimated One-Time Cost	Notes
SCWA Administration	Third-party monitoring, enforcement	\$400,000		City of Seattle technical enforcement services via ILA.
SCWA Administration	Program management	\$150,000		Proxy for SPS implementation management & policy work
Worker Demographic Tracking	LCP Tracker portal for apprentice metrics and measures	\$34,000	\$11,000	Tracking worker demographics. 1. \$34,000 annual fee 2. Report customization \$6,000 3. One-time set-up \$5,000
WMBE Metric Tracking	B2G portal for WMBE	\$8,000 a year for 250 projects	one-time cost of \$11,000 for set-up	Tracking WMBE prime and subcontracting payments via B2G portal. It is separate from LCP Tracker.
CTE Program	Align curriculum and seek state recognition	N/A		
CTE Program	RBHS and IHS	\$22,500 annual per classroom	\$20,000 one-time per classroom conversion	\$20,000 for equipment and tools; \$7,500 for 15 travel-days to jobs; \$2,000 for OSHA training; \$15,000 for experts (forklift, scissor lift, flagger certifications)
CTE Program	Awareness and recruitment campaign	Undefined	\$50,000	Increase awareness for households and students, training counselors, teacher training

Racial and Social Justice Lens

Racial and social equity is one of the foremost benefits of these recommendations; the social justice lens was prominent in the task force's work. The Racial Equity Tool (RET) guided questions and conversation, although the tool will be further deployed during implementation.

Task force members were selected to ensure diversity. That does not necessarily mean they are speaking on behalf of a particular community. However, the selection committee found value in

ensuring diversity within the task force regardless. More than 20% of task force members were African Americans and 35% were people of color. Members included those from the:

- Urban League of Metropolitan Seattle
- Black Pastors of Seattle
- Tabor 100 (non-profit Black business association)
- Washington State Human Rights Commission

Panelists and guests brought additional representation from women- and minority-owned firms through the National Association of Minority Contractors and Tabor 100, and other minority contractors. The SAB brought additional perspectives. The Rainier Beach Action Coalition and the SPS Department of Racial Equity Advancement also were invited as guests.

Task force members were trained by the SPS Department of Racial Equity Advancement and each meeting began with a reminder of the equity lens and mission of SPS.

For implementation, the SPS Department of Racial Equity Advancement agreed SPS will seek continued insights from those that may be interested, such as the Racial Equity Teams at appropriate high schools, the African American Males Student Advisory Board, the Rainier Beach Action Coalition and others.

CTE: Design and Implementation

CTE Program Scope and Modifications

The task force recommends that SPS convert the CTE construction training at Rainier Beach High School (RBHS) and the Ingraham High School (IHS) into a pre-apprenticeship program, so students graduate with a credentialed pathway directly into the high-wage apprentice career employment. The task force then recommends that the program expand by creating programs in four additional high schools that already have woodworking shops (Franklin, Ballard, West Seattle and Chief Sealth).

The SAB also gave strong support for the approach and noted the need for cultural adjustment so that parents, households, students and high school career counselors become aware of this as a responsible and valuable career opportunity.

SPS can get their curriculum quickly state-recognized if going through an existing pre-apprentice program. Several are obvious fits, such as Apprenticeship and ANEW that also houses the Pre-Apprentice Construction Education (PACE) program, or the Pre-Apprentice Construction Training (PACT) offered at the Woods Technology Center (formerly the Seattle Vocational Institute).³⁷ This allows students in 2020-2021 to begin the program and graduate with a certification in hand. SPS would adjust the current curriculum content as needed, then submit to the Washington State Apprentice Training Council (WSATC) for approval at an upcoming WSATC meeting.³⁸

The SPS CTE program could pursue getting independent certification so SPS can stand alone and offer their own pre-apprentice certification program for students.

³⁷ See Appendix 9 for a sample copy of the Memorandum of Understanding (MOU) that creates this mutual recognition.

³⁸ <https://bit.ly/39HE59r>

Also, for 2020 and 2021, there would be the study and design to expand into other appropriate high schools. The interest for the program by the respective high schools, students and the balance for exploratory classes with the credentialed program, will all be considerations in expansion. The four schools with existing shop programs that are likely candidates, include Franklin, West Seattle, Chief Sealth and Ballard.

LCP Tracker

This task force recommendation requires contractors to enter additional data for apprentices to understand the placement of SPS students (of any characterization, regardless of graduation status) and/or those within an SPS household. It is hoped that the City of Seattle would add such data to their collection process as well, to see a more complete picture within the city boundaries.

Internship Program

An internship creates a paid opportunity for SPS CTE students prior to graduation, to explore the construction trades and earn income. SPS CTE students in a pre-apprentice program have access to compete for hire in the Port of Seattle program. Note that the Seattle Skills Center for automotive is a pre-apprenticeship program, and the Port of Seattle hires some of those students to be interns.

The Port of Seattle's paid internship program is for high school and college students. The rules for a minor work permit, set by the Washington State Department of Labor and Industries, are restrictive unless the youth are working within a state recognized pre-apprentice. The students in the Port of Seattle program receive CTE credits and are paid approximately \$17 an hour; they are not to perform tasks subject to prevailing wages but are paid greater than minimum wage. The port has programs for plumbers, sheet metal and welders, in addition to automotive, aviation and marine maintenance. SPS may wish to consider those trades first for pilot experience as a robust starting point for design.

Proposed CTE metrics and Key Performance Indicators

CTE metrics would center on student diversity and career outcomes including student participation, graduation rates, post-graduation career outcomes and diversity (race-gender).

Key CTE Partners

As noted in the SCWA metrics, the City of Seattle can be a valuable partner if choosing to support the SPS initiatives toward Seattle Promise outcomes.

1. Providing funding to support SPS in building recruitment and retention activities through the existing non-profit organizations, such as the Urban League of Metropolitan Seattle, which is most effective at recruitment of African American workers into the construction trades;
2. Providing enhanced middle school student orientation through the Seattle Parks Department summer programs.

CTE Stakeholders (independent of or in conjunction with SCWA stakeholders)

- Student Advisory Boards
- NAACP Youth Coalition
- Credible Messenger
- Seattle Council PTSA
- Community stakeholders (Latinx, East African, Native, Hawaiian and other)
- Casa Latina and El Centro de la Raza
- SPS Racial Equity Teams

- Sisters in the Brotherhood
- BeQueer (with potential partnerships such as the City of Seattle, Greater Seattle Chamber of Commerce or Sisters in the Brotherhood)
- Sea-Alaska model internship program

CTE: Risk Analysis

For the task for recommendations to the CTE program, risks may include: (1) attracting sufficient students to fill the pre-apprenticeship program, and (2) potential reduction of construction career exploration classes (such as woodworking) that may result in fewer classes for students in the early stages of thinking about a construction career. A pre-apprentice program within a high school may reduce woodshop course offerings. Both the task force and SAB felt these risks were mitigated by the attractive career potential of the credentialed pre-apprentice graduation certification.

The task force and the SAB recommended a pronounced marketing-style campaign to create a cultural shift. In fact, the one vote opposing the CTE program deployment was due in large part, to seeking a far more robust statement addressing the need for a cultural shift within the School Board and executives.

Appendix (Attachments)



Student and Community Workforce Agreement Task Force Final Report

Appendices

Seattle Public Schools is committed to making its online information accessible and usable to all people, regardless of ability or technology. Meeting web accessibility guidelines and standards is an ongoing process that we are consistently working to improve.

While Seattle Public Schools endeavors to only post documents optimized for accessibility, due to the nature and complexity of some documents, an accessible version of the document may not be available. In these limited circumstances, the district will provide equally effective alternate access.

For questions and more information about this document, please contact the following:

Mary Cauffman
Executive Administrative Assistant for Operations
macauffman@seattleschools.org

The Student and Community Workforce Agreement Final Report is one such document that contains complex material that is not accessible, specifically the attached appendices, which support the accessible final report. The following is a brief description of what is contained in the appendices:

- **Appendix 1**, Seattle Public Schools Student and Community Workforce Charter. Appendix 1 shares the purpose of the task force, the selection of members, the responsibilities of the group and the roles of the group and staff.

- **Appendix 2, Task Force Membership.** Appendix 2 lists the members and provides a brief biography of the participants.
- **Appendix 3, Task Force Meetings.** Appendix 3 lists meeting dates and agendas for the group.
- **Appendix 4, Seattle Public Schools Strategic Plan 2019-2024.** Appendix 4 lists the current mission, vision, theory of action and priorities and measurable goals for Seattle Public Schools.
- **Appendix 5, California Project Labor Agreement Study.** Appendix 5 is a report that looks at project labor agreements and bidding outcomes in the construction of community college projects in California. Multiple graphs are used to illustrate the findings in the report.
- **Appendix 6, Workforce Development Council of Seattle-King County Report with Apprenticeship Graduation Rates.** Appendix 6 is a report that looks at Washington state and federal data for 2017 and found, overall, joint labor-management partnership apprenticeship programs outperform nonunion apprenticeship programs in enrollment, completion rates, journey wages and the inclusion and performance of underrepresented groups.
- **Appendix 7, City of Seattle Community Workforce Agreement.** Appendix 7 covers the scope of the agreement, project conditions, wages rates and benefits, hours of work, union recognition, management rights, work stoppages and lockouts, disputes and grievances, jurisdictional disputes, subcontracting, core workers, employment diversity, apprenticeship utilization, veteran employment, preferred entry, term and general provisions.
- **Appendix 8, Chart of BEX V Projects.** Appendix 8 provides a summary of data profiles for major Capital school construction projects. It looks at five projects: Arbor Heights Elementary School, Wing Luke Elementary School, Queen Anne Elementary School, Olympic Hills Elementary School and Lincoln High School. It also analyzes impact and project counts at various agreement thresholds.
- **Appendix 9, ANEW Memorandum of Understanding.** Appendix 9 provides documentation of the agreement between ANEW and the Peninsula School District.
- **Appendix 10, City of Seattle women- and minority-owned (WMBE) data, Charts 1 and Charts 2.** Appendix 10 provides two charts compare Community Workforce Agreement (CWA) projects vs. non-CWA projects and WMBE contractors vs. non-WMBE contracts.
- **Appendix 11, Community Attributes Inc. (CAI) Contractor Survey.** This analysis leverages stakeholder interviews and a survey to qualitatively assess impacts among City of Seattle construction contractors, particularly open-shop and WMBE contractors, on existing and past work for the City.
- **Appendix 12, CAI Cost Analysis.** This analysis compares non-CWA projects from before the CWA was enacted with similar non-CWA projects after the CWA was enacted. The study concluded while CWA bids were higher on average than pre-CWA projects, there is not enough data on CWA bids to conclude that the CWA is responsible for the increase in cost with statistical certainty.
- **Appendix 13, Association of General Contractor Panel and Reference Materials.** Appendix 13 provides information on social equity concerns with PLA or CWA, PLA and CWA cost and competitiveness, cost increases, competition reduced and construction delays.
- **Appendix 14, Port of Seattle Student Paid Intern Program.** Appendix 14 looks at ways the Port of Seattle program could be modeled within Seattle Public Schools.
- **Appendix 15, Labor Shortage Analysis, CAI Inc.** Appendix 15 is a regional workforce analysis that found:

1. For 2018-2022, the construction industry can expect an average annual regionwide labor shortage of 9.7% for the occupations it will need to execute construction projects. By comparison, the manufacturing industry in King County has less than a 1% annual shortage forecasted for the same time period.
 2. The number of first-year apprentices increased from 330 in 2009 to 1,940 in 2017. The ratio of first-year apprentices out of total active apprentices increased from 7.5% in 2009 to 57.8% in 2017.
 3. Out of 3,360 active construction apprentices within King, Snohomish and Pierce counties in 2017, 93.2% are male.
 4. Construction projects from RPO members will support an estimated 6,700 full-time equivalent (FTE) positions per year through 2022. The top three occupations by demand will be carpenters (1,180 FTEs), heavy and tractor-trailer truck drivers (860 FTEs), and construction laborers (850 FTEs).
 5. With a 15% apprenticeship utilization rate, apprentices needed by RPO construction projects is projected to be on average 1,000 per year between 2018 to 2022.
- **Appendix 16**, Webster School Bid Pool. Appendix 16 is a chart that looks at the number subcontractor bidders for the Webster School project.
 - **Appendix 17**, Income, unemployment, school data by race/gender. Appendix 17 provides six charts that look at data by race and gender. The first chart provides the percent of the high school class from 2009-2011 who completed a degree (two-year and four-year degrees) within six years. The second chart provides the percent of students 2009-2016 enrolled in college any time during the first year after high school. The third chart provides Seattle income by race in 2018. The fourth and fifth charts look at unemployment rates in 2019 for Seattle and the nation. The sixth chart provides the national average of incarceration rates in 2017.
 - **Appendix 18**, Black Teen Unemployment. Appendix 18 lists references regarding Black male teen unemployment barriers.
 - **Appendix 19**, OSPI Letter from Chris Reykdal, PLA Support statement.
 - **Appendix 20**, Map of Economically Distressed Zip Codes, City of Seattle. Appendix 20 is a list of priority hire for the City of Seattle and King County. Economically Distressed Zip Codes are based people living under 200% of the federal poverty line, unemployment rate and those over 25 without a college degree.
 - **Appendix 21**, Forbes Construction Career Article. This article looks at America's skilled labor shortage.
 - **Appendix 22**, Seattle Public Schools 2020 Project List Implementation Plan. Appendix 22 lists the funding, project, schedule, procurement method and costs associated with district projects.

APPENDIX 1

ARTICLE I: NAME

Student and Community Workforce Agreement Task Force (SCWATF)

APPOINTING AUTHORITY: SCHOOL BOARD

ARTICLE II: PURPOSE

The Seattle School Board is forming this task force to examine and make recommendations regarding a Student and Community Workforce Agreement (SCWA). This short-term Task Force will review existing and potential new collaboration models and practices that align with both the mission of Seattle Public Schools and workforce opportunities of the skilled labor sectors in Seattle. At conclusion, the Task Force will make recommendations to ensure that the public capital investments support a high quality of construction while advancing social equity, increasing workforce diversity, and creating family wage opportunities within and related to construction careers.

SCOPE OF WORK

Successful implementation of a Student and Community Workforce Agreement will require broad stakeholder engagement to ensure that program goals are met. Task Force work scope will include:

1. Participating in orientation, including implicit bias training
2. Compiling and reviewing existing community workforce agreements and educational partnerships for relevant content.
3. Analysis and interpretation of studies and data relating to relevant student coursework, career pathways, racial and economic disparities, and program efficacy.
4. Identifying and hosting listening sessions with representative stakeholder groups.
5. Collaboration with and periodic reporting to the existing BEX/BTA Oversight Committee.
6. Preparing a final report and recommendation that should include at minimum,
 - Proposed structure for SCWA
 - Stakeholder list and pros/cons list for each
 - Financial analysis
 - Suggested metrics and Key Performance Indicators
 - Suggested risk mitigation, pilot studies, initial projects
 - Suggested implementation timeline

Task Force will be guided by the following principles identified by the School Board:

1. Eliminate racial disparities, lead with racial equity, increase women/minority-owned access to capital project opportunities
2. Student-centered/opportunities for students

3. Fiscal responsibility and cost consciousness

POLICY CONSIDERATIONS

Guiding policy documents for this work include (links):

- [Policy 0010 – Instructional Philosophy](#)
- [Policy 0030 – Ensuring Racial Equity](#)
- [Policy 2170 – Career and Technical Education](#)
- [CTE Annual Plan/Report](#) (update with new link following approval of 2018-19 plan)
- [Policy 4110 – Family and Community Advisory and Oversight Committees](#)
- [Superintendent Procedure 4110SP – Family and Community Advisory and Oversight Committees](#)

ARTICLE III: MEMBERSHIP

SELECTION PROCESS OF COMMITTEE MEMBERS:

Members will be selected and appointed in accordance with School Board Policy 4110: Family & Community Advisory and Oversight Committees, and Procedure 4110SP. The District shall provide public notice to individuals and organizations that may reasonably be interested in serving on the Task Force. A standardized application will be posted on the district website with specific application due date and appointee notification date. Nominations to be reviewed by a panel consisting of 2 School Board Directors, 2 staff members designated by the Chief Operations Officer, plus 2 community members jointly agreed by the School Board and staff designees. The review panel will work in accordance with a specific rubric to recommend appointees and alternates for the Task Force. The review panel will appoint members that are representative of Seattle Public Schools and City of Seattle diversity, to ensure there is a balance of perspectives and backgrounds. Financial and other potential conflicts of interests of potential members will be considered when selecting members.

NUMBER AND TYPE OF MEMBERS

The task force will be comprised of 15 members. Membership will be posted on the District website. The task force will be comprised of subject matter specialists and stakeholders including labor unions, private contractors, minority and women-owned business enterprises, and representatives of economically distressed communities. Applicants should have experience and/or expertise with Community Workforce Agreements, Priority Hire programs, the building and construction trades, Pre-Apprenticeship programs and Apprenticeships students and graduates, Workforce Training, Women and Minority-Owned Business Inclusion programs, and Career and Technical Education in construction. Membership will have geographic, racial and gender diversity. No less than 3 and no more than 5 central office staff representatives will be selected for the committee.

ARTICLE IV: RESPONSIBILITIES

EXPECTED SCHEDULE AND TIMELINE

The task force is short term. It will convene July 2019, and conclude work by October 11, 2019. Meeting dates and times will be determined in collaboration with the selected members and district staff, but expected to be 5-7 meetings in July through October at the John Stanford Center or other locations as determined by the task force and noticed to the public.

Task force members shall:

- Prepare for meetings by reviewing provided materials in advance of scheduled meetings.
- Attend and participate in scheduled meetings. Missing three consecutive meetings results in an automatic opt-out of committee participation.
- Bring an open mind, a passion for student futures, and a willingness to engage in inquiry, meaningful dialogue, and collaboration.
- Be honest about your bias and respectful of perspectives from other participants.
- The work of the task force will be grounded in the board and district's priority of Educational and Racial Equity through the use of the Racial Equity toolkit and will begin the work with a training on racial equity.

ARTICLE V: ROLES OF TASK FORCE MEMBERS AND STAFF

The SCWA Task Force will operate fully on the work of its members, with administrative support from district staff. School District resources may be used for the following activities at the discretion of the Chief Operations Officer or Superintendent's designee:

- Scheduling meetings
- Distributing agendas, handouts and posting on website
- Compiling reports, data and information identified by Task Force for review
- Coordinating representative stakeholder groups for meeting participation
- Preparing and distributing minutes and posting on website

APPENDIX 2

Seattle Public Schools Student and Community Workforce Task Force Members



The 2019-20 Student and Community Workforce Agreement task force includes 15 participants. Selected to balance the perspectives and interests of those within the construction industry, as well as experts in such agreements and in district student priorities, the task force membership includes:

- Four contractors, including two prime construction contractors and two women- and minority-owned business (WMBE) contractors, all of whom have experience or expertise in the PLA/CWA environment;
- Four labor union representatives that have worked under a PLA/CWA in the field;
- Four construction training experts including two experts for Seattle Public Schools' student education;
- An expert administrator of a local CWA; and
- Two unaffiliated community representatives ensuring broad parent, student and/or geographic interests and balance.

Bios of the members:

Monty Anderson is executive secretary of the Seattle Building & Construction Trades Council, which includes 19 affiliate unions and more than 20,000 construction workers. He is a region leader in the construction industry, job create and social equity. He also is an expert in the details, provisions, impacts and opportunities of Project Labor Agreements and Community Workforce Agreements.

Richard Best is the director of Capital Planning for the Seattle Public Schools. Overseeing the purchase of approximately \$250 million annually in design and construction services, Richard is an expert regarding school construction and capital programs and is knowledgeable of the prime construction contractors for school renovation and construction.

Hannah Blackburn is a Seattle Public Schools parent. Hannah has consulted with teachers within SPS and seeks to find pathways for students from economically diverse communities. Her history of employment with local non-profits serving area youth allows her to understand the needs of a variety of populations across the district. Hannah currently leads the US Account Management organization for Amazon Advertising and is a board member for Wallingford Boys and Girls Club.

Dale Bright is a former president of the Martin Luther King Jr. Labor Council. Dale is an active leader in the region on issues of job creation, construction and social equity. He is an expert on Project Labor Agreements and Community Workforce Agreements and is deeply committed to helping local youth and community members be successful in the construction industry.

Stephanie Colbert is a Construction Trades instructor with Seattle Public Schools for the Skills Trade Center and is a journey level carpenter. Stephanie has more 30 years of experience as a journey level carpenter, facilities manager and pre-apprentice instructor. She has previously taught the Pre-Apprenticeship Construction Training (PACT) and ANEW programs. She provides instruction to high school students for Career and Technical Education (CTE) construction trades curriculum and covers trade math, construction job skills, fitness/nutrition and technical skills.

Karen Dove is the executive director of a pre-apprenticeship program within the boundaries of the Seattle Public Schools, which partners with the schools on CTE programs for youth. Karen plans and executes the overall strategic and operational responsibility for ANEW's staff, programs and expansion and executes its mission. Karen came to ANEW from Montana, where she led programs and advocated for policies focused on building economic security for all. She serves on the King County Priority Hire Advisory Committee and the City of Seattle Priority Hire Advisory Committee. She brings detailed expertise in pre-apprenticeship programs, as well as how training programs interface into Community Workforce Agreements, impacts and opportunities for students and workers and opportunities for construction firms in the region.

David Hackney brings experience on behalf of the minority construction business community, social responsibility and labor agreements. David practiced domestic and international employment law for more than 12 years and is licensed to practice law in both Washington state and California. David serves as a Commissioner on the Washington Human Rights Commission and the board of Tabor 100. David has interfaced with the City of Seattle, King County, Sound Transit and the Port of Seattle with respect to their Community Workforce Agreements, as well as the PACT program at the Wood Technology Center at Seattle Central College to increase awareness and provide critical feedback from minority construction businesses.

Sandy Hanks is the manager of Business Development and Contract Compliance for King County government. Sandy is a small business advocate, who has led the King County Community Workforce Agreement program. Sandy has expert knowledge regarding small businesses, as well as the provisions, application, impacts and opportunities of a Community Workforce Agreement for workers, minority construction firms and prime construction firms. As manager, Sandy seeks economically sound, responsible public capital investments that have the potential to advance social equity, increase workforce diversity and create pathways to construction careers and family-wage jobs through technical education. Governor Jay Inslee presented Sandy with the 2013 Tabor 100 Crystal Eagle Award at the Tabor 100 Annual for the King County Procurement Reform Initiative that implemented new contracting methods, a small business accelerator and new regional partnerships for small business certification.

Tamara (Tammy) Harris is a small minority and woman-owned construction firm in Seattle and a Disadvantaged Business Enterprise. Tammy is also an Occupational Education and Training Program Administrator for King County. She grew up in Seattle and has a grandchild in Seattle Public Schools. She is committed to helping schools consider diverse communities and families in the district, and the economic opportunities for those communities, balanced with the impacts on small construction firms.

Bob Korth is a journeyman ironworker and the president and Local Business Agent for Ironworkers Local 86. Bob has particular expertise in apprenticeship standards for the construction trades. He serves on the State of Washington Joint Apprentice Training Council (JATC) and served on a committee that established the Washington State standards for apprenticeship training council. He has been tracking apprenticeship utilization for many school districts in Washington. His expertise to the role of apprentices in creating jobs, trained and skilled workers and safe work environments is the focus of his engagement for the task force.

Jane Mounsey is the Human Resources director for local commercial general contractor GLY. Jane serves on several board committees of the Association of General Contractors of Washington and is a former board member of the Lake Washington Human Resource Association, Leadership Eastside and the UW Bothell School of Business. She is a member of the AGC of Washington Education Foundation's workforce development committee known as Tomorrow's Construction Workforce Today. Jane has more than 25 year as of experience in human resources, including strategic and business planning, talent acquisition and development, employee relations and engagement, and organizational development.

Tom Peterson brings more than 20 years of experience in the Seattle area construction industry and has lent his expertise for several local Community Workforce Agreements. He has worked to ensure construction contracting solutions that consider the impacts on prime contractors and smaller construction firms within the local industry. He has 10 years of experience with the Workforce Development Council of Seattle/King County and a wealth of experience that is directly related to the mission of this task force. Tom served on the Seattle Priority Hire committee for three years and co-chaired a committee on the promotion of apprentices in the construction industry that was convened by the Port of Seattle, City of Seattle and King County.

Keith Weir is a journeyman electrician (EL01) and a graduate of Rainer Beach High School, who grew up in White Center. Keith has significant expertise with Project Labor Agreements, Community Workforce Agreements and construction work experience from the field and the economic opportunities that exist within our local construction demands. Keith serves as the Business Representative for the International Brotherhood of Electrical Workers Local 46 and was the assistant executive secretary for the Seattle Building Trades several years prior. As a graduate of Seattle Public Schools and as a representative of the electrical construction workforce, he knows the opportunities and impacts of programs the task force will consider. He prioritizes how Seattle Schools can implement programs to actually put their graduates on a living wage career path as soon as they graduate, recognizing college is not the answer for all.

Lawrence Willis has been dedicated to disadvantaged youth and individuals in Seattle for decades, working for the Pre-Apprenticeship Program at the Seattle Central Community College (Seattle Vocational Institute) and currently on workforce development for the construction trades with the Seattle Metropolitan Urban League. He served on the Mayor's Minority and Women Advisory Committee and on the City of Seattle Priority Hire task force for the development of their Community Workforce Agreement. He currently serves as a board member of Puget Sound Regional Pre-Apprenticeship Collaboration.

Harvey Wright is a Career Pathway specialist for the Career and Technical Education center of the Seattle Public Schools, specializing in the skilled construction trades. Recently appointed to the construction trades, Harvey is pursuing opportunities to design a program that will bridge more Seattle Public Schools students into the high-wage jobs available in the high-demand construction industry.

APPENDIX 3

Seattle Public Schools' Student and Community Workforce Agreement Task Force Agenda



The presentation schedule for the Student and Community Workforce Agreement Task Force is subject to change. Time and location for all meetings (unless otherwise noted) are 10 a.m.-12 p.m. at the John Stanford Center for Educational Excellence, 2445 3rd Ave. S, Seattle, WA 98134.

Meeting	Purpose	Agenda	Presentations	Organizer
Oct. 30, 2019	Introduction	<ul style="list-style-type: none"> ▪ Introductions of task force members ▪ Superintendent and/or Chief Operations Officer Fred Podesta for Seattle Public Schools (SPS) ▪ Goals and principles ▪ Assigned tasks and final report ▪ Meeting structure/schedules (Locke) ▪ Racial Equity Presentation 	Podesta, Locke, SPS	Facilitator
OPTIONAL Nov. 1, 2019, 11 a.m.-1 p.m. at ANEW North Training Center, 7543 63rd Ave. NE Building 5B	Optional event	For those interested, graduation of pre-apprentice students, this is an opportunity to see these students, hear their story and visit the classroom.	ANEW-PACE	Karen Dove
OPTIONAL Nov. 6, 2019, 11 a.m.-1 p.m. at ANEW North Training Center, 7543 63rd Ave. NE Building 5B	Optional workshop: Understanding workforce agreements	<ol style="list-style-type: none"> 1. What is a CWA & PLA 2. AGC or owner-directed, owner-negotiated, open-shops 3. Standard provisions 4. CWA provisions: direct entry; core workers, women- and minority-owned businesses (WMBE) 5. Non-union contractor variables: pre-job, trust, dual benefits, employee-crew disruptions 6. Administration i.e. third party, self-administered 	Facilitator	Facilitator
Nov. 13, 2019	Understanding the union and SPS Capital Program	One ½ hours for union work and benefits such as: <ul style="list-style-type: none"> ▪ Keeping construction moving ▪ Resolving disputes early ▪ No strike and examples of risk ▪ Preventing wage theft ▪ Describe union pipeline, call-out process 	Union	Lead: Monty Anderson
		Thirty minutes for SPS Capital program plans: Types of construction projects, large projects and schedules	SPS Capital	Richard Best

Dec. 4, 2019, 9 a.m.-12 p.m.	Understanding contractor perspectives.	First hour on costs and schedule: 1. Quick review of available cost materials 2. Documented costs for owner and contractors (administration, LCP tracker, dual benefits) 3. Perceived costs (less competition, higher bid prices) 4. Perceived benefits (fewer project delays, disruptions) 5. Review of schedule data and risks Second hour for contractor perspectives: NAMC (Grover Johnson) Bill Slusser (Steel Korr) Moe Holland (Moe Welding) Jimmy Matta (NAMC) Sonja Forster, AGC and/or Contractor Reps Third hour for risk and response panel Q&A Contractor Concern - Agency or Union Mitigation. Panel: Anna Pavlik, Monty Anderson, Bob Korth, Karen Dove & Contractor Panel	Facilitator Q&A	Facilitator
Jan. 8, 2020, 10 a.m.-1 p.m. at Rainier Beach High School Construction Skills Center Classroom, 8815 Seward Park Ave. S, Seattle, WA 98118	First hour, understanding student pipelines and training. Second hour, decisions and recommendations. Then meet the students.	First hour: Presentation workshop Career and Technical Education (CTE) best practices, development in SPS, articulation agreements, running start, recruitment strategies Second hour: Decisions and recommendations Vote yes/no Third hour: Meet Rainier Beach High School CTE students	SPS Peninsula HS ANEW	Harvey Wright
OPTIONAL Jan. 11, 2020, 1-3 p.m.	Discuss and recommend	Meet with Student Advisory Board <ul style="list-style-type: none"> • Overview of SCWA • Why we are doing this work-tie to racial equity • Input into the recommendations thus far 	Facilitator	Facilitator
Jan. 22, 2020	Discuss and recommend	Recommendation decisions <ul style="list-style-type: none"> • Does a CWA or PLA make sense for SPS? • Should it cover all work in BEX5? • Exempt smaller subcontracts? SPS infrastructure <ul style="list-style-type: none"> • Dispute resolution engagement by SPS? • Administration by city as third party? • Where might function reside (Capital, Social Equity, HR, Standalone)? 	Facilitator	Facilitator
Feb 1, 2020, 2-3 p.m. at Lincoln High School Library, 4400 Interlake Ave N, Seattle, WA 98103	Student Advisory Board	Review and discuss SCWA with the full Student Advisory Board	Facilitator	
Feb. 5, 2020		CANCELLED		



2019-24 SPS Strategic Plan

Mission

Seattle Public Schools is committed to eliminating opportunity gaps to ensure access and provide excellence in education for every student.

Vision

Every Seattle Public Schools' student receives a high-quality, world-class education and graduates prepared for college, career, and community.

Theory of Action

WHEN WE FOCUS on ensuring racial equity in our educational system, unapologetically address the needs of students of color who are furthest from educational justice, and work to undo the legacies of racism in our educational system...

BY doing the following:

- Allocating resources strategically through a racial equity framework
- Delivering high-quality, standards-aligned instruction across all abilities and a continuum of services for learners
- Creating healthy, supportive, culturally responsive environments from the classroom to central office
- Directly and consistently working in partnership with families and communities who represent students of color who are furthest from educational justice; and
- Making clear commitments and delivering on them

THEN we will eliminate opportunity and achievement gaps and every student will receive a high-quality, world-class education.

To achieve educational justice, SPS strives to provide safe learning environments, curriculum that incorporates a student's life experiences and culture, and instruction delivered by high-quality, culturally responsive educators. Unfortunately, many students from certain ethnicities have not historically experienced equitable opportunities for all or part of their educational journey (including African and African American, Asian Pacific Islander and Pacific Islander, LatinX, and Native American students). These students are our priority – with an intentional focus on African American males.

Our Theory of Action is guided by the principles of "Targeted Universalism." Our universal goal is every Seattle Public Schools' student receives a high-quality, world-



class education and graduates prepared for college, career, and community. Targeted Universalism holds that targeted and differentiated efforts are required to meet the needs of specific student populations, so every student meets the universal goal. By focusing on students of color who are furthest from educational justice, especially African American males, we will make the greatest progress toward our collective vision.

We believe that an intentional focus on African American males will ultimately benefit every student. We will refine our systems and structures that will ultimately be used to better meet the needs of students throughout SPS. We will also learn how to develop and provide differentiated efforts to meet the needs of specific populations, allowing us to better serve the needs of additional student populations.

Priorities and Measurable Goals

Priority: High-Quality Instruction and Learning Experiences

Educate the whole child¹ through high-quality instruction² and learning experiences that accelerate growth for students of color who are furthest from educational justice, with an intentional focus on African American males.

We will recognize and serve the academic, social, cultural, emotional, and behavioral strengths and needs of students, providing high-quality, culturally responsive³ instruction, curriculum, and social-emotional learning supports delivered by educators who set high expectations, so students graduate ready for college, career, and community.

Goals	Measures Used to Evaluate Success
Students of color who are furthest from educational justice will feel safe and welcome in school	Student culture and climate surveys Attendance Discipline Equitable access to services (i.e., special education, English language learners, and highly capable)
Students of color who are furthest from educational justice will read at grade level by 3rd grade	3 rd grade SBA ELA proficiency
Students of color who are furthest from educational justice will be proficient in mathematics in 5th grade and 7th grade	5 th and 7 th grade SBA Mathematics proficiency
Students of color who are furthest from educational justice will finish 9th grade on track for on-time graduation	At least six credits by the end of 9 th grade
Students of color who are furthest from educational justice will graduate ready for college and career	SBA SAT / ACT Advanced coursework completion CTE course pathway completion College enrollment without developmental courses

¹ Whole child education goes beyond a focus on academic achievement. When educators focus on educating the whole child, students are healthy, safe, engaged, supported, and challenged. In Seattle Public Schools, this means that we appreciate and serve the academic, social, emotional, and behavioral strengths and needs of students, which we believe comprise the needs of the “whole child.”

² High-quality instruction is focused on student-centered learning and achievement, intentional about student engagement, and aligned to standards with consistent and appropriate feedback.

³ At its foundation, culturally responsive education means that students are in an environment where they have the individual safety and comfort to learn within a classroom that has a common culture that is respectful of all backgrounds.

Priority: Predictable and Consistent Operational Systems

Develop operational systems that provide a predictable and consistent experience to meet the needs of students and families and allow them to focus on learning.

We will manage district operational functions (non-academic/non-instructional; e.g., transportation, nutrition services, student assignment) in a culturally responsive, service-oriented, and cost-effective manner. We will ensure operational teams plan, establish, communicate, and consistently meet high service levels that provide school leaders, students, and families the information and daily experience that allows them to experience a safe and productive day of learning.

Goals	Measures Used to Evaluate Success
Operational functions will identify main customers and increase satisfaction	Department customer satisfaction surveys Timely response feedback
Operational functions will improve communication to school leaders, families, and students	School leader, family, and student awareness surveys
Operational functions will improve overall performance in support of student learning	Overall service quality level informed by performance indicators unique to each individual operational function

Priority: Culturally Responsive Workforce

Develop a culturally responsive workforce so teachers, leaders, and staff will effectively support students and families.

We will recruit a diverse workforce representative of our broader community using proven local and national best practices and focus on the retention of educators of color. We will also continue to develop culturally responsive mindsets and capabilities with all team members so there is a warm, welcoming environment in every classroom, school, and throughout central office to support student learning.

Goals	Measures Used to Evaluate Success
Staff will improve their culturally responsive professional practice	Cultural responsiveness training completion School and central office staff working condition surveys Student and family culture and climate surveys Equitable access to services (i.e., special education, English language learners, and highly capable)
The diversity of staff and leadership at schools and central office will increase	Staff demographics Recruitment, selection, and retention of staff of color

Priority: Inclusive and Authentic Engagement

Partner with students, families, and communities who are furthest from educational justice by conducting inclusive and authentic engagement.

We will proactively and consistently work in partnership *with* students, families, and communities to identify needs, determine solutions, and support the implementation of the initiatives that will best meet the needs of students of color who are furthest from educational justice. We will use culturally responsive ways to engage so we build trusting relationships and empower the voices of those who can help us meet these needs.

Goals	Measures Used to Evaluate Success
Students of color who are furthest from educational justice will have meaningful voice and leadership in school and district initiatives	Representation in school-based leadership groups Student participation surveys
Families and communities who represent students of color who are furthest from educational justice will have meaningful voice in school and district initiatives	Family participation surveys Community partner participation surveys Presence in community (e.g., # of meetings in community/feedback loop)

APPENDIX 5

Project Labor Agreements and Bidding Outcomes

The Case of Community College Construction in California

By Emma Waitzman and Peter Philips

Executive Summary

This is a study of the effects of using Project Labor Agreements (PLAs) in the construction of community college projects in California. We divide the study into two parts.

The first part is a case study of seven projects built by the College of Marin, three with PLAs and four without PLAs. The upshot of this case is that the PLAs in comparison to the nonPLAs attracted a similar number of bidders, came in at a slightly lower price point compared to the engineer's estimate, had about the same or fewer construction problems and trained more young, local workers due to the social justice component of the PLAs. We also find that local contractors were eager to bid on both PLA and nonPLA projects while bidders coming from afar preferred to bid on either the PLA or nonPLA projects but not both.

The second part is a statistical study of 88 community college PLAs and 175 community college nonPLAs representing \$501 million in PLA work and \$206 million in nonPLA work, controlling for when and where these projects were built, and how large each project was, we found that the PLA projects had slightly more bidders compared to nonPLA projects. We also found that PLA low-bids came in slightly lower compared to nonPLA projects. From these results, our conclusion is that PLAs do not reduce the number of bidders nor do they raise costs on California community college projects.

Case Study

In June 2004, bond measure C passed in Marin County, California, providing \$249.5 million to modernize the facilities of the local community college, the College of Marin. The modernization of the College included the construction of 7 new buildings, 3 of the projects were completed under a Project Labor Agreement (PLA) and 4 were not. All construction occurred between 2008 to 2015 providing a useful opportunity to compare bidding and construction on similar PLA and non-PLA projects

The PLA included common stipulations including sections outlining grievance procedure, management rights, and work rules. Like many PLAs, the College of Marin PLA included a social justice component encouraging the hiring of local workers, veterans, and disadvantaged workers, such as those with a criminal record. The PLA also stipulated that contractors were to hire students enrolled at the College to work on the project.

All seven new buildings were finished on time. A study of the first two PLA projects by Dannis, Woliver, and Kelley, Attorneys at Law concluded that “the two PSA [Project Stabilization Agreement—a synonym for a PLA] projects had fewer problems than some non-PSA projects.” The College's satisfaction with the two PLA projects approved in 2008 led the College to assign a third project to be administered under the PLA in 2013.

Initially, each project was completed under budget. However, alterations following completion of two of the four nonPLA projects imposed cost overruns leading to final amounts that exceeded their original budgets. Nonetheless, it appears the cost overruns were related to architectural design errors rather than faulty construction.

Five College of Marin students were hired on PLA projects. Each student was trained by a different trade—sheet metal, carpenters, electricians, laborers, and plumbers. A recent study of apprenticeship training concluded that apprentices that complete their programs earn about \$300,000 more over their work-lives compared to workers without apprenticeship training. One student, Julian Stone stated: “My whole life I’ve wanted to be a carpenter....The PLA project gave me the opportunity I needed to get my life together and going in the right direction”

In all cases, the lowest bid (excluding subsequent cost-overruns in two cases mentioned above) came in under the engineer’s estimate. For the four nonPLA projects, the sum of the lowest bids was \$38 million or about \$10 million per project. The sum of the engineer’s estimates for these four nonPLA projects was \$50 million or about \$12.25 million per project. The average number of bidders was 9.5 per project, and the average nonPLA project came in at 79% of the engineer’s estimate.

In the case of the 3 PLA projects, the sum of the lowest bids was \$66 million or about \$22 million per project. The sum of the engineer’s estimates for these three PLA projects was \$88 million or about \$29 million per project. The average number of bidders was 7.3 per project and the average PLA project came in at 75% of the engineer’s estimate.

On average, those contractors who bid only on nonPLA projects were located 51 miles from the College of Marin’s Kentfield Campus. Those who bid only on the College’s PLA projects were located 63 miles from Kentfield. However, those contractors who bid on both PLA and nonPLA projects at the College of Marin were located much closer to the Kentfield Campus—on average they were found about 25 miles from the College of Marin.

This “U” shaped relationship seems to reflect that those contractors interested only in bidding on nonPLAs or only on PLAs were willing to look far afield for such opportunities. Those interested specifically in College of Marin projects, regardless of whether they were PLAs or not, were located closer to the Kentfield Campus in the first place.

Statistical Study

We supplement our case study of the College of Marin with a statistical analysis of 88 PLA and 175 nonPLA community college projects representing \$501 million in PLA work and \$206 million in nonPLA work. Built in 10 California community college districts over the period 2007 to 2016, using statistical analysis controlling for when and where these projects were built, and how large each project was, we found that the PLA projects had slightly more bidders compared to nonPLA projects, but that this difference was not statistically significant. Our findings rejected the hypothesis that PLAs reduced the number of bidders compared to nonPLA projects.

In a second statistical analysis of low bids on 105 projects where the engineer’s estimate was available, controlling for when and where the project was built, and how large the project was envisioned to be based on the engineer’s estimate, we found that PLA low-bids

came in slightly lower compared to nonPLA projects, but that this difference was not statistically significant. Our analysis rejected the hypothesis that PLAs raised the cost of projects relative to the engineer's estimate compared to nonPLA projects.

Errata

An earlier version of this report mistakenly identified the winner of the Main Building Complex PLA project for the College of Marin as Gonsalves and Stronck when in fact, Di Giorgio Contracting won this bid. This mistake has been corrected.

About the Authors

Peter Philips is a Professor of Economics at the University of Utah and Visiting Scholar at the Institute for Research on Labor and Employment at the University of California, Berkeley. He received his BA from Pomona College and his MA and PhD from Stanford University. Philips has written extensively on the construction industry and the construction labor market.

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Introduction

Project labor agreements (PLAs) are pre-hire contracts between project-owner representatives and local construction unions. PLAs account for an ever increasing amount of both public and private construction projects. PLAs become a public policy issue when there are differing views on how best to manage public works construction. Proponents of PLAs argue that these contracts facilitate both efficient construction and the attainment of related public policy objectives such as local hire or the training of local youth and/or other targeted groups in construction skills. Critics of PLAs contend that these contracts increase the cost of public construction primarily through a hypothesized reduction in the number of bidders on public works. The assertion is that PLAs discourage some contractors from bidding on these projects. This, in turn, reduces competition which in turn raises construction costs. In this study, we will directly address this hypothesis both in a case study and in a statistical analysis of bidding on 263 community college projects.

A 2001 study of California PLAs by the California Research Bureau, California State Library found that

...private construction projects in California are much more likely to use PLAs than are public projects. Of the 82 project labor agreements reviewed for the content analysis in this report, nearly three-quarters (72 percent) were private sector agreements. In addition, 22 out of 23 private cogeneration electricity plants recently built or under construction in California used PLAs.ⁱ

Since this study, the use of PLAs has been growing in California. There are no comprehensive data on the growth of private PLAs, but in the California public sector data show clear growth in the use of PLAs. In the 1990s, on average, 3 new public sector PLAs were signed per year; in the 2000s, on average, 11 new government PLAs were signed per year; and between 2010 and 2016, on average 16 new public sector PLAs in California were signed per year. Of the 234 public PLAs signed since 1993, 26 (11%) have been community college PLAs.ⁱⁱ Counting up signed project labor agreements gives only a rough measure of the growth and distribution of public sector PLAs in California because a project labor agreement can entail one building project or many separate building projects; and the size of these projects can vary.

PLAs serve many purposes in both the private and public sectors, but a common purpose is to ensure the supply of a trained and qualified labor force. Other purposes sometimes include a process to customize work schedules or work rules to the project's needs, and the channeling of local workers (or workers from a targeted group such as veterans or at-risk youth) into registered apprenticeship or pre-apprenticeship programs and a career in the construction trades.

Despite these potential benefits, PLAs are controversial because critics assert that PLAs raise construction costs. In states such as California where public construction is governed by prevailing wage regulations, PLA critics assert that on public works, PLAs raise costs primarily by restricting the number of contractors willing to bid on PLA projects.

This study is the first to test this hypothesis. We do this in two ways. First we provide a detailed case study of 7 projects, 3 PLA and 4 nonPLA jobs, built by the College of Marin between 2007 and 2015. Then, we test the reduced-number-of-bids hypothesis using data for 88 PLA and 175 nonPLA community college projects in California representing \$501 million in PLA work and \$206 million in nonPLA work. In both cases, we ask the question, did the use of PLAs raise public construction costs by restricting the number of contractors bidding on these PLA projects compared to their nonPLA counterparts?

We begin this report by describing the distinctive turbulence that characterizes the construction industry and makes the creation and retention of a qualified and safe construction labor force particularly challenging. Understanding the broader challenges of construction and the training of skilled labor contextualizes the issues surrounding project labor agreements. The basic point here is that construction turbulence makes it difficult to train and to retain skilled workers in this industry. PLAs are one mechanism for addressing the challenge of obtaining a skilled and qualified labor force to build a public or private project.

Construction Context¹

Construction is an extraordinarily turbulent industry which makes it difficult to train and retain a skilled and experienced blue collar workforce. Yet, primarily through obligations enforced by collectively bargained contracts, in California, construction is continually being refreshed by the supply of newly trained workers graduating from registered construction apprenticeship programs. Roughly every five years, 15% of the California construction workforce is newly trained journeymen graduating from registered apprenticeship programs. This reflects an annual investment of around \$250 million with 97% of the graduating apprentices coming from jointly sponsored contractor/union programs.ⁱⁱⁱ

Construction is a dangerous and deadly industry. In California, construction has the third highest injury and fatality rates of any major industry behind only agriculture and transportation.^{iv} Training and experience help construction workers be safer. For example, residential construction which has few apprenticeship-trained journeymen has twice the industry average injury rate. Nonresidential construction and heavy-and-highway work which have many more apprenticeship-trained journey workers have half the construction-industry average injury rate.^v Registered apprenticeship training helps create the skills and knowledge that keep construction workers safe.

Registered apprenticeship training also pours the foundation for a lifetime of better earnings. Mathematica estimates that registered-apprentice graduates earn over their

¹ This section may be skipped by readers who are familiar with the unique challenges of the construction industry and how apprenticeship programs address the problems of skill development and worksite safety. The next major section addresses the hypothesis that public PLAs restrict the number of bidders.

work lives \$300,000 more than their comparable counterparts who do not attend registered apprenticeship programs.^{vi}

But a trained and experienced workforce is also important to owners. While systematic data are not available measuring the effects of the lack of training and experience on delayed work-schedules and workmanship defects, few practitioners in the construction industry would maintain that skill and experience are not important ingredients in construction success.

Construction Volatility Hampers Training and Experience

Constituting, on average, about 4.5% of the California labor force, construction is the most turbulent of the major California industries. At the peak of the last business cycle, in 2006, 933,000 workers were employed in California construction. This was 5.6% of all California workers. (Figure 1) At the trough of the business cycle, in 2010, 560,000 were employed in California construction amounting to 3.5% of the overall workforce. By 2015, construction employment was back up to 725,000 and 4.1% of the total California labor force. From peak in August 2006 to trough in March 2011, California construction lost 45% of all its jobs and by July 2015, California construction jobs were still 20% below the 2006 peak. This means almost 1 out of every 2 workers in construction in 2006 was gone in 2011 while by 2016 half of those who left had to return after an absence of up to 5 years or be replaced by new workers. Construction is like a giant sponge, constantly sucking in and squeezing out workers. This underscores the challenge of retaining trained and experienced workers in construction.

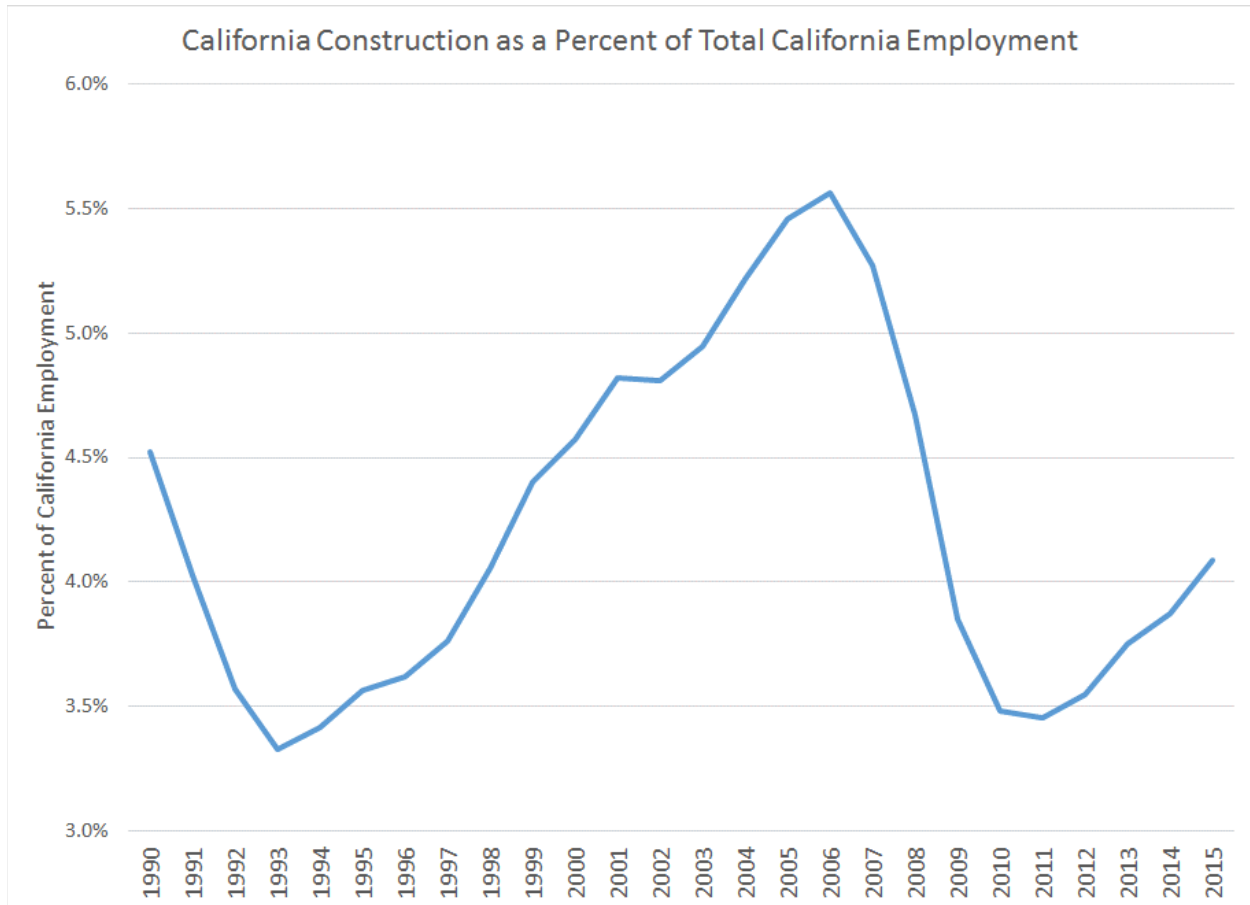


Figure 1: California annual construction employment as a percent of total California employment, 1990 to 2015^{vii}

Not all sectors of the California construction industry have recovered from the Great Recession at the same pace. Figure 2 shows that employment in the construction of utility systems has now exceeded its 2006 peak, and employment in the construction of nonresidential buildings is coming close to its 2006 peak. In contrast, employment in residential building construction still lags at 65% of its 2006 peak, and overall construction employment in 2015 was only 78% of construction employment at the peak in 2006. When some sectors recover faster than others, the recovering sectors bear the heaviest burden finding ways either to induce experienced workers to return to the construction industry or to train a new generation of construction workers.

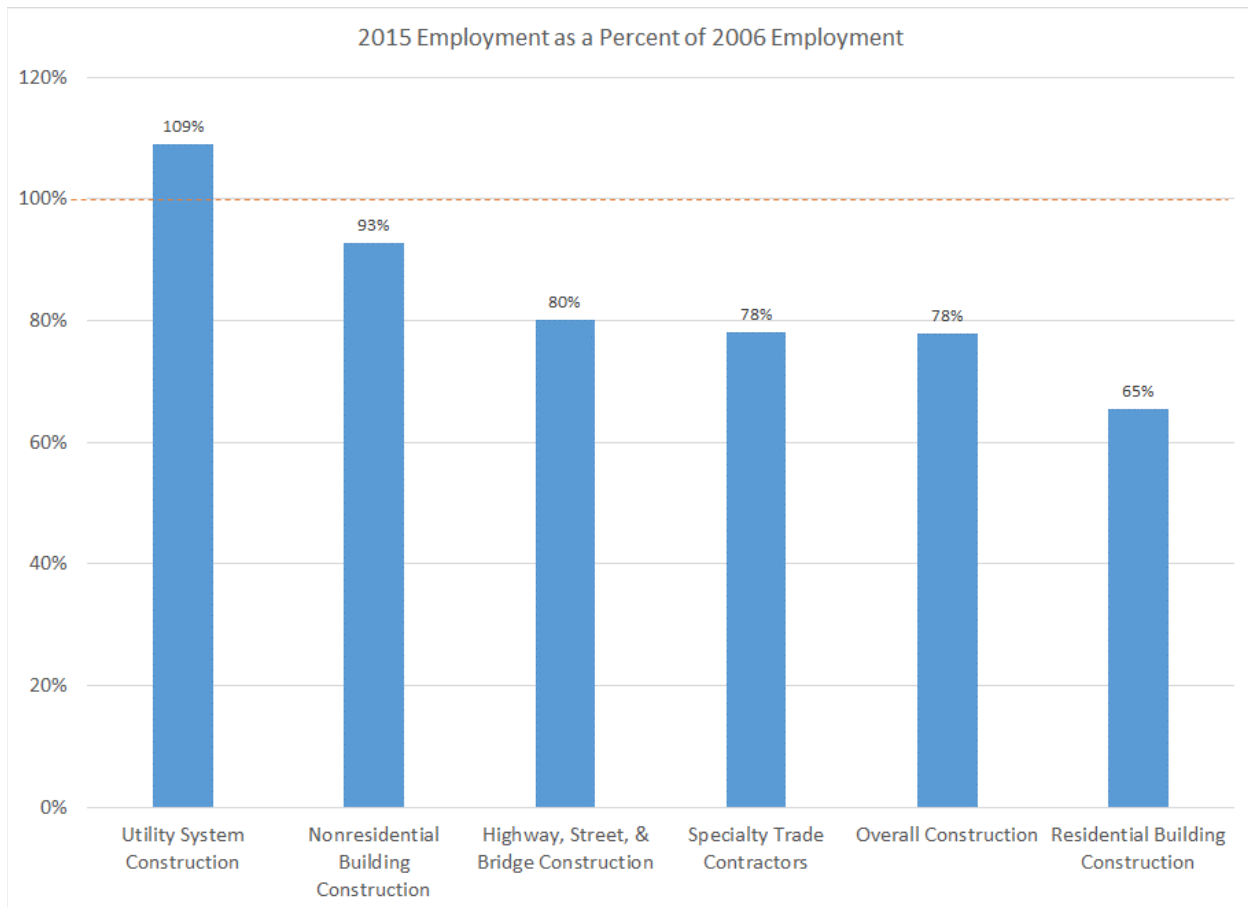


Figure 2: 2015 California construction employment by sectors as a percent of peak California construction employment in 2006^{viii}

However, the challenge of training and retaining skilled and qualified workers combines the acute trauma of business cycles like the Great Recession with the chronic strain of seasonal employment volatility. Figure 3 compares California's construction employment turbulence to the relatively mild seasonality of the overall California labor market looking at 2000 to 2016 using monthly employment data. Overall employment is shown on the left vertical axis and construction employment is shown on the right vertical axis. The axes are calibrated to allow for a comparison of the relative volatility in both cyclical and seasonal employment. The amplitude of the business cycle in construction combines with the persistent volatility of seasonal work to create much less certain employment prospects for construction workers compared to workers in the overall California employment. Again, construction is like a giant sponge cyclically and seasonally sucking in and squeezing out workers with no guarantee that the worker that was squeezed out last time will be the worker who gets sucked in this time. As a consequence, skills and experience get lost at each turn of the cycle.

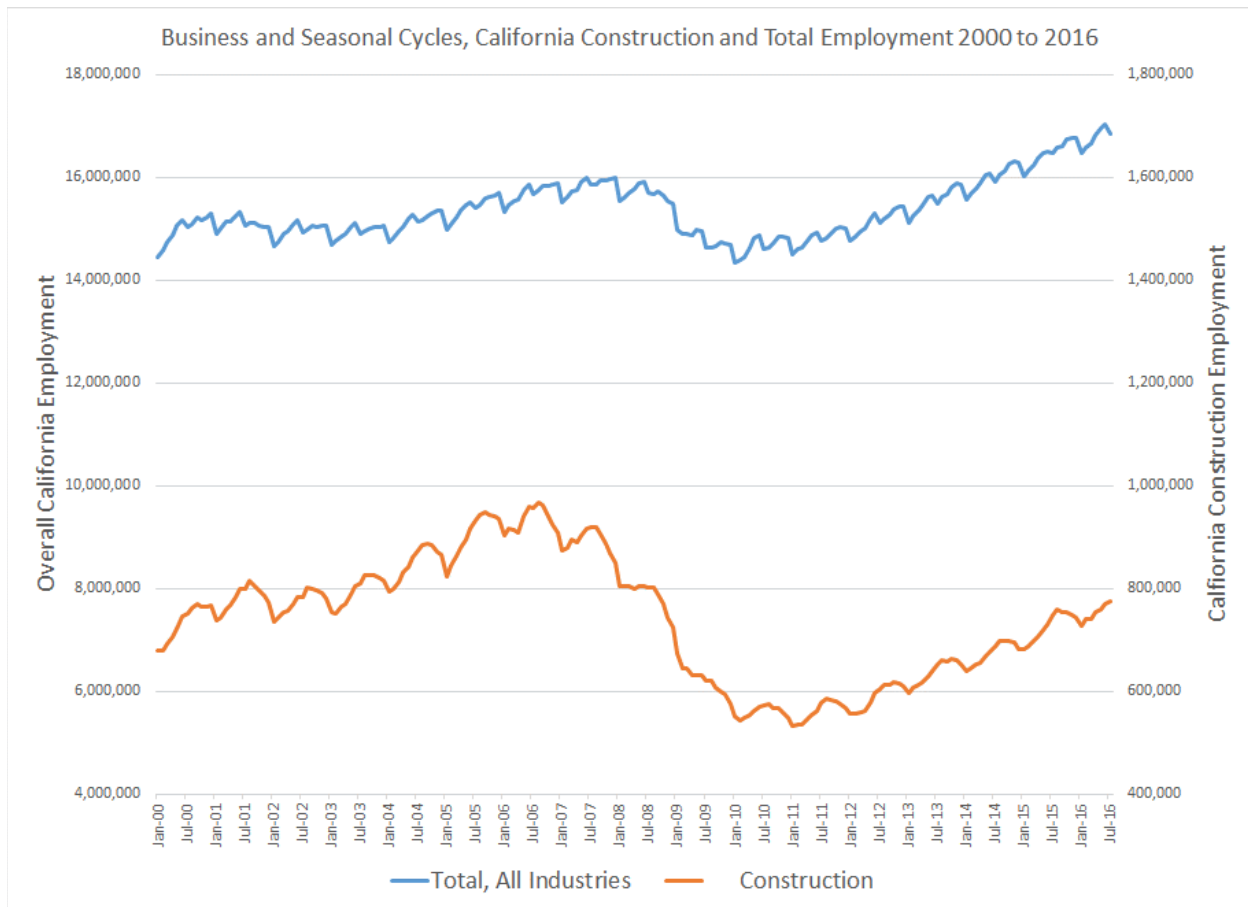


Figure 3: Comparing California's construction business and seasonal employment cycles to overall California employment, 2000 to 2016^{ix}

Training a Safe and Qualified Labor Force in the Face of Turbulence

The problem of retaining construction workers in an industry that can toss out 10% of its workforce across the seasons and 45% of its workforce across the business cycle, makes it difficult to finance the training of construction workers. Why train a worker if the job is going to disappear and the worker with it? Yet because construction depends upon craft skills to insure the quality of construction along with trained and experienced workers to fend off the inherent dangers of construction work, training does in fact take place.

In the unionized sector of construction, collective bargaining creates a framework for financing the accumulation of human capital in construction. Contractors signing collectively bargained agreements are bound by those agreements to contribute a set amount of money for each hour of work they win in order to finance the training of the next generation of construction workers. Because of this contractual agreement, California union contractors invest substantial sums of money each year to build and run extensive registered apprenticeship training systems. In 2012, California union contractors invested \$230 million in apprenticeship training and graduated 15,200 apprentices.

Nonunion contractors, facing the same skilled labor challenges, also invested in registered apprenticeship training. In 2012, nonunion contractors spent \$28 million on registered apprenticeship training and graduated 420 construction apprentices.^x

Over the five-year period, 2011 through 2015, California's joint contractor/union apprenticeship programs graduated 72,400 construction apprentices. Their nonunion counterparts graduated an additional 2050. Together this added more than 74,000 newly skilled construction workers to the California construction labor force. Over this 5-year period, an average of 640,000 employees worked in California construction three-fourths of whom were blue collar workers.

So, in California, over a five-year period, newly graduated apprentices represented 15% of the construction labor force while joint labor-management (union) programs accounted for 97% of the new Journeyworkers and the unilateral (nonunion) programs contributed an additional 3% of the newly skilled labor force. This constant refreshing of the California labor force with newly trained workers is the essential ingredient in maintaining effective and qualified construction manpower in the face of chronic yet unpredictable construction turbulence.

The Importance of Training to Workers

Safety

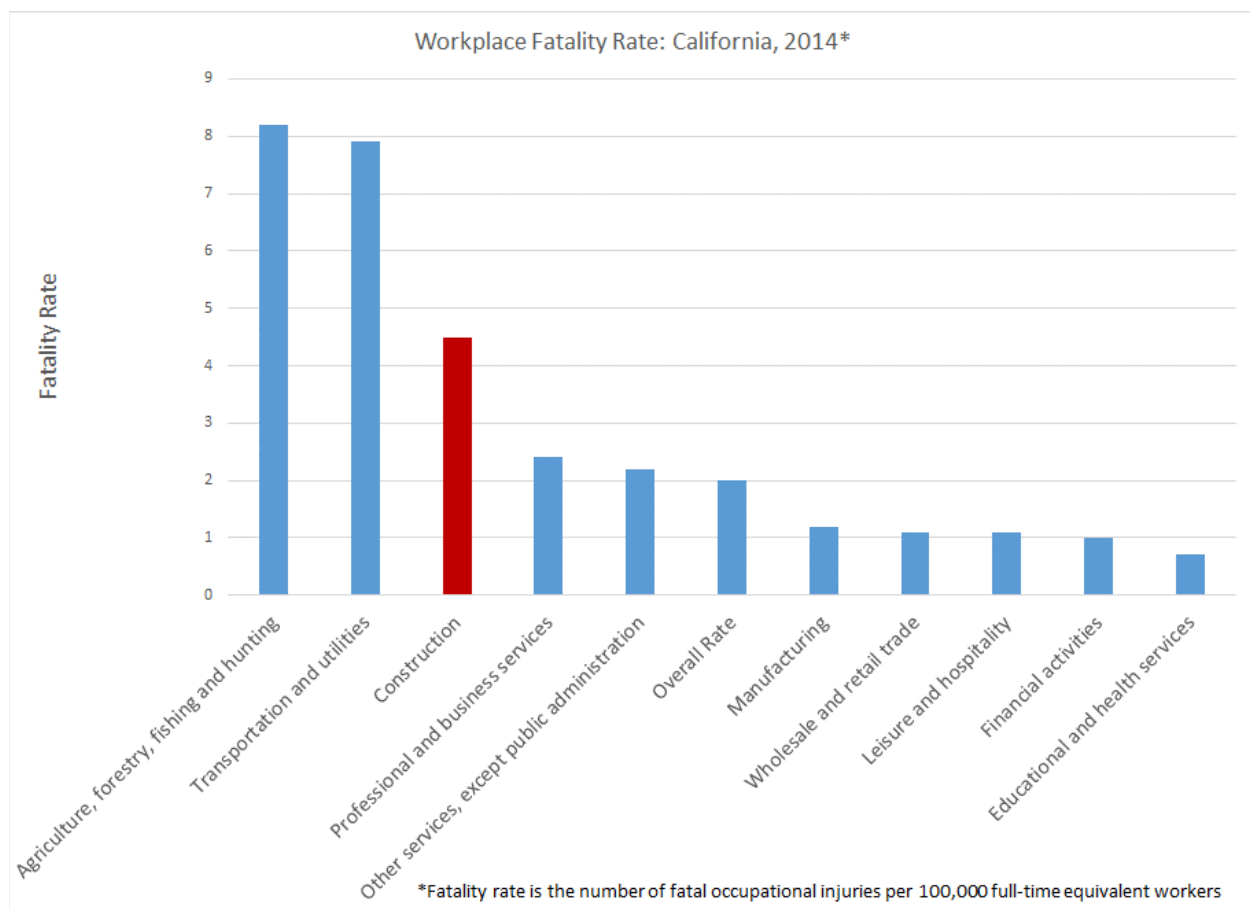


Figure 4: California workplace fatality rate by industry, 2014^{xi}

Construction is among the deadliest of major industries. Figure 4 shows that the occupational fatal injury rate in construction is more than twice the national average and third behind only agriculture/forestry/fishing and transportation in the risk of death.

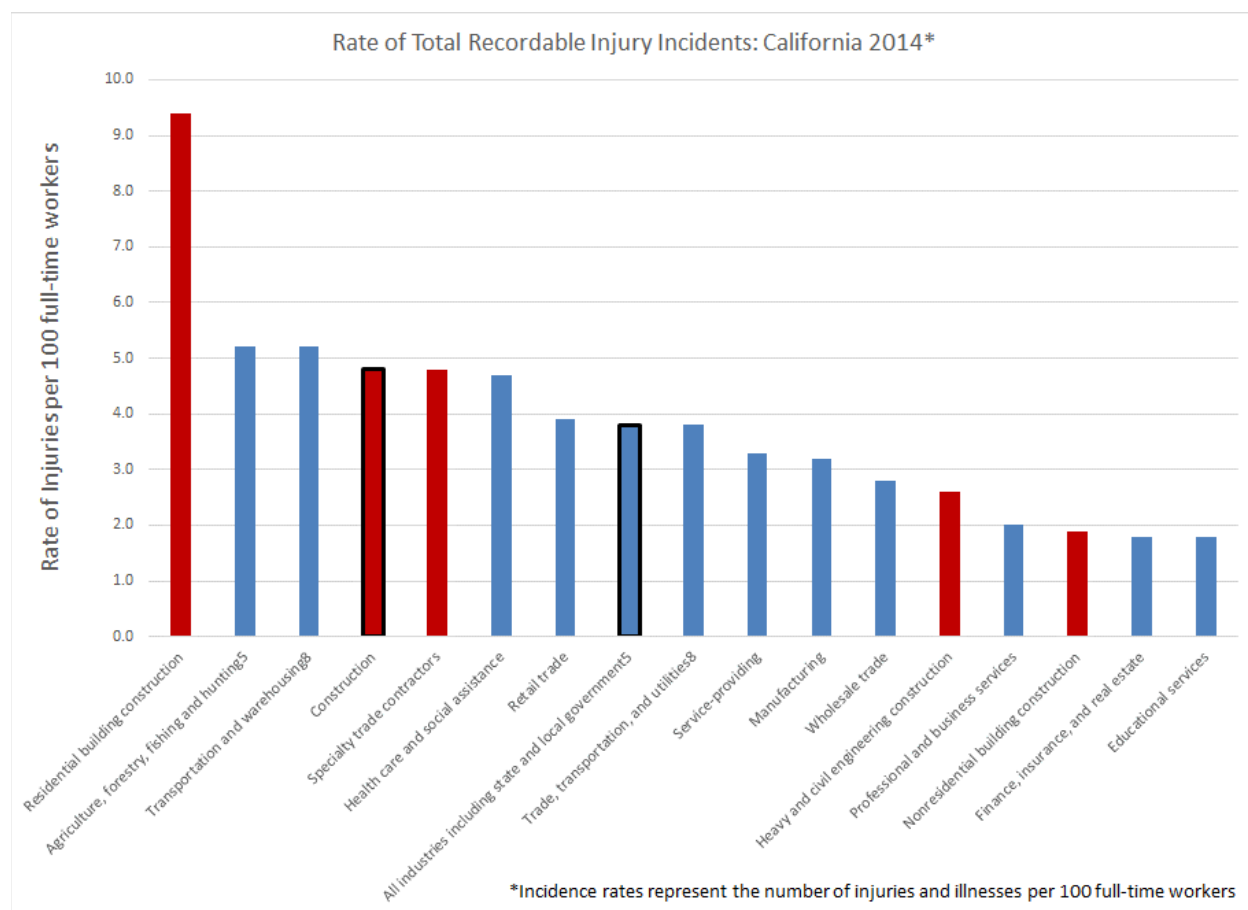


Figure 5: California workplace total recordable injury rate for selected industries and construction sub-industries^{xii}

Figure 5 shows that in terms of injuries, again construction, as a whole, is almost as dangerous as agriculture and transportation and has about a 20% higher overall injury rate compared to the economy as a whole. But there is a wide difference in the risks of injury across construction segments. Residential construction has almost twice the injury rate compared to construction as a whole while nonresidential building construction has less than half the injury rate compared to construction as a whole. This reflects the fact that very few graduates of registered apprenticeship programs go into residential construction. Even heavy and highway construction, which involves roughly the same exposure to roads and heavy equipment as found in transportation, nonetheless has an injury rate that is roughly half the injury rate of overall construction and overall transportation. Heavy civil construction has a high percentage of apprentice-trained Journeyworkers because this is a predominately unionized sector of California construction and much of this work falls under prevailing wage regulations which either require or encourage apprenticeship training.

Construction work is inherently dangerous. Construction volatility, by constantly churning experienced workers out of the industry and pulling inexperienced workers into construction, exacerbates the inherent dangers of this work. Training, in general, and apprenticeship training, in particular, is key to mitigating these dangers. That is one reason why training is important to construction workers.

Income

As will be discussed below, apprenticeship training substantially raises the current and lifetime incomes of construction workers. An example of the effects of registered apprenticeship training on earnings can be seen comparing the earnings profiles of solar installers to electricians. Figure 6 shows the earnings career paths of solar installers in California's Bay Area compared to electrician pre-apprentices moving into apprentice status and then graduating to becoming journeyworker electricians.

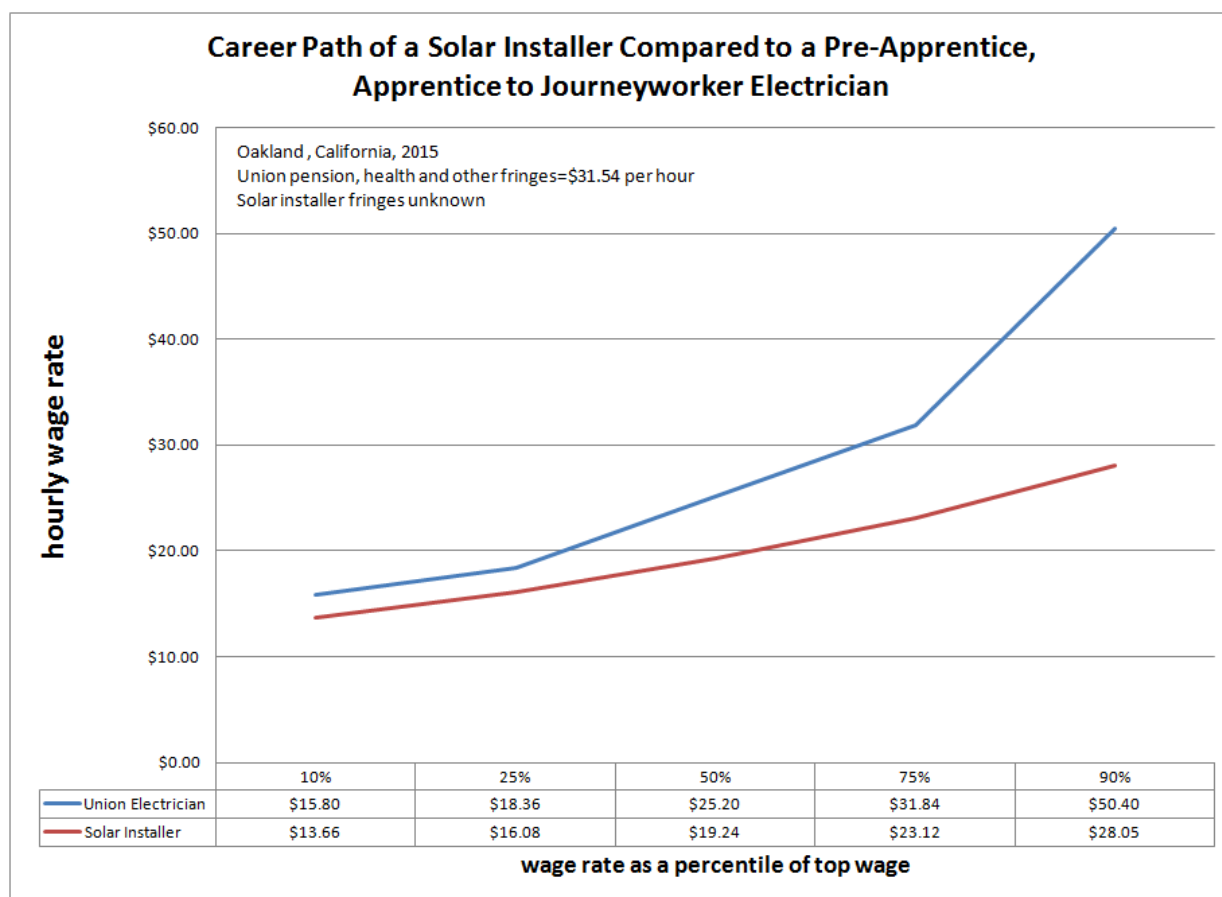


Figure 6: Comparing the career paths of rooftop solar installer to union electrician pre-apprentice, apprentice, Journeyworker

In the case of solar^{xiii} installers, we do not have a regulated career path. Rather, on a more informal basis, solar installer earnings rise with more experience either through raises from their employer or by moving to higher paying employers. The paths of solar installers

and pre-apprentice electricians² begin close to each other in terms of entry level wages. As pre-apprentices gain experience, their wages rise, but only slightly faster than solar installers. Once the pre-apprentice enters the apprenticeship program, his/her earnings grow much more quickly and significantly compared to solar installers. This difference widens substantially once the apprentice graduates to journeyworker status.³

This more advantageous earnings profile of the electrician career path compared to the solar installer path is due to the fact that apprenticeship training for electricians does not focus exclusively on the skills needed for photovoltaic construction jobs. The pre-apprentice/apprentice path steadily broadens the apprentice's training to encompass the entire electrician craft. The young worker eventually gains knowledge of a wide range of skills, qualifying him/her for a wide range of projects—and this broad occupational skill set is essential not only for higher hourly wage rates but also for staying employed in a turbulent construction market. The solar installer learns only the specific tasks associated with solar installation jobs, which limits the worker's job opportunities and potential earnings.

When benefits are also considered, the difference in the electrician and solar installer occupations are even more dramatic. Figure 6 does not show the differences in benefits between the electrician path and the solar installer path because government data on solar installation earnings do not include benefits. Nonetheless, in general, one would expect that the benefit advantages of apprenticeship training are probably even greater than the wage advantage.

The Importance of Training to Owners

Design flaws, unexpected weather, unforeseen worksite conditions, change orders, faulty workmanship, inferior materials, delays in supplies, labor shortages, worksite disorganization and a host of other problems can plague construction activity and lead to costly delays in finishing the project. Insurance for the project, the contractor and subcontractors can help mitigate the costs of construction delays and construction defects; but like anything else, an ounce of prevention is usually worth a pound of cure.

Blue collar workforce training is one key element in providing that ounce of prevention. A skilled and knowledgeable crew of craft workers is the final link in the chain from initial design to the final completion of a project. Workers who know what they are doing can judge the quality of most of the materials going into the project providing a final assessment against material defects. Experienced craftsmen who know how to work

² Also known within the electrician's union as "construction electricians".

³ The comparison of these wage profiles is only approximate because in the case of pre-apprentices and apprentices, their wages rise in lockstep with their experience on-the-job and classroom training. In the case of solar installers, the data reflect the distribution of solar-installer wages, but there is no guarantee that any one solar installer will necessarily rise up that profile from bottom to top with increased experience and training. With some companies that will be the case, and others not. Some installers will have to rely upon market mobility and opportunity to harvest a payoff from increased experience and training.

together provide the final piece needed to translate a potentially chaotic system of layered subcontracting into an organized and smoothly running system of construction. Skilled workers who know their craft provide an immediate judge of the quality of their own work. Skilled construction workers provide the checks and balances that make the anthill of a major construction site a coordinated effort. Without a doubt engineering, planning and supervision are also keys to a successful construction project; but in the craft work that entails most construction, making sure that those who are actually doing the construction are skilled and experienced is necessary to insure a timely completion of a quality project.

The Role of PLAs in Obtaining a Trained and Qualified Labor Force

Project labor agreements insure that most of the blue collar workers on the project come from the local union halls of the crafts on the project. As will be shown below, in California, the overwhelming majority of construction Journeyworkers who have received formal, registered apprenticeship training come from the union sector of construction. Also typically union hiring halls confer priority in call-outs to local union members. Thus, PLA requirements tend to insure that most workers on a project are sourced locally and are either the products of registered apprenticeship training or are currently enrolled in a registered apprenticeship program or are in line to enter a registered apprenticeship program through a pre-apprenticeship program.

Nonunion contractors can and do bid on PLA projects. On public works in California, PLA provisions sometimes allow for nonunion contractors to bring a fixed number of key workers onto the project without going through the union hall. This allows the nonunion contractor to use that contractor's best workers in concert with union workers coming from the hall.

So a primary selling point that advocates of PLAs present is that PLAs provide a trained and qualified labor force without excluding key nonunion workers who may have firm-specific skills that the nonunion contractor wants to have to tackle the project effectively.

The Hypothesis that Public PLAs Restrict the Number of Bidders

On public projects not governed by prevailing wages, PLA critics may argue that PLAs raise costs by raising wages relative to what might be obtained without PLAs. This issue is in dispute because PLA advocates argue that by insuring a more productive workforce, PLAs in these situations offset potentially higher wages with higher productivity. Regardless of the outcome of these disputes, in the context of public works governed by prevailing wage regulations such as those in California, the wage-differential argument is largely irrelevant.

The essence of the argument has been summarized in a study that was critical of the use of PLAs:

Opponents argue that PLAs increase costs. They claim that the requirements imposed by PLAs discourage nonunion contractors from bidding on projects and subcontractors from participating. This reduced competition, it is claimed, results in overall higher bids.^{xiv}

This study did not seek to measure the effect of PLAs on the number of bids. Rather, it attempted to measure the cost differences between PLA and nonPLA projects and then attributed these differences to an assumed difference in bid competition plus possible differences in work rules across PLA and nonPLA projects.

Here we address the hypothesis that PLAs restrict competition head on by directly testing whether PLAs encourage, discourage or have a neutral effect on the number of bidders on PLA projects compared to nonPLA projects. In testing this hypothesis, we control for other factors that influence the number of bidders on a project such as the size of the project and when during the construction business cycle, the project was let.

Project Labor Agreements

What Is a Project Labor Agreement?

Project labor agreements are pre-hire labor agreements between construction unions, as a group, and representatives of an owner intending to build a project or set of related projects. If we think of a “project” as a construction activity for which there is a bid opening, one project labor agreement can cover either one project or multiple projects. In the multiple project case, these separate projects would be gathered under a unifying umbrella such as a bond issue financing a set of projects. While the requirements of PLAs can vary dramatically depending on the needs of the parties entering into the agreement, almost universally, PLAs promise two things: first, most (but in the public sector, not all) of the blue collar workers on the project will be dispatched through local union hiring halls. Second, during the life of the agreement there will be no work stoppage regardless of whether there are either strikes or lockouts elsewhere within the local construction labor market.

In addition to these universal aspects of PLAs, project labor agreements become customized to the desires and intentions of the signatory parties—the owner and the local unions (bargaining as a group). Customized aspects of PLAs may include unique provisions regarding scheduling and overtime, specific regulations regarding work rules and craft jurisdictions, quota provisions regarding local hire or local participation in apprenticeship programs, distinctive safety programs or project-specific worker compensation procedures.

From the unions’ perspective, PLAs are concessionary contracts where specific owners controlling important work obtain a set of concessions or sweeteners in exchange for most or all blue collar workers coming from the hiring hall. In the public sector, PLAs almost always contain a provision allowing contractors to obtain some key blue collar workers outside the hiring hall system. The amount and flexibility of the key worker provision is subject to bargaining as are all the other provisions of a PLA.

Many PLA projects are large. After all, the incentive that induces separate craft unions to bargain as a group and provide concessions to an owner relative to local collective bargaining agreements is that the owner has a good deal of work on offer. However, when a PLA covers multiple projects under the umbrella of a construction bond or other unifying element, specific projects within the larger set need not be themselves large projects. So while many specific PLA worksites are large—such as airport construction or a sports stadium or a large civil engineering project—many other specific PLA worksites are smaller but encased within a larger construction agenda which allowed the owner to lure the unions to the bargaining table.

PLAs are used in both the private and the public sector. This study focuses on public community college construction in California some of which was governed by PLAs and some not. Public sector PLAs are controversial because they involve public procurement policy. Some nonunion contractor associations oppose the use of PLAs in public construction procurement.

In our case study and statistical sample, all the community college construction was governed by California's prevailing wage law. Prevailing wage laws set the wage rates and benefit packages by craft that are to be paid on public works. While these regulations are not always obeyed, nonetheless, in general, in California, wages on public works tend to reflect wage rates established in local collective bargaining agreements.

Critics of Project Labor Agreements

Critics of public project labor agreements in prevailing wage law states argue that PLAs increase construction costs on public works by restricting the number of contractors willing to bid on these projects compared to comparable public projects without PLAs.^{xv} They argue that some nonunion contractors are unwilling to bid on PLA projects because these contractors do not wish to obtain the majority of their blue collar labor from the local union hall. They also may be deterred from bidding if the PLA requires that they pay into the collectively bargained health and retirement funds for their key workers, especially if they are already paying privately for these workers' health insurance or 401ks.

Proponents of PLAs argue that many nonunion contractors do bid on PLAs and that the alleged deterrence effect of PLAs are exaggerated. They further suggest that PLAs may attract (primarily union) contractors that otherwise would not bid on those projects.

PLA critics call attention to a 2004 renovation project at the, Burckhalter Elementary School in East Oakland, California. The case was summarized in an article in SF Gate:

A call for bids went out, and a San Rafael firm that specializes in school construction -- M.A. Davies Builders -- came in with the low estimate of \$1.8 million, beating out seven competitors....Before a final deal was signed, the school district announced that -- after years of on-again, off again talks -- it had signed a breakthrough labor pact with Alameda County's trade unions. The pact is supposed to ensure labor peace in future school construction projects. It sets local hiring goals, encourages job apprenticeships and requires that a percentage of workers be hired out of the local union halls....But as a result of the labor pact, the school district decided to rebid the Burckhalter contract.... This time, there were only three companies in the running, and the lowest bid, from Albay Construction of Contra Costa County, was just over \$2.2 million....[A] project manager for Albay, whose own bid went up nearly \$167,000 the second time around, discounted the idea of additional paperwork [causing the bid increase] -- saying it's pretty routine for any public works project. Instead, the manager cited the reduced number of bids the second time (because many contractors had already lined up summer work) and the increased costs of materials.^{xvi}

From the perspective of PLA critics, the Burckhalter Elementary School case provides an example of how PLAs increase costs (from \$1.8 to \$2.2 million) due to a reduction in bidders (from 7 to 3). The fact that the PLA promised labor peace, set local hiring goals, and encouraged apprenticeship

training were potential (and not necessarily inevitable) future benefits that had to be weighed against the immediate 22% increase in costs.

Questions to Be Asked

In this study, we do two things. First, we examine in detail the case of seven construction projects built by the College of Marin over the period 2008 to 2015, three under project labor agreements and four absent PLA requirements. This detailed case allows for a nuanced assessment of the two questions—do PLAs restrict competition and do PLAs deliver on promised construction and community benefits?

Second, we statistically examine 263 community college construction projects in California built between 2007 and 2016. One-third (88) of these projects was built under PLAs while two-thirds (175) were not. In terms of construction costs, of the total \$707 million of work in our sample, a little more than two-thirds (\$501 million) were built with PLAs while a little less than one-third was not. With this large sample, we are able to control for confounding factors such as in what month a project was bid in order to test the hypothesis that PLAs restrict the number of bidders on public works. This is an important question because the assertion that PLAs restrict the number of bidders on projects is the central, untested proposition leading to the contention that PLAs in prevailing wage law states raise public sector construction costs.

College of Marin Case Study

In this section, the modernization projects at a community college in Marin County, California, the College of Marin, serve as a case study to analyze the effect of project labor agreements on contractor bid participation, and the relation of bidding to prior engineer's estimates of costs.

Marin County is part of the Northern Bay Area in California, near San Francisco. The PLA adopted by the College of Marin was the first PLA to be used on a public works project in Marin County and the ninth to be used by a college district in the Bay Area.

The modernization of the College of Marin provides a useful case study because the college used both PLA and nonPLA arrangements for its projects. Modernization at the college included the construction of 7 new buildings. Three of the projects were completed under a PLA and 4 were not. Variables such as location, source of funding, and project ownership, were held constant while project cost, size, and contractors varied across the 7 projects. All construction occurred within a time-span of seven years, from 2008 to 2015. These circumstances allow for a useful opportunity to compare PLA and non-PLA projects. In the second section of this study, we will extend our analysis to 263 California community college projects, 88 of which were built under PLAs.

The Decision to Modernize Marin

The College of Marin is a two-year community college in Marin County. It was established in 1926, under the name Marin Junior College. The original school consisted of a single campus in central Marin, now called the Kentfield Campus. In 1975, a separate college was built in Northern Marin, the Indian Valley College. When the Indian Valley College was under threat of closure in 1985, it merged with the College of Marin as a second campus for the college, the Indian Valley Campus. The College of Marin offers two-year training in vocational and career programs, programs leading to an associate's degree, and community education courses. The College primarily serves students from

the surrounding area; there are approximately 250,000 residents in Marin County.^{xvii} From 2010 to 2015 an average of 6,985 students were enrolled in classes for credit each year. About 77% were enrolled part-time, with the remaining 23% enrolled full-time.^{xviii}

In 2002, outside consultants surveyed the physical structures on the College of Marin campus. They reported the facilities were worse than over 90% of community college districts across California, 108 schools at the time. The report, using a Facility Condition Index (FCI) metric, concluded, “The overall FCI of the facilities [...] is considerably worse than what we find for facilities of similar age and function across the nation.”^{xix}

Two years earlier, shoddy infrastructure of school districts across California was receiving attention in the state legislature with Proposition 39, also known as the “school facilities local vote act of 2000.” A core aim of the proposition was to address the poor condition of school buildings. The initiative instituted more oversight of tax dollar use and made it easier for schools to acquire funds for repairs and modernization. Proposition 39 reduced the voter approval required to pass bond measures from two-thirds approval to 55% if the institution agreed to convene an oversight committee. “This initiative helps fix classroom overcrowding and provides much needed repairs of unsafe and outdated schools,” said Gail D. Dryden, President of the League of Women Voters of California.^{xx} For facilities at the College of Marin to be determined among the worst of campuses across California during a time when the deterioration of facilities statewide was sparking legislative action is an indication of the extent to which the physical structures at Marin had depreciated.

This finding may be surprising given the affluence of the surrounding county of Marin. The median income in Marin in 2014 was \$95,749, 55% higher than the statewide median.^{xxi} Officials suggested one explanation for the disrepair was under-enrollment at the college.^{xxii} Below-capacity enrollment at the College of Marin contributed to underutilization and neglected maintenance of already aging college facilities. The lack of upkeep was especially damaging at the Indian Valley Campus due to the environmental exposure of the rural location of the campus.^{xxiii}

The decision by the College of Marin to merge with the Indian Valley College in 1985 was partly justified by widely publicized projections of population increase in the county. However, the population increase did not occur as predicted and the number of students the College of Marin was tasked to serve did not grow at the expected rate. The college was built to serve a full-time enrollment of 5000 students. It hit an all-time high in 1992 of 2,653 students.^{xxiv} Following 1992, the college experienced a downward trend in enrollment. By 2004, full-time enrollment at the College of Marin had shrunk by 39%, totaling just 1,613 students for the Fall semester. Part-time enrollees similarly decreased.^{xxv}

Due to below-capacity enrollment, campus buildings were underutilized and infrequently maintained. By 2000, most buildings were over 60 years old and had received little to no updating. The latest major renovation to have occurred at either the Kentfield Campus or the Indian Valley Campus was in 1976.^{xxvi} The lag in new construction, coupled with the neglect of facilities, gave rise to the shabby state of campus buildings highlighted in the 2002 assessment.

In 2004, a reporter from the *Marin Independent Journal* interviewed Don Flowers and Bob Thompson, two maintenance officials at the College of Marin. The article described the conditions of the Fine Arts Center:

Thompson and Flowers pointed out a slew of problems with the Center, ranging from rusted air conditioning pipes on the roof patched with duct tape to buckled roofs that had caused water to leak through the classroom ceilings, [...] officials said parts of the building contain asbestos or lead paint [and] parts of the building were inaccessible to disabled students, including the women's restroom, the elevator and the theater. The building had no air-conditioning in key areas - including the computer lab and in art rooms containing welding machinery and pottery kilns.

Similar shortcomings were noted at the Science Center.

Many officials supported the belief that renovation was key for preserving the College of Marin and changing the direction of enrollment numbers.^{xxvii} Yet the decision to modernize the campus was not inevitable. A series of community meetings was initiated in 2002 to discuss various courses of action. Among the proposed scenarios were: doing nothing, selling one or both campuses, and redeveloping the campuses. A report by the Marin County Grand Jury described the attendance of community members at the meetings as "significant," noting participants' dedication to maintaining the school and their support for updating college buildings.^{xxviii} In June 2004, bond measure C was placed on the ballot for \$249.5 million to modernize College of Marin facilities. The commitment by locals to revitalize the College of Marin was expressed formally by a 63% vote of approval. The timing of the vote was important. Just four years earlier, before the passage of Proposition 39, the vote would have been a defeat.

Slow Start to Construction

Though the bond measure was approved in 2004, the construction of major projects at the College of Marin did not begin until 2008. A few issues contributed to the delay. The College of Marin president resigned in 2003 after an 80% vote of no confidence by faculty.^{xxix} In 2004, the Board was still finalizing the hiring of a new administrative team. Furthermore, in 2005 the College received an accreditation warning from the Western Association of School and Colleges (WASC). The WASC evaluates schools in the Western region to ensure the quality of the school's programs and recommend areas of improvement. Five areas for improvement were identified at the College of Marin. Issues ranged from revising the school's mission statement, to educational planning, to determining the college's health care liability. Resources designated to the modernization process were refocused to addressing the WASC review.

The educational planning component mentioned in the WASC warning was directly related to the modernization planning process. The state required a detailed "educational master plan" in order for the college to move forward with modernization. The plan, an overview of current and desired educational programs at the college, was intended to inform facilities planning. At the time of the bond approval, the College of Marin had not completed an educational master plan and the facilities master plan "lacked sufficient detail....to determine project design and cost."^{xxx}

The final master plan was not submitted until early 2006. The drafting process was lengthy in part due to the school's prioritization of community inclusion and input. Holding public forums and community meetings was time consuming. Determining a list of prioritized projects and incorporating alterations into the designs, such as the inclusion of a "green" aspect, worked to further extend the process. Thus, initial projections for breaking ground in 2006 were overly optimistic.

The lag in construction was damaging on multiple levels. For one, the reputation of the college was already on shaky ground following media coverage of the enrollment drop, the accreditation warning, and the resignation of the college president. The construction delays were covered in local news. The changing public view regarding the delays can be seen in the titles of two editorials published in the *Marin Independent Journal*. “Prudent approach by [College of Marin] trustees” was published in 2005.^{xxxix} In 2007 the *Journal* published, “[College of Marin] deserves public scrutiny.”^{xxxix} But, by 2008 construction was underway and the tone of news coverage turned favorable. An editorial entitled, “Groundbreaking a sign of progress at College of Marin” read, “the ‘rebuilding’ of the county’s community college is hitting full stride.”

While the reputation of the College of Marin could be restored, there was no repair for the cost impacts of the construction delays. Between the bond passage in 2004 and the start of construction in 2008, there was a sharp increase in the price of construction materials. The price of products across all manufacturing industries rose 21% from January 2004 to January 2008.^{xxxiv} In particular, College of Marin officials noted the rise in the price of steel as particularly problematic.^{xxxv} From January 2004 to January 2008, the price of steel rose 56%.^{xxxvi} Initial plans to modernize the College of Marin budgeted for nine new buildings. As a result of higher material costs, two buildings were dropped and a third was downsized. The price increases also had environmental implications. The level of intended LEED (Leadership in Energy and Environmental Design) certification was lowered for some buildings, and the extent of desired solar panel installation was cost prohibitive. The board discussed strategies for organization and efficiency going forward, including use of a project labor agreement

Adopting a PLA at Marin

In part due to the slow start of construction, the College of Marin opted to consider using a Project Labor Agreement as a potential organizational tool to expedite construction. Discussions of a PLA had occurred prior to the delay. In 2005, the College’s consulting firm, Swinerton Management & Consulting, presented information to the board on PLAs and on using a contractor prequalification process.^{xxxvii} In order to use a PLA, the College of Marin was required to gain approval from the Board of Trustees. A vote by the Board was scheduled for June 2007.

In May, one month before the College of Marin Board was to vote, another PLA vote occurred in Marin County. The Central Marin Sanitation Agency Commissioners met to vote on the use of a PLA for a 30-month sewage project in Marin County. At the time of that meeting, no PLAs had been used on public works projects in Marin County. Only private projects in Marin had used PLAs, the first being The Buck Institute for Research on Aging, which began construction in 1996.^{xxxviii} The Sanitation Agency Commissioners voted unanimously against the use of a PLA on the sewage project. A trustee from the College of Marin, Greg Brockbank, attended that meeting. He told a reporter the College of Marin Board had not yet taken a position on a PLA.^{xxxix}

Despite the vote by the Sanitation Agency, PLAs were becoming increasingly prevalent on public works projects in California school districts. By the time of the College of Marin vote in 2007, 30 PLAs had been entered into by California school districts, 11 of which were by community college districts. All 30 PLAs had been adopted after 1998. PLA use was particularly concentrated in the “Bay 10,” the ten school districts in the San Francisco Bay Area. There were 21 community colleges within the Bay 10 in 2007, including the College of Marin. Eight of the 11 community college PLAs had been passed in the Bay 10 districts.^{xl} The eighth was passed by Foothill De-Anza College, just two months before the June 2007 vote at the College of Marin.

The increasing use of PLAs by Bay 10 colleges may have been a contributing factor to the decision at Marin. Swinerton Management & Consulting presented the data on the Bay 10 schools to the board. Furthermore, the week before the College of Marin meeting, the decision at Foothill De-Anza College was mentioned in local news. An article in the *Marin Independent Journal* noted, “the unanimous vote by the [Foothill De-Anza] district’s board in April came on the heels [sic] of testimony from workers that nonunion contractors underpaid them or didn’t pay benefits.”^{xli} The article also quoted interviews with College of Marin officials regarding their motives for considering a PLA.

Administrators highlighted a stipulation of the proposed PLA requiring contractors to hire College of Marin students, thereby offering hands-on training for students on construction-related vocational tracks. College of Marin president Frances White told reporters, “the value of having a program where students could train in the construction industry is my biggest interest in the whole thing ... that is important because, in Marin, the No. 1 fastest-growing industry is construction.” Board of Trustees President, Wanden Treanor, reiterated the value of the educational component, focusing on the “green” aspects of the training. She said, “my understanding is that the unions put together a curriculum dealing with solar and thermal issues. I think there is some great potential.”^{xlii}

The selection of the use of PLAs on some of the College’s projects was also based on the desire for efficiency and the belief that a PLA would guarantee availability of large workforce necessary to complete the larger projects on time. The College of Marin proposed the use of a PLA on the two largest modernization projects, the Science/Math/Central Plant Building on the Kentfield Campus and the Main Building Complex on the Indian Valley Campus. A third project would eventually be added to the PLA in 2013, the New Academic Center on the Kentfield Campus.

The original division of projects was such that the bond money funding PLA and non-PLA construction would be about equal. It was also suggested that the apportionment was beneficial to local firms, as “ ‘the very cost of the [larger] projects might be prohibitive to smaller companies’ ” due to bonding requirements, and therefore would “likely be awarded to larger companies elsewhere in the Bay Area.”^{xliii}

On June 12, 2007, the College of Marin Board of Trustees met to vote on the use of a PLA. Seven publicly elected members convened in front of a 125-person audience.^{xliv} Representatives from both sides of the debate over the use of PLAs testified in front of the Board. Four individuals argued against the use of a PLA and ten individuals spoke in favor of the Agreement.

Only two oral testimonies were submitted in writing for inclusion in the Board of Trustees meeting minutes. Those speaking in opposition of the PLA did not provide written testimony. However, quotes recorded by local news sources give a sense of the discourse.

Frank Tallarida, a resident of Novato, spoke in opposition of the PLA. He had attended the meeting for the sewage project in Marin a month early. His comments to the Sanitation Agency Commissioners were quoted by the *Marin Independent Journal*, “you have an obligation to spend tax dollars prudently....a PLA is going to increase the cost^{xlv}”

Another opponent of the PLA was quoted following the College of Marin meeting. Eric Christen, co-director of the Coalition for Fair Employment in Construction, called the PLA and non-PLA division

of college projects “inherently discriminatory.” He said, “Fifty percent discrimination is 100 percent wrong.”^{xlvi}

A representative of the building and construction trades council, Secretary-treasurer Jack Buckhorn, spoke in favor of the PLA. He also provided his testimony in writing. In his testimony, Buckhorn summarized his view of the benefits and uses of PLAs. He concluded:

Please remember, a PSA [Project Stabilization Agreement—another name for a PLA] is a construction risk management tool being used to protect the district and the taxpayers’ investment. ... They also encourage higher quality contractors & subcontractors to bid the district’s projects, use local skilled workers,... prevents work stoppages, keeps the money in the local economy, and increase worksite safety^{xlvi}

The Board also heard testimony from officials at other California community college districts that used PLAs. Richard Holober, vice president of the San Mateo County Community College District’s Board of Trustees, told the Board at Marin, “we believe a project labor agreement is integral to a successful work project [...]we have no work stoppages.”^{xlvi}

Anita Grier, president of the board of trustees at City College of San Francisco also testified. She said, “We believe the project labor agreement was very successful. There are no strikes. There is no work stoppage allowed.” A trustee on the Board for the West Contra Costa School District, Charles Ramsey, also spoke positively about the experience with the PLA at his school.^{xlix}

Finally, the report by Swinerton Management and Consulting summarized the use of PLAs by the San Mateo school district and the Peralta school district. They wrote, “all projects had multiple bidders and the bids were at or below the estimates. The contractors performing the work on the projects were a mix of union and non-union contractors. The construction projects were completed on schedule.”ⁱ

A member of the College of Marin Board of Trustees also spoke and submitted written testimony. In his testimony, Greg Brockbank described the course of the PLA debate in Marin and decried the tactics used by the Association of Builders and Contractors:

This has been an unprecedented issue at College of Marin that has generated...dozens of e-mails, a dozen snail-mailed packets...articles and studies, two mailers to tens of thousands of Marin households, and our two major political parties pitted against each other. In summary, I’m dismayed that clearly inaccurate and misleading charges of anti-competitiveness, increased costs, and bait-and-switch by the ABC [Associated Builders and Contractors] has resulted in so much unjustified furor and worry in the public....One can only wonder at the blatantly anti-union political agenda of ABC....Do they fear having their contractors and workers working alongside well-trained union workers and fear operating under a system which will make it harder for anyone -union or non-union - to cut corners?ⁱⁱ

Trustee Brockbank ended with an opinion regarding PLA use, “PLAs work,... make it more likely that a project will come in on time, within budget, with high quality work, under safe working conditions, without undue disruption, delays, or labor strife.”ⁱⁱⁱ The board voted 6 to 1 to approve the PLA. Trustee Barbara Dolan was the single “nay” vote, explaining she saw the PLA as discrimination against non-union firms.^{liii} One year later, on June 10, 2008, the College of Marin PLA was officially enacted.

On April 16, 2013 the College of Marin Board of Trustees considered the addition of a third project to the PLA, the New Academic Center on the Kentfield campus. The law firm Dannis Woliver Kelley gave a presentation to the board. Presenters stated, “Assurance of quality workers under PSA could come into play as the construction market (and skilled labor supply) tightens over the years.”^{liv} Board meeting minutes read, “Trustees expressed support and appreciation of the presentation noting that our PSA projects have been successful and positive experiences and have provided local hiring and student training.”^{lv} The Board approved the expansion of the PLA to cover the Academic Center.

The Marin PLA

The College of Marin PLA was signed by 22 local trade unions representing over 65,000 Northern California members.^{4liv} When it was signed in 2008, the College of Marin was the ninth community college to sign a PLA in the Bay 10 Districts. The Agreement included common stipulations of a PLA including sections outlining grievance procedure, management rights, and work rules. The College of Marin Agreement borrowed language from the Solano Community College Agreement and the Chabot-Las Positas Agreement signed in 2004 and 2007, respectively. Under the section “Purposes” all three agreements read, “the purposes of this Agreement are to promote efficient construction operations on the Project, to insure an adequate supply of skilled craftspeople and to provide for peaceful, efficient and binding procedure for settling labor disputes.”^{lviiilviii}^{lix}

Like many PLAs, the College of Marin PLA included a “social justice” component. PLAs often promote the hiring of local workers, veterans, and disadvantaged workers, such as those with a criminal record. The College of Marin PLA encouraged all three. PLAs on community college projects often include an additional social justice component, which reflects the unique population they serve, students. The stipulation requires contractors to hire students enrolled at the college to work on the project. The section on student hire in the College of Marin PLA reads:

Each contractor or subcontractor performing work covered by this Agreement shall employ on its regular workforce at least one (1) eligible College of Marin student or graduate who is enrolled and participating in an approved construction training course, program, pre-apprenticeship and/or Joint Apprenticeship program....In recognition of the College of Marin’s desire to have District-trained students employed on its Project(s), a subcommittee of the Labor Management Committee...shall be established...to establish appropriate criteria and procedures...^{lx}

Student-hire had been incorporated into community college PLAs in California since 2001 when the Los Angeles Community Colleges district enacted the first community college PLA in the state.^{lxi} When the College of Marin PLA was signed, 7 out of the 11 community college PLAs in the state included student hire programs.

Bidding, Construction, Results

Between 2008 and 2015 seven new buildings were constructed at the College of Marin. The Performing Arts Building, the Fine Arts Building, Diamond Physical Education Center, and the

⁴ The figure 65,000 union members comes from a compilation of data on the website Unionfacts.com. For some union locals, we could not find a membership number.

Transportation Technology Complex were built first. These were the smallest of the seven projects, and these did not use a PLA. Construction followed on the Main Building Complex, the Science/Math/Central Plant Project, and the Academic Center, all of which were built under the PLA. All projects achieved LEED Gold Certification except for the Physical Education Center, which achieved LEED Silver Certification.^{lxii}

All seven new buildings were finished on time. Common delays, unrelated to labor, occurred on all projects during construction. Environmental testing was time-consuming. Indian artifacts were found on some sites requiring site survey. In winter months, weather issues in other states delayed arrival of materials. On one project, a labor dispute occurred. The project, the Science/Math/Central Plant Project, was being built under a PLA. The grievance procedure laid out in the PLA was triggered, and the dispute was promptly resolved. The dispute was not an indication of broader unrest on the project. A study of the first two PLA projects by Dannis Woliver Kelley Attorneys at Law concluded, “the two PSA projects had fewer problems than some non-PSA projects.”^{lxiii}

Initially, each project was also completed under budget. However, alterations following completion of two projects imposed cost overruns leading to final amounts that exceeded their original budgets. These two projects were the Performing Arts building and the Fine Arts building. These were nonPLA projects built by non-union contractors. However, it appears the cost overruns were unrelated to construction. Rather, architectural design errors caused costly building alterations. These two facilities had a number of issues. For one, an outdoor walkway pooled excessive rainwater during wet months. In addition, these two buildings had issues with ventilation, fire code compliance, and mold. The College of Marin filed two lawsuits against the firm Marcy Wong Donn Logan Architects for design flaws, which the College alleged cost close to \$2million in repairs.^{lxiv}

In addition to time and budget matters, the PLA projects delivered on their aim to offer College of Marin students construction training opportunities. Five College of Marin students were hired on PLA projects to participate in construction. Each student was hired and trained by a different trade. Sheet metal workers, carpenters, electrical workers, laborers, and plumbers each hired a College of Marin student to participate in modernizing the College. One student, Julian Stone, wrote a letter to the Board of Trustees encouraging continued PLA use. In his letter he wrote:

“The PLA that was a part of the new math and science building at the College of Marin changed my life in the best way possible.... My whole life I’ve wanted to be a carpenter, and after trying countless times to get my foot in the door I was quite discouraged. The PLA project gave me the opportunity I needed to get my life together and going in the right direction”^{lxv}

The value of registered apprenticeship training to young people such as Julian Stone is substantial. A 2012 Mathematica study for the US Labor Department concluded:

RA [registered apprenticeship] is designed to improve the productivity of apprentices through on-the-job training and related technical instruction. We assessed RA effectiveness by comparing the earnings of RA participants to those of nonparticipants, adjusting for differences in pre-enrollment earnings and demographic characteristics. We found that RA participation was associated with substantially higher annual earnings in every state studied....For RA participants who completed their program, the estimated career earnings are an average of \$240,037 more than similar nonparticipants.^{lxvi}

In addition to hiring student workers, the PLA projects also complied with the stipulation encouraging the hire of local workers. The Marin County Building Trades unions that signed the PLA gave preference to members who lived in Marin for dispatch on the College of Marin projects.

Bidding on College of Marin Projects

The Pattern of Bidding.

Twenty-nine contractors bid on College of Marin projects. We have been able to determine the company location of 27 of those contractors. Table 1 shows summary information on how contractors bid on College of Marin projects.

Table 1: Summary bid information by contractor for College of Marin projects

Contractor	Project			Percent Won		Contractor Location
	nonPLA	PLA	Total	nonPLA	PLA	
Alten Construction	4	2	6	75%	0%	Richmond
Arntz Builders	3	1	4	0%	0%	Novato
Di Giorgio Contracting	3	1	4	0%	100%	Novato
Jeff Luchetti Construction	3	1	4	0%	0%	Santa Rosa
Midstate Construction	3	1	4	33%	0%	Petaluma
Lathrop Construction	1	2	3	0%	50%	Benicia
Roebbelen Construction	.	3	3	.	0%	El Dorado Hills
SJ Amoroso	.	3	3	.	0%	Redwood Shores
West Bay Builders	3	.	3	0%	.	Novato
Wright Contracting	1	2	3	0%	50%	Santa Rosa
Bobo Construction	2	.	2	0%	.	Elk Grove
C Overaa Construction	1	1	2	0%	0%	Richmond
Gonsalves & Stronck	1	1	2	0%	0%	San Carlos
JW & Sons	1	1	2	0%	0%	Petaluma
Biltwell Dev	1	.	1	0%	.	San Francisco
Codding Construction	1	.	1	0%	.	Santa Rosa
Howard S Wright Constructors	.	1	1	.	0%	Emeryville
McCarthy Building Companies	.	1	1	.	0%	San Francisco
McCrary Construction	1	.	1	0%	.	Belmont
Menghetti Construction	1	.	1	0%	.	Modesto
NBC General Contractors Corp.	1	.	1	0%	.	Oakland
PAGE Construction	1	.	1	0%	.	Novato
ProWest Construction	.	1	1	.	0%	
R Debbelen	1	.	1	0%	.	
Ralph Larsen & Sons	1	.	1	0%	.	San Mateo
West Coast Contractors	1	.	1	0%	.	Fairfield
Younger General Contractors	1	.	1	0%	.	Rancho Cordova

ZCON Builders	1	.	1	0%	.	Roseville
Zolman Construction	1	.	1	0%	.	San Carlos
Total	38	22	60	11%	14%	

Fifteen contractors bid only once on the College of Marin projects in our study. Of all the nonPLA projects, 32% of the bids came from one-time-bidders while 14% of the PLA project bids came from one-time-bidders. None of the one-time bidders won a project.

Four contractors bid on two College of Marin projects. Three of these two-time-bidders bid both on a PLA and a nonPLA project; one two-time-contractor just bid on nonPLA projects. All the two-time-bidders failed to win any of the projects.

Five contractors bid three times on College of Marin projects. Two of these three-time-bidders bid on both PLA and nonPLA projects while two just bid on PLA projects and one just bid on nonPLA projects. Wright Contracting and Lathrop Construction were the two that bid on both PLA and nonPLA projects in this group, and both won one of the PLA projects. The other three contractors all lost on all three of their bids.

Four contractors bid four times on College of Marin projects. They all bid on both types of projects. Midstate Construction won one of the nonPLA projects while Di Giorgio won one of the PLA projects.

Alten Construction bid on 6 of the 7 College of Marin projects and won three of the four nonPLA projects. Alten bid on two of the three PLA projects, coming in sixth (out of 8) on the Indian Valley Complex and third (out of 6) on the Gateway Center.

Contractors had an 11% chance of winning a nonPLA project (4/38) and a 14% chance of winning a PLA project (3/22). The winning contractors on the nonPLA projects came from Richmond and Petaluma while the winning PLA contractors came from Benecia, Santa Rosa and San Carlos.

With this pattern in mind, we ask two questions: where did the bidding contractors come from and what was the relationship between the winning bids and the engineer's estimates on the projects they won?

Where Bidders Came From

Table 2 shows that four contractors bidding on 10 nonPLA projects and 2 PLA projects came from Novato winning one PLA bid. Three contractors came from Santa Rosa, providing 5 nonPLA and 3 PLA bids and winning one PLA project. Two contractors came from Petaluma providing 4 nonPLA and 2 PLA bids and winning one nonPLA project. Two contractors came from Richmond providing 5 nonPLA and 3 PLA bids and winning 3 of their 5 nonPLA bids. Two contractors came from San Carlos providing 2 nonPLA and 1 PLA bid but winning no bids. Two contractors came from San Francisco providing 1 nonPLA and 1 PLA bid, but these two contractors lost their bids. Twelve additional contractors from 12 different cities also provided bids—10 nonPLA bids and 9 PLA bids. Only 1 of these 19 bids won—Lathrop Construction from Benecia won one of the PLA projects.

Table 2: Towns from which bidding contractors came, bids by town and percent won by town and PLA/nonPLA

Location	Contractors	Bids			Percent Bids Won		
		nonPLA	PLA	Total	nonPLA	PLA	Total
Novato	4	10	2	12	0%	50%	8%
Santa Rosa	3	5	3	8	0%	33%	13%
Petaluma	2	4	2	6	25%	0%	17%
Richmond	2	5	3	8	60%	0%	38%
San Carlos	2	2	1	3	0%	0%	0%
San Francisco	2	1	1	2	0%	0%	0%
Belmont	1	1	.	1	0%	.	0%
Benicia	1	1	2	3	0%	50%	33%
El Dorado Hills	1	.	3	3	.	0%	0%
Elk Grove	1	2	.	2	0%	.	0%
Emeryville	1	.	1	1	.	0%	0%
Fairfield	1	1	.	1	0%	.	0%
Modesto	1	1	.	1	0%	.	0%
Oakland	1	1	.	1	0%	.	0%
Rancho Cordova	1	1	.	1	0%	.	0%
Redwood Shores	1	.	3	3	.	0%	0%
Roseville	1	1	.	1	0%	.	0%
San Mateo	1	1	.	1	0%	.	0%
Total	27	37	21	58	11%	14%	12%

Figure 7 shows how far, on average, contractors were located from the College of Marin Kentfield Campus by the percent of the contractor's bids that were allocated to PLA projects. Also each bar in Figure 7 at bottom shows the number of bids for each category. On average, those contractors who bid only on nonPLA projects were 51 miles from the College of Marin Kentfield Campus. But those contractors that bid one-quarter of the time on PLA projects and three-quarters of the time on nonPLA projects were, on average, located 24 miles from the Kentfield Campus. Those contractors who bid one-third of the time on PLA projects were located in Richmond, 13 miles from the PLA campus. These were the closest contractors to the project. Those contractors that bid half the time on PLA projects were, on average, located 26 miles from the Kentfield Campus. Those who bid two-thirds of the time on PLAs were located 35 miles from Kentfield and those who bid only on PLA were 63 miles from Kentfield.

This "U" shaped relationship seems to reflect that those contractors interested only in bidding on nonPLAs or PLAs were willing to look far off for such projects while those interested in College of Marin projects, regardless of whether they were PLAs or not, were located closer to the Kentfield Campus in the first place.

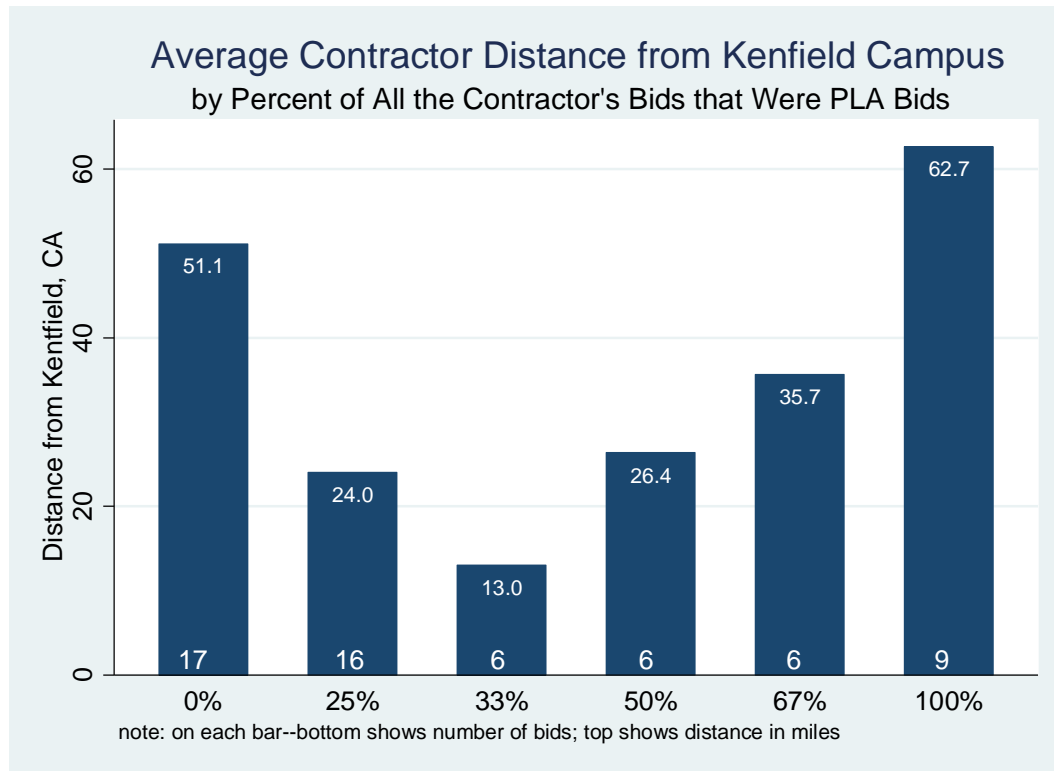


Figure 7: Contractor distance from Kentfield Campus by percent of all of that contractor's bids that were PLA bids

This conclusion is supported in Figure 8 which shows that those contractors that bid on four or more of the College of Marin projects, on average, were located, on average, about 21 miles from the Kentfield Campus regardless of whether they bid on PLA or nonPLA projects. Those contractors who bid on 3 or fewer projects were located 46 to 48 mile from the Campus regardless of whether it was a PLA or not. Our conclusion is that nearby contractors interested in College of Marin projects were neither attracted nor repelled by PLA provisions.

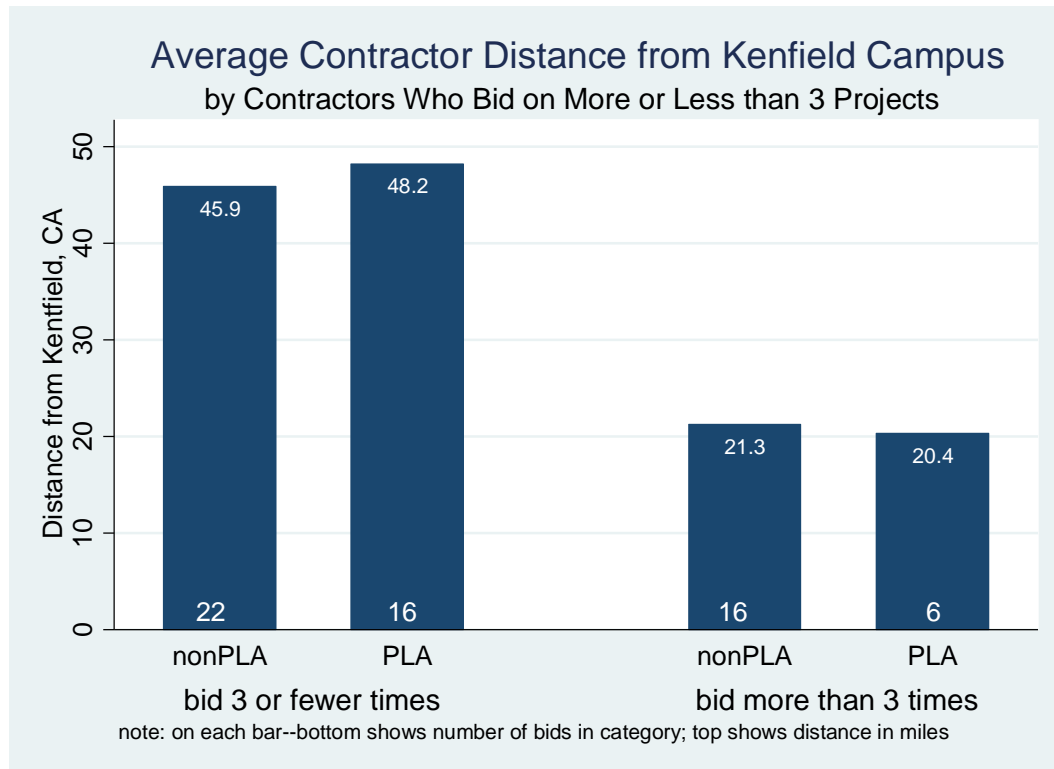


Figure 8: Contractor distance from Kenfield Campus by whether the contractor bid on 3 or fewer projects or more than three projects by PLA and nonPLA projects Relationship between Bids and Engineer's Estimate

Table 3 shows each College of Marin bid result for the four nonPLA and three PLA projects.

Table 3: Each bid result by nonPLA and PLA projects

nonPLA Projects	Diamond PE Complex	Fine Arts Center at Kentfield	Performing Arts Center	Transportation Technology Center
year	2008	2009	2011	2009
bids	9	12	9	8
lowest bid	\$10,396,307	\$11,872,601	\$10,217,000	\$6,895,000
engineer's estimate	\$15,500,000	\$13,400,000	\$11,700,000	\$9,285,000
lowest bid as a percent of Eng. Est.	67%	89%	87%	74%
PLA Projects	Gateway/New Academic Center	Indian Valley Campus Main Complex	Science Mathematics Central Plant Complex	
year	2013	2008	2010	
bids	7	8	7	
lowest bid	\$18,995,000	\$13,350,000	\$34,040,000	
engineer's estimate	\$24,000,000	\$15,700,000	\$48,341,000	
lowest bid as a percent of Eng. Est.	79%	85%	70%	

In all cases, the lowest bid came in under the engineer's estimate. This may, in part, be due to some of the bidding held in 2008 and particularly in 2009 when the US and California construction industries were in the grip of the Great Recession. We will explore this issue below in the statistical analysis section of this study. Also, engineer's estimates typically are somewhat above the eventual lowest bid, due, in part, to price inflation between the time the engineer's estimate is calculated and the time the project is bid. Also, engineer estimates tend to be more conservative relative to the eventual low-bid with engineers not wanting a project to go ahead based on an unrealistically low estimate. Low-bids, almost by definition, tend to be more aggressive being the lowest among estimates from a set of contractors bidding on the project. So while an engineer's estimate certainly can come in lower than all the bids on a project, typically the engineer's estimate is above the low-bid.

Table 4 shows that for the four nonPLA College of Marin projects, the sum of the lowest bids was \$38 million or about \$10 million per project. The sum of the engineer's estimates for these four projects was \$50 million or about \$12.25 million per project. The average number of bidders was 9.5 per project, and the average project came in at 79% of the engineer's estimate.

In the case of the 3 PLA projects, the sum of the lowest bids was \$66 million or about \$22 million per project. The sum of the engineer's estimates for these three projects was \$88 million or about \$29 million per project. The average number of bidders was 7.3 per project and the average project came in at 75% of the engineer's estimate.

Note that while the PLA projects, on average, received 2 fewer bidders on each project, the lowest bid on the PLA projects was a bit lower relative to the engineer's estimate compared to the nonPLA projects. The PLA projects were, on average, a bit more than twice as large as the nonPLA projects. Larger projects tend to eliminate some contractors who do not have the scale of business to bond and manage larger projects. The larger size of the PLA projects may help account for the fact that on these projects fewer bids did not mean a higher price relative to the engineer's estimate.

Larger projects with fewer bidders can be very competitive bidding environments. When contractors bid on a project, they consider not only the number of competing bidders, but also the opportunity cost to them of losing the bid. The greater value of a larger project justifies contractors investing more in the estimation of their bids which helps them shave their bids towards the true cost of the project. A larger project, being worth more than a smaller project, motivates contractors to reduce their percentage markups for the sake of the absolute value of profit derived from a large project. Larger projects also last longer which allows contractors to reduce their price based on the benefits to them of staying busy for a longer period of time. Finally, the difference between 7 and 9 bidders on a project is not as important as say the difference between 2 and 4 bidders. An old saying in the construction industry is that for the sake of competition, the most important contractor is the second bidder. The additional competitive impact of additional bidding contractors diminishes with each new contractor that enters the bidding. So, it appears that in the case of the College of Marin, the average loss of 2 bidders from 9 on their nonPLA projects to 7 on their PLA projects did not adversely affect the PLA bid competition compared to the nonPLA bidding.

Table 4: College of Marin summary statistics for 4 nonPLA and 3 PLA

	4 nonPLA	3 PLA Projects
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	Projects	
sum of lowest bids	\$39,380,908	\$66,385,000
sum of engineer's estimate	\$49,885,000	\$88,041,000
average number of bidders	9.5	7.3
lowest bid as a percent of Eng. Est.	79%	75%

The Relationship Between the Engineer's Estimate and The Lowest Bid

Figure 9 shows the engineer's estimate relative to the eventual lowest bid for the 7 College of Marin projects. The straight line in the Figure marks the hypothetical points where the engineer's estimate would be exactly equal to the lowest bid. In every case, the actual lowest bid comes in below the engineer's estimate as measured by the vertical distance between each project marker and the straight line.

For each project, the number of bids on that project is shown next to the project marker. The largest nonPLA project and the smallest PLA project had 9 and 8 bidders respectively. The two larger PLA projects had 7 bidders each and the three smaller nonPLA projects had 8, 9 and 12 bidders.

There is no evidence here of insufficient bidders for these projects. In dollar terms, the lowest bid comes in ever lower than the engineer's estimate as the project size rises while in percentage terms, the smallest nonPLA project and the largest PLA project came in the furthest from the engineer's estimate, 67% and 70% respectively (see Table 3).

Thus, in general, the beneficial effects of the slightly higher number of bidders found on the 4 College of Marin nonPLA projects were offset by the beneficial effects of the PLA projects being larger and more valuable to potential bidders. The result was similar competitive results comparing the 4 nonPLA projects to the 3 PLA projects using the engineer's estimate for each project as a benchmark.

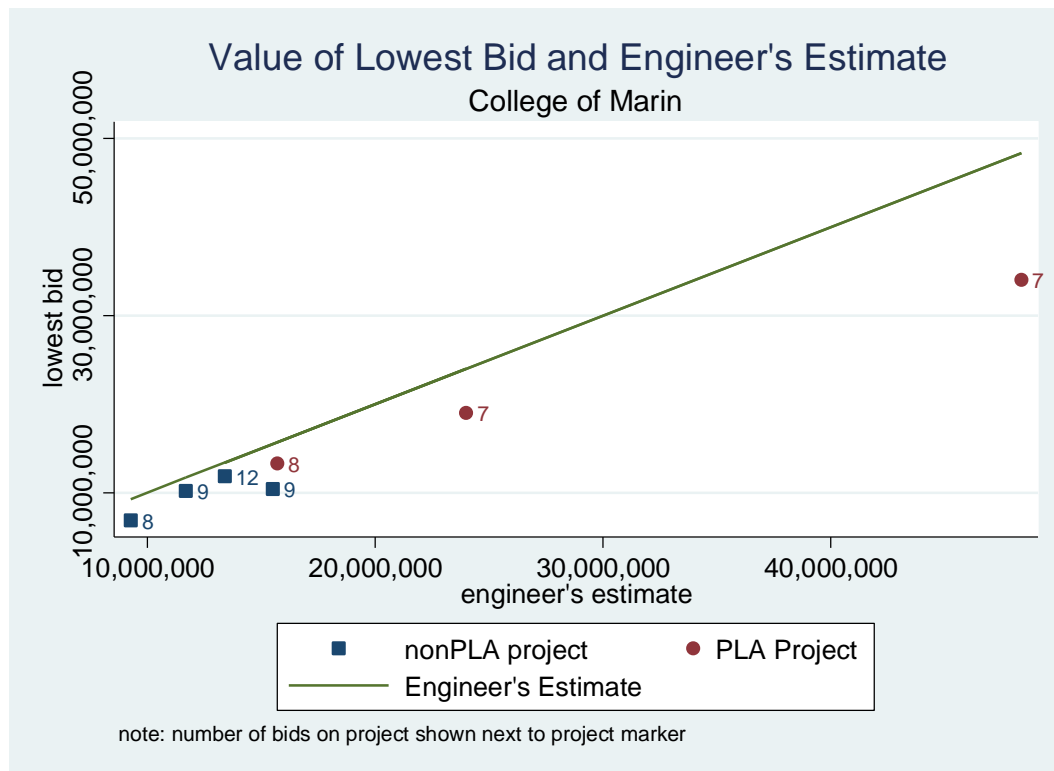


Figure 9: Engineer's estimate and lowest bid on 4 nonPLA and 3 PLA projects with straight line showing where engineer's estimate would exactly equal the lowest bid (number of bids shown beside the project marker)

Aftermath and Future Course

Following the use of a PLA at the College of Marin, a second public works PLA was passed in Marin County. In June 2013, the Marin Healthcare District adopted a PLA for the Marin General Hospital Replacement Building Project. Construction on the \$394million renovation project began in 2015.^{lxvii}

The College of Marin completed the major renovation projects funded by the Bond measure passed in 2004. In 2016, voters approved a second bond measure for \$265million to continue modernizing the campus. Bond Measure B received 62.9% approval.^{lxviii}

While the college continues to address the issue of outdated facilities, the issue of enrollment still stands. Enrollment at the College of Marin was on the rise between 2007 and 2010, the same years the first modernization projects were completed.^{lxix} However, numbers swiftly returned to their downward trend. One factor may have been the expansion of the Santa Rosa Jr. College campus in nearby Petaluma in 2008. As such, many College of Marin facilities, particularly on the Indian Valley Campus, continue to be underutilized. A recent report concluded Marin should downsize the Campus. The report reads, "Although the campus was designed for an enrollment of 5,000, the Spring 2015 enrollment was 1,142.... Failing planned productive use, IVC facilities should be considered for demolition to avoid unproductive use of maintenance funds."^{lxx} Nevertheless, the college plans to use a portion of the recently approved measure B funds for continued renovation at the Indian Valley Campus. An Organic Farm and a Pool Building are just a couple projects in the works.^{lxxi}

Statistical Analysis of 263 Community College Construction Projects

We supplement our case study of the College of Marin with a statistical analysis of 263 bid openings for community college projects built in California, primarily Northern California, from 2007 to 2016. We will ask two questions of the data: first, did the one-third of our sample which were bid openings governed by PLAs attract fewer bidders than the two-thirds of the bid openings in our sample that were not covered by PLAs? In asking this question, we will control for how large the project was, and when and where it was put out to bid. Second, in a subset of our sample (105 projects) for which engineer's estimates were available, controlling for when and where the project was built, and how large the project was, did PLAs mean that the low bid came in higher relative to the engineer's estimate compared to nonPLA projects? These two questions speak to the contention that PLAs limit competition and increase costs.

Description of Data

We obtained public records for 15 of the 26 community college PLAs signed since 2001 covering projects bid between 2007 and the first half of 2016. The 11 missing PLAs either had insufficient or no public bidding data available for analysis. We also collected information from these community colleges for projects built at the same time but not under PLAs.

We examined 263 projects. Figure 10 shows that one third or 88 of these projects were governed by project labor agreements while two thirds or 175 of these projects were not PLAs.

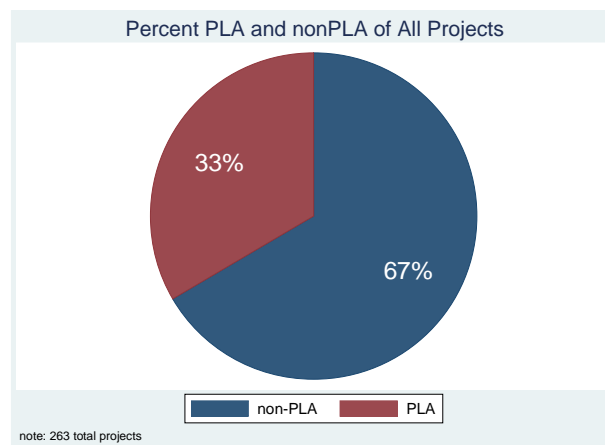


Figure 10: Distribution of projects by PLA and nonPLA status

Figure 11 (left panel) shows the distribution of the lowest bid on each project by PLA/nonPLA status. In this “box-and-whiskers” graph, the box contains 50% of all the projects. The “whiskers” contain almost all the remaining projects. However, a handful of extremely large projects are omitted from the graph to enhance visual comparisons. These excluded projects are included in our subsequent statistical analysis.

In general, PLA projects were larger than nonPLA projects as measured by the lowest bid. There are several reasons for this. The primary reason is that PLAs are concessionary contracts with no-strike pledges, modified grievance procedures, potential concessions on work rules and potential sweeteners such as student-hire. In order for unions to be willing to 1) bargain as a group and 2) provide concessions, the work on offer to be governed by a

PLA needs to be substantial. Thus, larger projects are more attractive to unions when considering a PLA. From an owner's perspective, larger projects may motivate them to consider a PLA in order to assure themselves of a reliable supply of qualified labor.

However, not all PLA projects are large. If smaller projects are part of a set that add up to an attractive bundle, this may motivate unions to engage in the concessionary bargaining inherent in a PLA. (It should be noted, though that on prevailing wage jobs, wages and benefits including overtime provisions are governed by wage proclamations, and are not subject of concessionary bargaining.)

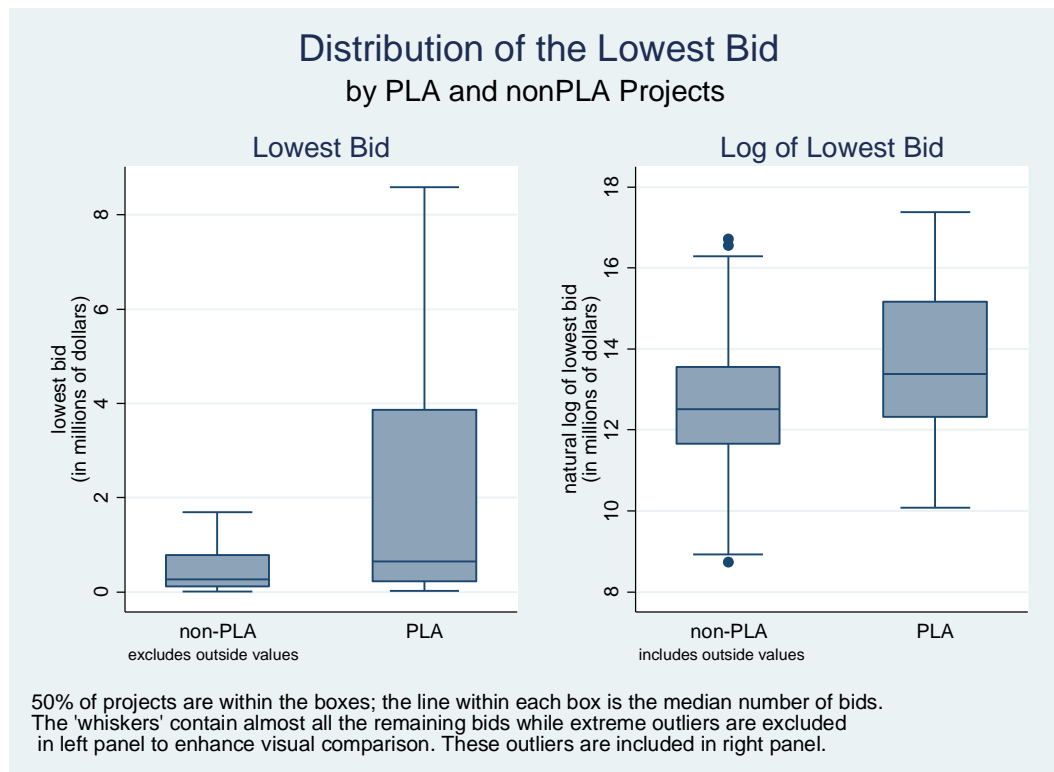
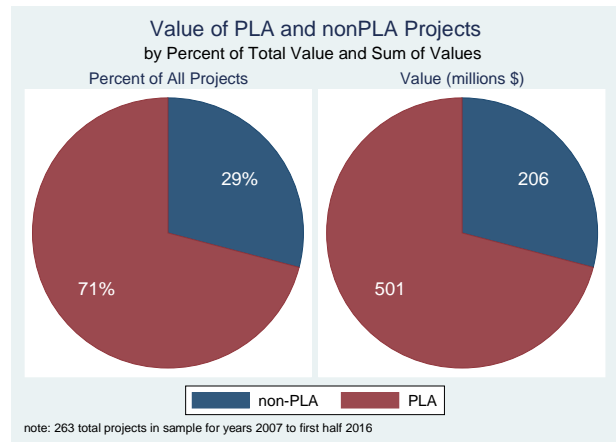


Figure 11: Distribution of lowest bid on projects by PLA and nonPLA status

In the right-hand panel of Figure 11, we transform the value of the lowest bid into its natural log. This arithmetical transformation allows for a more balanced picture of the highs and lows of each distribution and permits viewing the extreme values. Because these more “balanced” distributions have some convenient statistical properties, in some analysis, we will use not only the value of the lowest bid to measure the size of projects, but also the log of the value of the lowest bid.

The horizontal line within each box is the median value of the lowest bid (or log of the lowest bid). The median is the midpoint low-bid with 50% of the projects being larger and 50% of the projects being smaller than the median project price. In our sample, the median nonPLA project received a low bid of \$273,740 while the median PLA project received a low bid of \$669,165. In the right-hand panels, the horizontal lines represent the log of \$273,740 or 12.52 and the log of \$669,165 or 13.41.

Because PLA projects, on average, are larger than nonPLA projects, the relative importance of project labor agreements in dollar terms shown in Figure 12, reverses what we saw in Figure 10 when we simply counted up projects by PLA and nonPLA status. While PLAs in our sample account for one-third of all projects (Figure 10), PLAs account for more than two-thirds of the value all projects in our sample. (Figure 12) The 88 PLAs in our project had a sum value of \$501 million while the 175 nonPLA projects had a sum value of \$206 million.



The construction of community college projects within our sample vary by year. There is a general increase in projects over time with a dip in 2011 and 2012. Figure 13 shows that 6% of all the projects in our sample were bid in 2007 compared to 20% in 2014 and 20% in 2015. While there was a steady increase in work bid from 2007 to 2010 from 6% of all projects to 10% of all projects, in 2011 and 2012, just 3% of the projects in our sample were put to bid. However, the pace of expansion resumed in 2013 with 15% of all projects let out to bid in that year. Our data for 2016 are incomplete and cover just the first half of this last year in our sample.

Figure 12: Value of PLA and nonPLA projects in sample by percentage of total value and sum of value (in millions of dollars)

Figure 14 shows the percent distribution of

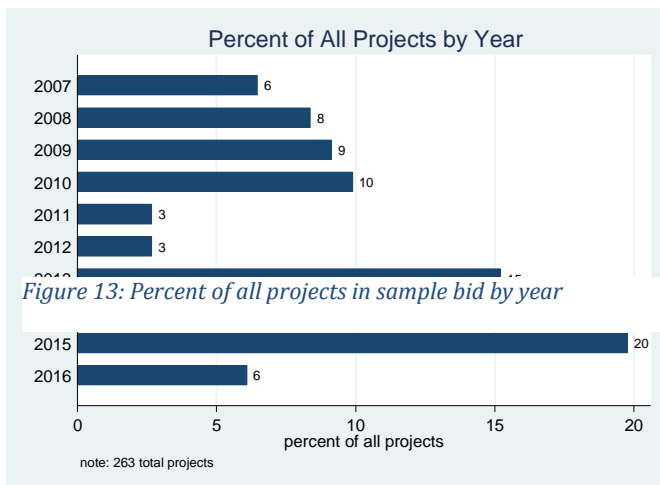


Figure 13: Percent of all projects in sample bid by year

projects among the 10 community college districts in our sample. In terms of the number of projects put to bid, half of the bid openings were in Peralta and Chabot-Las Positas community college districts.

We control for four sets of issues that also may affect the number of bidders on a project. These control factors include: 1) the size of the project, 2) the year the project was put out for bid, 3) the month the project was put out for bid, and 4) the community college district that let the project. The year variables control for both the effects of inflation/deflation in general and the Great Recession specifically. We will discuss each of these control variables first, and then look at whether the PLA status of the project also affects the number of bidders.

Size of Project

In general, larger projects are more attractive to contractors compared to ones for at least three reasons. First, there are both fixed and variable estimation costs that must be invested in order to bid on a project. The fixed estimation costs can be more easily spread across a larger project compared to a smaller one. Second, contractor downtime is a major risk in the turbulent construction industry. Idle equipment and idle workers impose costs that can be avoided, at least temporarily, on larger projects which promise to provide work for the contractor over a longer period of time. Third, for a fixed markup, larger projects provide a larger absolute profit. While contractors may shave their markups more to win larger projects, even discounted markups on a larger project is likely to yield a higher absolute profit.

Despite the attraction of larger projects, very large projects discourage bidders for at least two reasons. First, many contractors do not have bonding capacity to handle larger projects, and thus cannot bid. Second, the risk of failure-to-perform on a large project can put the contractor's entire business at risk. Thus, when a project is large enough to put a contractor's business on-the-line, some contractors will shy away from that opportunity. So we expect that as projects go from smaller to larger, more contractors will bid on these larger projects. But as projects get even larger, we expect fewer contractors will bid on these very large projects. We need to control for this factor, in part, because PLA projects sometimes are quite large, and in our sample, PLA projects tend to be larger than nonPLA projects. (See Figure 11) We will want to separate out the potential PLA effect on the number of bidders from the project size effect.

We do this by entering into the models the value of the lowest bid and the value of the lowest bid squared. Our expectation is that in the regressions the value of the lowest bid will be positive reflecting the hypothesis that larger projects attract more bidders. But we also expect the square of the value of the lowest bid will be negative reflecting the hypothesis that ever larger projects eventually will discourage contractors from bidding. So we expect there will be a tug-of-war between the value of the lowest bid and the value of the lowest bid squared in predicting the number of bidders on a project.⁶

⁶ This is a flexible method for modeling the project size effect allowing for the squared term to be small and statistically insignificant if the size effect is linear and permitting the squared to capture the size effect if it is nonlinear.

Figure 15 shows what we found in model 1 in Table 5. From projects with a low-bid of less than \$1 to up to \$50 million, holding other factors constant, the model predicts that the typical number of bidders will rise from around 5 to 7 contractors. But as the projects get really large, up to \$100 million, the number of bidders falls back down to about 5.5 contractors. In model 2 (not graphically shown) we get similar results where the predicted number of bidders on small projects is about 4, it rises to a peak of about 6 and then for really large projects falls back down again to about 4.2 contractors.

This is an important first step in testing whether PLAs restrict the number of bidders because now the models have an understanding of how many bidders to expect just based on the size of the project.

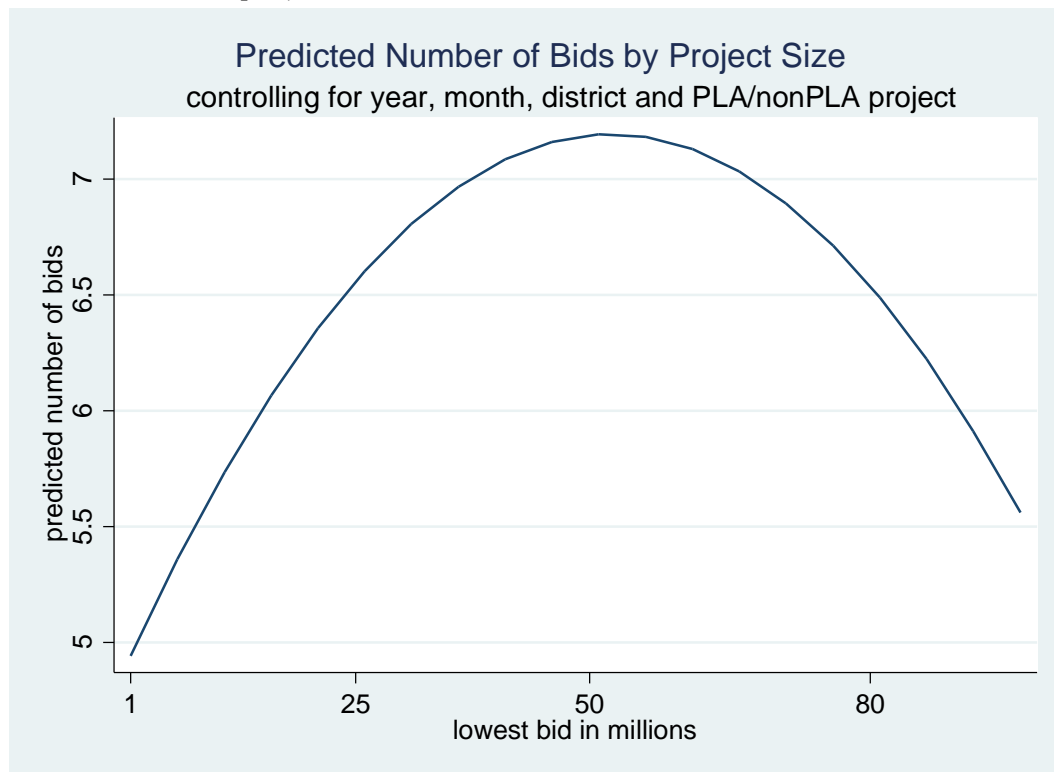


Figure 15: Predicting the number of bidders based on the size of the project

Year Project Was Let to Bid

But project size is not the only determinant of how many contractors will be willing to bid on a project. It also depends upon how busy contractors are on other projects and what alternatives contractors have compared to the project at hand. This is partly determined by the construction business cycle.

The construction industry is notoriously turbulent. For instance, at the depth of the Great Recession in 2009, while the overall economy had lost 6% of all jobs, the US construction industry lost 30% of all its jobs. These booms and busts of the construction business cycle affect contractor interest in specific bid openings.

During the downturn, when prospective project opportunities are scarce, contractors crowd into the limited available opportunities increasing the number of bidders on these relatively few projects. On the other hand, during the boom, when most contractors are busy, fewer contractors will be available for any specific new project that comes on-line decreasing the number of bidders on that project.

Our sample of projects hit bottom after the overall crash in California construction during the Great Recession. Figure 13 (above) shows that new community college projects in our sample collapsed 2011 and 2012. But the overall construction market hit bottom in 2009. This was when alternatives to the available community college projects were slim. So, all other things being equal, 2009 is when we would expect there to be more bidders crowding into these public works opportunities.

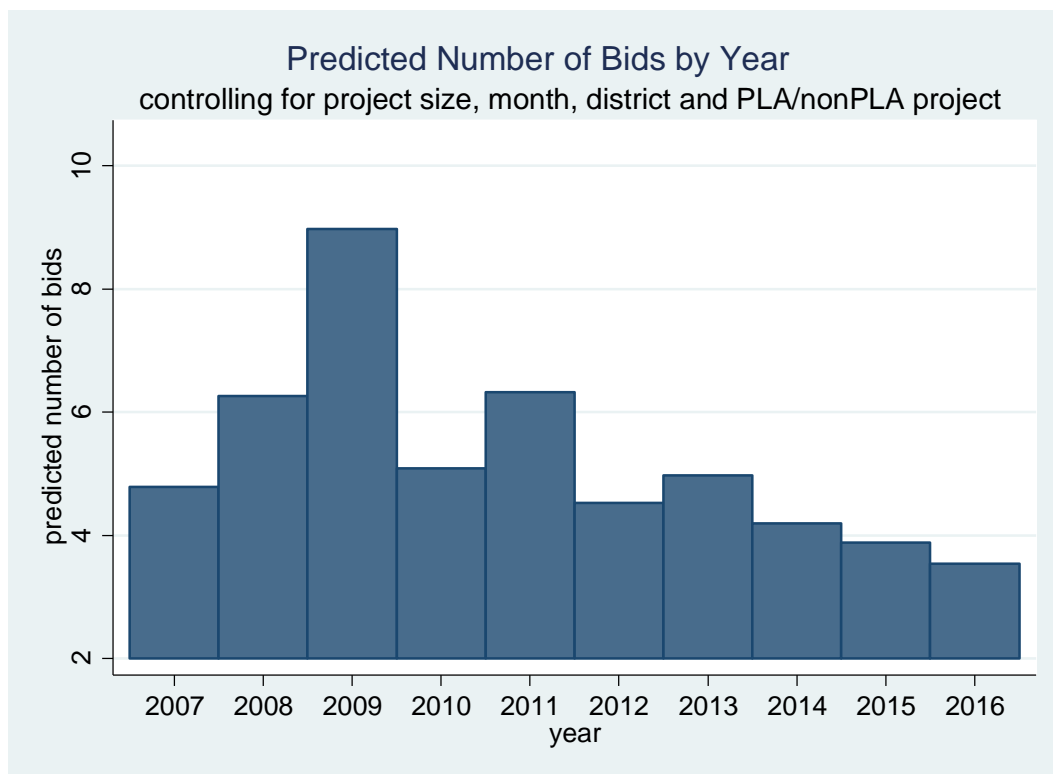


Figure 16: Predicted number of bidders based on the year when the project was let

Figure 16 shows the model 1 predictions for the number of contractors by year when the project was put out for bid. California construction employment peaked in 2006 and began declining in 2007 with the downturn bottoming out in 2009. The California construction economy, particularly in the Bay Area has improved since 2009 and in some areas has surpassed its previous peak.^{lxxii} The model predicts that at the business cycle bottom, the number of bidders on projects rises substantially. Compared to 2014-15 where the model expects, all other things being equal, for there to be about 4 bidders on each project, in 2009, model 1 expects almost 9 contractors bidding on each community college project.

Model 2 has similar results for 2009 expect 9.2 contractors per bid opening compared to only about 3 contractors bidding on each project in 2014-15.

Thus, the year in which a project is let is an important consideration to keep in mind when analyzing the effect of PLA provisions on bid participation.

Month the Project Was Let to Bid

Construction is a chronically turbulent industry in the grip of seasonal as well as cyclical ups and downs. The seasonal cycle is primarily driven by weather but also driven by owner requirements such as schools trying to focus their construction work in the summer educational down season. Knowing this, contractors seek to bid on projects in the spring in order to line up work in the summer. In the slack season of winter, contractors may be idle and more willing to bid on whatever projects become available. Thus, we hypothesize in the model that there will be a seasonal pattern with more bidders in the slack season lining up work and fewer bidders in the summer season when contractors are already busy.

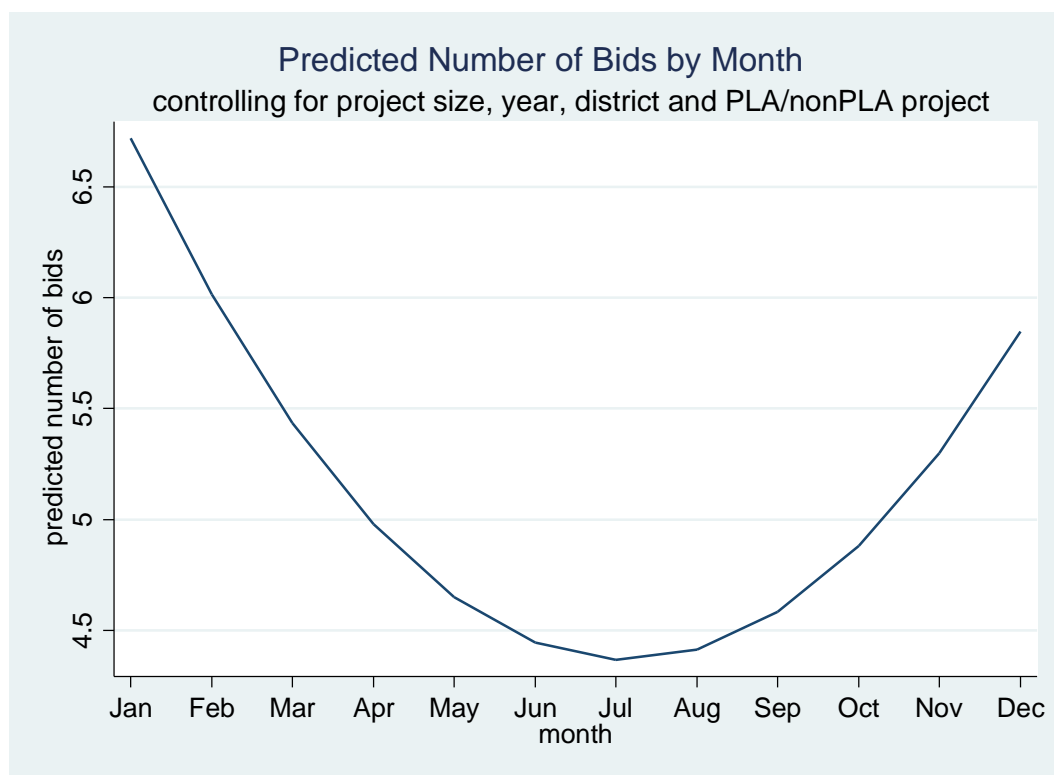


Figure 17: Predicted number of bidders based on the month the bid was opened

Figure 17 shows the results from model 1 in Table 5. There is a clear seasonal swing in the expected number of bidders based on the month the bid was let. In January, all other things being equal, owners can expect about 6.5 contractors bidding on their projects. In July, this expectation falls to 4.5 contractors only to rise back up to about 6 contractors per bid opening in December. Model 2 (not graphically shown) shows a similar swing from 5 expected bidders in January to 3.7 in July to 4.6 in December.

So again, keeping in mind the seasonal and cyclical patterns of bidding is an important precondition for testing the effects of PLAs on bidding behavior.⁷

The Effect of Location on Bids

Bidding behavior is influenced by the location of a project for at least two reasons. First, like politics, all construction is local with some areas having a dense community of contractors and other areas having a sparse population of contractors. Construction workers may travel long distances for work and contractors may even willingly go farther. But when you do not have to travel and there are plenty of contractors in your area, all other things being equal, you will have more contractors bidding on a project. Second, owners affect the number of bidders on a project in at least two ways. First, some owners pre-qualify contractors in order to allow them to bid on a project. The goal of pre-qualification is to insure that contractors bidding on a project can do the work. Prequalification may reduce the number of bidders on a project simply by excluding less qualified or unqualified contractors. Second, while some owners issue single prime contracts for their projects, others break up their projects into components and issue multiple prime contracts. In the latter case, subcontractors who would bid to a general now bid to the owner. This alters the community of contractors that will consider bidding on a project and may alter the number of bidders one can expect to participate.

In both models 1 and 2, we enter variables indicating in which community college district the project is built. We have no apriori expectation regarding where there would be more bidders, all other things being equal. Relative to Chabor Las-Positas, our reference district in the models, the striking result is that model 2 expects that Rio Hondo will have 3.4 more contractors bidding on their project while model 1 expects a whopping 8 more bidders on Rio Hondo projects. This result is probably an artifact of small sample size. Figure 14 shows that Rio Hondo has the fewest projects (3) of any district within our sample.

Contractor community density, owner bidding policies and other location specific factors can influence contractor bid participation. The joint effect of these locational variables are captured in variables indicating the location of the project. In Table 5, as long as these location factors are relatively constant within each community college district over the period 2007 to 2016, then our indicator variables for the community college districts will absorb those effects allowing us to isolate the specific effect of PLA practices on contractor bid participation.

Project Labor Agreement Effect on Bid Participation

⁷ Substituting quarters for months and repeating the test yields similar results to those reported in both linear and poisson regressions.

Critics of PLAs argue that PLAs reduce contractor bid participation while PLA proponents argue that PLAs may encourage contractors to bid on a project. Thus, statistically we are asking what is called a “two-tailed” test—do PLAs raise bid participation or lower it?

Figure 18 shows the results of model 1 in Table 5. All other things being equal, model 1 expects that there will be almost 5 contractors bidding on nonPLA projects and about 5.3 contractors bidding on PLA projects.

But Figure 18 also includes a plus-or-minus 95% confidence interval around these point estimates. A 95% confidence interval means that if we had 100 randomly drawn samples of data, and we ran this same test again 100 times over these different data sets, we would expect that 95 of the 100 times, our test would find results within the confidence interval shown.

Notice that these two confidence intervals in Figure 18 overlap. So if we redid our sample and derived new estimates, some of the time, the model would expect more bidders on nonPLA projects compared to the PLA projects. What this basically means is that PLA practices do not affect contractor bid participation either way. PLAs neither raise nor lower contractor bid participation, at least in the case of public community college construction in California. Whether this remains true for private sector PLAs or PLAs in non-prevailing-wage-law jurisdictions remains an open question. But we can say, for this type of public construction in this regulatory environment, controlling for other factors that influence contractor bid participation, we find no evidence supporting the assertion that in general, project labor agreements either hinder or encourage contractor bid participation. Similar results are found in model 2 in Table 5.

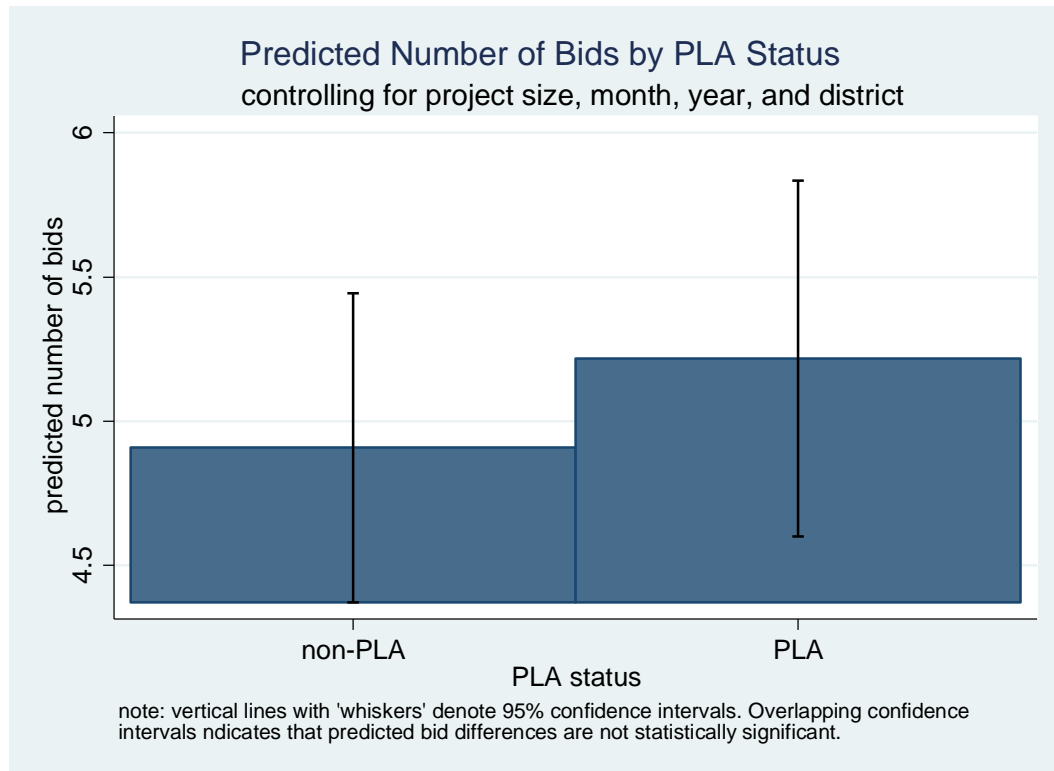


Figure 18: Predicting the effect of PLA provisions on the number of bidders

Regression Model Predicting the PLA Effect on the Lowest Bid

Critics of PLAs argue that project labor agreements may raise costs, primarily because they may reduce the number of bidders and secondarily because they may raise nonunion contractor key-worker benefit costs. Here we test these hypotheses with three nested regression models all of which predict the log of the low bid on a project based on the engineer's estimate and whether or not the project had a PLA. All nesting means here is

that models 1 and 2 in Table 6 are subsets of model 3 using some, but not all, of model 3's control variables.

We have incomplete information in our sample regarding engineer's estimates. This is partly because some projects did not have engineer's estimates and partly because we were unable to find the engineer's estimate for other projects. So out of the 263 projects in the sample, Table 6 reflects tests on a subsample of 105 projects that did have engineer's estimates. We limited the sample to districts that provided engineer's estimates for both PLA and nonPLA projects. (This eliminated 7 projects in districts which had engineer's estimates but only for either PLA projects or nonPLA projects but not both. In unreported models we included these 7 projects deriving results similar to those in Table 6.)

Recall that the left panel in Figure 11 showed that the distribution of lowest bids was "unbalanced" with lots of bids at the low end of the distribution and then a minority of low-bids trailing off toward the high end of the distribution. This skewed distribution became more balanced in the right-hand panel of Figure 11 when the log of the lowest bid was graphed. Having a balanced or more normal distribution for the lowest bid has statistical properties that make for a better test of the effect of various factors including PLAs on the low-bid outcome.

Model 1 in Table 6 is simple. It predicts the log of the lowest bid with the engineer's estimate and whether or not the project was a PLA. We expect the engineer's estimate to be a very good but not perfect predictor of what the low bid will eventually be. In model 1 we actually use the log of the engineer's estimate. Put in this form, the estimated effect of the engineer's estimate is an economy-of-scale effect (or what economists like to call an "elasticity"). In Table 6, model 1, the estimated effect of the log of the engineer's estimate on the log of the lowest bid is .98. what this means is—double the size of the engineer's estimate of the cost of a project, and subsequently the lowest bid will almost but not quite double. It will go up not by 98%. Double the engineer's estimate and the eventual low bid will go up by another 98%. If the engineer's estimate goes up by 10%, you can expect the eventual low bid to go up by 9.8%. This estimate is strongly statistically significant and in unreported experiments with other possible forms of the relationship of the engineer's estimate to the low bid, we found that this economy-of-scale or elasticity relationship was the strongest.

In model 1, the estimate of the effect of PLAs on the lowest bid was .03. This means that controlling for the engineer's estimate, PLAs raised the price of the lowest bid by 3%. This is in line with but at the low-end of what PLA critics argue. However, this effect is not statistically significant. This means that at all standard levels, we must reject the hypothesis that there is a real PLA effect on the low bid. This is in line with the results in Table 5 which failed to find a PLA effect on bidder participation.

But model 1 is a simple model. In model 2, Table 6, we add in the year the project was bid. When we do this, the accuracy of the engineer's estimate improves slightly rising from .98 to .99—raise the engineer's estimate by 10% and the lowest bid will rise by 9.9%. Most of the years were statistically insignificant (the asterisks indicate statistical significance with

more asterisks indicating stronger statistical significance). But one year does stand out—2009. At the bottom of the great recession, controlling for the engineer’s estimate and whether or not the project was a PLA, projects were coming in roughly 25% lower than in 2007—the base or reference year in the model. (The year variables also capture inflationary and deflationary construction cost effects associated with time in general and the Great Recession in particular.)

In model 2, the PLA effect switched from positive to negative—a minus .03. This means that controlling for the engineer’s estimate, PLAs lowered the price of the lowest bid by 3%. But again—no asterisks and no statistical significance for the estimate. This again means that at all standard levels, we must reject the hypothesis that there is a real PLA effect on the low bid.

In model 3, we include location effects: the engineer’s estimate becomes a little more accurate, the 2009 Great Recession effect becomes slightly smaller and the PLA effect is still a minus 3% with no associated statistical significance.

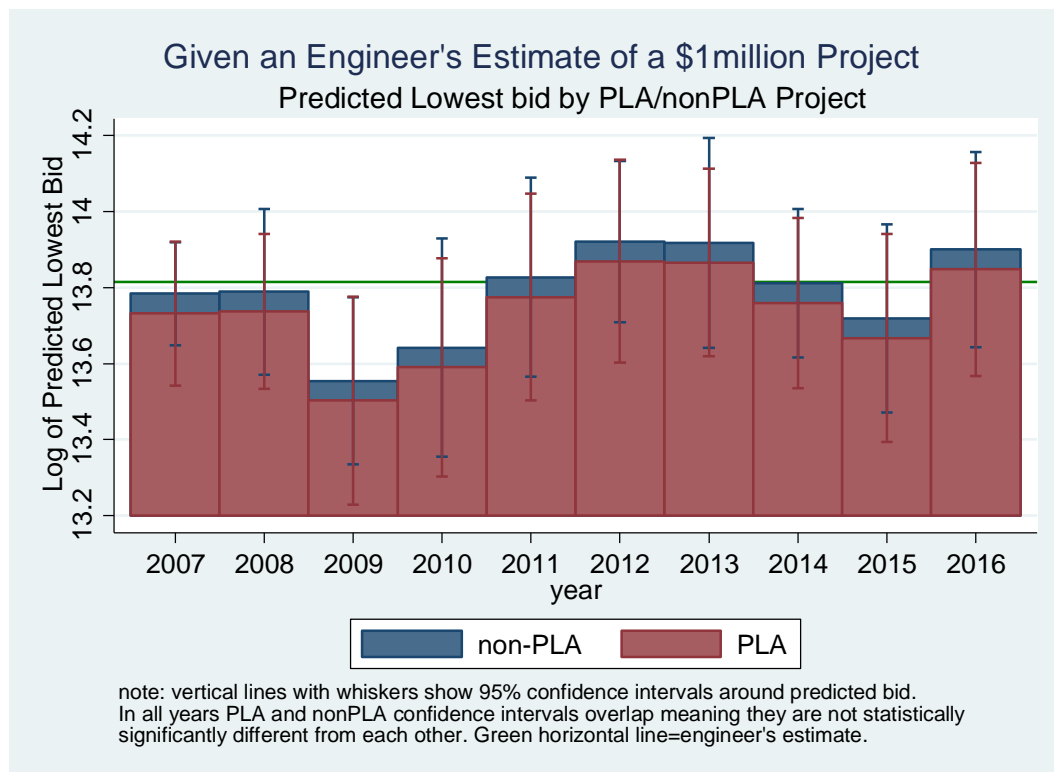


Figure 19: Predicting the value of the lowest bid: model 3

Figure 19 provides a graphical representation of the results in model 3 of Table 6. The horizontal axis shows years and the vertical axis shows the log of the predicted value of the lowest bid. The red bars show the predicted value of the lowest bid by year for PLA projects while the blue bars (which are behind the red bars) show the predicted value of the lowest bid by year for nonPLA projects. The vertical lines with caps show the 95% confidence intervals for the PLA and non PLA projects. These lines overlap in every case

indicating that the PLA and nonPLA project effects on the lowest bid are essentially the same. This set of predictions in Figure 19 are for an engineer's estimate of \$1 million or its equivalent log value of 13.82 shown on the vertical axis as a green horizontal line. In all years except 2009, the 95% confidence interval vertical lines with caps cross the green line. This means for these years we cannot say that bids were coming in statistically significantly below the engineer's estimate. However, in 2009, the 95% confidence intervals for both PLA and nonPLA projects are below the engineer's estimate indicating that in that year bids were coming in significantly (and substantially) below what one would expect from an engineer's estimate of \$1 million for the project.

We conclude that in the case of project labor agreements on community college projects in prevailing wage jurisdictions such as California, there is no statistically significant PLA effect on the lowest bid either raising or lowering the price of the project. This then simplifies the public construction procurement policy issue for construction projects similar to ones found at community colleges and in jurisdictions similar to California. PLAs should only be agreed to by public agencies if the PLA has attractive provisions and/or provides attractive construction services relative to prevailing wage jobs not covered by PLAs. However, it is neither indicated nor necessary to assume that PLAs will restrict bid competition or raise (or indeed lower) the lowest bid relative to the engineer's estimate.

Conclusions and Limitations

The College of Marin project labor agreement helped manage the construction of three large projects built on-time and within budget. Local Marin County construction workers were given preference in dispatching to the job sites and five College of Marin students worked on the PLA projects, a first step towards entering into a system of registered apprenticeship training that, if completed, can lead to about a \$300,000 increase in lifetime earnings.

Nearby contractors who bid on the three Marin PLA projects and also tended to bid on the four smaller nonPLA projects. However, contractors who came from long distances tended to bid either on the PLA projects or the nonPLA projects but not both. Both the PLA and nonPLA projects came in at about the same percentage amount below the engineer's estimate although in dollar terms, because the PLA projects were larger, the low bids were much below the dollar discounts relative to the engineer's estimates found on the smaller nonPLA projects. While two of the nonPLA projects had cost overruns, these appear to be associated with design and engineering issues and not problems with onsite construction.

Our analysis of 263 California community college projects built between 2007 and 2016, 88 of which were built under PLA arrangements, found results similar to our College of Marin case study. In comparison to nonPLA projects, controlling for the size of the project and when it was put out for bid, PLAs did not decrease the number of bidders nor did PLAs raise prices relative to the engineer's estimates.

Both case studies and statistical analyses have limitations. Case studies are rich in detail, context and nuance, but raise the question of the extent to which a limited number of specific cases can be extended to other circumstances. Statistical analysis is limited by simplification inherent in reducing complex human activity into numbers. We have sought to balance these contrasting limitations by presenting together a case study with a broader statistical view of many more similar projects.

However, partly because this is the first study of the effects of PLAs on the number of bidders, and the relation of bidding to engineer's estimates, and partly because this study focused on community college construction in California, more research needs to be done on this topic. We would like to know whether these results would replicate in other states with prevailing wage laws, in states without prevailing wage laws, in states with greater or lesser construction union density, and on civil engineering or residential projects that may differ from construction activity typical at community colleges.

While we await this research, we provisionally conclude that project labor agreements may be a useful risk-management tool on some construction sites; and PLAs may be a useful means whereby owners can harvest greater advantages from their control of significant amounts of construction work. Evidence does not support the contention that PLAs reduce the number of bidders or raise low-bid prices on community colleges in California.

Appendix I: REGRESSION PREDICTING NUMBER OF BIDS

Table 5: Predicting number of bids by project size, year, month, college district and PLA/non-PLA status

Predicting Number of Bids by Project Size, Year, Month, College District and PLA/non-PLA				
	(1) number of bids (linear regression)	t-statistic	(2) log of number of bids (linear regression)	t-statistic
PLA Project	0.309	(0.64)	0.189	(1.62)
Lowest Bid (in millions \$)	0.0895	(1.63)	0.0174*	(1.68)
Lowest Bid squared (in millions \$)	-0.000856*	(-1.91)	-0.000172**	(-2.02)
month	-0.891***	(-2.72)	-0.119**	(-2.07)
month squared	0.0625***	(2.73)	0.00857**	(1.98)
year=2007	-4.187***	(-4.84)	-0.706***	(-4.14)
year=2008	-2.717**	(-2.57)	-0.455***	(-2.71)
year=2009	0	(.)	0	(.)
year=2010	-3.883***	(-3.75)	-0.736***	(-4.00)
year=2011	-2.653*	(-1.93)	-0.543*	(-1.68)
year=2012	-4.451***	(-3.91)	-1.020***	(-3.32)
year=2013	-4.000***	(-3.76)	-0.925***	(-4.97)
year=2014	-4.785***	(-5.33)	-1.015***	(-5.93)
year=2015	-5.094***	(-5.78)	-1.139***	(-6.48)
year=2016	-5.433***	(-5.41)	-1.073***	(-4.72)
Chabot-Las Positas	0	(.)	0	(.)
Marin	-0.0730	(-0.08)	0.0746	(0.48)
Contra Costa	-1.080	(-1.28)	0.0673	(0.37)
Ohlone	-1.864*	(-1.88)	-0.315	(-1.41)
Peralta	-2.244***	(-3.27)	-0.374***	(-2.89)
Rancho Santiago	-0.00808	(-0.01)	0.176	(0.79)
Rio Hondo	7.911***	(7.69)	1.244***	(5.76)
San Bernardino	1.665	(1.25)	0.575**	(2.53)
San Jose/Evergreen	-1.867**	(-2.00)	-0.168	(-0.92)
Solano	-2.030**	(-2.01)	-0.410	(-1.23)
Constant	12.32***	(8.61)	2.551***	(11.84)
Observations	263		263	
R ²	0.367		0.320	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Predicting Number of Bids by Project Size, Year, Month, College District and PLA/non-PLA
(Supplementary Poisson Regression)

	(1) number of bids (poisson regression)	t-statistic	(2) log of number of bids (poisson regression)	t-statistic
PLA Project	0.0471	(0.48)	0.135	(1.54)
Lowest Bid (in millions \$)	0.0146 [*]	(1.87)	0.00955	(1.64)
Lowest Bid squared (in millions \$)	-0.000168 ^{**}	(-2.44)	-0.000114 ^{**}	(-2.21)
month	-0.173 ^{***}	(-3.15)	-0.0836 ^{**}	(-2.17)
month squared	0.0123 ^{***}	(3.14)	0.00604 ^{**}	(2.09)
year=2007	-0.719 ^{***}	(-5.43)	-0.444 ^{***}	(-4.12)
year=2008	-0.457 ^{***}	(-3.10)	-0.294 ^{***}	(-3.11)
year=2009	0	(.)	0	(.)
year=2010	-0.614 ^{***}	(-4.06)	-0.452 ^{***}	(-4.13)
year=2011	-0.417 ^{**}	(-2.28)	-0.340 [*]	(-1.93)
year=2012	-0.779 ^{***}	(-3.51)	-0.703 ^{***}	(-2.79)
year=2013	-0.680 ^{***}	(-3.82)	-0.623 ^{***}	(-4.75)
year=2014	-0.855 ^{***}	(-5.54)	-0.701 ^{***}	(-5.57)
year=2015	-0.940 ^{***}	(-6.19)	-0.807 ^{***}	(-6.00)
year=2016	-0.982 ^{***}	(-5.30)	-0.744 ^{***}	(-4.28)
Chabot-Las Positas	0	(.)	0	(.)
Marin	-0.0414	(-0.37)	0.0308	(0.36)
Contra Costa	-0.156	(-0.92)	0.105	(0.73)
Ohlone	-0.334 [*]	(-1.66)	-0.210	(-1.19)
Peralta	-0.405 ^{***}	(-3.62)	-0.254 ^{***}	(-3.00)
Rancho Santiago	0.0826	(0.40)	0.183	(1.08)
Rio Hondo	0.898 ^{***}	(4.41)	0.702 ^{***}	(4.28)
San Bernardino	0.331	(1.53)	0.421 ^{***}	(2.75)
San Jose/Evergreen	-0.319 [*]	(-1.78)	-0.0731	(-0.54)
Solano	-0.435	(-1.56)	-0.339	(-0.91)
Constant	2.860 ^{***}	(14.40)	1.075 ^{***}	(8.30)
Observations	263		263	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix II: REGRESSION PREDICTING LOW BID

Table 6: Predicting log of lowest bid with engineer's estimate PLAs/non-PLAs, year and college district

	(1)	(2)	(3)
Log of engineer's estimate	0.9817*** (55.10)	0.9930*** (42.00)	0.9978*** (38.78)
PLA Project	0.0309 (0.37)	-0.0315 (-0.36)	-0.0287 (-0.31)
year=2007		0.0000 (.)	0.0000 (.)
year=2008		0.0008 (0.01)	0.0051 (0.06)
year=2009		-0.2520*** (-2.94)	-0.2294** (-2.42)
year=2010		-0.1442 (-1.11)	-0.1418 (-1.06)
year=2011		0.0383 (0.32)	0.0433 (0.37)
year=2012		0.2118 (1.39)	0.1373 (1.05)
year=2013		0.1565 (1.20)	0.1338 (0.97)
year=2014		0.0713 (0.81)	0.0274 (0.25)
year=2015		0.0350 (0.34)	-0.0647 (-0.40)
year=2016		0.2223* (1.82)	0.1160 (0.71)
Chabot-Las Positas Community College District			0.0000 (.)
College of Marin Community College District			-0.0875 (-1.04)
Contra Costa Community College District			0.1256 (0.84)
Ohlone Community College District			0.0383 (0.30)
Solano Community College District			0.1136 (0.67)
Constant	0.1806 (0.74)	0.0157 (0.05)	-0.0485 (-0.14)
Observations	105	105	105
R ²	0.966	0.969	0.970

note: includes only districts with engineers estimates and both PLAs/nonPLAs

t-statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix III: COLLEGE OF MARIN BID DATA

PLA	Project	Bidding Contractors	Result	Bid	Con. Home
yes	Science Math Complex	Lathrop Construction	won	34,040,000	Benicia
yes	Science Math Complex	Roebbelen Construction	lost	35,380,000	El Dorado Hills
yes	Science Math Complex	SJ Amoroso	lost	35,817,000	Redwood Shores
yes	Science Math Complex	C Overaa Construction	lost	36,347,000	Richmond
yes	Science Math Complex	McCarthy Building Companies	lost	37,050,000	San Francisco
yes	Science Math Complex	Howard S Wright Constructors	lost	37,794,912	Emeryville
yes	Science Math Complex	Wright Contracting	lost	38,847,000	Santa Rosa
yes	Indian Valley Complex	Gonsalves & Stronck	lost	13,288,000	San Carlos
yes	Indian Valley Complex	Di Giorgio Contracting	won	13,350,000	Novato
yes	Indian Valley Complex	Arntz Builders	lost	13,460,342	Novato
yes	Indian Valley Complex	JW & Sons	lost	13,632,000	Petaluma
yes	Indian Valley Complex	Roebbelen Construction	lost	13,743,000	El Dorado Hills
yes	Indian Valley Complex	Alten Construction	lost	13,768,246	Richmond
yes	Indian Valley Complex	SJ Amoroso	lost	13,897,000	Redwood Shores
yes	Indian Valley Complex	Jeff Luchetti Construction	lost	14,031,000	Santa Rosa
yes	Gateway Center	Wright Contracting	won	18,995,000	Santa Rosa
yes	Gateway Center	Lathrop Construction	lost	19,112,000	Benicia
yes	Gateway Center	Alten Construction	lost	19,246,000	Richmond
yes	Gateway Center	SJ Amoroso	lost	19,327,000	Redwood Shores
yes	Gateway Center	Midstate Construction	lost	19,803,040	Petaluma
yes	Gateway Center	Roebbelen Construction	lost	20,780,000	El Dorado Hills
yes	Trans. Tech. Center	ProWest Construction	lost	21,150,000	
no	Trans. Tech. Center	Alten Construction	won	6,895,000	Richmond
no	Trans. Tech. Center	West Bay Builders	lost	6,897,000	Novato
no	Trans. Tech. Center	JW & Sons	lost	6,999,000	Petaluma
no	Trans. Tech. Center	Jeff Luchetti Construction	lost	7,047,000	Santa Rosa
no	Trans. Tech. Center	Gonsalves & Stronck	lost	7,104,000	San Carlos
no	Trans. Tech. Center	Arntz Builders	lost	7,228,248	Novato
no	Trans. Tech. Center	Di Giorgio Contracting	lost	7,465,000	Novato
no	Trans. Tech. Center	PAGE Construction	lost	7,641,000	Novato
no	Performing Arts Center	Midstate Construction	won	10,217,000	Petaluma
no	Performing Arts Center	Arntz Builders	lost	10,786,465	Novato
no	Performing Arts Center	Alten Construction	lost	10,915,000	Richmond
no	Performing Arts	Jeff Luchetti Construction	lost	11,090,000	Santa Rosa

	Center				
no	Performing Arts Center	Lathrop Construction	lost	11,230,000	Benicia
no	Performing Arts Center	Menghetti Construction	lost	11,275,000	Modesto
no	Performing Arts Center	Bobo Construction	lost	11,831,000	Elk Grove
no	Performing Arts Center	Younger General Contractors	lost	11,935,000	Rancho Cordova
no	Performing Arts Center	Biltwell Dev	lost	12,189,000	San Francisco
no	Fine Arts Kentfield	Alten Construction	won	11,872,601	Richmond
no	Fine Arts Kentfield	Jeff Luchetti Construction	lost	12,290,615	Santa Rosa
no	Fine Arts Kentfield	Wright Contracting	lost	12,305,000	Santa Rosa
no	Fine Arts Kentfield	West Coast Contractors	lost	12,446,000	Fairfield
no	Fine Arts Kentfield	Midstate Construction	lost	12,526,000	Petaluma
no	Fine Arts Kentfield	West Bay Builders	lost	12,580,000	Novato
no	Fine Arts Kentfield	C Overaa Construction	lost	12,999,000	Richmond
no	Fine Arts Kentfield	McCrary Construction	lost	13,198,801	Belmont
no	Fine Arts Kentfield	Di Giorgio Contracting	lost	13,725,000	Novato
no	Fine Arts Kentfield	ZCON Builders	lost	13,829,000	Roseville
no	Fine Arts Kentfield	Codding Construction Co	lost	14,765,800	Santa rosa
no	Fine Arts Kentfield	Ralph Larsen & Sons	lost	14,890,000	San Mateo
no	Diamond PE Complex	Alten Construction	won	10,396,307	Richmond
no	Diamond PE Complex	West Bay Builders	lost	11,385,000	Novato
no	Diamond PE Complex	Di Giorgio Contracting	lost	11,492,000	Novato
no	Diamond PE Complex	NBC General Contractors Corp.	lost	11,865,000	Oakland
no	Diamond PE Complex	Arntz Builders	lost	11,944,202	Novato
no	Diamond PE Complex	Bobo Construction	lost	12,396,000	Elk Grove
no	Diamond PE Complex	R Debbelen	lost	12,510,000	
no	Diamond PE Complex	Midstate Construction	lost	13,065,000	Petaluma
no	Diamond PE Complex	Zolman Construction	lost	13,865,000	San Carlos

APPENDIX IV: DATA COLLECTION METHODS

We began data collection for this report with a list of California community colleges districts that have enacted PLAs.^{lxxiii} Colleges with extensive bid information posted online were prioritized for review.⁸ Some community colleges posted bid information on a purchasing webpage or a webpage with information for contractors.^{lxxiv} Information for other districts was accessible through online bid management software.^{lxxv} For a few colleges, we found bid tabulation information interspersed within Board of Trustees meeting minute archives.^{lxxvi}

We used bid tabulation sheets to record the title of each project, the total number of bidders on a project, the amount of each bid, the date of the bid, and the name and location of each contractor that submitted a bid. Bid advertisements and project information documents were sources for engineer's estimates and whether or not a PLA was used on the project. We also gathered sign-in sheets for pre-bid meetings and job walks. We used these sheets to record the names and locations of contractors that attended pre-bid meetings, the total number of attendees, and the dates of the meetings.

There was various missing information for all community colleges. One resource for filling in missing information was the California Department of Industrial Relations Public Works website.⁹ The site provided information on the winning contractor of each project and whether or not the project fell under a PLA. However, this online database did not go back prior to 2015, excluding a large portion of our sample. As a final resource for missing information, we contacted the colleges themselves. In some cases, we used Public Records Act requests to formalize the process of data retrieval. Officials at every college we contacted were helpful and attentive to our requests for project information.

A vital component of our research could not be addressed through the channels mentioned above: the union status of contractors. We gathered union status information through a patchwork of sources. For many contractors, we simply called the firm and asked if they identified as union or non-union. This method was not only time-consuming, but also impractical for contractors that had ceased conducting business or did not have a working phone number.

Another method of identifying the union status of contractors was through a web search of member lists. We collected lists of signatory contractors posted on local trade union websites.^{lxxvii, lxxviii, lxxix} We designated listed contractors as "union." Similarly, we used member lists from the California chapters of the anti-union group Associated Builders and Contractors (ABC) to designate contractors as "non-union." The current ABC member lists are not publicly available. Nevertheless, some archived membership directories could be

⁸ Chabot-Las Positas Community College, Community College of Marin, Hartnell Community College, Ohlone Community College District, Peralta Community College, San Bernardino Community College, San Jose/Evergreen Community College, Solano Community College, Contra Costa Community College District, Rio Hondo Community College, Rancho Santiago Community College

⁹ <http://www.dir.ca.gov/public-works/publicworks.html>

found online.^{lxxx, lxxxi} In addition, some ABC chapters posted a snapshot of members on their homepages.^{lxxxii, lxxxiii}

The Blue Book Building and Construction Network¹⁰ was also used to fill-in the union status of contractors. The database of companies and manufacturers includes information pages on specific contractors, including their union status. While the site provided a significant amount of information, many contractors were either not on the site, or left their union status information blank. Finally, we reached out to local union officials to review our list of contractors and fill-in the status of those they knew. In some cases, the unions also provided more expansive member lists than what was attainable through an online search.

All lists and sources functioned as a crosscheck of the information we collected. In some cases the information was contradictory, with a contractor listed as union by one source and non-union by another. For these contractors it often appeared the contractor was signatory to a trade union for some categories of construction labor, but not others. We designated such contractors as “union.”

The data were compiled in Microsoft Excel and analyzed in Stata: Data Analysis and Statistical Software.

¹⁰ <http://www.thebluebook.com/>

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2019

WASHINGTON APPRENTICESHIP GROWTH AND EXPANSION STUDY

PREPARED FOR THE

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**EVAN WOODS OF
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EXECUTIVE SUMMARY

Summary of Results

WAGES examines the impact an apprenticeship's model of governance and funding has on apprentice and taxpayer outcomes for the program, comparing the performance of joint labor-management partnership ("JLMP") apprenticeship programs in Washington state to non-union multi-employer partnership ("MEP") programs,¹ publicly subsidized employer apprenticeships ("PSEA")² and plant programs. WAGES' analysis of Washington state and federal data for 2017 finds that, overall, JLMP apprenticeship programs outperform non-union apprenticeship programs in enrollment, completion rates, journey wages and the inclusion and performance of underrepresented groups. A detailed analysis of large programs in the construction trades reveals that JLMP programs also provide a greater return on investment ("ROI") for individual apprentices and taxpayers than comparable MEP programs. Moreover, while public officials have invested millions of taxpayer dollars in newly created PSEA programs, WAGES' analysis finds that JLMP programs in high-growth and strategic industries actually do a better job of providing high-wage, sustainable careers for apprentices. In light of these results, officials should ensure that tax dollars support apprenticeships exhibiting the unique characteristics that make JLMP programs successful. Apprenticeship programs that receive public funding should provide high journey wages, ensure the democratic participation of workers in governance and standard setting, and employ a sustainable funding model that doesn't require taxpayers to finance day-to-day operations.

Data and Methodology

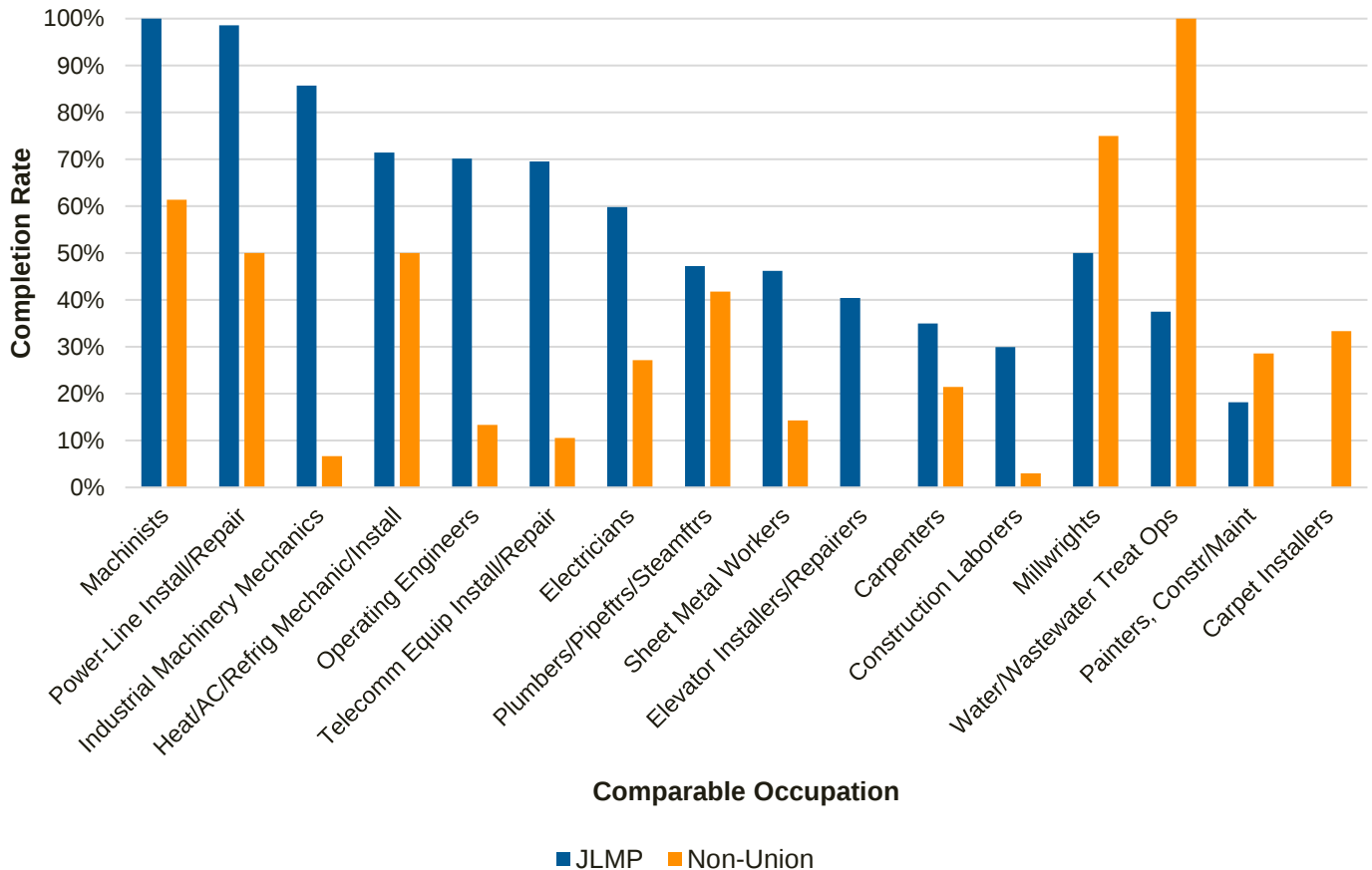
- **WAGES relies on individual apprentice and journey wage data from L&I, occupational wage and demographic data from BLS, and economic estimates from the WAGES ROI Model.** The most recent data available are combined to examine the performance of different apprenticeship models.
- **WAGES uses completion rates,³ journey wages,⁴ inclusion of underrepresented groups, net impact and ROI to compare JLMP and non-union apprenticeships.** The Study compares JLMP and non-union (MEP, PSEA and Plant programs) overall performance, the ROI of JLMP and MEP programs, and alternatives to PSEA programs. WAGES is the first comprehensive examination of the performance of different apprenticeship models in Washington state.
- **The WAGES ROI Model uses completion status, journey wage, average wage, hours worked and occupational wage data to compare twelve established JLMP and MEP construction apprenticeship programs.** The Model uses realistic assumptions to estimate the net impact and ROI for individuals and taxpayers of programs training apprentices in the six largest comparable occupations.
- **WAGES analyzes the performance of three Washington PSEA programs serving high-growth and strategic industries and compares them to similar JLMP programs.** WAGES examines completion rates, journey wages and local occupational average wages to compare the PSEA and JLMP models.

Program Performance

Enrollment and Completion Rates

- **JLMP apprenticeship programs train 83% of all apprentices in Washington.** In 2017, 14,253 apprentices trained in 205 JLMP programs, while 2,897 apprentices trained in 98 MEP, PSEA and Plant non-union programs.
- **The completion rate for JLMP programs was 8 percentage points higher (43.0% vs. 34.8%) than non-union programs.** In 2017, 6 of every 7 successful apprentices in Washington state journeyed out of JLMP programs.
- **Across comparable occupations,⁵ JLMP programs had a completion rate that was more than 11 percentage points higher than non-union programs (44.0% vs. 32.2%).** JLMP programs had a higher completion rate in 12 of 16 occupations where both JLMP and non-union programs trained apprentices (**Figure 1**).

Figure 1. Successful Completion Rate for Apprentices by Occupation
2017 Apprentices by Comparable Standard Occupational Classification

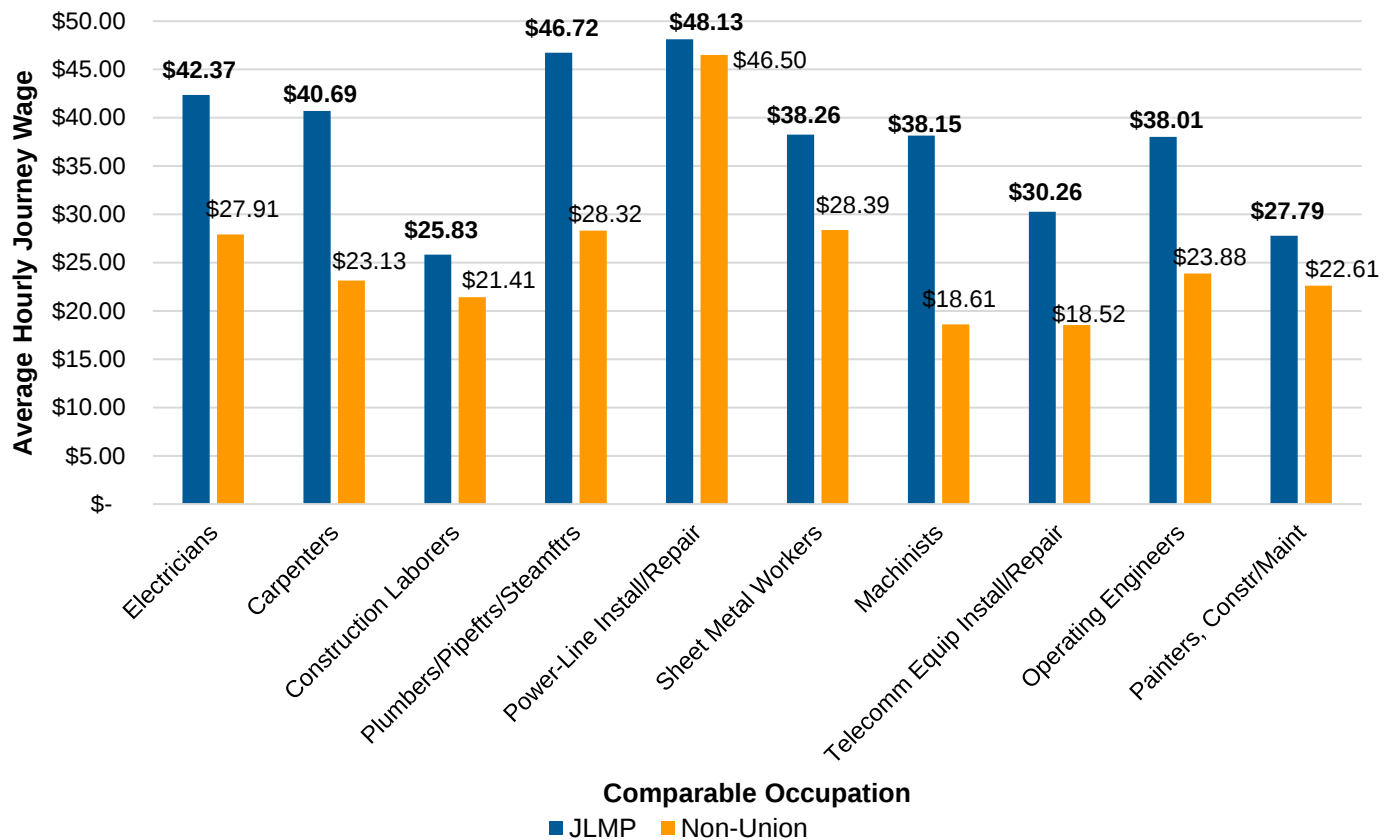


Source: ARTS, Washington State Department of Labor and Industries.

Journey Wages

- **Successful JLMP apprentices achieved journey wages 50.1% higher than non-union completers (\$34.42/hour vs. \$22.93/hour).** JLMP journey wages were higher across the 10 largest comparable occupations (**Figure 2**) and 13 of 14 comparable occupations overall, sometimes more than doubling non-union journey wages.

Figure 2. Average Journey Wages of 2017 Completing Apprentices
10 Largest Comparable SOC Occupations



Note: All dollar values are expressed in May 2017 dollars. Journey wages in WAGES, drawn from L&I data, represent the lowest regional journey wage for each apprenticeship program. However, some statewide programs pay significantly higher wages in certain regions. L&I reports a journey wage of \$26.01/hour for the Northwest Laborers - Employers Training Trust Fund apprenticeship, for instance, but the program pays Journeyman General Laborers \$37.27/hour in Western Washington. Journey wage data should therefore be interpreted as a lower bound estimate.

Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

- **JLMP journey wages placed successful apprentices 16.4% above their local occupational average,⁶ while non-union journey wages were 15.2% below.** For 40 of 51 occupations, JLMP journeymen finished their program earning above the average local hourly wage, compared to just 10 of 30 occupations for non-union programs.
- **In 14 comparable occupations, JLMP journey wages exceeded the local occupational average 100.0% of the time, while non-union journey wages did so in only 35.7% of fields.** JLMP program journey wages were higher than the local occupational average wage for 14 of 14 occupations, while non-union programs exceeded the average for only 5 of 14 occupations.

Gender Inclusion and Outcomes

- **JLMP programs increased female participation relative to occupational averages by a larger amount than non-union programs, training 571 more female apprentices than expected.** In 2017, the weighted average of female participation in JLMP programs was more than double the national average for those occupations (8.8% vs. 4.2%). For non-union programs, participation was also slightly above the weighted national occupational average for occupations they trained (13.5% vs. 11.3%).
- **For 14 comparable occupations, JLMP programs boosted weighted female participation by significantly more than non-union programs.** JLMP programs more than tripled weighted average national female participation (7.9% vs. 2.8%) in these male-dominated fields, while non-union programs increased it more modestly (4.9% vs. 3.1%).
- **Non-union programs enrolled a slightly higher percentage of women overall, driven by two apprenticeships serving the healthcare and beauty industries.** Women comprised 13.6% of non-union and 8.4% of JLMP apprentices in 2017. However, women training to be medical and dental assistants in Washington Association for Community Health (“WACH”) programs, and beauty industry workers in SAGE Apprentice Programs, represented 49.9% of all non-union female apprentices.

Table 1. Average Journey Wages for Completing Female Apprentices in 2017
9 Largest L&I Occupations for Completing Women

JLMP Programs				Non-Union Programs		
Rank	Occupation	#	Journey Wage	Occupation	#	Journey Wage
1	Workers Comp Adjudicator	32	\$22.76	Medical Assistant	22	\$12.13
2	Laborer	15	\$25.25	Dental Assistant	4	\$13.29
3	Retail Meatcutter	10	\$22.37	Machinist (Aircraft Oriented)	2	\$18.61
4	Fire Fighter	8	\$21.36	Cosmetologist	2	\$12.13
5	Carpenter	7	\$40.69	Carpenter	1	\$22.56
6	Electrician	7	\$42.24	Production Welder	1	\$27.85
7	Operating Engineer	5	\$36.92	Barber	1	\$12.13
8	Instructional Assistant	5	\$13.79	Web Developer	1	\$36.40
9	Ironworker	3	\$32.03	Dispensing Optician	1	\$17.47
All	All Occupations	116	\$27.03	All Occupations	35	\$14.23

Note: Journey wages in WAGES represent the lower bound estimate for journey wages in each occupation.

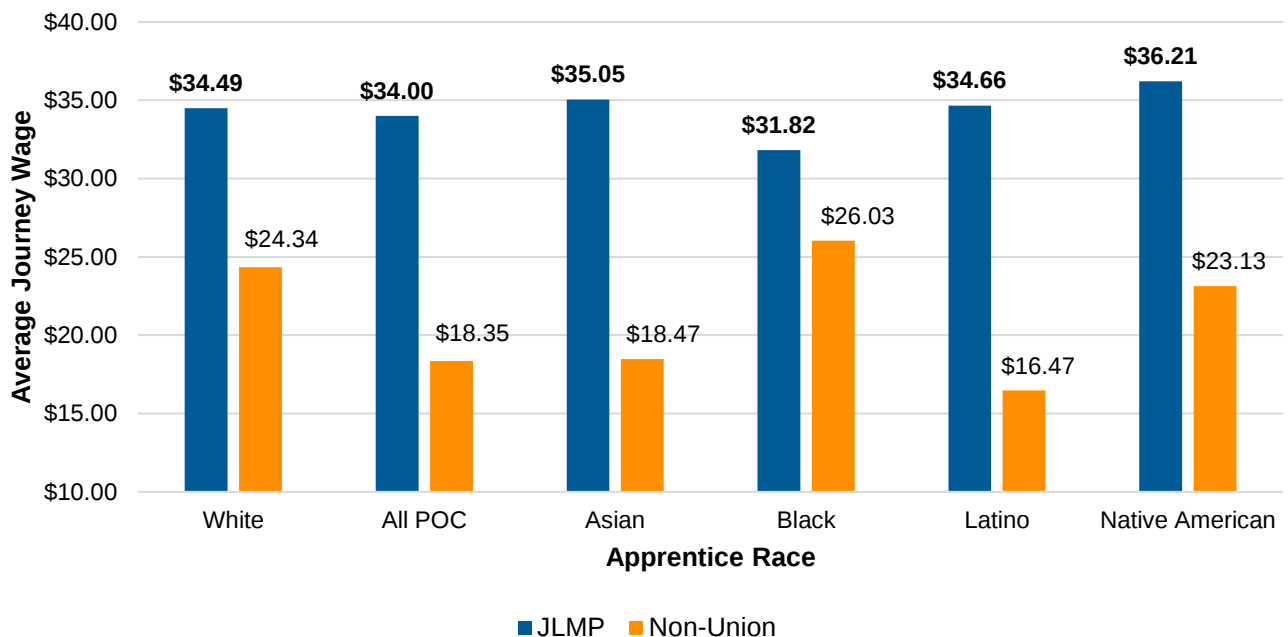
Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

- **In 2017 in comparable occupations, female JLMP apprentices completed their programs at 8 times the rate of non-union female apprentices.** Approximately 1 in 3 JLMP apprentices completed their programs in 7 comparable fields, compared to only 1 in 25 non-union apprentices.
- **Female completion rates for all occupations in JLMP (41.3%) and non-union (41.7%) programs were nearly identical, driven almost entirely by high completion rates in the WACH program.** Overall, 26 of the 35 women who successfully completed non-union programs in 2017 were WACH medical and dental assistants, who journeyed out earning \$12.13/hour and \$13.29/hour, respectively.
- **Female JLMP apprentices earned journey wages that were twice as high as non-union female journey wages (\$27.03 vs. \$14.23).** In the one comparable occupation, carpentry, JLMP journeywomen out-earned non-union journeywomen \$40.69/hour to \$22.56/hour. (**Table 1**)

Racial Inclusion and Outcomes

- **JLMP programs trained a slightly higher percentage of apprentices of color.** In 2017, 28.5% of JLMP apprentices and 25.6% of non-union apprentices were apprentices of color.
- **For the majority of comparable occupations, JLMP programs had a higher share of apprentices of color.** Across 18 comparable occupations, apprentices of color made up a higher share of JLMP programs in 10, non-union programs in 7, and an equal share in 1 occupation.
- **Apprentices of color journeyed out of JLMP programs at a higher rate for the majority of comparable occupations, although non-union apprenticeships held a slight edge overall.** For the 10 comparable occupations, JLMP programs had a higher completion rate for apprentices of color (33.8% vs. 24.3%) than for non-union programs. However, non-union programs had a slight edge overall (34.0% vs. 30.7%).
- **Apprentices of color journeyed out of JLMP programs earning journey wages \$15.65/hour higher than successful non-union apprentices of color.** Overall, successful JLMP apprentices of color achieved an average journey wage of \$34.00/hour compared to just \$18.35/hour for apprentices of color journeying out of non-union programs (Figure 3).

Figure 3. Average Journey Wages for Completing Apprentices by Race
JLMP vs. Non-Union Programs in 2017



Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

- **The journey wage gap between white apprentices and apprentices of color was 12 times larger across all non-union programs than across JLMP programs.** In 2017, white JLMP apprentices completed their programs earning an average journey wage of \$34.49/hour, compared to a \$34.00/hour journey wage for completing JLMP apprentices of color. However, white non-union apprentices earned \$24.34/hour in journey wages upon completion, compared to an average of \$18.35/hour in journey wages for non-union apprentices of color who journeyed out of their non-union program in 2017.

Veteran Inclusion and Outcomes

- **JLMP apprenticeship programs enroll a higher percentage of veterans (13.7%) than non-union programs (12.8%).** The overall percentage of veterans in apprenticeship is higher than for Washington state as a whole, where 9.6% of adults are veterans.
- **Veterans journeyed out of JLMP programs at a higher rate (35.8%) than non-union programs (32.8%).** In 2017, more than five times as many veterans completed JLMP programs (115 apprentices) than non-union programs (22 apprentices).
- **Veterans completing JLMP programs earned an average of \$9.55 more per hour in journey wages than those completing non-union programs (\$35.64/hour vs. \$26.09/hour).** Overall, 71.1% of JLMP veteran completers earned journey wages above the local hourly occupational average, while only 22.7% of veterans completing non-union apprenticeships journeyed out above the local occupational average.

Return on Investment Analysis

WAGES ROI Model - Description

- **The WAGES ROI Model estimates the net impact on apprentice wages, benefits and tax payments, and return on investment for taxpayers, of the largest JLMP and MEP programs in the six largest comparable occupations.** The Model analyzes JLMP and MEP programs training carpenters, construction electricians, construction equipment operators, laborers, plumbers and sheet metal workers.
- **The Model utilizes wage, benefit, cost, wage scale and program length data, and a set of realistic assumptions, to project each program's lifetime impact on apprentices.** The Model relies on L&I ARTS, WTB, BLS OES and other data to create estimates for each apprentice's wages, benefits and tax payments with and without apprenticeship.

WAGES ROI Model - Results

- **JLMP programs have a greater net impact on individuals across all six comparable occupations.** The six JLMP programs increase total compensation for an individual apprentice, net of taxes and program costs, by an average of \$810,444 over each apprentice's lifetime, more than double the \$353,187 individual net impact for comparable MEP programs (**Table 2**).

Table 2. WAGES ROI Model Results
Per Apprentice Individual and Taxpayer Net Impact for 2013-2016 Exiting Apprentices

Occupation	Program	Individual Net Impact	Taxpayer Net Impact	Taxpayer ROI
Carpenter	NWCI	\$533,421	\$205,976	78x
	CITC - Carpenter	\$312,153	\$113,163	41x
Construction Electrician	PSEJATC	\$1,609,808	\$605,809	99x
	CITC - Con. Electrician	\$423,045	\$160,868	51x
Construction Equip Operator	OERTP	\$884,923	\$309,652	76x
	INWAGC Operators AC	\$169,518	\$49,819	13x
Laborer	NWLETT	\$393,744	\$142,583	57x
	INWAGC Laborers AC	\$226,075	\$44,842	59x
Plumber	SAPT	\$2,103,586	\$606,079	69x
	CITC - Plumber	\$437,241	\$188,893	37x
Sheet Metal Worker	WWSMJATC	\$1,345,124	\$409,841	64x
	CITC - Sheet Metal	\$397,594	\$149,522	47x
Six Largest Comparable	All JLMP	\$810,444	\$285,612	74x
	All MEP	\$353,187	\$134,309	38x

Note: Acronyms refer to Northwest Carpenters Institute ("NWCI"), Construction Industry Training Council of Washington ("CITC"), Puget Sound Electrical JATC ("PSEJATC"), Operating Engineers Regional Training Program ("OERTP"), Inland Northwest Associated General Contractors ("INWAGC"), Seattle Area Pipe Trades ("SAPT") and Western Washington Sheet Metal JATC ("WWSMJATC"). *Source:* WAGES ROI Model.

- **JLMP programs also have a greater net impact for taxpayers across all six comparable occupations.** Public officials who invest taxpayer dollars in training one JLMP apprentice earn an average net return of \$285,612 in taxes per apprentice, while MEP programs generate a net impact for taxpayers of \$134,309 per apprentice.
- **The return on investment (“ROI”) ratio for taxpayers is 74:1 for JLMP programs.** For every \$1 that taxpayers spend on public training costs for JLMP apprentices, the same apprentices will generate an estimated \$74 more in additional income, sales, Social Security and Medicare taxes, net of unemployment insurance transfers.
- **Higher journey wages in JLMP programs are correlated with higher net individual impact and net taxpayer impact.** The programs with the highest journey wages, Seattle Area Pipe Trades (“SAPT”), Puget Sound Electrical JATC (“PSEJATC”) and Western Washington Sheet Metal JATC (“WWSMJATC”), also have the highest net impacts for individuals and taxpayers.

“Public officials who invest taxpayer dollars in training one JLMP apprentice earn an average net return of \$285,612 in taxes per apprentice.”

Lessons of Success from JLMP Construction Apprenticeships

- **JLMP apprenticeship programs examined in the WAGES ROI Model all had higher journey wages and superior completion rates than comparable CITC and INWAGC programs.** JLMP completion rates were between 14 and 59 percentage points higher than for MEP programs, while journey wages were between \$8.94/hour and \$23.06/hour above comparable MEP journey wages.
- **JLMP apprenticeship programs rely on the collaborative input of union workers and employers to drive program success.** Employers provide cutting edge industry knowledge, active participation in governance and generous funding. Union workers negotiate high program standards, provide support to fellow members and amplify apprentice voices at the worksite.
- **JLMP programs make concerted efforts to recruit and retain more apprentices from underrepresented groups.** All six JLMP programs examined in the WAGES ROI model had a higher percentage of women in training than their MEP counterparts. JLMP coordinators visit worksites to support women and veteran apprentices, partner with pre-apprenticeship programs for people of color and women, and hire women to conduct outreach as program leaders.

Apprenticeships for Growing Industries

Washington PSEAs

- **Three quarters of the Washington occupations poised to see the highest absolute growth in jobs are not currently covered by apprenticeships.** Among the 100 highest growth occupations, only 24 are currently served by apprenticeships.
- **Government efforts to encourage apprenticeships in new and strategic industries have focused on financing publicly subsidized employer apprenticeships (“PSEAs”).** Washington Association for Community Health (“WACH”), Aerospace Joint Apprenticeship Committee (“AJAC”) and the Washington Technology Industry Association’s (“WTIA”) Apprenti programs have received millions of taxpayer dollars to expand apprenticeship in the healthcare, aerospace and tech industries.
- **These PSEA programs have a mixed record journeying out apprentices, and underperform JLMP programs and local occupational averages in terms of journey wages.** WACH, Apprenti and AJAC have varying completion rates, but all offer journey wages well below the average for the occupations they train (Table 3).

Table 3. Average JLMP vs. PSEA Programs
All Apprentices Active in 2017

Metric	JLMP Avg	AJAC	Apprenti	WACH
Apprentices	145	484	84	135
Completion Rate	43%	52%	29%	90%
Journey Wage	\$36.33	\$18.53	\$35.41	\$12.33
Journey/Local Occ Avg	124%	73%	67%	68%
High School or Less	68%	62%	15%	56%
Women vs Occ Avg	+4.5%	-1.6%	+15.5%	+1.0%
POC	29%	23%	52%	47%
Veterans	14%	9%	28%	0%

Note: All dollar values are expressed in May 2017 dollars.

Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries; May 2017 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Occupational Employment Statistics, Bureau of Labor Statistics, May 2017.

Washington Association for Community Health (“WACH”)

- **Approximately 9 of 10 apprentices successfully complete WACH’s medical assistant (“MA”) and dental assistant (“DA”) programs, but they earn journey wages far below industry average.** WACH’s journey rate for MAs (\$12.13 per hour in May 2017 dollars), for instance, puts journeymen in the bottom 10% of MA earners in every Washington region but Walla Walla.
- **WACH wages also significantly trail JLMP wages for apprentices in other states.** JLMP MA apprentices in Rhode Island journey out earning \$10.00/hour more than successful WACH MAs.

Apprenti

- **WTIA’s Apprenti program has received \$4 million in federal money and a pledge for \$4 million more from Washington state, while WTIA members earn billions in profits.** WTIA leader Microsoft, for instance, has earned \$72.6 billion in profits since Apprenti’s inception, while WTIA member Amazon.com has grown to a market capitalization of almost \$1 trillion.
- **For the 84 Apprenti apprentices training in 2017, the journey wage they’ll eventually earn is only 66.7% of the local average.** Apprenti software developers journey out at a rate of \$35.57/hour (in May 2017 dollars), while the average wage earned by a software developer in Seattle was \$57.84/hour.

Aerospace Joint Apprenticeship Committee (“AJAC”)

- **The state’s largest PSEA, AJAC, journeys out a lower percentage of its apprentices (51.7%) than the comparable IAM/Boeing Joint Apprenticeship Committee (100.0%) across all occupations.** For example, 100.0% of IAM/Boeing industrial machinery mechanic apprentices successfully completed their program, versus 0.0% of industrial machinery mechanic apprentices exiting the AJAC program.
- **The JLMP IAM/Boeing program recruits a higher percentage of apprentices from underrepresented groups.** The IAM/Boeing program has a higher share of apprentices of color (36.8% vs. 22.5%), veterans (10.3% vs. 7.9%) and women (6.9% vs. 4.3%) than AJAC.
- **AJAC’s journey wages also dramatically lag behind local averages and their IAM/Boeing counterparts.** Apprentices completing AJAC’s program earn an average journey wage equal to 74.0% of their local occupational average. The highest journey wage achieved by an AJAC apprentice completing their program in 2017 was \$19.41/hour (in May 2017 dollars) for a tool and die maker. Meanwhile, IAM/Boeing apprentices journeyed out at \$42.41/hour.

JLMP Alternatives

- **Many of Washington’s fastest growing occupations are currently served by JLMP programs.** For instance, carpenters (#14), construction laborers (#19) and electricians (#41) are all projected to be among the 50 highest growth occupations in Washington over the next 10 years.
 - **JLMP programs across the country are starting to serve high growth non-trades occupations, many with a higher share of women and people of color.** SEIU and UNITE HERE have been active in extending registered apprenticeship and raising standards in traditionally lower-wage healthcare, food service and hospitality occupations.
 - **SEIU’s JLMP apprenticeship programs train apprentices in high growth healthcare occupations in New York, Rhode Island and Philadelphia.** SEIU Locals have started apprenticeship programs for medical assistants, home health aides and community health workers that journey out apprentices into high wage union jobs.
 - **UNITE HERE’s JLMP programs in Los Angeles, Las Vegas and Boston serve 5 of the 50 highest growth occupations in Washington.** Locals partner with union employers to train waiters, cooks, bartenders and food service workers and place them in jobs with industry-leading benefits.
-

Recommendations

- **Public officials should support apprenticeship programs providing high-wage opportunities in their field of training.** Officials should only invest taxpayer dollars in apprenticeships that create a pathway to high-skill, high-wage jobs, ensuring higher completion rates and greater taxpayer ROI.
- **Public funds should support the democratic participation of workers in apprenticeship program governance and standard setting.** A strong, institutionalized worker voice raises wages and completion rates, ensures shop floor knowledge is included in curriculum, and improves accountability.
- **Taxpayers should fund innovation, support and inclusion services for apprenticeship programs, not pay for day-to-day operations.** Public funds should help fledgling programs in new industries get off the ground, support apprentices with worksite visits or transportation, and increase inclusion of underrepresented groups. However, given the financial benefits of apprenticeship for employers, there's no reason taxpayers should be responsible for sustaining employer programs.
- **Washington should fund pre-apprenticeship programs directly linked or closely connected to high-performing apprenticeship programs.** Taxpayers should support successful pre-apprenticeship programs like Apprenticeship and Nontraditional Employment for Women ("ANEW"), Pre-Apprenticeship Construction Education ("PACE"), and the Ironworkers Local 86 pre-apprenticeship program that serve as direct pipelines to strong apprenticeship programs.

“Public officials should support apprenticeship programs providing high-wage opportunities in their field of training” and “support the democratic participation of workers in apprenticeship program governance and standard setting.”

- **The state should provide support services for pre-apprentices to help with retention, especially for those from underrepresented communities.** Pre-apprenticeship programs represent months of unpaid training, so assistance with childcare, tools and transportation would improve retention.
- **Funding for additional apprenticeship coordinators to help apprentices early in their program would improve retention, especially with vulnerable groups.** New apprentices, female apprentices, apprentices of color and veterans could all benefit from additional support at their worksite.
- **Capital grants or affordable loans would help apprenticeship programs keep machinery, equipment and technology up-to-date.** To build relevant skills, apprentices must train with cutting edge worksite equipment and technology. Tax dollars could help keep program technology current.
- **Public officials should support greater marketing and networking efforts to introduce qualified applicants to apprenticeship.** After applicants are introduced to their programs, apprenticeships do a great job of retaining them. Public marketing and events could help get them in the door.
- **Washington should lead the country by measuring the net impact of individual apprenticeship programs.** In order to intelligently invest public tax dollars, state agencies should begin measuring the return on investment for individual apprenticeship programs.



INTRODUCTION

Washington Apprenticeships for the 21st Century

Governor Jay Inslee's Career Connect Washington Initiative has raised a number of important questions about apprenticeship in Washington state. How should we structure Washington state's apprenticeships to meet the challenges and opportunities of the coming decade? How can apprenticeship programs train skilled workers to fill the openings in Washington's fastest growing industries? Can apprenticeship programs address the growing income gap by providing working class people a pathway to good jobs and good wages? How should we spend public funds to maximize the impact of pre-apprenticeship and apprenticeship programs? The Washington Apprenticeship Growth and Expansion Study ("WAGES") draws on the expertise and experience of apprenticeship coordinators from the state's largest programs, long-time public servants in the apprenticeship field, and a range of public data to provide answers to these questions.

Apprenticeship Models: What Works?

Joint labor-management partnership ("JLMP") apprenticeship programs, funded and overseen by joint apprenticeship and training committees ("JATCs"), train the large majority of apprentices in Washington. However, recent public discussion has centered around newly created publicly subsidized employer apprenticeships ("PSEA") that receive millions of dollars in taxpayer funding and promise to rapidly expand apprenticeships in high-growth industries. Additionally, multi-employer partnership ("MEP") programs run by non-union employers and employer associations have expanded in recent years. WAGES explores what works by examining the relative performance of these different models of apprenticeship in Washington state, comparing JLMP, PSEA and MEP apprenticeship models. The Study compares 170 apprenticeship organizations operating 303 apprenticeship programs across a variety of metrics, including total enrollment, completion rates, journey wages, the inclusion and outcomes of underrepresented groups, net impact for individuals and taxpayers, and taxpayer return on investment.

Investing Public Funds to Best Support Apprenticeship

The Governor's Career Connect Initiative has signaled that investing in skill training and apprenticeship is a priority for Washington state public officials. Relying on an objective, quantitative comparison of apprenticeship models, and incorporating ideas from apprenticeship coordinators managing the state's largest programs, WAGES concludes by providing a menu of powerful policy solutions to grow and expand successful, strategically situated, high-wage apprenticeships in Washington state.

Acknowledgements

The Study author would like to thank a number of apprenticeship coordinators and public servants who provided data and context for WAGES. Dave Wallace and Terje Gjertsen at Washington's Workforce Training and Education Coordinating Board provided important apprentice wage data and feedback on methodology that were important pieces of the return on investment analysis. Rachel McAloon from Washington's Department of Labor & Industries provided an overview of the Apprenticeship Registration and Tracking System database. Eric Peterson and Jeff Reinhardt from the Western Washington Sheet Metal JATC, Lacey Hall from the Operating Engineers Regional Training Program, Heather Winfrey and P.J. Moss from the Seattle Area Pipe Trades, Bob Susee, Paula Resa, Lisa Marx and Jody Kane from the Northwest Carpenters Institute, and Clay Tschillard from the Puget Sound Electrical JATC provided a wealth of information about their programs and a great overview of Washington's apprenticeship landscape as a whole.

Study Structure

The Washington Apprenticeship Growth and Expansion Study (“WAGES”) is divided into **five sections**.

Data and Methodology

The data and methodology section includes a discussion of WAGES’ methodology, public and private data sources used in the Study, and a description of JLMP and non-union apprenticeship models.

Program Performance

The program performance section looks at overall program performance, comparing enrollment, completion rates and journey wages for 303 JLMP and non-union programs, looking at all apprentices, women, people of color and veterans.

Return on Investment (“ROI”)

The ROI section analyzes the ROI and net impact of 12 apprenticeship programs, contrasting the largest JLMP program and the largest MEP program serving each of the six largest comparable occupations in Washington state.

Apprenticeships for Growing Industries

The apprenticeships for growing industries section examines the performance of Washington’s recently created PSEA programs and explores JLMP alternatives for high growth occupations and strategic industries.

Recommendations

WAGES’ final section recommends strategic public investments in high-wage, sustainable, democratically governed apprenticeship programs, as well as support for successful pre-apprenticeship programs, to best meet the needs of Washington’s apprentices and growing industries.



DATA & METHODOLOGY

Data Sources and Methodology

Data Sources

WAGES uses data from 170 apprenticeship organizations, 303 programs and 567 occupations in Washington state to compare the performance of JLMF programs to non-union apprenticeship programs. WAGES utilizes data from a number of state agencies, federal agencies and individual apprenticeship programs. Demographic, enrollment, program duration, completion and occupation data are drawn from the Washington State Department of Labor & Industries (L&I) Apprenticeship Registration and Tracking System (“ARTS”). The Bureau of Labor Statistics’ (“BLS”) Occupational Employment Statistics (“OES”) provide wages by occupation for Washington’s metropolitan statistical areas (“MSAs”), sub-regions and the state as a whole. Washington’s Workforce Training and Education Coordinating Board (“WTB”) provided entry and exit wages and hours for groups of Washington apprenticeship programs. Washington’s Employment Security Department (“ESD”) provided Washington job growth projections by occupation for 2016-2026. The U.S. Census Bureau provided demographic information. These data are used to compare the performance of three apprenticeship models defined in WAGES: joint labor-management partnership (“JLMF”), multi-employer partnership (“MEP”), and publicly subsidized employer apprenticeship (“PSEA”) programs.

Quantitative Methodology

WAGES examines two broad apprentice groups: all apprentices who participated or completed a Washington state apprenticeship program in 2017, and apprentices who exited one of twelve programs serving six large construction trades between 2013 and 2016. The cohort of 17,150 apprentices active at any point in 2017 include all apprentices who started training in 2017, apprentices who cancelled, completed, transferred or were suspended from their programs in 2017, apprentices who exited their program in 2018 and started training before 2017, and apprentices listed as active who started work before 2017. In order to conduct the ROI analysis, WAGES analyzes wages and hours for apprentices working in six large trades who cancelled or completed their programs between 2013 and 2016, the most recent data available.

A Note on Journey Wages

Journey wages in WAGES, drawn from L&I data, represent the lowest regional journey wage for each apprenticeship program. However, some statewide programs pay significantly higher wages in certain regions. L&I reports a journey wage of \$26.01/hour for the Northwest Laborers - Employers Training Trust Fund apprenticeship, for instance, but the program pays Journeyman General Laborers \$37.27/hour in Western Washington. Journey wage data should therefore be interpreted as a lower bound estimate.

Wages in WAGES are converted to May 2017 dollars to allow for a direct comparison with BLS’ OES occupational data. BLS’ most recent occupational wage data is from May 2017. Journey wages for each apprenticeship program analyzed in WAGES are current as of August 2018, and have been deflated to May 2017 dollars using the CPI-U historical CPI index to facilitate a direct comparison of journey wages to state, sub-region and MSA averages. It’s important to note that while journey wages are reported for each program, the actual wage that apprentices earn when they journey out is not. Some industries may pay journeymen above their journey rate, while others may pay an hourly wage that’s closer to their journey rate.

WAGES holds as many factors constant as possible – occupation, gender, race – while comparing different models of apprenticeship, allowing an apples-to-apples comparison of JLMP and non-union programs. WAGES compares the performance of different apprenticeship models serving the same occupation rather than different occupations, because occupational demographics, wage rates and program success vary substantially. For example, in 2017, 99.7% of Lathing Acoustical Drywall Systems Installer apprentices in Washington were male, while 94.6% of Medical Assistant apprentices in Washington were female.⁷ Roofer apprentices were 58.0% apprentices of color, while Firefighter apprentices were 90.0% White.⁸ Washington’s average hourly wage for Electrical Engineers is \$53.06 per hour, while Childcare Workers earn just \$13.37 per hour.⁹ The completion rate for exiting apprentices from Sheet Metal Programs was 54.6%, but only 12.9% for Roofing programs.¹⁰ Given the way program demographics, wages and outcomes vary dramatically by occupation, it makes sense to directly compare different apprenticeship models which serve the same occupation. A similar logic is used when comparing outcomes for women or people of color. To explore the impact of the JLMP model on women, for instance, WAGES compares the completion rates for JLMP female carpenters to non-union female carpenters, or the enrollment rates for women in JLMP sheet metal programs to women in non-union sheet metal programs. This method helps isolate the impact of the apprenticeship model itself.

A Note on Completion Rates

Completion rates throughout WAGES are calculated by comparing the number of apprentices that successfully complete their program in a given year to the total number of apprentices that either cancel or complete their program in that year. This method is consistent with the methodology of the Washington Workforce Training and Education Coordinating Board (“WTB’s”) annual apprenticeship reports and provides a useful basis for comparison to other studies.

$$Completion\ Rate_{Year\ X} = \frac{All\ Completing\ Apprentices_{Year\ X}}{All\ Completing\ Apprentices_{Year\ X} + All\ Cancelling\ Apprentices_{Year\ X}}$$

However, many apprenticeship program coordinators calculate completion rates based on a federal method that only includes cancelling apprentices who make it through their probationary period, with early cancellers not counted against a program’s completion rate. Since many cancelling apprentices don’t make it through their probationary period, the completion rates in WAGES will be significantly lower than completion rates calculated according to this federal method. Probationary period data was not available for all programs in this Study, so WAGES calculates completion rates using all completing and cancelling apprentices.

While WAGES uses all available data and methods to accurately compare JLMP and non-union programs, the individual-level data necessary to facilitate a regression analysis of individual and program performance were unavailable for this Study, so the results should be interpreted conservatively. WAGES attempts to hold multiple factors constant, including exit year, occupation, gender, race and veteran status, and then compares the performance of similar groups and subgroups training in JLMP and non-union programs. However, an individual-level data set with large enough sample sizes and all relevant variables was unavailable for this Study. Additionally, certain data such as age, ability, experience and earnings history were not available. It could be the case that a share of the results attributed to the success of JLMP or non-union programs may be a function of differences in the programs’ demographic mix, apprentice skill level, apprentice work experience, or the age of apprentices. However, other studies have found results consistent with WAGES results for Washington state, namely that JLMP apprentices earn higher wages,¹¹ that joint-labor management programs narrow the gender pay gap,¹² and that workers of color do better in unionized trades.¹³

Apprenticeship Models

Washington's apprenticeship programs are administered by a variety of different organizations, working in vastly different industries, through an array of educational institutions, across the entire state of Washington. Most apprenticeship organizations are a collaborative effort between workers' unions and employers, but some apprenticeship programs are run by an individual employer, a larger trade association or through a grant-funded non-profit. While apprenticeships are concentrated in traditional trades like carpentry or ironworking, Washington's programs train everyone from school secretaries to custodians to firefighters. Related supplemental instruction ("RSI") is provided at community or technical colleges, union training institutes or employer training facilities. In addition to program governance and differences in training facilities, apprenticeships vary in geographic scope. Some provide training for a single worksite, while others encompass dozens of employers working across multiple states.

WAGES makes a fundamental distinction between JLMP programs and programs operated solely by employers. While apprenticeship programs vary in a number of important ways, the most fundamental difference is that JLMP apprenticeship programs are bargained over, formed, designed and administered by workers and their democratically elected representatives. Some employer programs include seats for workers on their governing committees and many consider worker input. However, only JLMP programs are secured by agreements bargained by and voted on by workers themselves. This fundamental distinction explains why JLMP programs have successfully secured higher wages, a larger number of apprentices and superior completion rates than their non-union counterparts.

“Some employer programs include seats for workers on their governing committees and many consider worker input. However, only JLMP programs are secured by agreements bargained by and voted on by workers themselves.”

Joint Labor-Management Partnership Apprenticeships

JLMP apprenticeship programs are the most common model of apprenticeship in Washington, training more than 5 of every 6 Washington apprentices in 2017.¹⁴ JLMPs are funded by union workers and their employers, and governed by joint apprenticeship and training committees ("JATC"). Some JLMP programs are small partnerships between a single local workers' union and one employer, and others result from large agreements between international unions and national employers' associations. Woodworkers Local Lodge W536's apprenticeship programs with Weyerhaeuser Longview, for instance, trained 5 apprentices in 2017 to become industrial maintenance electricians, saw filers and industrial maintenance millwrights at the Weyerhaeuser lumber plant in Longview, Washington. The Puget Sound Electrical JATC, on the other hand, oversaw 3 large programs training 1,356 apprentices across Western Washington in 2017, works with dozens of employers, and is the local affiliate of the Electrical Training Alliance, a national apprenticeship partnership between the International Brotherhood of Electrical Workers ("IBEW") and National Electrical Contractors Association ("NECA") that has trained over 350,000 journeymen nationwide.¹⁵

In a JLMP apprenticeship program, the union and its employer partners create an apprenticeship trust that is typically funded by hourly contributions from employers and union employees determined by a negotiated collective bargaining agreement. A JATC governed by equal numbers of union and employer representatives oversees the trust, hires the executive leadership of the training program and makes sure the trust is financially sustainable. The trust then pays union training centers and/or local community and technical colleges to provide instruction and training material to apprentices.

Non-Union Programs

Multi-Employer Partnership Apprenticeships

The most common model of non-union apprenticeship in Washington state is the multi-employer partnership (“MEP”) apprenticeship program. MEP apprenticeships are organizations set up to provide apprenticeship to a larger group of primarily or exclusively non-union employers. MEP programs are often created with seed money from large employer associations, and then rely on per-apprentice or per-year funding from employers to train apprentices. Executives or representatives from participating employers sit on the board and oversee the program. The Construction Industry Training Council of Washington (“CITC”), originally created by the Associated General Contractors, Associated Builders and Contractors and National Utility Contractors Association and now funded through a fee-for-service model for members,¹⁶ is the largest multi-employer apprenticeship in Washington state.¹⁷ CITC apprenticeship programs trained 1,354 apprentices in 2017 in 10 occupations, including construction electricians, plumbers and carpenters. The Inland Northwest Associated General Contractors sponsor apprenticeship programs in Eastern Washington for carpenters, construction equipment operators and laborers¹⁸ and trained 165 apprentices in 2017.¹⁹ Smaller groups like the Spokane Home Builders Association also run apprenticeship programs. WAGES will compare the performance of MEP and JLMP apprenticeships in the Return on Investment section.

Publicly Subsidized Employer Apprenticeships

Publicly subsidized employer apprenticeship (PSEA) programs are controlled by employers but receive a significant subsidy of taxpayer dollars. These apprenticeship programs are administered by non-profits, typically controlled by employer associations, and significantly funded by taxpayer dollars. Established in 2008 by the Washington legislature with \$3 million in annual funding,²⁰ the Aerospace Joint Apprenticeship Committee (“AJAC”) is Washington’s largest PSEA, training 484 apprentices in 2017.²¹ AJAC includes a limited amount of union worker input. Two International Association of Machinists (“IAM”) representatives serve on the eight-member governing committee alongside employer representatives,²² but most apprentices work in non-union shops.²³ The Washington Technology Industry Association (“WTIA”) runs the Apprenti PSEA program, overseen by directors from Microsoft, Amazon, union avoidance law firm Davis Wright Tremaine²⁴ and Washington community colleges and universities. Apprenti received \$3.5 million in start-up grants from the U.S. Department of Labor (“DOL”) and Washington State Labor & Industries (“L&I”) in 2016,²⁵ \$7.5 million from DOL later that year to expand the program nationwide,²⁶ and a \$4 million pledge from Washington state in 2017.²⁷ In 2017, Apprenti trained 84 apprentices in Washington state. WAGES will compare JLMP apprenticeship programs to PSEA programs in the Apprenticeships for Growing Industries section.

Plant Programs

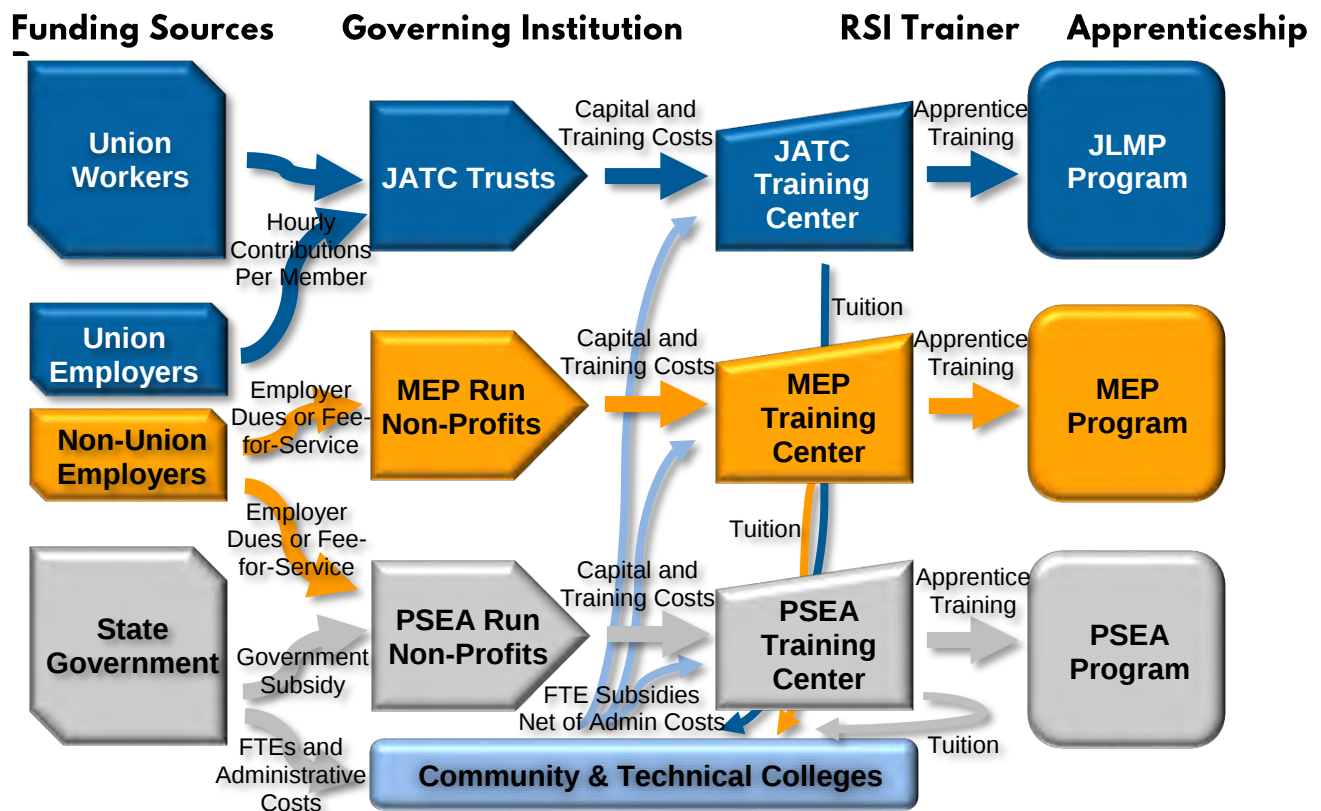
Individual employers can also create and administer apprenticeship programs to train their workforce. In 2017, for instance, Nichols Brothers Boat Builders ran five apprenticeship programs training 83 apprentices in five ship-building trades on Whidbey Island, Evco Electronics worked with 16 low voltage technician apprentices out of Spokane, and 1 apprentice police officer successfully completed their program with the Oak Harbor Police Department.²⁸ Plant programs tend to be smaller in scope and will be analyzed in WAGES only as part of the larger non-union program group.

Apprenticeship Funding and Program Administration

Apprenticeship programs receive funding from a variety of sources and rely on a variety of institutions to provide related supplemental instruction (“RSI”) training (**Figure 4**). Larger JLMF programs like the United Brotherhood of Carpenters JATC or Northwest Laborers Employers Training Trust set up their own training centers to provide RSI training and oversee curriculum. Many JLMF programs also rely on local community and technical colleges (“CTCs”) to provide RSI. For instance, the Boilermakers Local 104 apprenticeship trains and provides RSI at South Seattle College’s Georgetown Campus.²⁹ PSEA programs also rely on CTCs for training and RSI to varying degrees. AJAC opened its own Advanced Manufacturing Training Center in Kent in 2017 and also provides training to apprentices at CTCs like Bates Technical College and Everett Community College.³⁰ MEP programs like CITC run their own training centers, while the Inland Northwest AGC programs partner with Spokane Community College.³¹

In addition to providing training facilities to many programs, Washington state provides per apprentice funds to registered apprenticeships that are administered through the state’s CTCs. CTCs keep a significant percentage of this funding as an administrative fee for accreditation, receive tuition payments from apprenticeship programs themselves, and then pay any net remainder out to programs to help with training.

Figure 4. Funding Models for JLMF, MEP and PSEA Apprenticeship Programs



Note: Acronyms include Joint Apprenticeship and Training Committee (“JATC”), Joint Labor-Management Partnership (“JLMF”), Multi-Employer Partnership (“MEP”), and Publicly Subsidized Employer Apprenticeship (“PSEA”). Many JATC Trust, MEP Run Non-Profits and PSEA Run Non-Profits also rely on community and technical college training centers and classrooms to train apprentices.

Joint Labor-Management Partnership – A Model That Works

JLMP apprenticeships have a number of advantages that allow them to outperform non-union apprenticeship programs. JLMPs are funded by union-employer trusts that are contractually secured for years at a time. JLMP programs often partner with industry associations representing multiple employers, allowing for the sharing of both training costs and benefits. Furthermore, JLMP programs provide higher wages than comparable non-union programs. This higher wage, and union members' incentives to grow the union, help drive a higher completion rate. Finally, unions have launched a number of initiatives to benefit members and increase the inclusivity of their programs.

JLMP programs are funded by contributions based on union worker hours secured by a collective bargaining agreement. Unions and employers make contributions to a jointly administered trust that distributes training funds to JLMP apprenticeship programs. The funding levels are secured in collective bargaining agreements, negotiated and voted on by union workers, that can last for 6 years or longer between renewals. This contractually secure funding allows JLMP programs to plan for the long term and avoid reliance on taxpayers.

Unions partner with industry associations to spread the costs and benefits of training programs. Individual employers are often reticent to start apprenticeship programs because they fear that after spending thousands of dollars to train and credential an apprentice, that worker will take their newfound skills to another employer. By partnering with associations of employers, unions spread the costs of the program to a broader group of employers, and the benefits are then widely shared as trained journeymen are able to transfer between union employers based upon employer demand.

“The higher wages in JLMP apprenticeships incentivize apprentices to stick with and complete their programs.”

JLMP programs provide apprentices with much higher wages and benefits than non-union programs. The same collective bargaining process that enables the creation of large training trusts also allows union workers to bargain for higher wages and benefits. Unions can secure a higher journey wage for JLMP apprentices than their non-union counterparts, especially since union representatives sit on the governing committees for their apprenticeship programs. These higher wages and stronger benefits improve the lives of successful apprentices after they complete their programs.

Higher wages and greater buy-in drive lower turnover and higher completion rates for union apprentices. The higher wages in JLMP apprenticeships incentivize apprentices to stick with and complete their programs. Additionally, every other union member has an incentive to help and grow the apprenticeship program. A larger number of talented apprentices means a larger number of future union members and a more powerful voice at the bargaining table.

The labor movement has launched a number of successful initiatives to support women, people of color and veterans, helping JLMP programs train apprentices from these underrepresented groups. The Washington State Labor Council's race and labor initiative, launched in 2015, aims to erase racial disparities and barriers to participation in union workplaces and programs.³² At least 10 Washington unions have partnered with the Apprenticeship & Nontraditional Employment for Women (“ANEW”) pre-apprenticeship program encouraging women to enter the trades.³³ The Washington State Building and Construction Trades Council, which represents over 100,000 union construction workers, was the first state Council in the country to start a pre-apprenticeship program, Pre-Apprenticeship Construction Education (“PACE”), to serve a “diverse population” of “women, men, people of color, ex-offenders, [and] veterans.”³⁴ These efforts help JLMP programs include a higher share of apprentices from underrepresented groups.



PROGRAM PERFORMANCE

Enrollment and Completion Rates

Enrollment

JLMP apprenticeship programs train 83% of all apprentices in Washington state.³⁵ In 2017, there were 14,253 apprentices training in 205 JLMP programs funded by 98 joint apprenticeship and training committee (“JATC”) trusts. The largest JLMP organizations were the Washington State United Brotherhood of Carpenters JATC (2,497 apprentices), Northwest Laborers Apprenticeship Committee (1,480 apprentices) and Puget Sound Electrical JATC (1,356 apprentices).³⁶ An additional 2,897 apprentices trained in 98 programs run by 72 plant, multi-employer partnership (“MEP”) and publicly subsidized employer apprenticeship (“PSEA”) organizations.³⁷ This includes 1,354 apprentices training with the Construction Industry Training Council of Washington (“CITC”), 484 with the Aerospace Joint Apprenticeship Committee (“AJAC”) and 135 apprentices training with the Washington Association for Community Health (“WACH”).³⁸

Completion Rates

Nationally, studies find that JLMP programs have a higher completion rate than non-union apprenticeship programs. A 2013 analysis by the Aspen Institute found that for the building trades, completion rates for JLMP apprenticeship programs were 6 percentage points higher (37% vs. 31%) than non-union programs.³⁹ A 2005 study from Oregon found that “on a trade-by-trade basis, union programs had higher completion rates than their non-union counterparts.”⁴⁰ A 2004 AFL-CIO study found that nationally, non-union Associated Builders and Contractors programs journeyed out apprentices at half the rate of JLMP programs.⁴¹ A 2002 Pennsylvania study found that completion rates were 15 percentage points higher in JLMP apprenticeships than in non-union programs.⁴² Consistent with these findings, an analysis of ARTS data reveals that JLMP programs in Washington maintain much higher completion rates than non-union programs.

In Washington, apprentices training in JLMP programs had a significantly higher rate of successful completions than those in non-union programs. Overall, 3,238 apprentices completed or cancelled JLMP programs in 2017, while 640 completed or cancelled non-union programs. Among these exiting apprentices, the successful completion rate for JLMP programs was more than 8 percentage points higher than for non-union programs (43.0% vs. 34.8%).⁴³ In 2017, 86.2% of all successful apprentices in Washington state who journeyed out of their programs trained in JLMP apprenticeship programs.⁴⁴

JLMP programs had a higher successful completion rate across 12 of 16 comparable occupations where both JLMP and non-union programs trained apprentices.⁴⁵ Comparing completion rates within the same occupation can provide a more accurate assessment of program success because cancellation and completion rates vary substantially for different occupations. For example, a national 2013 study found that roofers had a cancellation rate almost three times higher than elevator installers and repairers (64% vs. 23%).⁴⁶ Washington’s occupations display similar patterns. Holding occupation constant, JLMP programs outperformed non-union programs. For instance, electrician apprentices successfully completed JLMP programs at double the rate of non-union programs (59.8% vs. 27.2%).⁴⁷ Among laborer apprentices leaving their programs in 2017, those exiting JLMP programs were ten times more likely to successfully journey out (30.0%) than in non-union programs (3.0%).⁴⁸ The overall completion rate across these 16 comparable occupations was 44.0% for JLMP programs and 32.2% for non-union programs.⁴⁹

Journey Wage Rates

Journey Wage Comparison

Apprentices journeying out of JLMP programs earned an average journey wage⁵⁰ of \$34.42/hour, compared to \$22.93/hour for completers of non-union programs.⁵¹ This JLMP journey wage premium is consistent with premiums reported in studies from other states, and the overall gap between union and non-union wages. In Michigan, a 2017 study found that apprentices earned an average of \$22.21/hour completing JLMP programs compared to \$14.55/hour after completing non-union programs.⁵² Nationally, union workers earn 25% more in median weekly earnings than non-union workers.⁵³ Washington's JLMP programs demonstrate the same wage premium, and it remains when holding occupation constant.

For 13 of 14 comparable occupations in 2017, JLMP journey wages were between 3.5% and 105.1% higher than for non-union journeymen.⁵⁴ For example, machinist journeymen earned an average hourly journey wage⁵⁵ of \$38.15/hour after journeying out of JLMP programs, but only \$18.61/hour in journey wages upon completion of non-union programs. Among heating, air conditioning, and refrigeration mechanics and installers, the JLMP journey wage premium was \$22.22 per hour (\$49.73/hour vs. \$27.51/hour).⁵⁶ Journey JLMP carpenters achieved an average journey wage of \$40.69/hour in 2017, compared to \$23.13/hour for journeymen completing non-union carpentry programs.⁵⁷ This substantial JLMP journey wage premium provides JLMP apprentices a much higher standard of living upon program completion, and likely contributes to the higher successful completion rates for JLMP programs.

Journey Wages Compared to Local Occupational Average Wages

JLMP programs provide journey wages that place successful apprentices 16.4% above their local occupational average wage, while non-union programs journey out apprentices 15.2% below their local mean wage. For each standard occupational classification ("SOC"), BLS publishes average hourly wages earned within each MSA, micropolitan statistical area and subregion in Washington state. WAGES calculates an estimate for the average hourly wage for each apprentice's occupation and area by assuming they work in their zip code. By comparing this estimate to an apprentice's journey wage, WAGES attempts to measure how well apprentices are paid relative to other workers in their trade and area. Across Washington state, apprentices who journeyed out of JLMP programs stood to earn journey wages equal to 116.4% of their local occupational mean wage, compared to only 84.8% of the local average for non-union completers.⁵⁸

Table 4. JLMP Journey Wages vs. Local Occupational Average
Journey Wages for 2017 JLMP Completers by Largest SOC Occupations

SOC Occupation	2017 JLMP Completers	Avg. JLMP Journey Wage	Avg. Local Occ. Wage
Electricians	162	\$42.37	\$31.20
Carpenters	157	\$40.69	\$27.89
Firefighters	142	\$21.36	\$35.05
Construction Laborers	122	\$25.83	\$22.80
Structural Iron and Steel Workers	72	\$32.17	\$37.18
Power-Line Installers/Repairers	70	\$48.13	\$39.94
Sheet Metal Workers	61	\$38.26	\$30.91
Plumbers/Pipefitters/Steamfitters	59	\$46.72	\$34.11
Telecomm Equipment Installers/Repairers	48	\$30.26	\$27.96
Butchers and Meat Cutters	47	\$22.26	\$20.16

Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

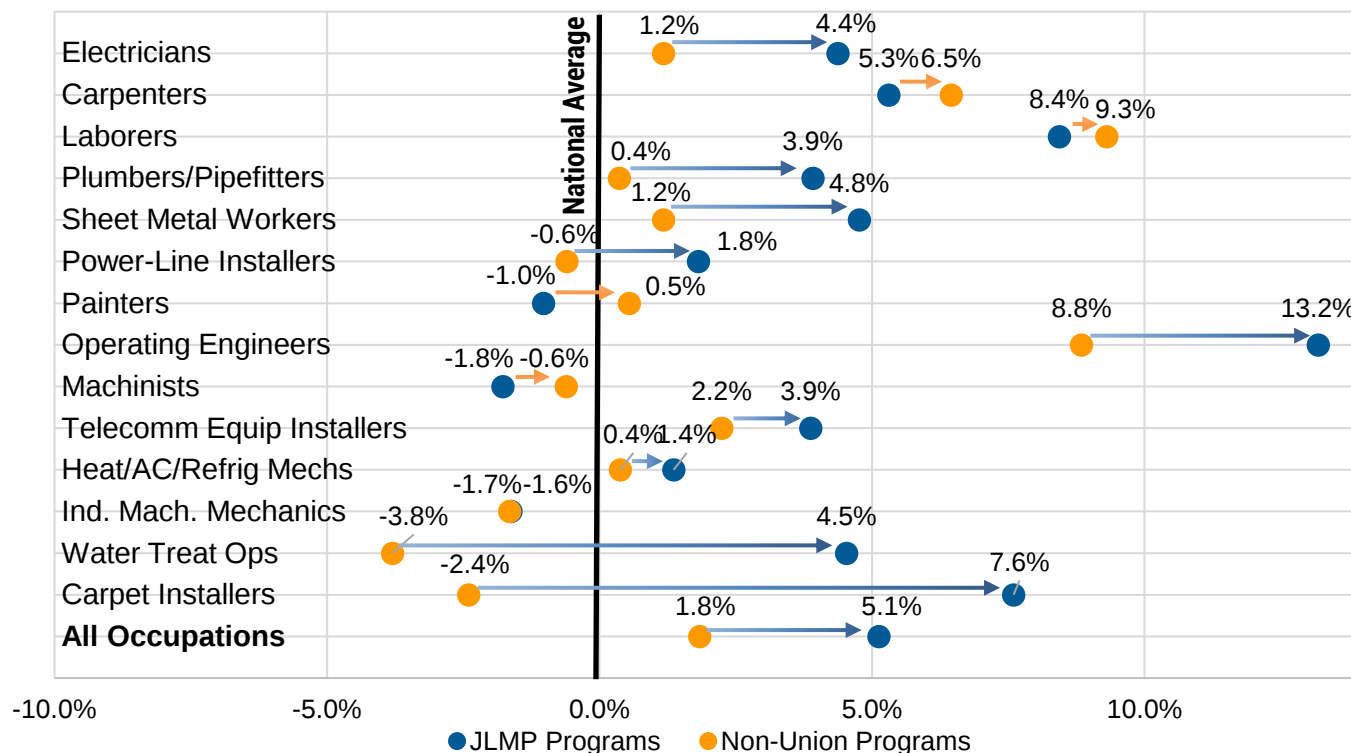
Apprentices journeying out of JLMP programs in 2017 earned journey wages above their local occupational average for the large majority of occupations (40 of 51).⁵⁹ Journey JLMP stonemasons journeyed out of their programs earning 2.1x the local average for their occupation, JLMP automotive body and related repairers earned 1.5x the local occupational mean wage, and JLMP tree trimmers and pruners earned 1.4x the local occupational mean.⁶⁰ Non-union programs, on the other hand, were able to provide journey wages above the local mean for only 10 of 30 occupations for which data was available. For instance, non-union carpenters journeyed out earning only 84.8% of their local mean wage, non-union web developers only 77.9% of their local mean and non-union medical assistants only 71.4% of their local mean.⁶¹ Across the 14 occupations where JLMP and non-union programs both journeyed out apprentices, JLMP apprentices earned journey wages above the local average for all 14 occupations, while non-union apprentices journeyed out above the local average for only 5 occupations.⁶² It's clear that JLMP apprenticeship programs do a better job of launching journeymen into careers where they earn well above a typical worker in their occupation and area.

Gender Inclusion and Outcomes

Female Enrollment

While more than 9 in 10 Washington apprentices are men, a comparison of the gender composition of Washington's apprenticeship occupations to the national averages for each occupation can provide a benchmark for gender inclusion in specific trades. In 2017, BLS' Current Population Survey captured the gender composition of 361 occupations.⁶³ Occupational gender ratios ran the gamut from male-dominated professions like brickmasons (99% male), to female-dominated professions like preschool and kindergarten teachers (98% female).⁶⁴ By comparing the gender ratios in occupations covered by Washington's apprenticeship programs to the national average for those same occupations, it's possible to gauge how well these programs are doing at bringing women into the traditionally male-dominated world of apprenticeships.

Figure 5. JLMP and Non-Union Female Participation vs. National Average
2017 Share of Women for Largest 14 Comparable Occupations



Source: ARTS Database, L&I; Table 11. Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity, Labor Force Statistics from the Current Population Survey, U.S. Census Bureau, 2017.

JLMP apprenticeship programs did a better job of engaging female apprentices than non-union, employer-run programs in 2017. There were 46 occupations trained by JLMP apprenticeship programs in Washington state for which national data on gender composition was available.⁶⁵ In these occupations, the percentage of female apprentices training in the JLMP programs was more than twice the weighted national average (8.8% vs. 4.2%).⁶⁶ By doubling the national average in female participation, the state's JLMP apprenticeship programs trained 571 more female apprentices in 2017 than would be expected according to the national average.⁶⁷ Washington's non-union apprenticeship programs also trained a slightly higher percentage of women than the national weighted average in the 39 occupations for which data was available (13.5% vs. 11.3%).⁶⁸ This translates into 62 more female apprentices training in non-union programs than would have been training had the programs enrolled women at the national average rate for their occupations.

Across the 14 directly comparable occupations where both JLMP and non-union programs trained apprentices, JLMP programs achieved female participation in excess of the national average at a rate almost three times larger than in non-union programs. In 2017, there were 14 occupations where national gender composition data was available and both JLMP and non-union programs trained apprentices (**Figure 5**). The share of women training in JLMP programs was more than triple the weighted national average for these occupations (7.9% vs. 2.8%).⁶⁹ Non-union programs also trained a slightly higher percentage of women than the weighted national average (4.9% vs. 3.1%).⁷⁰ The number of percentage points by which JLMP programs trained women above the weighted national average (5.1 percentage points) was almost triple the percentage by which non-union programs beat the weighted national average (1.8 percentage points).

“For comparable occupations, women successfully completed JLMP apprenticeship programs at more than eight times the rate of non-union programs.”

Female Completion Rates

In 2017 for comparable occupations, women successfully completed JLMP apprenticeship programs at more than eight times the rate of non-union programs.⁷¹ There were seven occupations⁷² in which women exited both JLMP and non-union apprenticeship programs in 2017, either by cancelling or successfully completing their apprenticeship. Over these occupations, 1 of 25 exiting women completed their non-union programs (4.0%), while 40 of 121 exiting women in union programs (33.1%) completed their union apprenticeships.⁷³ Among women working to become journey laborers, for instance, 0 of 7 exiting apprentices (0%) successfully completed two non-union programs in 2017, while 7 of 15 female apprentices (46.7%) completed four JLMP apprenticeship programs.⁷⁴ For female operating engineer apprentices, 5 of 7 exiting women successfully completed JLMP programs (71.4%), while 0 of 3 exiting women successfully completed non-union operating engineer programs.⁷⁵

The overall completion rate for female apprentices was nearly identical for JLMP (41.3%) and non-union programs (41.7%), driven entirely by relatively low-paid WACH apprentices.⁷⁶ WACH has achieved a very high rate of successful completion for its exiting female apprentices (92.9%), journeying out 26 female apprentices in 2017.⁷⁷ For all other non-union apprenticeship programs, only 9 of 56 exiting women successfully completed their apprenticeships, a completion rate of 16.1%.⁷⁸ While WACH should be commended for its completion success, WACH's female medical and dental assistants journey out earning \$12.13/hour and \$13.29/hour, respectively, in 2017 dollars.⁷⁹ These hourly wages place successful WACH female MAs and DAs well below the average wages in their field in every region of the state, a subject that will be discussed in more detail in the Apprenticeships for Growing Industries section.

Female Journey Wages

In addition to superior completion rates in comparable trades, women journeying out of JLMP programs in 2017 stood to earn almost twice as much, on average, as women journeying out of non-union apprenticeship programs.⁸⁰ The average journey wage for a woman completing a JLMP program in 2017 was \$27.03/hour, compared to just \$14.23/hour for women completing non-union programs.⁸¹ The non-union statistics are somewhat skewed by the large percentage of female completers (74.3%) who journeyed out of WACH programs, where medical assistant journeywomen complete the program earning relatively low wages.⁸² However, even after removing the relatively low-paid WACH journeywomen, the average journey wage for the remaining female completers from non-union programs is \$19.76/hour, \$7.26/hour below the female union journeywoman average. In the one occupation where women journeyed out of both union and non-union programs, union journeywomen carpenters earned an average journey wage of \$40.69/hour, compared to \$22.56/hour for non-union journeywomen carpenters.⁸³ Whether you hold occupation constant or look at completing journeywomen as a whole, JLMP journeywomen earn significantly more than their non-union counterparts.

Racial Inclusion and Outcomes

Apprentice of Color Enrollment

Analyzing apprenticeship program performance on racial inclusion by occupation is challenging because demographic data by occupation is unavailable at the state level, and Washington's demographics vary substantially from the national averages that are available. The Current Population Survey does not capture racial demographic data for occupations at the state level. National occupational data by race is available, but Latino workers are not separated out from the White, Black and Asian racial categories. Additionally, Washington's racial demographics vary substantially from nationwide racial demographics, with a higher share of White workers, a share of Black workers equivalent to only 1/3rd the national average, a lower share of Latino workers and a higher share of Asian workers. Consequently, it is not possible to measure racial inclusion by program compared to a national occupational average.

“Apprentices of color completing JLMP programs earned an average journey wage of \$34.00/hour in 2017, compared to only \$18.35/hour for apprentices of color from non-union programs.”

In 2017, JLMP programs enrolled a higher percentage of apprentices of color than non-union programs overall, as well as in 10 of 18 comparable occupations. Overall, 28.5% of apprentices training in JLMP programs in 2017 were apprentices of color, compared to 25.6% in non-union programs.⁸⁴ Across the 18 occupations where apprentices trained in both JLMP and non-union programs, the JLMP programs trained a higher percentage of apprentices of color in 10 occupations, non-union programs performed better across 7 occupations, and the programs performed equally in 1 occupation. For the five largest occupations, JLMP programs trained more apprentices of color to be electricians (21.5% vs. 19.7%), laborers (35.8% vs. 25.2%) and plumbers, pipefitters and steamfitters (20.3% vs. 11.3%), while non-union programs performed better in training carpenters (37.7% vs. 30.2%) and sheet metal workers (34.0% vs. 20.2%) of color.⁸⁵

Apprentice of Color Completion Rates

JLMP programs successfully journeyed out a higher percentage of apprentices of color in 7 of 10 comparable occupations in 2017. For the 10 comparable occupations, 153 of 453 exiting apprentices of color (33.8%) successfully completed their JLMP programs in 2017, while 26 of 107 apprentices of color (24.3%) exiting non-union programs completed them.⁸⁶ For instance, among electrician apprentices of color, 49.1% of exiting JLMP apprentices successfully completed their programs versus 13.9% of non-union

apprentices.⁸⁷ Fourteen of fifteen exiting telecommunications equipment installer and repairer apprentices of color completed their JLMP programs in 2017, while all 5 non-union apprentices of color who exited their programs did not.⁸⁸ In comparable trades, JLMP programs did a better job of journeying out apprentices of color than non-union programs. However, overall, non-union programs journeyed out a slightly higher percentage of apprentices of color than JLMP programs (34.0% vs. 30.7%), driven in large part by WACH's high completion rates.⁸⁹ Excluding WACH, the non-union completion rate for apprentices of color dropped over 10 percentage points to 23.3%.⁹⁰

Apprentice of Color Journey Wages

Apprentices of all races journeyed out of their JLMP programs at much higher wage rates than non-union programs, and the JLMP wage premium was higher for apprentices of color. Apprentices of color completing JLMP programs earned an average journey wage of \$34.00/hour in 2017, compared to only \$18.35/hour for apprentices of color from non-union programs.⁹¹ This \$15.65 per hour (or 85.3%) JLMP wage premium for apprentices of color was significantly larger in both absolute and percentage terms than the JLMP premium for white apprentices completing their programs. Additionally, the average journey wage rate for white apprentices (\$34.49/hour) and apprentices of color (\$34.00/hour) were essentially the same for those journeying out of JLMP programs, while white apprentices completing non-union programs earned 32.7% more than apprentices of color completing non-union programs (\$24.34/hour vs. \$18.35/hour).⁹²

Veteran Inclusion and Outcomes

Enrollment

Veterans comprise a slightly higher percentage of apprentices training in JLMP apprenticeship programs than non-union programs. In 2017, 13.7% of JLMP apprentices and 12.8% of non-union apprentices were veterans.⁹³ Among apprenticeship programs reporting data for 100 or more apprentices in 2017, the International Union of Elevator Constructors Local 19 - National Elevator Industry Educational Program (24.8%), Puget Sound Electrical JATC (21.3%), Southwest Washington Electrical JATC (19.5%) and CITC of Washington's Construction Electrician Program (18.8%) all trained a higher than average percentage of veteran apprentices. Overall, the share of veterans in apprenticeship was higher than for the population of Washington state as a whole, where 9.6% of adult Washingtonians are veterans.⁹⁴

Completion Rate

Veterans completed JLMP programs at a higher rate than non-union programs in 2017. Overall, 115 of 321 veterans exiting JLMP programs in 2017 (35.8%) successfully journeyed out, compared to 22 of 67 veterans exiting non-union programs (32.8%). Certain apprenticeship programs journeyed out higher percentages of veterans, like the Washington State Firefighters JATC where 20 of 20 veterans successfully completed the program in 2017, or Puget Sound Electrical JATC's where 55.9% of 34 exiting veterans completed their program.⁹⁵ Overall, veterans had a lower successful completion rate (35.3%) than all exiting apprentices as a whole (41.6%).

Journey Wages

Veteran apprentices journeying out of JLMP programs earned \$9.55/hour more than veterans completing non-union programs in 2017. The 115 veteran apprentices that completed JLMP programs earned an average journey wage of \$35.64/hour, while the 22 veterans completing non-union programs earned an average journey wage of \$26.09/hour.⁹⁶ Only 22.7% of completing non-union veteran apprentices had journey wages above the local mean for their occupation, vs. 71.1% of veteran apprentices journeying out of JLMP programs.⁹⁷

A photograph showing two individuals working on a project at a workbench. The workbench is covered with a blue and yellow patterned cloth. Various electronic components, including wires, a breadboard, and a small circuit board, are visible on the table. One person is wearing a blue long-sleeved shirt, and the other is wearing a dark blue short-sleeved shirt. They are both focused on the task at hand.

RETURN ON INVESTMENT

Return on Investment Analysis

Introduction

While the Program Performance section compared the performance and inclusion metrics for JLMP and non-union programs, WAGES' return on investment analysis calculates the estimated extra earnings for apprentices and taxpayers generated by both JLMP and MEP programs. Enrollment, completion rates, journey wages and inclusion are important metrics of apprenticeship success. A return on investment ("ROI") model can add another layer of depth by estimating the impact that an apprenticeship program has on an apprentice's lifetime earnings and benefits. The model can also estimate a ROI for taxpayers by comparing the cost of public investment in training to future increases in taxes paid by higher earning journeymen. In order to calculate these individual and taxpayer impacts, and analyze what effect program model has on ROI, WAGES compares the largest and most established JLMP and MEP programs in the state. This comparison provides insight on how different apprenticeship models may serve apprentices and taxpayers as they are expanded to new industries.

The longevity, size and success of Washington's JLMP and MEP construction apprenticeship programs makes them an ideal group to analyze in an ROI model. The Seattle Area Pipe Trades ("SAPT"), Western Washington Sheet Metal JATC ("WWSMJATC"), Laborers-Employers Training Trust Fund ("NWLETT"), Puget Sound Electrical JATC ("PSEJATC"), Washington United Brotherhood of Carpenters JATC and Operating Engineers Regional Training Program ("OERTP") JLMP programs have all been operating for over 40 years.⁹⁸ In 1985,⁹⁹ the Associated General Contractors ("AGC"), Associated Builders and Contractors ("ABC") and National Utility Contractors Association ("NUCA") partnered¹⁰⁰ to create the largest MEP program, CITC, which trains four occupations included in the Model. Together, the twelve programs analyzed by the WAGES ROI Model trained 6,200 apprentices in 2017, 36.1% of all apprentices in the state.¹⁰¹ Additionally, 1,839 apprentices journeyed out of these programs over the past five years.¹⁰² These large, established JLMP and MEP programs provide an ideal comparison group to look at how apprenticeship model affects ROI.

"The longevity, size and success of Washington's JLMP and MEP construction apprenticeship programs makes them an ideal group to analyze in an ROI model."

WAGES compares outcomes for the six largest JLMP and six largest MEP programs serving the largest comparable construction occupations to understand what role the model of apprenticeship plays on program outcomes. The WAGES ROI Model examines apprenticeship programs for carpenters, construction electricians/inside wiremen, construction equipment operators, laborers, plumbers and sheet metal workers. For each occupation, the Model compares the ROI and net impact on apprentices and taxpayers of the largest MEP and JLMP program. The results can be used to inform policymaking decisions on which type of apprenticeship programs to invest in, both in existing trades and new occupations, and help apprentices make decisions on which apprenticeships produce the greatest individual returns. For both individuals and taxpayers, WAGES finds that JLMP programs yield a far greater return on investment and net impact than non-union MEP programs.

Return on investment and Net Impact of Washington's Apprenticeship Programs

Calculating an apprenticeship program's return on investment ("ROI") for taxpayers is a useful way to measure program impact and make public investment decisions. Conceptually, taxpayer ROI attempts to compare the extra net taxes in a world where workers go through the apprenticeship program and earn higher wages, to net taxes for taxpayers in a world where the same workers do not go through the program. The additional income, sales, Social Security and Medicare taxes resulting from the program are compared to any additional costs incurred to pay for the program to calculate a taxpayer ROI. Public officials can then compare ROIs for different apprenticeship programs, or different workforce development programs in general, to make decisions about how best to invest tax dollars in the present to generate additional tax revenue in the future.

The ROI and net impact of an apprenticeship program for individual apprentices provides similar information about financial returns to individuals. For apprentices, the net impact and ROI of an apprenticeship program is a comparison of the additional wages and benefits (net of taxes) they earn over the course of their lifetime, minus the tuition, books and other costs they incur to go through the program. Net impact and ROI measurements can help individual apprentices make decisions about where they want to spend thousands of hours training in order to build a high-wage, high-skill career.

Washington's Workforce Training and Education Coordinating Board ("WTB") conducts regular ROI and net impact analyses of Washington's workforce development programs, including apprenticeship. WTB contracts with the W.E. Upjohn Institute for Employment Research ("Upjohn") to conduct sophisticated analyses for 12 of Washington's workforce development programs, including apprenticeship. Upjohn's net impact and cost-benefit analysis "attempts to answer the question of how outcomes compare to what would have happened to participants if there were no program, and individuals were left to their next best alternatives."¹⁰³ To model what would happen in this alternative universe where apprentices did not enroll in their program, Upjohn creates a demographically similar comparison pool of workers who sign up for job search services at Washington Work Source offices, but don't participate in a workforce development program. By comparing the wage, benefit and tax results for participants in workforce development programs to the wage, benefit and tax results for this demographically similar group of workers, Upjohn can theoretically attribute the difference in outcomes between the two groups to the workforce development program.

Upjohn found "individual apprentices stood to earn \$342,560 in additional total compensation over their lifetimes. Taxpayers, meanwhile, earn \$103,239 in additional taxes."

The net impacts of apprenticeship programs in Washington are positive and very large. Upjohn's 2016 analysis looked at completing and non-completing apprentices who exited their programs in 2010-2011 and 2012-2013, finding annual earnings increases of almost \$13,800 per year in 2016 dollars.¹⁰⁴ Projecting these results forward over the lifetime of an apprentice,¹⁰⁵ Upjohn found that apprentices earned \$258,676 more in gross wages, \$103,470 more in fringe benefits, and \$55,728 more in gross total compensation during training than they would have earned had they not participated in their program.¹⁰⁶ After subtracting away program costs and taxes, individual apprentices stood to earn \$342,560 in additional total compensation over their lifetimes. Taxpayers, meanwhile, earn \$103,239 in additional taxes, net of program costs.¹⁰⁷ Apprenticeship has the second highest net impact of any workforce development program in the state.¹⁰⁸

However, Upjohn's analysis does not examine the ROI or net impact for individual apprenticeship programs. Programs with higher completion rates, higher journey wages and more benefits, all else equal, will likely see higher ROIs for taxpayers and net impacts for apprentices. Since JLMP programs have achieved higher completion rates, better journey wage standards and larger benefit packages, they will theoretically produce greater returns for individuals and taxpayers. To test that theory, WAGES uses the WAGES ROI Model to compare the ROI for taxpayers and net impact for individuals for the largest JLMP program and largest MEP program serving the six largest comparable occupations.

The WAGES ROI Model - Description

WAGES develops an economic model of ROI and net impact that allows for comparison of different apprenticeship programs and models. Upjohn's sophisticated statistical analysis examines the ROI and net impact of all apprenticeship programs in Washington state, but is not applied to individual apprenticeship programs. WAGES employs an economic model ("WAGES ROI Model") to estimate the ROI and net impacts of twelve apprenticeship programs (**Table 5**). The WAGES ROI Model is an economic model that relies on a large set of assumptions, not a statistical model. The results should, therefore, be interpreted conservatively as estimates providing a basis for comparison, rather than precise figures. Nonetheless, the WAGES ROI Model utilizes the best data available, realistic economic assumptions, and results in ROIs and net impacts that are broadly consistent with the Upjohn analysis.

Table 5. WAGES ROI Model Apprenticeship Programs
Largest JLMP and MEP Program in Six Largest Comparable Occupations

Occupation	JLMP Program	MEP Program
Carpenter	Northwest Carpenters Institute	Construction Industry Training Council of Washington - Carpenter
Construction Electrician	Puget Sound Electrical JATC	Construction Industry Training Council of Washington - Construction Electrician
Construction Equip Operator	Operating Engineers Regional Training Program	Inland Northwest Associated General Contractors Operators Apprenticeship Committee
Laborer	Northwest Laborers-Employers Training Trust	Inland Northwest Associated General Contractors Laborers Apprenticeship Committee
Plumber	Seattle Area Pipe Trades	Construction Industry Training Council of Washington - Plumber
Sheet Metal Worker	Western Washington Sheet Metal JATC	Construction Industry Training Council of Washington - Sheet Metal

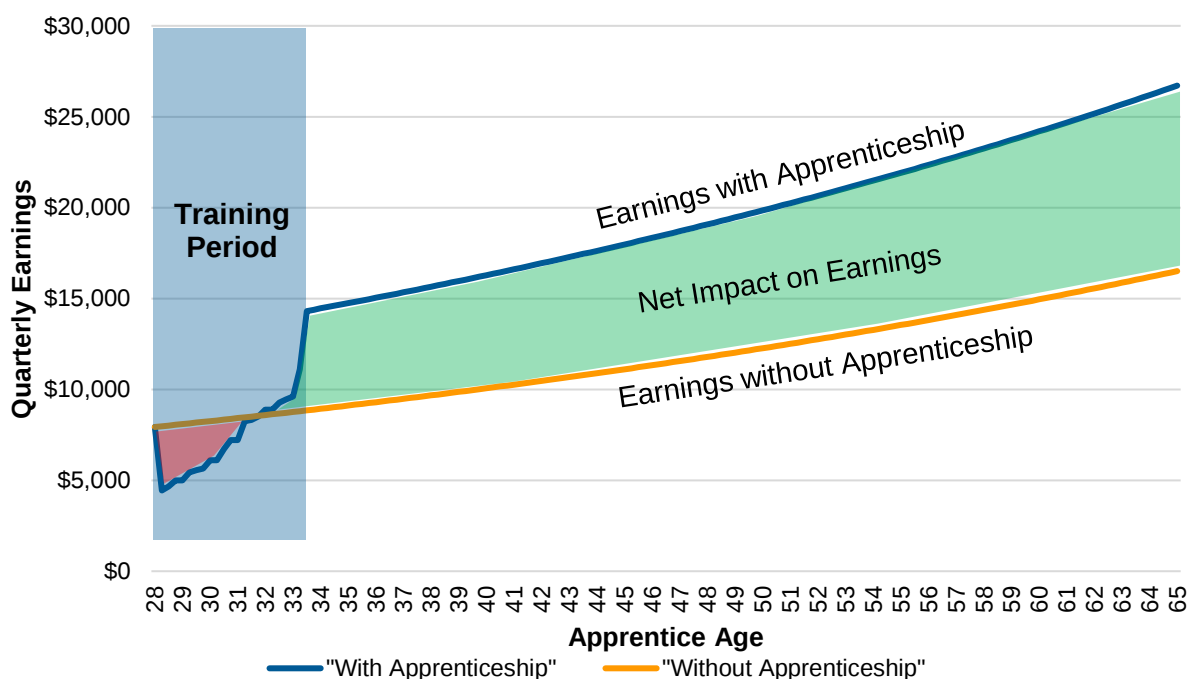
Note: "Largest comparable occupations" are defined as the top ten occupations with the largest number of 2017 enrolled apprentices where both JLMP and MEP programs trained apprentices. "Largest program" is defined as the JLMP or MEP program with the largest number of exiting apprentices for those occupations in 2017.

WAGES applies the WAGES ROI Model to twelve programs (six JLMP and six MEP) serving the six largest apprenticeship occupations trained by both a JLMP and MEP program between 2013 and 2016.¹⁰⁹ The WAGES ROI Model universe includes all apprentices in the six relevant occupations who completed or canceled their program between July 1, 2013 and June 30, 2016, excluding apprentices who transferred or trained in multiple programs.¹¹⁰ Staff at WTB provided pre-program earnings, post-program earnings, pre-program hours and post-program hours data for three program years – 2013/2014, 2014/2015 and 2015/2016 – for both completers and non-completers for the group of twelve programs as a whole. This was the most up-to-date data available, and the most granulated wage and hours data provided.

For each apprentice, the WAGES ROI Model compares data for their actual participation in apprenticeship to a hypothetical model where they never trained as an apprentice. The WAGES ROI Model uses on-the-job training ("OJT") hours and wage scales data for individual apprentices reported by L&I to estimate actual apprentice earnings, benefits and taxes during training, assuming a starting age of 28 for every apprentice. The Model then uses average wage data supplied by WTB to estimate apprentice earnings after completing their program, projecting this out for the remainder of their career (**Figure 6**). The hypothetical model without apprenticeship uses each apprentice's pre-apprenticeship hours and wages, adjusted for

geographic and occupational conditions in their trade, and projects that forward until retirement. By comparing the estimated lifetime earnings and benefits for individuals who went through an apprenticeship program, to the hypothetical earnings for each apprentice in a world where they never participated in an apprenticeship program, the WAGES ROI Model estimates a net impact for each apprentice and for taxpayers for each apprentice in each program. A more detailed explanation of the WAGES ROI Model, including an explanation of all model assumptions, can be found in “**Appendix A: The WAGES ROI Model.**”

Figure 6. Estimated Quarterly Earnings for Apprentice John Doe
Apprenticeship vs. No Apprenticeship, Age 28 to 65



Note: Post-training earnings for apprentices, and all earnings for non-apprentices, estimated to grow at a real wage rate of 2%.

The WAGES ROI Model - Results

JLMP programs produced significantly greater gains in additional wages, benefits and taxes for individuals and taxpayers than MEP programs for all six of the state’s largest comparable occupations. On average, the six JLMP programs increased an individual apprentice’s lifetime earnings by \$446,118 and lifetime benefits by \$365,427, net of tax payments (**Table 6**). For taxpayers, these higher earning JLMP apprentices generated an additional \$289,474 in income, sales, Social Security and Medicare taxes, net of unemployment insurance transfers. MEP programs also produced additional wages, benefits and taxes for apprentices. The average annual earnings of MEP apprentices increased by \$233,221 over their lifetimes, benefits by \$120,971 and net payments to taxpayers by \$137,970.

JLMP programs added significantly more to lifetime benefits because of their generous health and retirement packages. In 2017, employers in the construction trades paid their workers an average hourly wage of \$24.85/hour along with \$7.79/hour in health, retirement and paid leave benefits.¹¹¹ The Model uses this benefit percentage (31.3%) as an estimate for benefits accrued by individuals who never enter apprenticeship, all MEP completers and non-completers, and JLMP non-completers. JLMP completers, however, accrue a far higher amount of retirement and healthcare benefits through their union jobs. WWSMJATC apprentices, for instance, journey out of their programs earning benefits equal to 56.8% of their

wages, while inside wiremen/construction electrician apprentices journey out of their PSEJATC program earning a benefit package worth 44.8% of their wages.¹¹² These higher benefit rates drive the much higher lifetime additional benefits enjoyed by JLMP program apprentices.

Higher wage occupations had a greater positive effect on lifetime earnings, benefits and tax payments.

The programs that contributed to the largest increases in apprentice lifetime earnings and tax payments were the SAPT, PSEJATC and WWSMJATC apprenticeship programs. These three programs also had the highest journey wages (in May 2017 dollars), with SAPT apprentices journeying out at \$51.50/hour, PSEJATC apprentices journeying out at \$48.62/hour and WWSMJATC apprentices journeying out at \$41.89/hour.¹¹³ All three programs also achieved greater lifetime earnings and tax payments for apprentices because of their higher completion rates. Among MEP programs, the greatest returns for individuals were also achieved by the three programs with the highest journey wages (in May 2017 dollars) – CITC – Plumber (\$29.11/hour), CITC – Construction Electrician (\$29.02/hour) and CITC – Sheet Metal (\$28.39/hour).

Table 6. WAGES ROI Model Results – Additional Wages, Benefits, Taxes and Costs
Avg. Additional Lifetime Wages, Benefits, Taxes and Costs for 2013-2016 Exiting Apprentices

Occupation	Program	Additional Wages	Additional Benefits	Additional Taxes	Taxpayer Costs	Individual Costs
Carpenter	NWCI	\$332,661	\$201,567	\$208,655	\$2,679	\$806
	CITC - Carpenter	\$208,228	\$104,774	\$115,988	\$2,824	\$849
Construction Electrician	PSEJATC	\$850,625	\$760,850	\$611,976	\$6,166	\$1,667
	CITC - Con. Electrician	\$281,961	\$141,933	\$164,110	\$3,242	\$850
Construction Equip Operator	OERTP	\$435,085	\$451,126	\$313,781	\$4,129	\$1,287
	INWAGC Operators AC	\$116,084	\$54,689	\$53,870	\$4,051	\$1,255
Laborer	NWLETT	\$265,652	\$128,849	\$145,083	\$2,500	\$757
	INWAGC Laborers AC	\$164,787	\$61,429	\$45,611	\$769	\$140
Plumber	SAPT	\$932,672	\$1,173,210	\$615,006	\$8,927	\$2,297
	CITC - Plumber	\$277,470	\$161,121	\$194,183	\$5,289	\$1,350
Sheet Metal Worker	WWSMJATC	\$626,715	\$720,181	\$416,395	\$6,554	\$1,771
	CITC - Sheet Metal	\$263,048	\$135,402	\$152,785	\$3,263	\$856
Six Largest Comparable	All JLMP	\$446,118	\$365,427	\$289,474	\$3,862	\$1,101
	All MEP	\$233,221	\$120,971	\$137,970	\$3,661	\$1,005

Note: All figures are per apprentice, presented in real May 2017 dollars, discounted by 3% per year.

Program costs increased with program RSI hours and the average length of program participation.

Following Upjohn, the WAGES ROI Model estimates taxpayer costs as an annual administrative fee of \$495/apprentice (in May 2017 dollars) and an FTE cost of \$4,396/year (in May 2017 dollars). Annual individual costs are estimated at \$400/apprentice (see “Appendix A” for methodological details). Apprenticeships that require apprentices to study for the most RSI hours, like plumbers (216 annual hours), construction electrician (200 annual hours) and sheet metal worker (200 annual hours) programs, tend to have higher taxpayer costs. Additionally, individual and taxpayer costs increase with average length of program participation. The only outlier among the 12 programs is the Inland Northwest Association of General Contractors Laborers Apprenticeship Committee (“INWAGC Laborers AC”) program, where apprentices exited after training for an average of only one quarter. This leads to an estimated taxpayer and individual program cost which may underestimate total costs for a typical apprentice, and likely overestimates program benefits.

The net impact of JLMP programs for individuals and taxpayers is far higher than MEP programs for all six of Washington's largest comparable occupations. Overall, the six JLMP programs created an average net impact (wages + benefits – taxes – private costs) for individuals of \$810,444 (**Table 7**). SAPT's apprenticeship program achieved the highest net impact, with individuals earning an average of \$2,103,586 more in net total compensation over the course of their lifetime than if they had not trained in the program. The JLMP net impact for taxpayers (taxes – taxpayer costs) per apprentice was also positive and significantly higher than for the MEP apprenticeships. On average, an apprentice training in one of the six JLMP program generated \$285,612 in additional tax revenue, net of the initial public program costs, over the course of their lifetime. MEP programs also produce positive net impacts for individuals and taxpayers. MEP apprenticeship had an average net impact of \$353,187 on the lifetime earnings and benefits of MEP apprentices, net of taxes and individual program costs. This additional income generated a net impact for taxpayers of \$134,309 per MEP apprentice.

Table 7. WAGES ROI Model Results – Net Impact and Return on investment
Individual and Taxpayer Net Impact of 2013-2016 Exiting Apprentices

Occupation	Program	Individual Net Impact	Taxpayer Net Impact	Taxpayer ROI
Carpenter	NWCI	\$533,421	\$205,976	78x
	CITC - Carpenter	\$312,153	\$113,163	41x
Construction Electrician	PSEJATC	\$1,609,808	\$605,809	99x
	CITC - Con. Electrician	\$423,045	\$160,868	51x
Construction Equip Operator	OERTP	\$884,923	\$309,652	76x
	INWAGC Operators AC	\$169,518	\$49,819	13x
Laborer	NWLETT	\$393,744	\$142,583	57x
	INWAGC Laborers AC	\$226,075	\$44,842	59x
Plumber	SAPT	\$2,103,586	\$606,079	69x
	CITC - Plumber	\$437,241	\$188,893	37x
Sheet Metal Worker	WWSMJATC	\$1,345,124	\$409,841	64x
	CITC - Sheet Metal	\$397,594	\$149,522	47x
Six Largest Comparable	All JLMP	\$810,444	\$285,612	74x
	All MEP	\$353,187	\$134,309	38x

For JLMP apprenticeships examined by the Model, the ROI for taxpayers was 74x the initial taxpayer costs. PSEJATC achieved the largest taxpayer ROI (99x) because the program produced significant increases in net taxes while incurring slightly lower program costs. NWCI also produced a high taxpayer ROI (78x) driven primarily by its lower program costs associated with a shorter training period. MEP programs generated an ROI for taxpayers of 38x public program costs. INWAGC Laborers AC achieved the highest ROI level among MEP programs, but those results should be interpreted cautiously because of the program's abnormally short average length of training and small number of exiting apprentices.

JLMP programs achieve superior results by investing in advanced training facilities, drawing on the contributions of both union workers and employers, and recruiting talented apprentices from all communities. A brief overview of the largest JLMP and MEP program for each occupation provides some background explaining how JLMP programs are able to achieve such powerful results. These successful JLMP programs provide important lessons that should be applied to new apprenticeship programs in growing industries.

Carpenters

Washington State UBC JATC's Northwest Carpenters Institute ("NWCI")

NWCI is a JLMP between United Brotherhood of Carpenters local unions in Washington and Idaho, and AGC and other employers.¹¹⁴

Headquartered in Kent, NWCI runs five training centers across the state¹¹⁵ and is planning to add a sixth in Dupont in the near future. NWCI is the largest apprenticeship organization in Washington state, training thousands of apprentices across 12 occupational programs,¹¹⁶ with the large majority training to become journey carpenters (62.8%) and lathing acoustical drywall systems installers (23.7%).¹¹⁷ In addition to traditional woodwork and framing, apprentices learn to erect scaffold, operate forklifts, construct complex interior roofing systems and weld together metal frames.

The JLMP model works well for apprentice carpenters and helps retain women and veterans. JLMP apprentices benefit when both their apprenticeship coordinators and union

reps monitor their progress and onsite job training, especially apprentices from vulnerable groups. NWCI coordinators and union reps strive to stay in constant contact with apprentices to ensure they're receiving enough on-the-job training to advance to the next level of apprenticeship. Additionally, NWCI provides expansive continuing education to journeymen. "It does not stop at apprenticeship," says NWCI Outreach Coordinator Lisa Marx. Program leaders recently invested approximately one million dollars in upgraded tablets, huddle screens and facilities, keeping equipment up-to-date so apprentices and journeymen are trained with the latest technology.

NWCI's relationships with pre-apprenticeship programs are also crucial to its success. Paula Resa says the construction trades are experiencing a "silver tsunami" as older workers retire and programs struggle to keep up with the demand for new carpenters. NWCI runs a state-recognized pre-apprenticeship program to bring in qualified candidates directly once they graduate. NWCI also partners with pre-apprenticeship programs like ANEW, a great resource to recruit women to carpentry. Signatory contractors are aware of the tight labor market and NWCI is working with them to identify talented workers. These efforts are opening doors for more people of color and women. NWCI

Admissions data from 3Q 2018 shows apprentices of color now comprise 41% of new apprentices and 34% of apprentices overall.











Photo: NWCI apprentice runs power saw

Construction Industry Training Council of Washington – Carpenter ("CITC") CITC was started by AGC, the Associated Builders and Contractors ("ABC") and National Utility Contractors Association

("NUCA") in 1985 to train apprentices in a number of construction trades.¹¹⁸ CITC's apprenticeship programs have since expanded to cover at least ten occupations.¹¹⁹ The organization has training and education facilities in Spokane, Pasco, Vancouver, Bellevue and Marysville. CITC is overseen by an executive board of employer representatives and counts seven employer associations as Associate Partners.¹²⁰ Programs are funded by non-union contractors which pay CITC an hourly fee to train their apprentice workers while they work on projects. Carpentry was CITC's first ever apprenticeship field,¹²¹ and the program trained 133 apprentices in 2017.¹²² Apprentices work and train over four years to complete the 8,000-hour program.¹²³

Table 8. Northwest Carpenters Institute and CITC – Carpenters Performance Comparison

Metric	NWCI	CITC
2017 Apprentices 	1,567	133
2017 Completion Rate* 	36%	22%
2018 Journey Wage 	\$41.92	\$25.00
Individual Net Impact 	\$533,421	\$312,153
Taxpayer Net Impact 	\$205,976	\$113,163
2017 Women 	8%	7%
2017 People of Color 	29%	44%
2017 Veterans 	14%	9%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation. Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Construction Electricians

Puget Sound Electrical JATC (“PSEJATC”)

PSEJATC is a joint labor and management program between International Brotherhood of Electrical Workers (“IBEW”) Local 46 and the Puget Sound Chapter of the National Electrical Contractors Association (“NECA”). PSEJATC’s three programs provide training for over 1,356 apprentices per year,¹²⁴ a number that has doubled in the past three years as the organization expands. Apprentices train to achieve certification as inside wireman (construction electricians), limited energy/sound and communication electricians, and residential electricians.¹²⁵

Since 2001, PSEJATC has operated a 66,000 sq. ft. training facility in Renton with cutting edge equipment. PSEJATC Training Director Clay Tschillard says that the program’s “classrooms and labs have been designed specifically to educate instructors, journeyworker electricians and apprentices in all aspects of the electrical industry.”

PSEJATC’s joint labor and management partnership instills a spirit of collaboration in the program. Employers are constantly upgrading their equipment and working with the most modern technology available. They bring that knowledge to PSEJATC’s program to keep its curriculum and equipment up-to-date. Oversight from the electricians’ union IBEW Local 46 and NECA ensures that apprentices work on a wide variety of skills beneficial to their careers, rather than focusing on specialized requirements driven by any one employer. The program also continually works to grow and train more apprentices, increasing the supply of skilled electricians in the industry. Overall, labor and

management “working together to improve the program creates a less adversarial environment,” says Clay Tschillard.

PSEJATC partners with a number of community-based organizations to expand apprenticeship opportunities in underrepresented communities.











Photo: PSEJATC electrician apprentices training in Motor Control classroom lab exercises.

ANEW is headquartered at PSEJATC’s training facility, introducing aspiring apprentices to the program and providing support services like tools, clothes and boots to those who need them. PSEJATC also partners with the Urban League and Pre-Apprenticeship Construction Education (“PACE”) to recruit apprentices of color, and the Department of Corrections to connect formerly incarcerated men and women to good jobs.

Construction Industry Training Council of Washington – Construction Electrician (“CITC”) CITC trains apprentices in three electrical industry trades – construction electrician, residential wireman and low energy/sound and communication technician.¹²⁶ The programs vary in length from two to four years, with apprentices meeting on a weekly basis to learn their trade.¹²⁷ The 677 apprentices training to become CITC construction electricians comprised 50% of all apprentices training in CITC programs in 2017.¹²⁸

CITC’s programs focuses on training, workforce development and safety. “We want our workers to be skilled, and we want them to come home safe every night” says CITC CEO Halene Sigmund.¹²⁹ Most CITC apprentices continue to work for their employers even after they journey out.

Table 9. PSEJATC and CITC – Construction Electrician Performance Comparison

Metric	PSEJATC	CITC
2017 Apprentices 	1,081	677
2017 Completion Rate* 	54%	31%
2018 Journey Wage 	\$50.09	\$29.90
Individual Net Impact 	\$1,609,808	\$423,045
Taxpayer Net Impact 	\$605,809	\$160,868
2017 Women 	6%	4%
2017 People of Color 	23%	22%
2017 Veterans 	24%	19%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation. Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Construction Equipment Operators

Operating Engineers Regional Training Program (“OERTP”)

OERTP is a JLMP between International Union of Operating Engineers Locals 302 and 612, and a number of employers and employer groups, including the Associated General Contractors of Washington (“AGC”).¹³⁰ Started in 1974 using old military-issue gear, OERTP has expanded to fill a 1,600-acre training center in Ellensburg packed with state-of-the-art equipment. OERTP trains operating engineer apprentices in three occupations - construction equipment operator, heavy duty repairman mechanic, and hoisting engineer – learning to operate everything from dozers to cranes to asphalt rollers.¹³¹ OERTP trained 379 apprentices in 2017, including 264 construction equipment operators.¹³²

The collaborative relationship between labor and management at OERTP has been a boon to both workers and employers. For

contractors, high standards negotiated by the union ensure a stable, highly-skilled workforce. “If people are paid well, with good benefits and pensions, you’ll have more productive workers” says Lacey Hall, Coordinator at OERTP. The union hiring hall also ensures that contractors can secure veteran journeymen with specialized skills at a moment’s notice. The JLMP benefits apprentices as well. Hall says that journeymen in the union “have skin in the game” with apprentices because today’s apprentice

is tomorrow’s union brother or sister. This incentivizes journeymen to help apprentices succeed in the program and become the next generation of union members keeping wage and benefit standards high.

OERTP has a relatively high percentage of female apprentices (13.3% of construction equipment

operators in 2017) for the construction trades. Coordinator Lacey Hall attributes this to OERTP’s strong partnership with pre-apprenticeship programs that empower women like Apprenticeship and Nontraditional Employment for Women (“ANEW”), where OERTP puts on half-day workshops for mostly female pre-apprentices. Additionally, three of OERTP’s coordinators in the field are women, connecting with interested applicants and providing needed support to apprentices.











Photo: Steven Neese (2yr Apprentice) taking a moment from his busy day running a D10 dozer for Kiewit Construction at a rock quarry in Skagit County.

Inland Northwest Associated General Contractors Operators

Apprenticeship Committee (“INWAGC”)

Headquartered in Spokane, INWAGC’s operators apprenticeship program trained 50 apprentices in 2017 and journeyed out 1 apprentice.¹³³ INWAGC’s 6,000-hour program requires 160 hours per year of RSI and trains apprentices “in all aspects of equipment operation, maintenance and safety.”¹³⁴

Table 10. OERTP and INWAGC Operators AC Performance Comparison

Metric	OERTP	Inland NW AGC
2017 Apprentices 	264	50
2017 Completion Rate* 	73%	14%
2018 Journey Wage 	\$40.29	\$24.54
Individual Net Impact 	\$884,923	\$169,518
Taxpayer Net Impact 	\$309,652	\$49,819
2017 Women 	13%	10%
2017 People of Color 	21%	27%
2017 Veterans 	11%	25%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation. Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Laborers

Northwest Laborers-Employers Training Trust Fund (“NWLETT”)

NWLETT is a JLMP between 13,000 members of Laborers International Union of North America (“LIUNA”) locals in Washington and Idaho, and AGC.¹³⁵ Founded in 1969, NWLETT has six locations statewide, including large training centers in Kingston, Des Moines and Spokane. The Kingston training center is housed on 15 acres of former military land, where hundreds of laborer apprentices spend several weeks every year training, learning, and building structural improvements to the center and nearby community. NWLETT is the second largest apprenticeship program in the state, training 1,480 apprentices in 2017.¹³⁶ “Laborers are the first on and last off a site” explains NWLETT Training Director Glen Freiberg. “We do everything from the ground down,” including digging trenches and tunnels, pouring cement, and tending other crafts.



Photo: A Laborer apprentice hydroblasts concrete

NWLETT’s laborer-employer partnership ensures a structured learning environment, steady stream of skilled workers and improved worker safety. For Glen Freiberg, the main benefit of the apprenticeship program for employers is that it is highly structured. Courses start with general construction, move on to concrete, and then proceed progressively based upon the skills laborers will need at their worksites. Employers can also count on an organized supply of experienced workers from union hiring halls, where journey laborers call-in or wait in person to be dispatched based on skill and need. The collaborative nature of the NWLETT program also protects worker safety and lowers employer costs. Apprentices go through an OSHA-10 training, receive

an asbestos abatement card and attend environmental classes to learn about worksite safety. They also have a voice on the job to speak up about safety issues with the backing of their union. Employers, in turn, benefit from reduced injury claims and lower insurance rates.

NWLETT’s program structure and outreach efforts encourage participation from underrepresented groups.









While many college courses and other workforce development programs charge participants hefty tuition or fees, NWLETT provides apprentices money for gas, food, travel and other supports while they learn, and wages while they train. Program staff also present at trade fairs in distressed neighborhoods, engage veterans in the Helmets to Hardhats program and recruit from Joint Base Lewis-McChord.

Inland Northwest Associated General Contractors Laborers

Apprenticeship Committee (“INWAGC”)

INWAGC’s laborers apprenticeship program trains 60 laborer apprentices per year¹³⁷ in Eastern Washington¹³⁸ at its Spokane facility.¹³⁹ Apprentices learn “everything from site preparation, clean up & security to asbestos abatement” on their way to becoming “highly skilled worker[s] who’s qualifications are recognized and respected throughout the industry.”¹⁴⁰ Additionally, many government agencies require public works construction projects to use a certain percentage of apprentice hours.¹⁴¹ According to Inland Northwest AGC, “the Inland Northwest AGC Apprenticeship Programs are here to partner with employers to help with [these] apprentice utilization requirements.”¹⁴²

Table 11. NWLETT and INWAGC Laborers AC Performance Comparison

Metric	NWLETT	Inland NW AGC
2017 Apprentices 	1,480	60
2017 Completion Rate* 	32%	5%
2018 Journey Wage ¹⁴³ 	\$27.11 - \$37.27	\$22.06
Individual Net Impact 	\$393,744	\$226,075
Taxpayer Net Impact 	\$142,583	\$44,842
2017 Women 	12%	8%
2017 People of Color 	35%	22%
2017 Veterans 	10%	10%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation. Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Plumbers

Seattle Area Pipe Trades (“SAPT”)

SAPT is a partnership between United Association Local 32 and a coalition of employers led by the Mechanical Contractors Association of Western Washington (“MCAWW”).¹⁴⁴ Established in 1968, SAPT trains 483 apprentices per year, including 181 plumber apprentices,¹⁴⁵ in five trades – commercial plumbers, residential plumbers, steamfitters, HVAC/refrigeration mechanics and marine pipefitters.¹⁴⁶

SAPT emphasizes meritocracy and apprentice ownership of the program. According to third-generation union member and SAPT Training Coordinator P.J. Moss, the program’s motto is “The Best Mechanic Wins.”¹⁴⁷ Program staff, union journeymen and apprentices strive to recruit the most

talented individuals. Apprentices are also encouraged to participate in program oversight, regularly sitting on interview panels and recruiting skilled workers to the program.

SAPT is a strong JLMP with active participation from both employers and union workers. Moss reports that MCAWW has a “passion for apprenticeship” and executives sit on the SAPT board of trustees. Training program staff ensure that enrollment matches industry demand, so that apprentices know they can count on a high-wage job in the pipe trades when they journey out. The participation of Local 32 members in the program means that union journeymen seek to recruit strong candidates who will build and strengthen the union. Employers and union members both contribute to fund the apprenticeship program, explains SAPT Assistant Training Coordinator Heather Winfrey. Since journeymen, apprentices and employers help

fund the program, they all have a stake in seeing it succeed. This supportive environment, and the program’s high wages and benefits lead to low turnover. The retention rate for apprentices who successfully journey out of SAPT programs is 97% after one year and 90% after five years.¹⁴⁸

SAPT works to increase the participation of underrepresented groups through active

recruitment. SAPT staff attend events with talented female and person of color candidates, giving out push cards and inviting them to apply. Apprentices achieve based on their own skills, and many top performers in the program are women. SAPT expects to increase the participation of women and apprentices from

other underrepresented groups as networks

widen into previously underserved communities.











Photo: An SAPT apprentice welds pipes

Construction Industry Training Council of Washington – Plumber (“CITC”)

CITC’s plumber apprenticeship trained 270 apprentices in 2017, with 22 successfully completing the program.¹⁴⁹ CITC also offers a number of continuing education courses for journey plumbers.¹⁵⁰ Although journey wages for CITC’s apprenticeship programs reported by L&I are lower than their JLMP counterparts, CITC CEO Halene Sigmund says that CITC apprentices working on public works projects are often paid the same public rate as union workers on the same project. According to Sigmund, non-union employers often stick with the public rate even on private jobs in order to improve retention.

Table 12. Seattle Area Pipe Trades and CITC - Plumbers Performance Comparison

Metric	SAPT	CITC
2017 Apprentices 	181	270
2017 Completion Rate* 	71%	44%
2018 Journey Wage 	\$53.06	\$30.00
Individual Net Impact 	\$2,103,586	\$437,241
Taxpayer Net Impact 	\$606,079	\$188,893
2017 Women 	5%	1%
2017 People of Color 	25%	10%
2017 Veterans 	13%	10%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation. Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.

Sheet Metal Workers

Western Washington Sheet Metal JATC (“WWSMJATC”)

WWSMJATC is a partnership between Sheet Metal Workers Local 66 and Sheet Metal and Air Conditioning Contractors’ National Association – Western Washington (“SMACNA”).¹⁵¹

WWSMJATC runs two main training centers in

Everett and Dupont, and oversees satellite training centers in Bellingham and Bremerton.¹⁵²

WWSMJATC trains 534 apprentices per year, including 384 sheet metal workers,¹⁵³ in four trades - HVAC service technicians, HVAC test adjust and balance technician, residential sheet metal worker and sheet metal worker. Apprentices learn to cut, roll, bend, and

shape sheets of steel, tin, nickel, titanium, aluminum, brass, and copper into ductwork, building facades, refrigeration unit cabinets and a wide variety of other objects.¹⁵⁴

The collaborative nature of WWSMJATC improves employee retention, provides a higher standard of living for apprentices and encourages continuing education.

WWSMJATC’s mission is to “to bring Labor and Management together for the development of a highly skilled and competitive workforce for the ever-changing sheet metal industry.”¹⁵⁵ Collective bargaining agreements solidifying WWSMJATC funding levels are negotiated for three to six-year terms, providing stability to the program.

WWSMJATC’s industry-leading wage standards create lower turnover and stabilize the workforce as well. “Higher wages and benefits provide a better living environment,” says WWSMJATC Executive Administrator Jeff Reinhardt. “Guys take their jobs seriously and are more dedicated to the work.”¹⁵⁶

WWSMJATC also funds state-of-the-art training facilities where journey level sheet metal workers can stay up-to-date training on the industry’s latest equipment.

WWSMJATC works with a number of pre-apprenticeship programs to increase the

inclusion of underrepresented groups.

WWSMJATC works closely with PACE to recruit apprentices of color and others pre-apprentices looking to enter the trade. WWSMJATC also hosts groups from ANEW’s 12-week pre-apprenticeship program and strives to recruit more female apprentices. In August 2017, WWSMJATC and Local 66 joined with

SMACNA, Helmets to Hardhats and others to launch SMART Heroes, a program to provide “free sheet metal industry training to enlisted U.S. Military men and women who plan to enter civilian life within the year.”¹⁵⁷

Construction Industry Training Council of Washington – Sheet Metal (“CITC”)









CITC offers a Sheet Metal apprenticeship program which trains 53 apprentices per year.¹⁵⁸

CITC sheet metal apprentices spend 9,000 hours in on-the-job training and an additional 800 hours in the classroom, learning to cut, bend and straighten sheet metal, solder and weld sheet metal parts and shape metal over anvils, blocks, or forms using a hammer.¹⁵⁹ According to CITC CEO Halene Sigmund, journey rates for CITC programs vary by county and are often higher than those listed on L&I’s website.¹⁶⁰ Additionally, CITC contractors working on public works construction projects are required to pay the minimum rate just like union contractors, meaning CITC apprentices earn more.



Photo: A WWSMJATC apprentice works on a building

Table 13. Western WA Sheet Metal JATC and CITC – Sheet Metal Performance Comparison

Metric	WWSMJATC	CITC
2017 Apprentices 	384	53
2017 Completion Rate* 	49%	14%
2018 Journey Wage 	\$43.16	\$29.25
Individual Net Impact 	\$1,345,124	\$397,594
Taxpayer Net Impact 	\$409,841	\$149,522
2017 Women 	11%	4%
2017 People of Color 	20%	34%
2017 Veterans 	15%	12%

* Completion rates are measured as completers/(completers+cancellers). However, many programs use a Federal method which excludes probationary cancellers and returns a much higher completion rate. Data was unavailable for this calculation. Source: Net Impacts from WAGES ROI Model. All other data from L&I's ARTS Database and Apprenticeship Program Info.



APPRENTICESHIPS FOR GROWING INDUSTRIES

The Rise of Publicly Subsidized Employer Apprenticeships

Washington's PSEA Efforts

Washington state leaders recognize the value of expanding apprenticeship to increase the number of skilled workers in fast-growing industries. In December 2017, Washington Governor Jay Inslee's Career Connect Washington initiative secured a \$6.4 million federal grant under the Workforce Innovation and Opportunity Act to connect "students to great employers and high-quality job training" and "create 29,000 new career connected learning experiences in 11 communities from [2017] through September 2019."¹⁶¹ Along with job shadowing, career planning and internships, Career Connect Washington officials plan to "move over 1,400 young people, plus more than 400 adults, into new apprenticeships and pre-apprenticeships in fields such as advanced manufacturing, health care, agricultural irrigation systems, building trades, IT and maritime manufacturing."¹⁶²

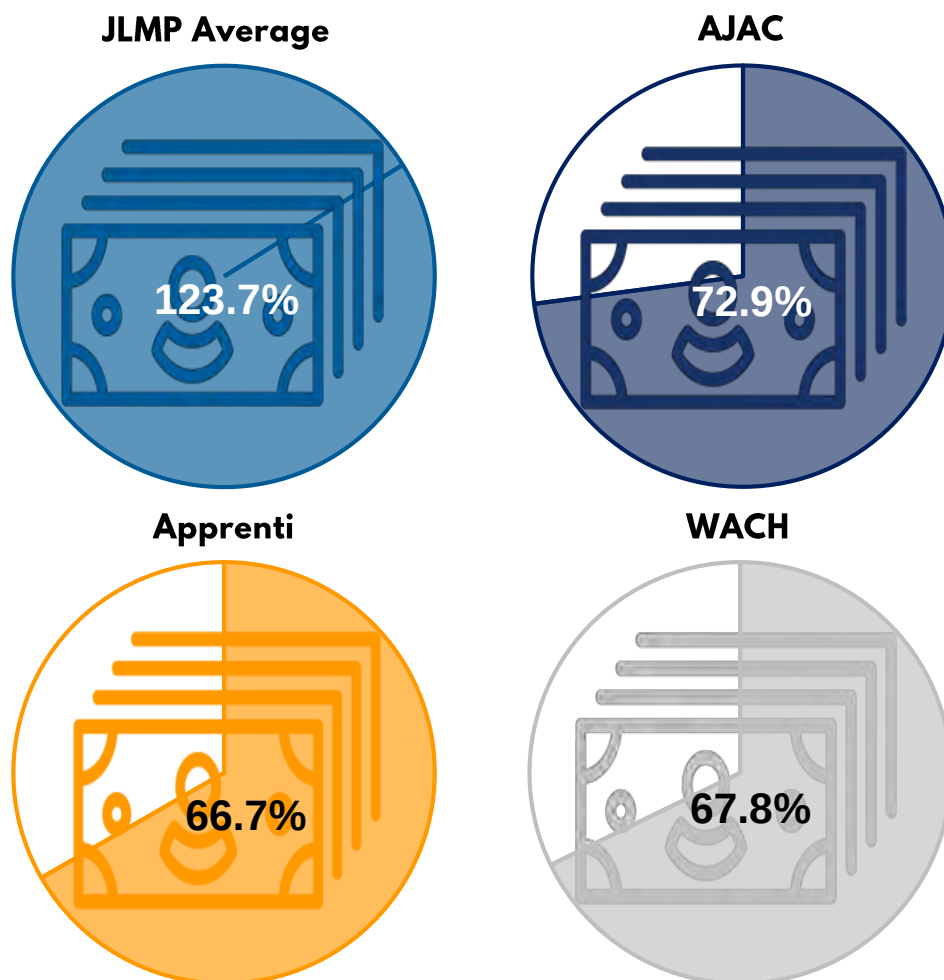
There is a strong need for new apprenticeships, as three-quarters of the Washington occupations poised to see the greatest job growth over the next 10 years are not currently served by an apprenticeship program. Every year, the Washington State Employment Security Department ("ESD") creates 10-year employment projections for Washington state. There are currently apprenticeship programs serving just 24 of the 100 occupations projected to experience the largest growth in absolute jobs over the next decade. None of the top 5 highest growth occupations - software developers for applications, combined food preparation and serving workers including fast food, waiters and waitresses, personal care aides and registered nurses – currently have registered apprenticeship programs training apprentices in Washington state. There is clearly a need for more apprenticeships to serve these fast-growing fields.

Recent efforts to establish apprenticeships in these fields have focused on publicly subsidized employer apprenticeships ("PSEAs"). The Washington state legislature established the Aerospace Joint Apprenticeship Committee ("AJAC") in 2008, providing funding of \$3 million per year to train machinists, tool and die makers, industrial maintenance technicians and other aerospace workers in partnership with the state's community and technical colleges¹⁶³ and a primarily non-union group of employers.¹⁶⁴ The federally-funded Washington Association for Community Health ("WACH") started a medical assistant ("MA") apprenticeship program in 2014, and a dental assistant ("DA") program in 2016.¹⁶⁵ The Washington Technology Industry Association ("WTIA"), led by local tech giants like Microsoft,¹⁶⁶ created a non-profit WTIA Workforce Institute in 2015¹⁶⁷ to oversee its Apprenti apprenticeship programs for software developers, network security administrators, web developers and other tech industry occupations. Apprenti has received millions of dollars from the U.S. Department of Labor and Washington L&I to expand their programs nationwide, pay for RSI and launch a national apprenticeship loan program.¹⁶⁸ These new PSEA programs serve high-growth or strategically important occupations and are primarily driven by employers and employer associations.

PSEA Challenges

However, PSEA programs have a mixed record of success and provide journey wages that trail significantly behind local averages, JLMP programs and comparable union pay rates (Figure 7). In terms of completion rates, WACH's apprentices complete their program at a high rate, Apprenti lags behind the apprenticeship average and AJAC journeys out a far lower percentage of its apprentices than the comparable IAM/Boeing Joint Apprenticeship Committee JLMP program.¹⁶⁹ PSEA programs also have difficulties providing high journey wages. WACH's MAs journey out of their program earning a wage equivalent to the bottom ten percent of MAs in Washington.¹⁷⁰ Apprenti's software developers who completed the program in 2017 earned journey wages equal to just 61.5% of the local occupational average.¹⁷¹ For AJAC, machinists journeying out earned less than half the journey wage of apprentices completing the IAM/Boeing JLMP program.¹⁷² In order to better understand the efficacy of these new PSEA programs, and consider potentially superior JLMP alternatives, it's instructive to compare the achievements of WACH, Apprenti and AJAC to Washington's JLMP apprenticeship programs.

Figure 7. JLMP and PSEA Journey Wages as a Percent of Local Occupational Mean Hourly Wage
Average Journey Wages for All 2017 Apprenticeship Programs, Weighted by Apprentices



Note: For each apprentice in the organization, the journey wage for their occupation (May 2017 dollars) was compared to the average hourly wage for their occupation in their area, and those ratios were then averaged for all 2017 apprentices in each organization to establish an average journey wage:local occupational average ratio for the organization as a whole.
Source: Apprenticeship Program Details, Washington L&I; ARTS Database, Washington L&I; May 2017 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, OES, BLS, May 2017.

WACH Apprenticeship Program

Overview

The Washington Association for Community Health (“WACH”) is a federally-funded primary care association comprised of 27 community health center employers in Washington state that runs two apprenticeship programs.¹⁷³ WACH operates apprenticeship programs to certify medical assistants (“MA”) and dental assistants (“DA”) through its Institute for Rethinking Education & Careers in Healthcare (“In-Reach”) initiative.¹⁷⁴ The MA program started training cohorts of MA apprentices in 2014,¹⁷⁵ while the DA program launched a pilot in November 2016.¹⁷⁶ The MA and DA programs are each 2000 hour, 12-month apprenticeships, and successful MA apprentices are accredited through South Seattle College.¹⁷⁷

Enrollment and Completion Rates

WACH has achieved a modest level of enrollment, but high completion rates among exiting apprentices. WACH enrolled 16 apprentices in its DA program in 2017, and an average of 41 new apprentices per year in its MA program between 2014 and 2017.¹⁷⁸ Although WACH’s apprenticeship programs are relatively small, journeying out 74 total apprentices between 2015 and 2017, its apprentices have been able to journey out of their programs at a high rate. The completion rate for MA and DA apprentices in WACH’s programs was 94.7% for apprentices exiting in 2015, 96.8% for apprentices in 2016 and 89.7% for apprentices in 2017.¹⁷⁹ WACH’s 2017 completion rate ranked 41st among the 132 programs with exiting apprentices, well above the average completion rate of 41.7% for all programs.

“If medical assistants earn the journey wage after completing WACH’s program, they will be in the bottom 10% of wage earners in their field in every single region in Washington state besides Walla Walla.”

Gender and Racial Inclusion

WACH trains a percentage of women roughly in line with their occupational averages, and a higher percentage of people of color than typical apprenticeship programs. Nationally, 91.6% of medical assistants and 95.9% of dental assistants are women. In WACH’s programs, 94.6% of MA apprentices and 87.0% of DA apprentices are women. WACH programs enroll a higher percentage of apprentices of color than the state average. In 2017, 34.8% of the program’s DAs were apprentices of color, while 49.1% of MA apprentices were people of color. According to WACH officials, a majority of graduates “are Latina women living in underserved areas of Eastern Washington. Many of them are single mothers who live in multigenerational households and face financial, geographic or familial barriers to attending a traditional college.”¹⁸⁰

Journey Wages

However, while WACH has been successful journeying out DAs and MAs, especially apprentices of color, journey wages for apprentices are far below local levels. Journey wages for successful MAs and DAs in WACH’s programs are \$12.13/hour and \$13.29/hour, respectively, in May 2017 dollars. These wages place graduates far below the average for workers in their field, even in lower wage regions in Eastern Washington. By comparison, medical assistants in Yakima earned an average of \$17.35/hour in 2017, \$16.86/hour on average in Spokane, and an average of \$16.43/hour in the Tri-Cities.¹⁸¹ In fact, if medical assistants earn the journey wage after completing WACH’s program, they will be in the bottom 10% of wage

earners in their field in every single region in Washington state besides Walla Walla.¹⁸² Results for dental assistants are similar. In Wenatchee, the average DA earns \$20.43/hour, in the Tri-Cities \$19.60/hour and in Yakima \$18.05/hour. WACH DAs earning the journey wage will be in the bottom quartile of DA earners in all Washington regions.¹⁸³

WACH journey wages also significantly trail entry level union wages. Under the United Food and Commercial Workers (“UFCW”) Local 21’s 2017 contract with MultiCare Health Systems, certified medical assistants start at \$17.72/hour.¹⁸⁴ In 2017, medical assistants working for University of Washington Medicine represented by Service Employees International Union (“SEIU”) Local 1199NW earned a starting base salary of \$17.20/hour.¹⁸⁵ Washington State Nurses Association (“WSNA”) medical assistants working with Whatcom county started out earning \$16.30/hour in 2017.¹⁸⁶ These starting union salaries, in some cases \$5.00/hour more than the WACH journey wage, show the crucial role that healthcare unions play in ensuring that healthcare workers who spend countless hours earning a credential receive the living wage they deserve.

JLMP medical assistant apprenticeships in Rhode Island also provide far higher journey wages. MA apprentices in the Care New England – SEIU JLMP earn a journey wage of \$22.91/hour upon program completion.¹⁸⁷ Successful apprentices in the Providence Community Health Center JLMP journey out earning a journey wage of \$19.37/hour.¹⁸⁸ These apprenticeship programs demonstrate that it’s possible to raise standards in traditionally lower-wage occupations if there’s a concerted effort to raise wages.

Apprenticeship without Collective Bargaining – Lower Wages, Unsustainable Careers

WACH shows that apprenticeship without collective bargaining cannot guarantee higher wages or a sustainable career path. Although WACH has done a good job of journeying out its MA and DA apprentices, the program’s journey wages are well below local occupational averages, comparable union salaries and JLMP programs in other parts of the country. Many MA journeywomen will either have to subsist on lower non-union wages, or leave their community health center to look for higher paid work. The participation of a healthcare union in the WACH program would ensure that successful apprentices earn the livable wages and strong benefits that they deserve.

Apprenti Apprenticeship Program

Overview

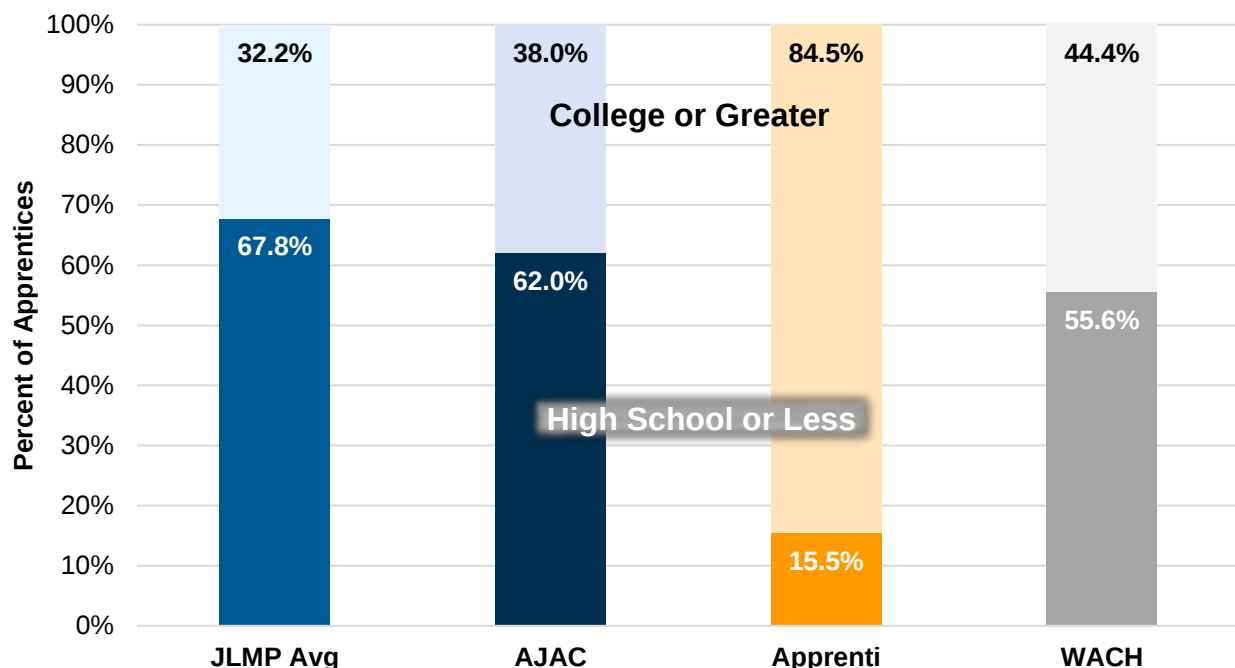
WTIA started the Apprenti apprenticeship program in 2016 to train mostly college educated workers for careers in the tech industry, focusing on underrepresented groups. Apprenti has overseen apprentice programs in eight tech fields, with two of three apprentices training to be either software developers or datacenter technicians.¹⁸⁹ Programs take between 2,000 and 3,000 hours to complete.¹⁹⁰ Apprenti recruits primarily college-educated workers for its apprenticeships. In 2017, 84.5% of Apprenti apprentices listed an education of “college or greater,” compared to 32.7% for Washington apprentices as a whole (**Figure 8**),¹⁹¹ and at least 55% already have an A.A. or B.A. degree coming into their program.¹⁹² Apprenti’s stated goal is to provide a “pipeline for underrepresented groups such as minorities, women and veterans to gain training, certification and placement within the talent-hungry tech industry.”¹⁹³ Since its inception, 50.4% of Apprenti’s apprentices have been apprentices of color, 30.0% women and 45.7% veterans.¹⁹⁴

Taxpayer Funding

Apprenti is generously funded by U.S. and Washington taxpayers, even as WTIA members earn billions of dollars in profit. In September 2016, DOL pledged \$7.5 million in grant money for Apprenti,¹⁹⁵ and the program had received \$4 million in federal money by July 2018.¹⁹⁶ In 2017, Apprenti was also able to secure Washington state funding after “actively work[ing] with policy and budget leaders in the Executive Branch, the State House, and State Senate.”¹⁹⁷ Washington’s final 2017 budget included \$4 million to fund Apprenti’s

RSI.¹⁹⁸ The funds were subsequently repurposed “as a reward for small companies who pre-fund RSI and/or [to be] used as seed capital to launch a national apprenticeship loan program.”¹⁹⁹ Taxpayer funding for the program comes as WTIA’s largest members earn billions of dollars in profits. Microsoft, for instance, earned profits of \$20.5 billion in FY 2016, \$25.5 billion in FY 2017 and \$16.6 billion in FY 2018.²⁰⁰ T-Mobile generated \$4.5 billion in net income for 2017,²⁰¹ while Amazon’s market capitalization reached almost \$1 trillion in 2018.²⁰² While training workers to join the booming tech industry is an important goal, it’s unclear why highly profitable multi-national corporations require taxpayer funding to do so.

Figure 8. JLMP and PSEA Percent of 2017 Apprentices By Education
High School or Less Compared to College or Greater



Note: “High School or Less” refers to apprentices reporting an education level of High School Graduate, G.E.D., Some High School (9th – 12th) and 8th Grade or Less. “College or Greater” refers to apprentices reporting an education level of College or Greater.

Source: Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

Completion Rates

Only seven apprentices completed Apprenti’s programs as of August 2018, with a successful completion rate of 28.6%. According to L&I data, 2 out of 7 of Apprenti’s exiting apprentices journeyed out of the program in 2017, and none had exited by August 2018. Apprenti’s 2017 completion rate of 28.6% is below the rate for all Washington’s apprenticeships (41.6%) and the rate for JLMP apprenticeships (43.0%). The completion rate for apprentices of color was 16.7%, and 25.0% for female apprentices. However, the low sample size of program completers and short history of the program make it hard to draw any conclusions about Apprenti’s ability to journey out successful tech workers.

Journey Wages

Apprenti's journey wages across all occupations are well below state and local averages. For the 84 Apprenti apprentices training across 7 occupations in 2017, the average journey wage for their program was equivalent to just 66.7% of the local occupational average. For instance, Apprenti software developer 1 apprentices journey out at a rate of \$35.57/hour in May 2017 dollars.²⁰³ However, software developers creating systems software earn an average of \$57.84/hour in the Seattle metropolitan area, \$51.75/hour in the Portland metropolitan area and \$48.53/hour on average in Yakima.²⁰⁴ In fact, successful Apprenti apprentices earning the journey wage would be in the bottom 10% of software developer earners in Seattle, the Tri-Cities and Bremerton-Silverdale.²⁰⁵ The journey wage for another popular Apprenti occupation, web developer, is 22.1% below the Seattle average and 17.9% below the average hourly wage for the state as a whole. Apprentices journeying out of the Apprenti program can and do earn wages above their journey rate,²⁰⁶ but the program's journey rates as a percentage of local occupational averages (66.7%) are below the non-union program average (85.1%) and well below the JLMP program average (123.7%).

“[Apprenti’s] journey rates as a percentage of local occupational averages (66.7%) are below the non-union program average (85.1%) and well below the JLMP program average (123.7%).”

JLMP Programs Are Large and Successful Enough to Serve Growing Industries

While Apprenti does serve fast growing industries and some underserved groups, JLMP programs do so on a far larger scale and at far better wages. Apprenti serves many of the 100 highest growth occupations in Washington state, including IT support professionals (#13), software developers (#31), web developers (#44) and network security administrators and systems administrators (#62).²⁰⁷ However, JLMP programs also serve in demand occupations, including top 100 growth fields like carpenters (#14), construction laborers (#19) and electricians (#41).²⁰⁸ In 2017, 16 veterans successfully completed the Puget Sound Electrical JATC and came out as inside wiremen / construction electricians at a journey wage of \$48.62/hour, 38 carpenters of color journeyed out of the United Brotherhood of Carpenters JATC program at a journey wage of \$40.49/hour and 15 non-college educated women became journey laborers earning a journey wage of \$25.25/hour. These and other JLMP programs provide financially sustainable pathways for work-class men and women from all backgrounds to train for high-skill trades without requiring millions in public subsidy.

AJAC Apprenticeship Program

Overview

Washington’s State Legislature founded the non-profit Aerospace Joint Apprenticeship Committee (“AJAC”) as a PSEA overseeing aerospace and manufacturing apprenticeship programs in 2008. AJAC is the largest PSEA in Washington state, training 484 apprentices in 2017²⁰⁹ at 18 locations across Washington state, including 7 community and technical colleges.²¹⁰ Most AJAC apprentices (70.7%) train to become journeyman machinists, but AJAC also trains industrial maintenance technicians, tool and die makers, manufacturing precision metal fabricators, plastic process technicians, aircraft airframe mechanics and even youth production technicians.²¹¹ AJAC’s employers are majority non-union,²¹² but the program’s advisory committee does include two current or former members of the International Association of Machinists and Aerospace Workers (IAM) District 751.²¹³

Completion Rate

AJAC journeys out apprentices at a higher rate than the state average, but below the rate of the JLMP IAM/Boeing Joint Apprenticeship Committee. In 2017, 51.7% of exiting AJAC apprentices successfully journeyed out of their program, 10 percentage points higher than the statewide completion rate of 41.6%.²¹⁴ However, the AJAC completion rate trails the comparable IAM/Boeing Joint Apprenticeship Committee, a joint effort of Boeing and IAM District 751, where 21 of 21 exiting apprentices successfully journeyed out of their apprenticeship in 2017.²¹⁵ For the two occupations where AJAC and the IAM/Boeing program both trained exiting apprentices, the differences were stark. IAM/Boeing journeyed out 100% of their machinist apprentices versus 61.4% of AJAC machinists, and 100% of their industrial machinery mechanics versus 0% of AJAC’s apprentices in the same field.²¹⁶ AJAC does a good job journeying out its apprentices, but falls short of the comparable JLMP program.

Gender, Racial and Veteran Inclusion

The IAM/Boeing JLMP program does a better job than AJAC at training apprentices from underrepresented groups. In 2017, the IAM/Boeing program trained a higher percentage of women, people of color and veterans than AJAC (**Table 14**). Approximately 36.8% of IAM/Boeing’s 2017 apprentices were apprentices of color, versus just 22.5% for AJAC. Women comprised 6.9% of IAM/Boeing apprentices versus 4.3% of AJAC’s apprentices, and 10.3% of IAM/Boeing apprentices were veterans against 7.9% of AJAC’s apprentices.²¹⁷ Training apprentices in the same industry and similar occupations, IAM/Boeing’s JLMP program has done a better job of including women, people of color and veterans in its apprenticeship program.

Table 14. Comparison of IAM/Boeing and AJAC Programs
2017 Completion, Wages and Inclusion Metrics

Metric	IAM/Boeing JLMP	AJAC
Completion Rate	100%	52%
Average Journey Wage	\$41.84	\$18.62
Journey Wage: Local Occ Avg.	184%	74%
Percent Women	7%	4%
Percent Apprentice of Color	37%	23%
Percent Veterans	10%	8%

Note: Average journey wage and journey wage: local occupational average for all 2017 completing apprentices.
Source: Apprenticeship Program Details, Washington Department of Labor and Industries; Apprenticeship Registration and Tracking System, Washington State Department of Labor and Industries.

Journey Wages

The biggest difference between the AJAC and IAM/Boeing programs is the large journey wage gap for successful apprentices. Union workers earn significantly higher pay and benefits in the aerospace industry, and that difference is reflected in Washington’s aerospace apprenticeship programs. The highest paid AJAC apprentices in 2017 completed their tool and die maker programs earning a journey wage of \$19.41/hour in May 2017 dollars.²¹⁸ Meanwhile, IAM/Boeing’s maintenance machinists completed their programs at a journey wage of \$42.41/hour.²¹⁹ Relative to the machinist industry average, AJAC’s machinists journeyed out at wages equal to 74.0% of their local occupational average, while IAM/Boeing machinists journeyed out at rates equal to 164.0% of their local occupational average wage.²²⁰ Overall, IAM/Boeing machinists completed their programs earning more than double the pay rate of their AJAC counterparts.

Even Significant Worker Input Cannot Secure High Wages in the Absence of a Union

Among PSEAs, AJAC has achieved the greatest degree of program success and worker voice, but still lags the standards set by JLMP programs. Between 2010 and 2017, 166 apprentices successfully completed AJAC programs and started careers in the aerospace industry.²²¹ In 2017, for the first time, more than half of AJAC's exiting apprentices successfully journeyed out of their program, a marked improvement from 2014, when only 15.2% successfully journeyed out.²²² However, AJAC's completion rate still trails the IAM/Boeing program, and its journey wages are substantially lower. In addition, the IAM/Boeing program does a better job of engaging underrepresented groups. The participation of IAM District 751 representatives on AJAC's governing committee undoubtedly helps, but without the sustained participation of a labor-management partnership and pathway into good-paying union jobs, AJAC will continue to struggle with below average wages, a less inclusive apprentice cohort and significant apprentice turnover.

Successful JLMP Apprenticeship Programs in Growing Industries

The JLMP Advantage in Growing Industries

Workers in many of Washington's fastest growing occupations are represented by unions. Food service workers, the second fastest growing occupation in Washington,²²³ are represented by UNITE HERE Local 8 in corporate offices, WFSE at university dining halls, and Public School Employees SEIU Local 1948 in high school cafeterias.²²⁴ Certified Nursing Assistants ("CNAs") and Home Care Aides ("HCAs"), the fourth fastest growing Washington occupation,²²⁵ are represented by a number of unions, including SEIU 775, UFCW 21 and SEIU Healthcare 1199NW.²²⁶ Registered Nurses are the fifth highest growth occupation in Washington, and heavily organized with WSNA, SEIU Healthcare 1199NW and UFCW 21.²²⁷ JLMP programs could train apprentices in these occupations and achieve the high standards that PSEAs have failed to provide.

"The best way for public officials, unions and employers to help workers improve their skills and build better lives is to embrace the establishment of sustainable JLMP programs in growing industries, rather than settling for publicly subsidized employer apprenticeship programs."

Union organizing efforts have boosted occupational wages and benefits in these rapidly growing industries, especially for women.²²⁸ Many of SEIU 775's home care aides ("HCA") will start at a wage of \$15.00/hour in 2019²²⁹ in a field where 9 of 10 workers are women²³⁰ and 75% of Washington HCAs were earning less than \$14.32/hour as recently as May 2017.²³¹ For registered nurses, a field that's 89.9% female,²³² the 2017 Association of periOperative Registered Nurses ("AORN") Salary and Compensation survey found that unionized nurses earned \$8,200 more per year in annual base compensation than non-union nurses,²³³ while a 2017 Medscape RN/LP Compensation Report found that union nurses earned \$11,000 more per year.²³⁴ In 2018, UNITE HERE food service workers working in Silicon Valley were able to achieve \$4.75/hour raises and a \$19.00/hour minimum contract wage at some worksites.²³⁵

JLMP programs for these high growth occupations would serve as pipelines for workers to high wage, good union jobs by including a worker voice in apprenticeship governance and standards. Journey wages for Washington's JLMP apprenticeship programs are much higher than for non-union programs training the same occupations.²³⁶ Unions and employers are starting innovative JLMP apprenticeship programs across the country that promise to do the same thing in healthcare, food service and other occupations. The best way for public officials, unions and employers to help workers improve their skills and build better lives is to embrace the establishment of sustainable JLMP programs in growing industries, rather than settling for PSEA programs.

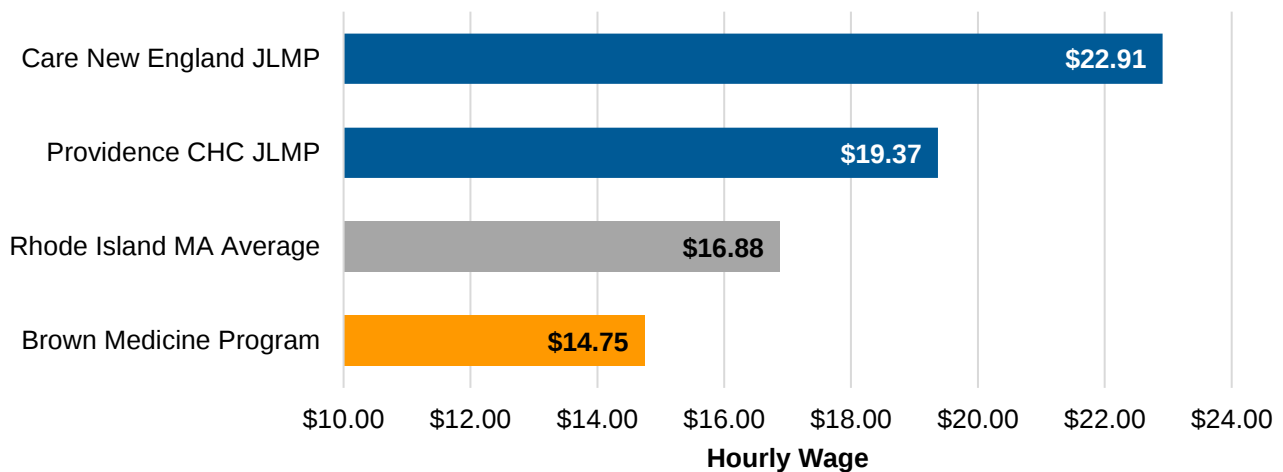
Innovative JLMP Apprenticeship Programs in Healthcare

Service Employees International Union (“SEIU”) has partnered with healthcare employers nationwide to launch Healthcare Career Advancement Program (“H-CAP”), an organization dedicated to worker training, continuing education and apprenticeship.²³⁷ H-CAP supports registered apprenticeships, funds training programs, conducts policy research, and operates the non-profit H-CAP Education Association comprised of “16 industry-driven, labor/management, and labor-based training organizations that include over 900 employers and more than 600,000 employees in 14 states plus Washington, DC.”²³⁸

In 2016, SEIU and AFSCME worked through H-CAP to create a National JATC, found a National Center for Healthcare Apprenticeship (“NCHA”), and register national standards with the DOL.²³⁹ The goal of the NCHA is “to facilitate and accelerate the registration of healthcare apprenticeships nationally and regionally, where needed, and bring healthcare apprenticeships to scale.”²⁴⁰ The JATC lists standards for 16 occupations and specialties, including some of Washington’s highest growth occupations over the next ten years like medical assistants (#45), home health aides (#79) and home health directors (#84).²⁴¹

SEIU and H-CAP have since launched JLMP healthcare apprenticeships in New York, Rhode Island and Philadelphia. In January 2017, 1199 SEIU United Healthcare Workers East partnered with Bronx Lebanon Hospital Center, LaGuardia Community College and other organizations to launch a community health worker apprenticeship.²⁴² In January 2018, Rhode Island’s Governor’s Workforce Board awarded two \$25,000 development grants to JLMP registered apprenticeships serving the fast-growing health care industry.²⁴³ Later that year, SEIU 1199NE partnered with Providence Community Health Centers to create a certified medical assistant apprenticeship, which launched in October 2018 with generous funding from H-CAP.²⁴⁴ SEIU 1199NE also partnered with Care New England Healthcare System, H-CAP and other organizations to start a Community Health Worker Apprenticeship.²⁴⁵ In Philadelphia, SEIU 1199C funds MA, community health worker, early childhood education teacher and direct services professional apprenticeships.²⁴⁶

Figure 9. Rhode Island Medical Assistant Journey Wages
JLMP Programs, State Average and Non-Union Brown Medicine



As with traditional trades, JLMP programs in the rapidly growing healthcare industry pay higher journey wages than non-union programs for the same occupations. In Rhode Island, the average hourly wage for a medical assistant was \$16.88/hour in May 2017 (Figure 9).²⁴⁷ Medical assistants completing the Care New England JLMP program currently earn journey wages of \$22.91/hour.²⁴⁸ Certified medical assistants in Providence Community Health Centers’ program journey out at \$19.37/hour.²⁴⁹ Meanwhile, medical assistants completing their non-union apprenticeship at Brown Medicine earn journey wages of \$14.75/hour.²⁵⁰ JLMP apprenticeships in healthcare will continue to provide better pathways to high wage jobs because of the power of union workers to negotiate superior wages and benefits for completing apprentices.

SEIU 1199NW is now preparing to launch a registered apprenticeship program in Washington state after working for years to expand training to healthcare workers. SEIU 1199NW partnered with nine Washington employers to create the SEIU Healthcare 1199NW Multi-Employer Training and Education Fund (“The Training Fund”) in 2008.²⁵¹ “Close to 14,000 Washington State healthcare workers are currently eligible for Training Fund education benefits,” and 2,500 union healthcare workers each year utilize “funding for Professional Development activities, a Tuition Assistance program to cover college and university enrollment costs, and a wide variety of educational support services.”²⁵² Almost 4 in 5 workers enrolled in school through The Training Fund are women and 54% are people of color.²⁵³ The Training Fund is now preparing to start registered apprenticeship programs in Washington, hiring an Apprentice Lead to oversee “the development, successful implementation, management and operation of apprenticeship and pre-apprenticeship programs offered through” the Training Fund.²⁵⁴ With SEIU’s history of partnering to create high pay JLMP apprenticeships, SEIU 1199NW’s JLMP apprenticeships in Washington will undoubtedly raise the standards for healthcare apprenticeships in the state.

Innovative JLMP Programs in the Food Service Industry

UNITE HERE has created a number of training and apprenticeship programs for workers in the fast-growing, but traditionally low-wage, food service and hospitality industry. Food preparing and service related occupations like waiters, cooks, bartenders and food service workers are projected to comprise 6 of the 50 highest growth occupations in Washington over the next 10 years.²⁵⁵ Housekeepers, meanwhile, are the 38th fastest growing occupation in Washington with a projected 4,327 new workers added by 2026.²⁵⁶ UNITE HERE has set up jointly funded training academies in Boston, Los Angeles and Las Vegas to provide apprenticeship programs for many workers in these occupations, including housekeepers, room attendants, line cooks, and bartenders.

“While only 5% of BEST Hospitality Training apprentices received employer sponsored health benefits before training, 83% were able to achieve health benefits through their employer after completion.”

UNITE HERE Local 11 in Los Angeles partnered with educational institutions and local employers to fund and create the Hospitality Training Academy (“HTA”), which oversees room attendant and line cook apprenticeships among other training programs.²⁵⁷ Through the HTA, UNITE HERE and hotel employers train over 1,200 hotel workers per year.²⁵⁸ The HTA’s room attendant apprenticeship trains workers to “properly and efficiently clean a hotel room while following industry guidelines for customer service, sanitation and safety.”²⁵⁹ The line cook apprenticeship program instills an “understanding and knowledge of safety, sanitation, food handling and preparation procedures” and is “designed to move [successful apprentices] into a culinary position at a UNITE HERE Local 11 establishment, starting as a Line Cook.”²⁶⁰ Both programs are effective because they connect apprentices with union jobs on completion.

UNITE HERE Local 26 partnered with employers to found Boston Education, Skills & Training Corp. (“BEST”) Hospitality Training in 2006, and recently founded the nation’s first housekeeping pre-apprenticeship program.²⁶¹ BEST trains 491 workers per year and has achieved strong results through its housekeepers program. The placement rate for BEST Hospitality Training graduates is 89%, with many graduates working for union employers that pay up to 50% of their wage into a comprehensive benefits package.²⁶² While only 5% of BEST Hospitality Training apprentices received employer sponsored health benefits before training, 83% were able to achieve health benefits through their employer after completion. The program also had a significant impact on wage earnings. Before training, only 34% of workers were

employed earning above \$10.00/hour. Afterward, 89% earned more than \$10.00/hour.²⁶³ These results demonstrate that linking apprentices to high standard union jobs is the best way to improve conditions in previously low-wage, high growth industries.

UNITE HERE Culinary Union 226 and Bartenders Local 165 in Las Vegas partner with 28 union employers on the Las Vegas Strip to offer training and a bartending apprenticeship through the Culinary Academy of Las Vegas. The Culinary Academy trains several thousand people across 12 hospitality industry occupations.²⁶⁴ Local 165's bartending apprenticeship program trains bartenders on bartending and cocktails, spirits product knowledge, beer and wine over five months.²⁶⁵ Through apprenticeship training and the power of collective bargaining, Local 165 bartenders are among the 8.4% of restaurant workers who earn a pension,²⁶⁶ and also enjoy health and other retirement benefits.²⁶⁷

UNITE HERE's growing number of pre-apprenticeship and apprenticeship programs show that JLMP programs can work as well in the service sector as they do in traditional trades. In 2016, the AFL-CIO's Working for America Institute ("WAI") earned a \$1.37 million grant to work with UNITE HERE and local partners to build training and apprenticeship programs in the hospitality industry.²⁶⁸ WAI acknowledges that while many hotel and hospitality "jobs exist in lower-paid, entry-level job classifications, there are many opportunities to secure positions that offer good wages, benefits and career pathways to worthwhile careers."²⁶⁹ The strongest opportunities and career pathways in the sector come through JLMP programs linked to union jobs.

"These JLMP programs prove that it's possible to generate high-wage, high-skill jobs in any industry when you allow workers to have a real democratic say in setting standards."

Apprenticeships for Growing Industries – The Union Difference

The experience of SEIU, UNITE HERE and IAM/Boeing demonstrate that high-skill, high-wage apprenticeships are possible in high-growth and strategically important industries. While WACH medical assistants journey out earning \$12.13/hour (May 2017 dollars), SEIU MAs in Rhode Island and elsewhere complete apprenticeship programs earning \$20.00/hour and above. Non-union food service workers struggle to find healthcare for their families, but 83% of workers in UNITE HERE's BEST Hospitality Training program journey out with employer-paid healthcare. IAM/Boeing apprentices complete their program at nearly twice the rate of AJAC apprentices, and journey out earning more than twice as much. These JLMP programs prove that it's possible to generate high-wage, high-skill jobs in any industry when you allow workers to have a real democratic say in setting standards.

JLMP programs in growing industries create a pathway for women, people of color and other marginalized groups to build sustainable careers. SEIU Healthcare 1199NW provides training to thousands of women and people of color working in the healthcare industry, helping them learn new skills and climb the career ladder. UNITE HERE Local 11 membership is primarily people of color and women, and the Hospitality Training Academy they've partnered in building allows them to secure union jobs with great benefits. IAM/Boeing's apprenticeship programs train a higher percentage of women, people of color and veterans than AJAC, and provide a pipeline to high-wage jobs. These examples demonstrate that JLMP apprenticeship programs are the best way to meet the demand for workers in high-growth industries while ensuring high standards for all apprentices, especially those from underrepresented communities.



RECOMMENDATIONS

WAGES Recommendations

The Lessons of JLMP Program Success

WAGES' analyses demonstrate that JLMP programs have higher enrollment, better wage and benefits standards, higher completion rates, better return on investment and broader inclusion of underrepresented groups than other apprenticeship models. JLMP apprenticeship programs, where union workers participate in governance and negotiate high standards, are able to enroll more apprentices, provide higher journey wages, achieve superior completion rates, and include more apprentices from underrepresented communities than non-union programs. JLMP programs produce a greater net impact on individual apprentices, and produce a much higher return on investment for taxpayers, than MEP programs. Finally, while government efforts have focused on funding PSEAs, JLMP programs actually do a better job of providing high-wage, high-skill jobs in growing and strategic industries.

JLMP programs are successful for a number of reasons:

- Sustainable funding from employers and union workers leads to **higher enrollment in JLMP programs.**
- Union workers are able to negotiate **higher journey wages and benefits** in JLMP programs, leading to good, high-wage union jobs on completion.
- Greater support for apprentices and better wages and benefits drive **higher completion rates** in JLMP programs.
- These higher completion rates and better standards lead to a **greater return on taxpayer investment.**
- Union efforts to improve inclusion have **increased the enrollment and success of underrepresented groups**, including women, people of color and veterans.

Decision makers should draw lessons from the success of Washington's JLMP programs to inform policy that will create more high-wage, high-skilled jobs for workers and a larger talent pool for employers. Public funding should focus on programs that offer high wage and benefit standards that lift apprentices toward the top of their field. Public officials should also support programs that give workers an equal role in governance and setting standards. Apprenticeships offer high returns for employers, so there's no need subsidize the day-to-day operations of established programs. Funding for pre-apprenticeships should focus on support services like childcare, transportation and help with tools, and target programs with a direct pipeline to apprenticeships. Public assistance for extra apprenticeship coordinators would help retention, while funding for capital and technology improvements would help apprenticeship training keep pace with rapidly developing, innovative industries. Additionally, centralized financial support to market apprenticeships to workers looking for a career transition would help get more qualified apprentices into the system. Finally, Washington state should lead the nation by being the first to measure the net impact and return on investment for individual apprenticeship programs to inform public investment decisions.

WAGES Recommendations

Public grants should go to apprenticeship programs providing high-wage opportunities in their occupational fields. According to the U.S. Department of Labor, apprenticeship is a chance for workers to seek “high-skilled, high-paying jobs” and for employers “to build a qualified workforce.”²⁷⁰ Apprenticeship programs that journey out apprentices at or above the average salary for their field are giving them a much better chance to achieve the high-paying jobs they deserve. Additionally, higher journey wage rates are correlated with higher completion rates for apprentices.²⁷¹ This suggests that the higher the salary an apprentice is set to earn on completion, the greater the chance that apprentice will finish their program. Tax dollars should support programs with high wage standards that improve apprentice success.

Public funds should only support apprenticeship programs that include democratically elected worker representation in program governance and decision-making. When workers have an equal, democratic voice in setting program standards, they are able to improve wage and benefit rates, boosting apprentice retention and improving career stability. Worker representatives also contribute shop floor knowledge, increasing the relevance of program curriculum. Additionally, democratic representation of workers on an apprenticeship governing committee ensures accountability, as apprentices themselves take ownership over the long-term sustainability and effectiveness of their programs. Public officials should support these worker efforts to raise standards, ensure apprenticeship curricula reflect shop floor knowledge, and provide program accountability by only supporting apprenticeship programs with equal, democratic worker governance.

Taxpayers should fund new ideas, greater inclusion and effective support services in apprenticeship, not subsidize the long-term viability of programs. Public funds can play an exciting role in encouraging innovation, fostering inclusion and supporting the establishment of new programs. The U.S. Department of Labor has provided millions of dollars to existing programs to train apprentices in energy efficiency and renewable energy trades,²⁷² state governments provide grants to start-up apprenticeships in the health care industry,²⁷³ and ApprenticeshipUSA State Expansion Grants for a number of states have boosted participation by traditionally underrepresented groups.²⁷⁴ However, none of these efforts were targeted at funding the day-to-day operations and sustainability of apprenticeship programs. Washington’s JLMP programs and MEP programs continue to achieve high returns on investment without relying on taxpayer hand-outs to run their operations. This is because apprenticeships are a great investment. A 2016 U.S. Department of Commerce study on apprenticeship returns for employers found an overall rate-of-return of 50% at Siemens, and an internal rate of return of 40% per year at Dartmouth Hitchcock Medical Center.²⁷⁵ With substantial rates of return to employers, and proven apprenticeship models that don’t rely on huge taxpayer subsidies, public funding for apprenticeship should be limited to providing innovation, inclusion and support services.

Washington should provide funding to pre-apprenticeship programs that are closely connected to high-performing apprenticeship programs. Successful pre-apprenticeship programs like Apprenticeship & Nontraditional Employment for Women (“ANEW”) and Pre-Apprenticeship Construction Education (“PACE”) have strong relationships with dozens of long-established apprenticeship programs, providing structured opportunities for graduates to transition into apprenticeship. Other successful pre-apprenticeship programs are directly sponsored by a specific apprenticeship program. The Pacific NW Ironworkers and Employers Local #86 program has partnered with the Washington Department of Transportation to provide a 4-week pre-apprenticeship bootcamp where aspiring ironworkers earn their OSHA 10 safety card, learn basic First Aid/CPR and gain knowledge of the basics of ironworking.²⁷⁶ Students who complete pre-apprenticeship training are directly entered into the Ironworkers Apprenticeship program.²⁷⁷ Pre-apprenticeship works when it creates a direct pipeline to apprenticeship, so the state should support pre-apprenticeships that have proven relationships with apprenticeship programs.

The state should provide support services for pre-apprentices to help with retention, especially for those from vulnerable communities. Pre-apprenticeships are intensive, unpaid programs that can last anywhere from one to three months. Although these programs are often free for participants, pre-apprentices are still forgoing income, paying for childcare, purchasing tools, paying for transportation and incurring other expenses. This creates a financial hurdle for many aspiring pre-apprentices, especially low-income residents, single-moms and others without the financial cushion to weather a period of low earnings and higher expenses. Apprenticeship supporters in government should consider expanding access to free childcare, financial assistance for tools and supplies, and wage stipends for pre-apprentices who qualify.

Funding additional apprenticeship coordinators to help apprentices early in their program would help with retention, especially for vulnerable groups. Apprenticeship coordinators play an important role in ensuring that apprentices are being integrated into their worksites and learning appropriate skills. This is especially true for apprentices from underserved groups like women or veterans. A rogue supervisor or foreman may fail to invest the time in training apprentices, or may assign them menial tasks that don't build appropriate skills. Apprenticeship coordinators can provide program support and backup at the worksite to get apprentices back on track. Public support for these positions would improve retention for all apprentices, and especially those from vulnerable groups.

Capital grants or affordable loans would help apprenticeship programs keep machinery and equipment up-to-date. Apprenticeship programs have an edge over purely academic programs because employers play an important role in program oversight and curriculum development. Industry is constantly evolving and becoming more efficient, and that means employers need workers familiar with new technology, new machines and new equipment. While established apprenticeship programs do a good job of keeping their training equipment up-to-date, the government could help with grant money or discounted loans that assist programs in securing cutting edge equipment.

Many apprenticeship programs do a great job with recruitment and retention once apprentices are in the door, but could use help with marketing to reach a wider applicant pool. Apprenticeship is a fantastic deal for workers looking to build a career. Washington's WTB estimates that apprentices earn \$342,140 more in net wages and benefits over the course of their lifetime than similar workers who don't go through apprenticeship,²⁷⁸ and the WAGES ROI Model shows that the results for higher-wage JLMP programs are even stronger. Training directors and coordinators are persuasive, passionate advocates for their programs. However, workers not connected to the world of apprenticeship have a hard time learning about these programs in the first place. Public funds to market to workers in their late 20s looking to build a career would get more qualified applicants through the door and boost apprentice participation and impact.

Washington should lead the nation by becoming the first state to measure the net impact and ROI of individual programs. Washington's WTB, relying on the sophisticated analysis of the W.E. Upjohn Institute for Employment Research, is a national leader in measuring the impact of Washington's workforce development programs. In order to make more informed public investment decisions, the Legislature should empower WTB to go further and analyze the net impact of individual apprenticeship programs. Public officials who have invested millions of dollars in PSEA programs that provide journey wages well below their respective occupational average are routing tax dollars to unproven programs without the necessary information to make sound investment decisions. A statistical analysis of all of the state's large apprenticeship programs would provide the data that legislators need to support programs with the highest net impact and return on investment for apprentices and taxpayers.

Appendix A – The WAGES ROI Model

Assumptions and Methodology

Wages

The WAGES ROI Model estimates the lifelong results for apprentices in the 12 programs by estimating in-training earnings and hours, starting at 28 years old, and then projecting an adjusted post-apprenticeship wage forward from program completion/non-completion through age 65. To derive in-training earnings, the WAGES ROI Model uses OJT hours worked for each apprentice divided by number of quarters in the program as an estimate for quarterly hours worked.²⁷⁹ Wage scale progressions for each occupation and program are used to estimate quarterly earnings for each apprentice. To arrive at an estimate of post-program earnings for non-completers, the WAGES ROI Model takes the ratio of the average post-apprenticeship wage (for all 12 programs as a group) to the 25th percentile local occupational wage for non-completers for each program year, applies that ratio to the 25th percentile local occupational wage for each non-completing apprentice, and multiplies by the average post-apprenticeship hours worked per quarter for non-completers (**Table 15**). To arrive at an estimate of post-program earnings for completers, the WAGES ROI Model takes the ratio of the average post-apprenticeship wage (for all 12 programs as a group) for each program year to the average journey wage for completers for each program year, and applies that ratio to the journey wage of each completing apprentice multiplied by the average post-apprenticeship hours worked per quarter for completers.

The WAGES ROI Model creates a control group of comparable non-participants by projecting adjusted pre-apprenticeship earnings for each individual in the universe, assuming a starting age of 28, forward until they turn 65. The WAGES ROI Model takes the ratio of the average pre-program wage (for all 12 programs as a group) to the average 10th percentile local occupational wage for each completion status group for each year, and applies that ratio to the 10th percentile local occupational wage for each apprentice.²⁸⁰ That adjusted pre-program wage is then multiplied by pre-program hours per quarter and projected to grow at a steady real rate of 2% for each apprentice from age 28 until age 65.²⁸¹ This serves as the control group estimate for each individual apprentice in the universe.

Taxes

The WAGES ROI Model estimates income, Social Security, Medicare and sales taxes, and net unemployment insurance benefits, for all apprentices and all control group members. Income taxes are measured for each apprentice on a quarterly basis assuming that current real rates remain constant. Following Upjohn, sales tax rates are assumed to be 8.35% of gross income. Social Security and Medicare taxes are estimated at 7.65% taken from gross individual income, and an additional 7.65% contributed by employers. Following Upjohn, post-apprenticeship unemployment insurance benefits for apprentices are estimated, conservatively, at the long-term quarterly estimate of \$228 per quarter per apprentice.

Costs

Individual and taxpayer program costs in the WAGES ROI Model follow Upjohn's estimates used by WTB. Apprenticeship programs typically pay for apprentice tuition, and books average roughly \$400 per year, so WAGES ROI Model estimates individual costs per apprentice of apprenticeship programs at \$100 per quarter (in May 2017 dollars). These estimates have not been adjusted by program or occupation, and may therefore over or under-estimate costs per program. Following Upjohn, the WAGES ROI Model assumes a state subsidy per FTE of \$4,264 (\$4,396 in May 2017 dollars) and annual administrative cost of \$480 per apprentice (\$495 in May 2017 dollars). In order to capture initial registration costs, apprentices who exit during the first year of apprenticeship are assumed to have incurred the entire annual administrative cost. Apprentices training for greater than a year incur administrative costs on a quarterly basis. These individual

and public cost estimates are adjusted for each program's required quarterly RSI hours for each apprentice, multiplied by the number of quarters each apprentice spends in their program, and discounted by a 3% real rate to arrive at an average individual and public cost for each program.

Table 15. WAGES ROI Model Assumptions

		With Apprenticeship		Without Apprenticeship
	Assumption	Completers	Non-Completers	All
In Training	Wage Earnings In Training	Avg OJT Hours/Quarter x Wage Scale Step for Each Quarter		Occ 10th Pctl Wage x (WTB Avg/Occ 10th Avg)
	Benefits In Training	JLMP: \$11.03/hour - \$32.19/hour MEP: 31.3%		31.3%
After Training	Wage Earnings After Training	Journey Wage x (WTB Avg/Journey Wage Avg)	Occ 25th Pctl Wage x (WTB Avg/Occ 25th Avg)	Occ 10th Pctl Wage x (WTB Avg/Occ 10th Avg)
	Benefits After Training	JLMP: 31.0% - 62.5% MEP: 31.3%	31.3%	31.3%
Lifetime Projection	Discount Rate	3%		3%
	Wage Growth	2% (Real)		2% (Real)
Taxes	Income Tax	Current Real Rates		Current Real Rates
	SSI & Medicare	Individual 7.65% Employer 7.65%		Individual 7.65% Employer 7.65%
	Sales Tax	8.35% of Gross Earnings		8.35% of Gross Earnings
	Net UI	\$228/Quarter		\$0/Quarter

Note: WTB hourly wage and hours worked averages were provided for completers, non-completers and completers and non-completers combined, for one quarter before apprenticeship and three quarters after apprenticeship, for 2013-2014, 2014-2015 and 2015-2016 for all 12 apprenticeship programs as a whole. "WTB Avg" refers to the relevant completer/non-completer and year category for each apprentice.

Journey wages for all programs except NWLETT were taken from L&I's apprenticeship information. The NWLETT journey wage of \$30.09 (in May 2017 dollars) was a simple average of the regional journey wages for the program across the state.

The WAGES ROI Model makes a number of assumptions about benefits for the control group and apprentices. For non-apprentices in the control group, the Model assumes a benefit rate of 31.3% of wages, consistent with BLS' estimate for healthcare, retirement and paid time off benefits for workers in the construction industry.²⁸² For JLMP apprentices in training, the Model assumes a benefit amount per hour of between \$11.03/hour and \$32.19/hour as reported by the JLMP programs, and between \$6.71/hour and \$9.12/hour for the MEP programs. For MEP completers and non-completers, and JLMP non-completers, the Model assumes a 31.3% benefit rate consistent with BLS estimates upon completion. For JLMP completers, the Model takes the programs' benefit amount divided by the journey wage to establish a long-term benefit rate of between 31.0% and 62.5%.

Model Universe

The WAGES ROI Model universe includes all apprentices participating in only one program who exited the largest JLMP and MEP programs training apprentices in Washington's six largest comparable occupations. In order to isolate the effects of each program, the Model excludes 431 apprentices who transferred between programs or enrolled multiple times in apprenticeship programs. After excluding these apprentices, there are a total of 2,353 exiting apprentices in the WAGES ROI Model universe (**Table 16**). The

in-universe completion rates for each program are within 5 percentage points of the completion rates for all exiting apprentices for each program in the period, implying that the exclusion of these multiple-program apprentices does not substantially change the mix of completers and non-completers for any program. The only program for which sample size is an issue is the Inland Northwest Chapter Associated General Contractors Laborers Apprenticeship Committee (“INWAGC Laborers AC”) program, where only 12 exiting apprentices were included in the Model.

Apprentices who completed their programs spent an average of approximately 4-5 years in apprenticeship, while non-completers spent 1-2 years in apprenticeship. For each occupation, the respective JLMP and MEP programs required the same number of OJT hours (i.e. the SAPT and CITC apprenticeships for plumbers both require 10,000 worked or credited hours), implying that the average number of quarters that completers train for each program should be similar. This is broadly true, with the exception of plumbers and sheet metal workers, where JLMP apprentices who complete their program train for an average of 9 and 4 quarters longer than their MEP counterparts, respectively. This disparity can be explained, in part, by a larger average number of OJT hours credited to CITC – Plumbers and CITC – Sheet Metal apprentices, than to SAPT and WWSMJATC apprentices. For non-completers, the average length of apprentice participation is similar for JLMP and MEP programs with the exception of laborer, plumber and sheet metal programs. In these fields, MEP non-completers exit their program more than a year earlier than JLMP apprentices. The WAGES ROI Model treats the effect of apprenticeship on all non-completers identically regardless of the amount of time they spend in their program. This assumption could inflate the individual and taxpayer net impact of MEP laborer, plumber and sheet metal programs relative to their JLMP counterparts.

Table 16. WAGES ROI Model Universe
Completion Status and Avg Program Length for 2013-2016 Exiting Apprentices in Universe

Occupation	Program	Completers	Non-Completers	Completers Avg. Quarters	Non-Completers Avg. Quarters
Carpenter	NWCI	134	474	20	5
	CITC - Carpenter	24	62	18	6
Construction Electrician	PSEJATC	206	78	22	7
	CITC - Con. Electrician	36	92	19	5
Construction Equip Operator	OERTP	51	49	18	10
	INWAGC Operators AC	8	59	20	13
Laborer	NWLETT	179	500	15	5
	INWAGC Laborers AC	0	12		1
Plumber	SAPT	66	24	29	15
	CITC - Plumber	40	48	20	10
Sheet Metal Worker	WWSMJATC	110	78	23	14
	CITC - Sheet Metal	7	16	19	5
Six Largest Comparable	All JLMP	746	1203	21	6
	All MEP	115	289	19	7

Note: The universe includes all apprentices who exited 7/1/13 - 6/30/16 who did not transfer from or train in another apprenticeship program. Excludes duplicates and transferees to isolate effects of programs in the model.

Discussion of Model Assumptions

The WAGES ROI Model provides robust economic estimates rather than precise statistical calculations. Over 100 bootstrap simulations, the Model's hypothesis that JLMP programs outperform MEP programs in terms of net impact were found significant at the 0.1% level for all six occupations.²⁸³ Although the overall conclusions are robust, the model makes a number of assumptions about hours worked, post-apprenticeship wages and real wage growth that may over or underestimate program benefits for both JLMP and MEP programs. Wages and hours for the hypothetical scenario where participants never enter apprenticeship are based on pre-apprenticeship wages and hours, which may underestimate annual earnings if participants would have increased working hours or hourly earnings by more than the Model's assumptions. Real wage growth may be faster or slower than the 2% assumption made in the WAGES ROI Model. The age, ability or experience of apprentices may vary significantly between programs, weakening the assumption of identical age on entry. However, even allowing for these caveats, the WAGES ROI model provides statistically robust evidence that JLMP programs have a higher net impact for individuals and taxpayers than MEP programs across all the state's six largest comparable occupations.

There are a number of assumptions in the WAGES ROI Model that could affect the Model's estimates. Non-apprentices in the control group, who are estimated to work their pre-program hours for the rest of their lives, may have actually worked more hours as they gained other job skills. This would depress the wage, benefit and tax estimates for the control group in the WAGES ROI Model, inflating the relative size of the net impact and ROI for JLMP and MEP apprentices and taxpayers. The assumption that all apprentices and non-apprentices entered training working within their program's occupation, and then stay there between ages 28 to 65 may not be true. This could alter the distribution of pre-apprenticeship and post-apprenticeship wages, which are based on local occupational averages. The assumption that all apprentices, regardless of gender, race or veteran status, earn wages in relation to their local occupational average or their journey wage may also under or overestimate the net impact of programs depending on their demographic mix. It could also be the case that certain programs have a younger age profile, which would imply a higher net impact as journeyed out apprentices spend additional years earning a higher post-apprenticeship wage. The assumption of 2% real wage growth could also inflate net impacts and ROIs if it is higher than the real rate, or deflate them if it's lower. NWLETT's journey wage in the Model was based on statewide program journey wage data that was unavailable for other statewide programs, indicating that the net returns for other statewide apprenticeship programs may be higher than those found in the Model. Despite these potential drawbacks, the WAGES ROI Model makes the most realistic economic assumptions possible given the available data, and is a useful tool to compare the performance of different apprenticeship program models.

¹ Multi-Employer Partnership programs include the Construction Industry Training Council of Washington (“CITC”), Inland Northwest Associated General Contractors, and other non-union programs funded or sponsored by multiple employers.

² Publicly Subsidized Employer Apprenticeships include Washington Association for Community Health (“WACH”) programs, the Washington Technology Industry Association’s Apprenti programs and Aerospace Joint Apprenticeship Committee (“AJAC”) programs.

³ Completion rate refers to the number of apprentices who complete a program, divided by the total number of completers and cancellers. This rate is consistent with Washington’s Workforce Training and Education Coordinating Board’s (“WTB”) method, but differs from the completion rate many apprenticeship organizations use to report their own statistics, which excludes cancellers still in their probationary period. Probationary cancellation data was unavailable for the Study, and to stay consistent with WTB practice, WAGES counts all cancellers against a program’s completion rate.

⁴ All journey wages listed in WAGES are represented in May 2017 dollars to allow comparison to May 2017 Bureau of Labor Statistics Occupational Employment Statistics wage and demographic data unless otherwise stated. Journey wages also represent the final step in each apprenticeship program’s wage scale, but apprentices may earn more than the journey wage after program completion. Additionally, for statewide programs, journey wages reported to L&I may represent the lowest regional journey wage, and may therefore underestimate journey wages for some apprentices in higher wage regions.

⁵ Comparable Occupations refers to Standard Occupational Classifications where both JLMP and non-union programs journeyed out or trained apprentices in 2017 unless otherwise stated.

⁶ Local occupational average in WAGES refers to the mean hourly wage for an apprentice’s occupation for their ARTS-listed zip code. BLS OES metropolitan statistical area and micropolitan statistical area wage data were used where available, and BLS OES Washington State data was used for zip codes that fell outside of recognized MSAs, Micropolitan statistical areas and Washington subregions.

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- Weighted National Average Female =
$$\frac{\sum_{i=1}^{46} \text{Nat'l Pct Female Occupation } i \times \text{Union Apprentices in Occupation } i}{\sum_{i=1}^{46} \text{Union Apprentices in Occupation } i}$$
- Weighted Union Average Female =
$$\frac{\sum_{i=1}^{46} \text{Union Pct Female Occupation } i \times \text{Union Apprentices in Occupation } i}{\sum_{i=1}^{46} \text{Union Apprentices in Occupation } i}$$
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$$\text{Weighted National Average Female} = \frac{\sum_{i=1}^{39} \text{Nat'l Pct Female Occupation}_i \times \text{Non-Union Apprentices in Occupation}_i}{\sum_{i=1}^{39} \text{Non-Union Apprentices in Occupation}_i}$$

$$\text{Weighted Non-Union Average Female} = \frac{\sum_{i=1}^{39} \text{Non-Union Pct Female Occupation}_i \times \text{Non-Union Apprentices in Occupation}_i}{\sum_{i=1}^{39} \text{Non-Union Apprentices in Occupation}_i}$$

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APPENDIX 7

CITY OF SEATTLE
City Purchasing and Contracting Services



COMMUNITY WORKFORCE AGREEMENT

April 8, 2015
as Amended through November 29, 2017

WITH
Seattle Building and Construction Trades Council and the
Northwest National Construction Alliance II

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COMMUNITY WORKFORCE AGREEMENT

City of Seattle

This Community Workforce Agreement (CWA) is entered into April 8, 2015 by and between the City of Seattle (hereafter referred to as "City"), the Seattle King County Building and Construction Trades Council, and Northwest National Construction Alliance II acting on their own behalf and on behalf of their respective affiliates and members whose names are subscribed hereto and who have, through their duly authorized officers (hereafter referred to collectively as "Unions") executed this Agreement. The City and Unions are the signatory parties to this Agreement.

All construction contractors and subcontractors of whatever tier engaged in construction work for projects that are subject to this Agreement, shall sign a letter of assent (see Attachment A) and are bound by this Agreement as a condition of performing work on the project. Such Contractors shall be hereafter referred to as "Contractors." When the Agreement refers to only the prime contractor, the term "Prime Contractor" will be used alone, which includes primes that serve as a GC/CM, a design-builder, a general or a prime.

This CWA meets the intent and obligations set forth in Seattle Municipal Code (SMC) Chapter 20.37, which directs a priority hire program and an agreement executed between the Director and Labor Unions that represent workers who typically perform on City public works projects.

This CWA covers every City of Seattle administered public works project estimated to cost \$5 million dollars or more at time of bid when including any contingency budget, except when a project is exempted by the Director of City Purchasing and Contracting Services for the Department of Finance and Administrative Services (hereinafter referred to as "Director") under conditions established by SMC 20.37. Such projects are hereafter referred to as "Covered Projects."

PURPOSE

The parties to this Community Workforce Agreement, and Contractors who assent to work under this CWA, acknowledge that social equity, workforce diversity, development of local workers for construction careers as well as the timely completion of projects without delay, with skilled workers and agreed-upon procedures, is of benefit to the City. Public Works projects are important to the residents of Seattle and protect critical City infrastructure. This CWA enhances cooperative efforts towards those principles. This CWA is intended to establish a spirit of harmony, peace, and stability between labor and management, to support timely construction of public works projects.

Timely construction of projects requires substantial numbers of workers from construction and supporting crafts possessing skills and qualifications vital to its completion. This CWA supports training and dispatch of local craft workers to construct Covered Projects.

This CWA seeks to stabilize wages, hours and working conditions for craft workers, to ensure workers on Covered Projects have the same working conditions, and encourages close cooperation between the City, Unions and Contractors, for a satisfactory, continuous and harmonious relationship between all involved on these projects.

The parties, and Contractors who assent to this CWA, agree to abide by the terms and conditions in this CWA. This CWA establishes effective and binding methods for settlement of misunderstandings, disputes or grievances that may arise related to labor relations on a Covered Project. Such issues will follow the appropriate procedures described by this CWA in ARTICLE VIII (Disputes and Grievances) and ARTICLE IX (Jurisdictional Disputes). Unions agree to not engage in any strike, slow-down, or interruption or other disruption or interference with the work covered by this CWA. Contractors agree to not engage in any lockout.

This CWA supports SMC 20.42, to promote and ensure access for woman and people of color to meaningful work on City public works projects. This CWA also supports all Contractor efforts and obligations to utilize women-owned and minority-owned firms, as established under the public works project contract between the City and the Contractor. Nothing in this CWA shall minimize or relieve the Contractor from such contractual obligations.

This CWA supports development of a skilled construction workforce. This CWA supports hire of pre-apprentice graduates and apprentices in Washington State Apprenticeship and Training Council (WSATC) registered training programs, particularly women, people of color and other individuals facing significant employment barriers. SMC Chapter 20.38 requires Prime Contractors to ensure apprentices perform the rate of utilization that is directed in the City Public Works contract for each project. Such required utilization shall never be less than 15% and will not exceed 20% of all craft project labor hours. The Prime Contractors shall also ensure that they attain the required placement for pre-apprenticeship program graduates (from qualified Apprenticeship and Pre-Apprentice programs as defined within this CWA).

The local region has economically distressed areas with high unemployment and low incomes, as defined in SMC 20.37. This CWA instructs dispatch of workers from such economically distressed ZIP codes (Attachment B) in a manner that will achieve the requirements established by the City within each project contract, for the share of hours that will be performed by workers from such distressed areas.

This CWA seeks to support dispatch of workers to achieve the aspirational goals for hire of women and people of color, as established by the City within the contract for each Covered Project.

ARTICLE I SCOPE OF AGREEMENT

Section 1. This CWA applies and is limited to the recognized and accepted historical definition of public works under the direction of and performed by Contractors of every tier. Public works, also called project work, shall include site preparation and dedicated off site work. All City of Seattle administered public works projects with a project construction budget plus contingency of \$5 million and over at the time of bid shall be covered by this CWA, except when exempted by the Director of City Purchasing and Contracting Services (hereafter referred to as "Director") in accordance with Seattle Municipal Code Chapter 20.37.

Contractors of every tier who perform project work, must agree to accept and be bound by all CWA terms and conditions, and sign a Letter of Assent (Attachment A) before commencing work. The Prime Contractor shall assure all sub-tier contractors who perform project work will comply with this CWA.

If the CWA is silent on any issue, the local Collective Bargaining Agreement(s) that are currently in force at the time such issue emerges shall prevail; where there is a conflict, the terms and conditions of this Agreement shall supersede and override terms and conditions of any and all other national, area, or local collective bargaining agreements, except for all work performed under the NTL Articles of Agreement, the National Stack/Chimney Agreement, the National Cooling Tower Agreement, all instrument calibration work and loop checking shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, and the National Agreement of the International Union of Elevator Constructors, with the exception of ARTICLE VII (Work Stoppages and Lockouts), ARTICLE VIII (Disputes and Grievances), and ARTICLE IX (Jurisdictional Disputes), which shall apply to such work on Covered Projects.

This is a self-contained, stand-alone Agreement in that Contractors are not obligated to sign any other local, area, or national agreement.

This agreement contains Attachments which may be updated from time to time. Updates to Attachment A (Letter of Assent) and Attachment D (Pre-Job Package and Pre-Job Waiver Forms) shall be reviewed and mutually agreed upon by the Joint Administrative Committee. The City has the sole discretion to update Attachment B (Priority ZIP code list).

Section 2. Nothing herein shall prohibit, restrict or interfere with any operation, work, or function that may occur at project sites or associated with Covered Projects.

Section 3. This CWA is binding on the signatory parties hereto and Contractors who sign a letter of assent; it does not apply to their parents, affiliates or subsidiaries.

Section 4. The City has the absolute right to award responsive and responsible bidders for project contracts without reference to the existence of any agreements between such bidder and any party to this Agreement; provided that such bidder is willing, ready and able to sign a letter of assent to comply with this Agreement, should the bidder be designated the successful bidder.

Section 5. Any work identified in RCW Chapter 39.12 (Prevailing Wages) will be subject to the CWA.

Section 6. This CWA does not apply to City workers and nothing herein shall prohibit or restrict City workers from performing project work. Once work or portions of work on the Covered Projects is completed and accepted by the City, the Agreement will have no further force or effect on such work, except when the Contractors are directed by the Prime Contractor or the City to engage in repairs, modifications, check-out, and written warranty by the manufacturer.

Section 7. The City, at its sole option, may terminate, change, delay and/or suspend any or all portions of the City's contract on a specific Covered Project.

Section 8. The liability of any Contractor and the liability of the separate unions under this Agreement shall be several and not joint. The Unions agree this Agreement does not have the effect of creating any joint employer status between or among the City and any Contractor.

ARTICLE II PROJECT CONDITIONS

Section 1. Workers shall be at their place of work at the designated starting time and shall remain during working hours until their designated quitting time. As practicable given City contract requirements for the project, parking will be available to workers within a three (3) block radius of the project, at a location designated by the Prime Contractor. If the City determines dedicated parking is not possible, then the Prime Contractor will provide transportation to and from a designated parking location that the Prime Contractor provides, and the project worksite; in such situations, workers shall leave their place of work 15 minutes before end of shift for travel. Transportation to such a designated parking location shall be available to the workers throughout each scheduled work day. In lieu of compensated time for travel to designated parking, the Prime Contractor may elect to pay each worker for their parking costs, at an amount negotiated between the Seattle Building and Construction Trades Council and the Prime Contractor.

Section 2. In accordance with the requirements of the Occupational Safety and Health Act as amended; the provisions of the Washington Industrial Safety and Health Act (WISHA), as amended; the requirements of Title 296 WAC, Department of Labor and Industries, this CWA, as well as the applicable City contract, it shall be the exclusive responsibility of the Contractor to ensure the safety and health of its workers and worker compliance with any and all such safety rules mentioned above and as otherwise established by the Contractor or the City through any additional instruction. Contractors will provide a copy of the Contractor's safety rules at the pre-job conference. The Contractor is responsible for providing and maintaining personal protective equipment (PPE) per WAC 296, and the expectation for appropriate replacements schedules of such PPE may also be subject to pre-job discussion by the Union with the Contractor. Safety rules shall be posted at the job site and shall be uniformly enforced.

Section 3. Should a Contractor seek to change any safety rule during the course of a project, such proposed changes shall be discussed at Joint Administrative Committee meetings prior to implementation.

ARTICLE III WAGE RATES AND FRINGE BENEFITS

Section 1. Contractors of every tier shall adhere to the applicable Federal and/or State prevailing wage rates for all craft workers, in effect at the time each Covered Project is bid. If both Federal and State prevailing wage requirements apply, the higher wage rate will prevail. Each September, Contractors of every tier shall incorporate all increases to such wage and benefits rates that are announced by the State or Federal government, as applicable, for the duration of each Covered Project. Federal updates to Davis Bacon wages will not be incorporated and updated until the annual September adjustment. Such wage increases shall be made effective the first full payroll period following the effective date. Wages shall be paid weekly on an established payday before quitting time. Workers who quit shall be paid on the next regular pay day by mail to their last known address unless such workers give adequate notice to do otherwise. Any worker who is discharged or laid off shall be entitled to receive all accrued wages immediately upon discharge or layoff. Notification of layoff shall be at the Contractor's discretion, but shall not be given later than the end of the work shift on the date the layoff is to be effective. A penalty for a delinquent paycheck shall be paid, in addition to all wages due to the worker, according to the applicable craft's CBA.

Section 2. The workweek for payroll purposes will begin with the first day shift on Monday morning and end on the following Monday morning (the workweek for any particular project may be modified by mutual consent). The Contractor will have the following options of making payment at the election of the employee in writing at the time of hire or with ten (10) business days' notice of a change: 1) negotiable check by a local bank, paid prior to quitting time at the job site; 2) direct deposit, into worker's bank account; or 3) by mail. If paid by mail, the check shall be postmarked no later than two (2) business days prior to the established payday.

Section 3. The Contractor will furnish appropriate trust documents and signed letters of assent, to the Union that is covering the funds into which contributions shall be made. The Contractor will contribute to, and hereby becomes party to and is bound by bonafide pension, vacation, health and welfare, apprenticeship and training funds covering workers under this Agreement.

Section 4. If contribution payments for hours worked each month as defined above are not received by the Health and Welfare Fund office or Pension Fund office within the date prescribed by the appropriate trust funds, the Fund will make every effort to resolve the delinquency with the Contractor and will notify the Contractor, Prime Contractor (if different) and the City of such delinquency with all documentary evidence of the delinquency endorsed by the Fund.

ARTICLE IV HOURS OF WORK, OVERTIME AND SHIFTS

Section 1. Hours of Work (Section 2 below) and Shifts (Section 4 below) may be pre-empted by the City contract and/or City through instruction to the Contractor, based on unforeseen project needs, provided adequate notice is given to the Union.

Section 2. Hours of Work: The standard workday shall consist of eight (8) hours of work scheduled between 7 a.m. and 7 p.m. with one-half hour designated as an unpaid period for lunch. The starting time may be different (staggered) on a crew basis. The standard workweek shall be five (5) days of work, Monday through Friday. Nothing herein shall be construed as guaranteeing any employee eight (8) hours of work per day or forty (40) hours of work per week.

Section 3. Overtime: All hours worked in excess of eight (8) hours per day, or forty (40) hours per week of straight-time, or outside of regular shift, Monday through Friday and Saturday shall be paid in accordance with applicable State and Federal prevailed wage requirements. There shall be no pyramiding of overtime pay. Holidays, pursuant to SMC 4.20.190 and RCW 1.16.050, are named in the City Covered Project contract specifications and include:

1. New Year's Day (January 1)
2. Martin Luther King Jr Birthday (Third Monday of January)
3. Presidents Day (Third Monday of February)
4. Memorial Day (Last Monday of May)
5. Fourth of July
6. Labor Day (First Monday of September)
7. Veteran's Day (Eleventh Day of November)
8. Thanksgiving (Fourth Thursday of November)
9. Post Thanksgiving Friday (Friday immediately following Thanksgiving Day)
10. Christmas (December 25)

Section 4. Shifts: Shifts may be established for some or all crews when considered necessary by the Contractor or as directed by the City project contract. When three (3) shifts are worked, the first, or day shift shall be established on an eight (8) hour basis, the second shift shall be established on a seven and one-half (7 ½) hour basis and the third shift shall be established on a seven (7) hour basis. The pay for the second and third shifts shall be the equivalent of eight (8) hours pay at the employee's regular hourly rate. When shift work is established, it must continue for a minimum of five consecutive days on a schedule of 8 hours a day 5 days a week. If only two shifts are to be worked, each shift will work eight (8) hours for eight (8) hours pay. In any shift change 3 business days' notice to the affected union shall be provided. There shall be no split shifts. Other shift provisions may be established by mutual consent of the parties.

Section 5. Meal Period: Workers shall not be required to work more than five hours from the start of the shift without at least one-half hour unpaid uninterrupted break for lunch. This lunch period shall not begin earlier than three and one-half hours after the start of the shift. In the event that the Contractor establishes a ten-hour shift, the meal periods shall be at mid-shift. The worker meal periods may be staggered on an individual basis.

- (a) If a craft worker is required to work more than five hours before breaking for lunch, they shall be paid one-half hour at the applicable overtime rate and shall eat their lunch on company time.
- (b) An additional hour of overtime pay shall be provided in lieu of lunch.
- (c) Craft workers required to work more than two hours after the end of an eight hour shift and one hour after an ten hour shift shall be furnished a meal and paid one-half hour at the applicable wage rate and every five hours thereafter a craft worker shall be given time for a meal. Mealtime shall be paid at the applicable overtime rate and adequate lunch shall be provided by the Contractor at the job site.
- (d) An additional hour of overtime pay shall be provided in lieu of a second lunch.

Section 6. Rest Facilities: Adequate sanitary and restroom facilities will be provided at the work location to allow workers to wash-up before and after their meal. The Contractor shall furnish warm, dry, lighted rooms of ample size equipped with heat for drying clothes and with benches and tables for use during meal periods. These are to be situated close to the site of the work and shall not be used for storage of materials or equipment.

Section 7. Reporting to Work Pay: Any worker who reports for work (except when given notification not to report to work 2 hours prior to shift), and for whom no work is provided, shall receive four (4) hours pay. Any worker who reports for work and for whom work is provided, shall be paid for actual time worked but not less than four (4) hours. If the job is shut down because of adverse conditions that prevent work and are beyond the control of the Contractor, workers shall be paid for actual time worked but not less than two (2) hours. Procedures for the Contractor to use to cancel work shall be agreed upon at the pre-job conference.

ARTICLE V UNION RECOGNITION

Section 1. The Contractor(s) recognize the signatory Unions as the sole and exclusive bargaining representatives for all craft workers within their respective jurisdictions, who are working on Covered Projects within the scope of this CWA.

Section 2. All workers covered by this CWA who are Union members and working for a Contractor signatory to a collective bargaining agreement other than this CWA, shall remain members in said Union during the project.

Section 3. No worker shall be required to become a member of a Union to be eligible for employment under this CWA. No Contractor shall be required to become affiliated with the Union to be eligible for work under this CWA. All workers not currently a member of the appropriate Union signatory to this CWA shall, however, be required to pay a representational fee for the period during which they are performing covered work.

Section 4. The Contractor shall honor Union dues and initiation fees check-off pursuant to receipt of properly authorized dues deduction cards signed by its worker, along with other lawful authorizations from employees providing for deductions from wages. The Union will notify the Contractor and the City in a timely manner if a Contractor is delinquent in remitting representation fees authorized by the worker.

Section 5. Union representatives shall have reasonable access to Covered Projects, provided they do not interfere with the work of the workers and if such representatives fully comply with the visitor, safety and security rules established for Covered Projects as established at the pre-job conference.

Section 6. The Business Representative(s) for each of the local Unions signatory hereto shall have the right to designate for each shift worked with each Contractor one (1) working journey-level worker as Steward for all related craft personnel, who shall be recognized as a Union representative. Such designated Stewards shall be qualified workers assigned to a crew and shall perform the work of their craft. Under no circumstances, shall there be a non-working Steward on the job.

Section 7. The working Steward shall be paid at the applicable wage rate for the job classifications in which they are employed.

Section 8. Steward(s) for each craft of the Unions employed on Covered Projects shall be permitted on Covered Projects site at all times. They shall not be subjected to discrimination or discharge for performing proper union business. The Unions agree that such business shall not unreasonably interfere with the Steward's work for the Contractor.

Section 9. The employee selected as Steward shall remain on the job if there is work within their craft for which they are qualified, willing and able to perform. The Contractor shall be notified in writing of the selection of each Steward. The Contractor shall give

the Unions twenty-four (24) hours prior written notice before laying-off a Steward.

Section 10. The Steward may not cause or encourage a work stoppage and, if found guilty of instigating such action, will be subject to disciplinary action by the Contractor, including discharge.

Section 11. The Steward's duties shall not include hiring and termination.

Section 12. The Stewards shall be given the option of working all reasonable overtime within their craft and shift provided they are qualified to perform the task assigned.

ARTICLE VI MANAGEMENT'S RIGHTS

Section 1. Contractors retain full and exclusive authority for management of their operations. Except as limited by this CWA, Contractors shall direct their working forces at their prerogative, including, but not limited to hiring, promotion, transfer, lay-off or discharge for just cause. No rules, customs, or practices shall be permitted or observed which limit or restrict production, or limit or restrict the working efforts of workers. Contractors shall utilize the most efficient method or techniques of construction, tools, or other labor saving devices except when in conflict with provisions in the City contract. There shall be no limitations upon the choice of materials or design, nor shall there be any limit on production by workers or restrictions on the full use of tools or equipment. There shall be no restriction, other than may be required by safety regulations, on the number of workers assigned to any crew or to any service.

Section 2. The City will provide project oversight and administration through internal dedicated staff or third party administration. Copies of redacted certified payroll and daily worker sign in sheets will be made available upon request, redacted and subject to the limitations of law.

Section 3. The parties agree to participate in a Joint Administrative Committee (JAC) to address safety, targeted hiring, apprenticeship utilization, preferred entry, job progress and any other relevant issues that affect Covered Projects. The parties agree to address issues as they arise and resolve them in a timely manner. Only signatory parties to this Agreement shall have voting rights when the JAC makes a decision by vote.

The JAC shall allow interested contractors and community members to attend meetings, and receive copies of materials and information that are distributed by the parties. The City shall chair the Committee. The City and Unions shall each have one vote. When in disagreement, the Union and the City may, by mutual agreement, appoint an impartial third party to break the tie with a third vote. The City shall prepare copies of reports and

materials, and distribute to the JAC membership and any interested audience or stakeholders upon their request.

Section 4. Upon referral or dispatch from a Union, refusal by a Prime Contractor or Contractor to employ the dispatched worker (also known as a “turnaround”), requires a written explanation from the Contractor that shall be copied to the Prime Contractor (if different), City and affected Union, within two business days. The City shall make such turnaround explanations available in a timely way to other interested stakeholders, redacted as appropriate and subject to limitations of law.

Section 5. If the signatory Unions are unable to fill a request for employees within 2 business days, the Contractor shall request a referral from the City Job and Training Coordinator. If the City is unable to refer a worker that can satisfy the request, the City, Union and Contractors shall make any other reasonable efforts to comply with priority hire requirements and goals as practicable given the needs of the work to be performed.

Section 6. Each Contractor shall use the Craft Request Form when requesting a new employee for dispatch on Covered Projects and shall copy the City on all Craft Request Forms submitted to the Unions. The Unions and Contractors agree to maintain copies of all Craft Request Forms used on Covered Projects. The City may review and inspect any Craft Request Forms, upon request.

ARTICLE VII WORK STOPPAGES AND LOCKOUTS

Section 1. During this CWA, there shall be no strikes, picketing, work stoppages, slowdowns or other disruptive activity for any reason by the Union, any applicable local Union or by any worker, and there shall be no lockout by the Contractor. Failure of any Union, local Union or worker to cross any picket line established at Covered Project sites violates this Article.

Section 2. The Union and every applicable local Union shall not sanction, aid or abet, encourage or continue any work stoppage, strike, picketing or other disruptive activity at the Contractor’s project site and shall undertake all reasonable means to prevent or to terminate any such activity. No worker shall engage in activities that violate this Article. Any worker who participates in or encourages any activities that interferes with normal operations on a Covered Project, shall be subject to disciplinary action, including discharge, and if justifiably discharged shall not be eligible for rehire on the project for a period of not less than ninety (90) days.

Section 3. Neither the Union nor any applicable Local Union shall be liable for acts of workers for whom it has no responsibility. The International Union General President or Presidents will immediately instruct order and use the best efforts of his or her office to cause the Local Union or Unions to cease any violations of this Article. An International Union complying with this obligation shall not be liable for unauthorized acts of its Local

Union. The principal officer or officers of a Local Union will immediately instruct, order and use the best efforts of his or her office to cause the workers the Local Union represents to cease any violations of this Article. A Local Union complying with this obligation shall not be liable for unauthorized acts of employees it represents. The failure of the Contractor to exercise its right in any instance shall not be deemed a waiver of its right in any other instance.

ARTICLE VIII DISPUTES AND GRIEVANCES

Section 1. This CWA promotes close cooperation between management and labor. Each Union will assign a representative to ensure Covered Projects are completed economically, efficiently, continuously, and without interruptions, delays, or work stoppages.

Section 2. The Contractors, Unions, and workers, collectively and individually, realize the importance to all parties to maintain continuous and uninterrupted performance of project work and agree to resolve disputes under the grievance arbitration provisions herein.

Section 3. Any dispute on a Covered Project that is specific to labor relationships (other than jurisdictional disputes) shall be considered a grievance and subject to resolution under the following. The Prime Contractor and City shall be given copies of all notices and invited to participate in any meetings or proceedings. Failure of the grieving party to adhere to the time limits established renders the grievance null and void. The time limits established may be extended by written mutual consent of the parties at the step where the extension is agreed.

Step 1. If a worker, Contractor or Union subject to this CWA feels aggrieved by a labor issue, the worker may give notice to their Union representative. Within ten (10) business days after becoming aware of the grievance, the Union representative (which may be the business agent or the Steward) shall give verbal or written notice to the Contractor's worksite representative. The notice shall describe the violation(s) and provision violated.

The Union representative and Contractor's work-site representative shall meet or discuss the dispute within 3 business days after such notice. Each party may keep meeting minutes and send a copy to the other. If the discussion does not resolve the issue, either party may escalate the grievance to Step 2.

Step 2. To escalate the grievance into Step 2, the Union may, within two (2) business days after the discussion, send a written notice to the Contractor setting forth the alleged violation(s), providing a description, the date on which the violation(s) provoking the grievance occurred, and the provisions of the CWA that are alleged to have been violated. The Union will send a copy to the City.

The local Business Manager and/or their designee and the Prime Contractor and sub-tier Contractor (if any), shall meet within seven (7) business days after the written notice was delivered to the Contractor, to arrive at a satisfactory agreement. The meeting will be scheduled to also include a designee of the Director on behalf of the City. The City will take meeting minutes and share with the Prime Contractor, sub-tier Contractor (if applicable), and the Union as soon as practicable after the meeting, which is intended to be within two (2) business days.

Step 3. (a) If the grievance has not been resolved within five business days under Step 2, either party may request that the grievance be submitted to an Arbitrator mutually agreed upon by them. The Contractor and the involved Union shall attempt mutually to select an arbitrator, but if they cannot do so, they shall request the American Arbitration Association to provide them with a list of arbitrators from which the Arbitrator shall be selected. The rules of the American Arbitration Association shall govern the conduct of the arbitration hearing. The decision of the Arbitrator shall be final and binding on all parties. The fee and expenses of such Arbitration shall be borne equally by the Contractor and the involved Local Union(s).

(b) The Arbitrator shall have the authority to decide only issues presented to him or her, and he or she shall not have authority to change, amend, add to or detract from this Agreement.

ARTICLE IX JURISDICTIONAL DISPUTES

Section 1. The assignment of work will be solely the responsibility of the Contractor performing the work involved; such work assignments will be under the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.

Section 2. All jurisdictional disputes on a Covered Project, between or among Building and Construction Trades Unions and Contractors of any tier, shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted by the Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Contractors and Unions parties to this Agreement.

Section 3. All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature and the Contractor's assignment shall be adhered to until the dispute is resolved. Individuals violating this section shall be subject to immediate discharge.

Section 4. Each Contractor will conduct a pre-job conference with the appropriate Building and Construction Trades Council 2 weeks prior to commencing work, but not more than 90 days prior to commencing work. The Prime Contractor and the City will be advised in advance of all such conferences and may participate if they wish.

After attending a pre-job conference once, Contractors may submit a waiver request to the City, waiving the requirement to attend future pre-job meetings when they are performing the same scope of work (see Pre-job Package and Pre-Job Waiver forms in Attachment C). The City and Unions will mutually agree upon granting any such waivers.

Should an emergency make it impracticable for a Contractor to attend a pre-job two weeks prior to placement, the Contractor may give less than two weeks' notice and request a pre-job meeting by contacting the City.

ARTICLE X SUBCONTRACTING

Section 1. Every Contractor of any tier agrees that they will not subcontract any Covered Project work except to a person, firm or corporation who has signed a letter of assent. Any Contractor working on the Project shall, as a condition to working on said Project, perform all work **exclusively** under this Agreement.

Section 2. If a Union that traditionally represents construction workers in the geographic area of the Covered Project chooses not to become signatory to this Agreement, the Contractor and signatory Unions shall utilize one or both of the following options to ensure that work may be claimed by the non-signatory Union ("claimed work") so the work is completed without disrupting the Project:

(a) The signatory Unions will provide the Prime Contractor and all other Contractors who assent to this Agreement with the appropriate workforce to perform the claimed work.

(b) The Prime Contractor may utilize any Contractor to perform claimed work except that if such Contractor is party to an agreement with the non-signatory Union, such Union must agree in writing to abide by ARTICLE VII (Work Stoppages and Lockouts) and ARTICLE IX (Jurisdictional Disputes) for the contractor to be awarded work under this Agreement. Such Contractor may utilize its existing workforce and wage and benefit package. Such Contractors shall be required to agree in writing to be bound to and abide by this Article, ARTICLE VII (Work Stoppages and Lockouts), and ARTICLE IX (Jurisdictional Disputes). No other provision shall apply to such contractors unless required by the Contractor.

Section 3. The Prime Contractor, City and the Unions commit to provide outreach, and train, mentor and support woman and minority contractors on any Covered Project. The

City, Prime Contractor and Unions also will provide training and assistance about working under the CWA to any interested contractor and those contractors who may wish to bid on such work.

Section 4. Any Contractor conducting a bid process for work to be performed for a Covered Project, shall notify all bidders of the requirement to comply with the terms and conditions of this CWA.

Section 5. If a Contractor of any tier subcontracts any work covered by this Agreement, such subcontractors of all tiers, shall sign letter of assent to this CWA, prior to beginning work on the Project.

ARTICLE XI CORE WORKERS

Section 1. The parties agree that non-signatory contractors of any tier often have core workers, also referred to as core employees, that they use commonly on their work and who contribute to the efficiency and competitiveness of those non-signatory contractors. The City of Seattle seeks to remove barriers for non-signatory Contractors so they can compete effectively on projects covered by the CWA without unnecessarily displacing their own workers to do so, provided that workers performing covered employment shall be compensated as specified in ARTICLE III (Wage Rates and Fringe Benefits) and observe the working conditions specified in ARTICLE II (Project Conditions) and ARTICLE IV (Hours of Work, Overtime and Shifts).

The non-signatory contractor may bring as many as three core workers onto the Covered Project and up to two apprentices enrolled in a WSATC program for each contract accordingly, provided that the ratio of apprentices to journey level workers is in compliance with the applicable apprenticeship program standards.

Section 2. Core Workers are those that have worked on the Contractor's payroll a minimum of one thousand five hundred (1500) hours within the craft classification over the last two year period from the date of dispatch to the Covered Project and have also been on the Contractors active payroll for at least sixty (60) out of the ninety (90) calendar days prior to the execution of the contract for the affected Contractor. All Core Workers shall meet the minimum journey level qualifications of the craft they are performing, and shall hold all required licenses and certifications for the work of their craft.

Apprentices are those that are enrolled in a WSATC program and are also one of the following: (1) a Priority Worker, (2) a Pre-Apprenticeship program graduate, (3) or an individual who furthers the City's aspirational goals for women and people of color.

Section 3. The Contractor shall provide detailed documentation at the pre-job conference identifying their Core Workers on the project and their scope of work and

submit certified payroll data to verify that the worker meets the required definition, redacted as appropriate. The City shall monitor Contractor compliance to this Core Worker definition.

ARTICLE XII EMPLOYMENT DIVERSITY

Section 1. The Director will set a requirement for each project that directs the Prime Contractor to utilize workers from economically distressed ZIP codes ("Priority Workers") for a specified share of total hours worked on the project by apprentices and journey- level workers. Workers that qualify towards those requirements shall be called "Priority Workers."

Section 2. Unions shall first dispatch Priority Workers, and shall continue to prioritize the dispatch of such workers even after the required percentages are stabilized and suggest the Prime Contractor will achieve the requirements.

The Union shall prioritize dispatch of Priority Workers who are residents of Seattle ZIP codes first, and then dispatch Priority Workers from ZIP codes in King County (Attachment B).

Labor hours performed by workers living outside of Washington will be excluded from priority worker calculations that the City performs when calculating whether required percentages of total Priority Worker hours were achieved.

The Prime Contractor may receive a credit of up to 10% of the hours performed by Priority Workers, if they hire workers from the Priority ZIP codes who perform non-manual work and continue to employ said workers in these positions for the duration of the Contractor's work on the Covered Project. Such substitutes must be approved by the Director.

The Union will dispatch in a manner that best supports the aspirational goals for women and people of color for their utilization as agreed upon within the contract for the Covered Project.

ARTICLE XIII APPRENTICESHIP UTILIZATION

Section 1. The parties and assenting Contractors agree to utilize apprentices from Washington State Apprenticeship Training Council (WSATC) programs for total hours established within the City contract for the Covered Project for no less than 15% and no more than 20% of total project hours on each project with the exact requirement set by the Director. The Prime Contractor shall provide a copy of their apprenticeship utilization plan upon request by the JAC. The Prime Contractor's apprenticeship utilization plan will be reviewed by the JAC and appropriate efforts shall be taken to increase utilization.

Section 2. The parties and assenting Contractors agree to hire and facilitate utilization of those WSATC apprentices on Covered Projects and to facilitate the participation of people of color, women and persons from economically distressed areas. The Director will establish a goal for labor hours performed by female apprentices and people of color who are apprentices, for each project and may substitute other efforts to meet the intent. The apprenticeship utilization plan provided by the Prime Contractor at the JAC shall describe how the Prime Contractor will achieve the goals for utilization of apprentices who are people of color and women.

Section 3. The parties and assenting Contractors shall assure that apprentices of all skill levels will be supervised by journey level workers in order to promote the safety, health and education of the apprentice.

ARTICLE XIV VETERAN EMPLOYMENT

Section 1. This CWA desires to facilitate the entry into the building and construction trades of veterans interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment ("Center"), the Center's "Helmets to Hardhats" program, and other appropriate veteran programs, to serve as resources for preliminary orientation, assessment of construction aptitude, referral to WSATC registered apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

Section 2. The Unions, Contractors and City Job and Training Coordinator agree to coordinate with the Center and other appropriate veteran referral sources, to maintain an integrated database of veterans interested in working on Covered Projects, and of apprenticeship and employment opportunities for Covered Projects. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

Section 3. This agreement will include Helmets to Hard Hats qualified applicants and other qualified veteran applicants from within the economically distressed ZIP codes as defined by the City, as part of the Priority Worker hours that the contract shall require the Prime Contractor to achieve for the Covered Project.

ARTICLE XV PREFERRED ENTRY

Section 1. The parties seek to construct and expand pathways to good jobs and lifetime careers for Priority Workers, women and people of color, through collaborative workforce development systems that also likely includes community-based training providers and

WSATC registered apprenticeship programs. This facilitates a workforce reflective of the diversity and needs of Seattle and the local region, supporting goals of workforce inclusiveness.

Section 2. This CWA establishes a Preferred Entry program that will identify individuals, especially women, people of color, and those from economically distressed ZIP codes as defined by the City, who meet entry standards for WSATC apprenticeship programs that allow qualified preferred entry applicants into their programs.

Preferred Entry candidates shall be placed with Contractors working on Covered Projects, subject to an interview if requested by the Contractor. Selected Preferred Entry candidates who are not already first year apprentices shall become first period apprentices.

To give preferred entry apprentices an opportunity to become established in their apprenticeship training, Contractors must employ Preferred Entry candidates for 700 hours, in order to count that candidate toward the Preferred Entry requirement. The Director may reduce the number of required hours to a minimum of 350 hours on Covered Projects that have insufficient total apprentice hours to support placements of a 700 hour duration.

Section 3. The Prime Contractor shall ensure one (1) of each five (5) apprentices who have worked at least 350 or 700 hours, whichever minimum is set by the Director, on the Covered Project is from a recognized Pre-Apprenticeship program. Such programs include the Apprenticeship and Non-Traditional Employment Program for Women (ANEW), YouthBuild, Helmets to Hard Hats, King County Pre-Apprenticeship Construction Education (KC PACE), Ironworkers Pre-Apprenticeship Program, TERO Vocational Training Center (TVTC), Seattle Vocational Institute – Pre-Apprenticeship Construction Training (PACT), the Trades Related Apprenticeship Coaching Program (TRAC), Cement Masons Pre-Apprenticeship Program, or other mutually agreed-upon programs that serve people living in economically distressed ZIP codes, people of color, women and/or veterans. The list of such programs may be updated by mutual agreement between the City and the Seattle Building and Construction Trades Council.

Section 4. The Unions and Prime Contractor agree to ensure hiring of Preferred Entry apprentices during the early start of work on the Covered Projects. The City, Unions and Contractors recognize Preferred Entry Apprentices that are within the first two steps and/or years of their apprenticeship program.

Section 5. If a preferred entry apprentice leaves, Contractors will replace that apprentice with another from the preferred entry program.

Section 6. The hours worked by eligible Preferred Entry qualified applicants hired from such distressed economic ZIP codes will count towards accomplishment of the Priority Worker requirements.

Section 7. Identification and selection of qualified applicants shall include the

Contractor(s), where candidates have been proposed by Contractors and the individual apprenticeship program's designated representative. The final selection decision will be the responsibility of the Joint Apprenticeship Training Committee (JATC).

ARTICLE XVI TERM

Section 1. This agreement shall commence upon execution by all parties and shall continue in full force for a period of five years. The parties may mutually agree to amendments or modifications of this agreement.

Section 2. The agreement shall continue in full force and effect for each Covered Project throughout the duration of each project and until the last of the Covered Projects concludes. Either party desiring to extend this agreement beyond the intended five year term, shall make such intention known to the other party by written notice as soon as practical, which may be as early as six months prior to the otherwise effective expiration date for this agreement.

ARTICLE XVII GENERAL PROVISIONS

Section 1. Titles and headings of sections and provisions in this agreement are for convenience only.

NOTE: The following provisions are determined by local collective bargaining:


1. Referral Procedures

[Note, however, that any referral provision must contain : " There shall be no discrimination against any employee or applicant for employment because of his or her membership or non-membership in the union or based upon race, creed, color, sex, age or national origin of such employee or applicant."]

2. General Savings Clause

IN WITNESS WHEREOF, in consideration of the terms, conditions, and covenants contained herein, or attached or incorporated and made a part hereof, the parties have executed this Contract by having their authorized representatives affix their signatures below.

City of Seattle


Signature: Liz Alzeer, Director of City Purchasing and Contracting Services
Date: 11/16/18

Seattle/King County Building Trades Council
Monty Anderson
Executive Secretary

Signature

Date

Pacific Northwest Regional Council of Carpenters
Ryan Hyke

Signature

Date

BAC Pacific Northwest ADC
Benny Wright
Business Representative

Signature

Date

Northwest National Construction Alliance II
Dan Hutchins

Signature

Date

International Union of Operating Engineers Local
302
Ron Dahl
Business Representative

Signature

Date

Boilermakers Local 502
Tracey Eixenberger
Business Manager

Signature

Date

Cement Masons Local 528
Eric Coffelt
Business Manager

Signature

12-19-17

Date

Elevator Constructors Local 19
Patrick Strafer
Business Manager

Signature

1-4-18

Date

Iron Workers Local 86
Chris McClain
Business Manager

Signature

1-9-18

Date

Laborers Local 242
Dale Cannon
Business Manager

Signature

1-10-18

Date

Roofers Local 54
Steve Hurley
Business Manager

Signature

12/19/17

Date

Electrical Workers Local 46
Bud Allbery
Business Manager

Signature

12-29-17

Date

Heat and Frost Insulators & Allied Workers Local 76
Todd Mitchell
Business Manager

Signature

1-3-2018

Date

IUPAT District Council 5
Denis Sullivan
Business Manager

Signature

Date

Plumbers & Pipefitters Local 32
Jeffrey J. Owen
Business Manager

Signature

1/3/2018

Date

Sheet Metal Local 66
Tim Carter
Business Manager

Signature


1-4-2018

Date

Sprinkler Fitters Local 699

Stanton Bonnell

Business Manager


Signature

1-3-18
Date

Teamsters Local 174

Rick Hicks

Secretary Treasurer

Care R. Harco
Signature

1/18/2018
Date



ATTACHMENT A
LETTER OF ASSENT



Seattle

The undersigned, as a Contractor(s) or Subcontractor(s) on a Contract which is part of the

Project, for and in consideration of the award of a Contract to perform work on said Project, and in further consideration of the mutual promises made in the Community Workforce Agreement, a copy of which was received and is acknowledged, hereby:

- (1) On behalf of itself and all its employees, accepts and agrees to be bound by the terms and conditions of the Community Workforce Agreement, together with any and all amendments and supplements now existing or which are later made thereto, and understands that any act of non-compliance with all such terms and conditions, may subject the non-complying Contractor or employee(s) to being prohibited from the Project Site until full compliance is obtained. The City reserves the right to exercise other enforcement mechanisms in lieu of prohibition from the Project Site.
- (2) Certifies that it has no commitments or agreements which would preclude its full compliance with the terms and conditions of said Community Workforce Agreement.
- (3) Agrees to secure from any Contractor(s) (as defined in said Community Workforce Agreement) which is or becomes a Subcontractor(s) (of any tier), a duly executed Letter of Assent in form identical to this document prior to commencement of any work.

Estimated Start Date	Estimated end date
UBI Number	Print Name and Title
Phone Number	Contractor/Company name
General Contractor	Subcontractor to (if applicable)
Jobsite Address	Billing Address
Date	Signature of Authorized Representative

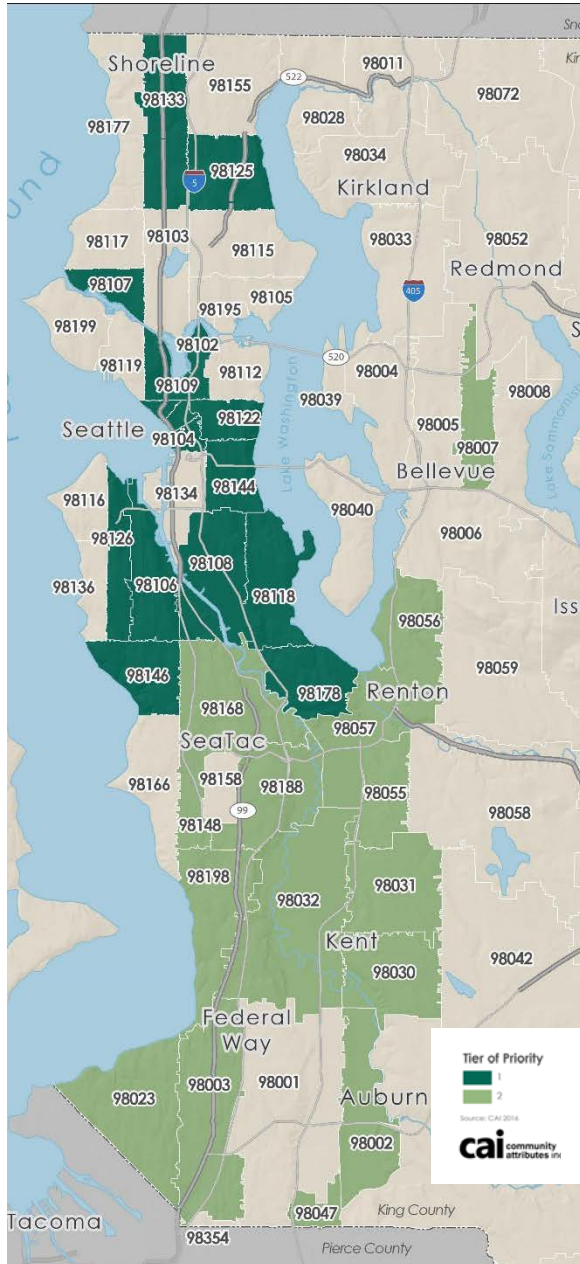


PRIORITY HIRE in the CITY of SEATTLE and KING COUNTY

Economically distressed ZIP codes in Seattle and King County are based on several indicators:

1. People living under 200% of the federal poverty line.
2. Unemployment rate.
3. Those over 25 without a college degree.

Priority Hire Economically Distressed ZIP Codes



Tier 1	Seattle Neighborhood	ZIP Code
Tier 1	Downtown	98101
Tier 1	Capitol Hill/Eastlake	98102
Tier 1	Downtown/ID	98104
Tier 1	Delridge	98106
Tier 1	Ballard	98107
Tier 1	S. Beacon Hill/South Park	98108
Tier 1	Interbay/Queen Anne	98109
Tier 1	Rainier Valley/Rainier Beach	98118
Tier 1	Belletown	98121
Tier 1	Central District	98122
Tier 1	Lake City/Northgate	98125
Tier 1	Delridge/High Point	98126
Tier 1	Bitter Lake/NW Seattle	98133
Tier 1	N. Beacon Hill	98144
Tier 1	White Center	98146
Tier 1	Rainier Beach/Skyway	98178

Tier 2	King County Neighborhood	ZIP Code
Tier 2	Kent/Auburn	98002
Tier 2	Federal Way	98003
Tier 2	Bellevue	98007
Tier 2	Federal Way	98023
Tier 2	East Kent	98030
Tier 2	Northeast Kent	98031
Tier 2	West Kent	98032
Tier 2	Pacific	98047
Tier 2	South Renton	98055
Tier 2	Northeast Renton	98056
Tier 2	Central Renton	98057
Tier 2	Burien	98148
Tier 2	Boulevard Park/Tukwila	98168
Tier 2	SeaTac/Tukwila	98188
Tier 2	Des Moines	98198

Source: Community Attributes Inc., Priority ZIP Codes, 2016.

Updated January 2017

Department of Finance and Administrative Services
700 Fifth Avenue, 41st Floor

Tel (206) 684-0444
LaborEquity@seattle.gov



PCMIA

*America's Oldest Building and Construction Trades
International Union, Established 1864*

Cement Masons & Plasterers Local 528

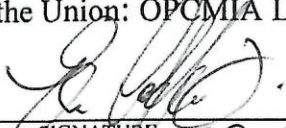
MEMORANDUM OF UNDERSTANDING CEMENT MASON PROVISIONS

Community Workforce Agreement City of Seattle

Because of the unique nature of the Cement Mason work, the following provisions have been included for application to Cement Masons only:

- A. **Start of Pour:** The Cement Mason crew must be on the job at the start of the shift in which finishing will be required and assist with the pour on slab work or work preparatory to concrete finishing coming within the jurisdiction of the Cement Masons.
- B. **Multiple Shift Operation:** There will be no shift operation on slab work except by mutual agreement. Shifts may be established when considered necessary by the employer.
- C. **Shifts and Hours of Work:** If a four/ten hour shift is established at the straight time rate, any Cement Mason dispatched for a one day pour will be paid at the eight (8) hour straight time plus two (2) hour overtime rate.
- D. **Reporting and Minimum Hours Pay:**
1. Employees reporting for work and for whom no work is provided, except when given notification not to report to work, shall receive four (4) hours at the regular straight-time hourly rate.
 2. When the shift is started, four (4) hours shall be allowed. If the second half is started, then a whole shift shall be allowed, unless an employee leaves of his own volition or is discharged for cause. In such event, he shall be paid for actual time worked.
- E. **Work Hours Shall Be Uniform for ALL CRAFTS**

For the Union: OPCMIA Local 528



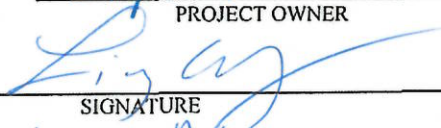
SIGNATURE
Eric Coffelt

PRINT NAME
12-19-17

DATE

For:

City of Seattle

PROJECT OWNER


SIGNATURE
LIZ Azeer

PRINT NAME
1/19/18

DATE

Current Union Agreements

--

Approx. Job Start Date:		Approx. Job End Date:	
Work Shifts:			
Weekly Pay Day			

Proposed Trade Assignment

All Workers, including core employees, must be dispatched through Union hall. List trade assignments by craft including scope of work description for each assignment. List each piece of equipment planned for use by craft. Include all equipment and tools. If more space is required, attach additional sheets.

Craft	Scope	Equipment/Tools
-------	-------	-----------------

Project Craft Demand List

Craft	Peak	Average	Apprentices
Asbestos Workers			
Boiler Makers			
Brick Layers			
Carpenters			
Carpet, Lino & Soft Tile Layers			
Cement Masons			
Drywall Hanger/Metal Stud Framers			
Drywall Finishers			
Electrical Workers			
Elevator Constructors			
Glaziers			
Heat and Frost Insulators			
Iron Workers (Structural/Rebar)			
Iron Workers (Ornamental/Architectural)			
Laborers			
Millwrights			
Operating Engineers			
Painters			
Pile Drivers/Diver			
Plumbers & Pipefitters			
Plasterers/Fire Proofers			
Roofers			
Sheet Metal Workers			
Sign Makers/Painters			
Sprinkler Fitters			
Teamsters			

Core Employee

Contractor(s) or Sub Contractor(s) employing Core Employees must complete the following documentation.

Core Employee(s) must place their names with the respective Union Hall dispatch prior to the employee(s) start of work.

Core employee information provided by

Email Address

Core employee information verified by

Core Employee #1

Employee Name:

Hire Date:

Classification:

The employee has met the qualifications contained in the CWA

Yes

No

Core Employee #2

Employee Name:

Hire Date:

Classification:

The employee has met the qualifications contained in the CWA

Yes

No

Core Employee #3

Employee Name:

Hire Date:

Classification:

The employee has met the qualifications contained in the CWA

Yes

No

Open-Shop Apprentice #1

Employee Name:

Hire Date:

Apprentice ID#

Classification:

The employee has met the qualifications contained in the CWA

Yes

No

Open-Shop Apprentice #2

Employee Name:

Hire Date:

Apprentice ID#

Classification:

The employee has met the qualifications contained in the CWA

Yes

No

Form completed by

print name

date

Signature



City of Seattle

Edward B. Murray, Mayor

Finance and Administrative Services

Fred Podesta, Director

ATTACHMENT E

AMENDMENT RE: EXECUTIVE ORDER 2017-01 SEATTLE/KING COUNTY BUILDING TRADES COUNCIL PACIFIC NORTHWEST REGIONAL COUNCIL OF CARPENTERS

This amends the City of Seattle Community Workforce Agreement (CWA) dated April 8, 2015 to incorporate agreements that comply and align with Mayor Murray's Executive Order 2017-01 (see Exhibit 1) titled Expanding Training and Career Opportunities in the Construction Trades. This amendment is effective as of May 23, 2017.

The purpose of this amendment is to expand the scope of the City of Seattle Community Workforce Agreement (CWA) to include those construction projects designated by the Mayor which are not otherwise incorporated as public works.

While not limiting the nature of projects that the Mayor may designate to be incorporated within the scope, the Mayor expects to consider for such designation additional construction projects that are practical for such a program and:

- (1) funded in whole or in part by the City of Seattle yet have private development authorities or management, and
- (2) where such City funding is no less than \$5 million towards the construction of the project and such investments of City funds are in exchange for rights or public benefit, and
- (3) where such city funding is considered significant enough to the total project that the City may reasonably influence such provisions; and
- (4) the City has an ongoing interest in the project infrastructure, whether that be as a long-term future owner of the property or the building under construction

The following hereby amends the CWA:

1. The definition of "Covered Projects" shall include any public works administered by the City of Seattle as well as any other construction project designated by the Mayor to be a "Covered Project" that must abide in full to the CWA.
2. Any reference to "Public Work" shall be expanded to "Covered Projects."
3. Any reference to "public works project contract" or "City contract" shall be expanded to include "Development Agreement and/or other applicable binding agreement."
4. For each project that is declared by the Mayor to be a "Covered Project" aside from those already included as a city-administered public works project, the Department of Finance and Administrative Services, through the Director of City Purchasing and

Contracting Services (hereinafter referred to as "CPCS") shall provide written confirmation to the Executive Secretary of the Seattle/King County Building and Construction Trades Council, (hereinafter referred to as "Executive Secretary") and Pacific Northwest Regional Council of Carpenters.

5. CPCS shall provide monitoring and enforcement on all Covered Projects.
6. Notwithstanding those projects that are designated in writing by CPCS, the Executive Secretary and the Pacific Northwest Regional Council of Carpenters may also request or confirm an understanding in writing to the CPCS Director to assure clarity in the consideration and designation of projects that shall be considered "Covered Projects."

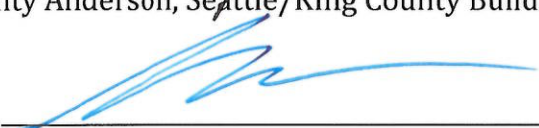
All other terms and conditions remained in-force and unchanged.

IN WITNESS, WHEREOF, in consideration of the terms, conditions and covenants contained herein, or attached or incorporated and made part hereof, the parties have executed this Amendment by having their authorized representatives affix their signatures below.

Signed:

By: 
Nancy Locke, City of Seattle

By: 
Monty Anderson, Seattle/King County Building Trades Council

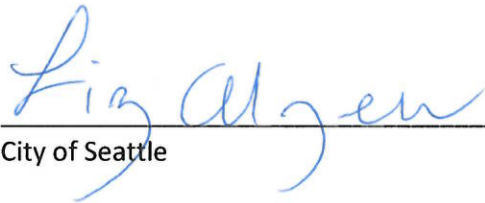
By: 
Chris Lambert, Pacific Northwest Regional Council of Carpenters

ATTACHMENT F

City of Seattle Community Workforce Agreement
Seattle Building Trades/Pacific Northwest Regional Council of Carpenters/City of Seattle
Memorandum of Understanding

This memorandum of understanding will confirm the votes taken by the Joint Administrative Committee (JAC) on May 22, 2018 concerning ARTICLE XV (PREFERRED ENTRY) Section 3.

The JAC voted to update the list of recognized Pre-Apprenticeship programs to include Direct Access to Laborers Education and Careers (DALEC) and the Trade Occupations Opportunity Learning Center (TOOL Center).



City of Seattle



Seattle Building Trades



Pacific Northwest Regional Council of Carpenters

Summary of Data Profiles for major Capital School Construction projects

Primary Sources:

State of Washington, Labor & Industries

State of Washington, Office of Minority & Women Business Enterprises

Recent SPS Primes and PLA/CWA experience:

- Western Ventures (Meany Middle School): City of Seattle CWA
- Hensel Phelps (Queen Anne Addition: Port of Seattle PLA
- Skanska: Key Arena CWA, Sound Transit PLA
- Forma Construction: Port of Seattle (Airport Concourse), Sound Transit (Maintenance Center)
- Lydig Construction: Port of Seattle PLA, Seattle Housing Authority CWA
- Unknown: Construction Services, Forma, Cornerstone, Lincoln, Allied, Bayley, Spee West

	Arbor Heights ES Phase II Bayley Construction 2017	Wing Luke Elementary Addition 2019 Jody Miller 3 Affidavits out of 38 intents	Queen Anne ES Addition 2018 Hensel Phelps 25 Affidavits out of 45 intents	Olympic Hills ES Replacement 2016 Cornerstone	Lincoln HS Lydig 2016 GC/CM	Averages if applicable
	<i>Completed; closed</i>	<i>As estimated per State documents. Still underway</i>	<i>As estimated per State documents. underway</i>	<i>Completed, closed</i>	<i>Not yet complete</i>	
Total construction value:	\$27,432,741	\$34,666,000	\$14,624,583	\$32,727,805	\$56,518,419	
WMBE utilization OMWBE Certification	00.13% (\$35,714)	5.2% (\$1,793,000)	2.6% (\$376,886)	ZERO	1.8% \$1,008,353	1.9%
Number of MBE	2	1	5	0	3	
Number of WF	1	1	1	0	3	
Total apprentice utilization	12.7% 20,987 hours of 165,406	Not yet reported	19% 2052 out of 10,749 total hours reported to-date	14.7% 36,986 apprentice hours out of 183,583 total	16.9% to date	

	<p>The case study of Arbor Heights & Olympic Hills showed 789 apprentices performing 47,973 hours. 789 apprentices (head count) for the 2 projects. Total project costs for the 2 projects was \$60,181,533 with 789 apprentices. That calculates to .13 apprentices per \$10,000. That would predict 61 hours per apprentice placement when averaged.</p> <p>Future BEXV projects apprentice hours are extrapolated to be 578,640 (see extrapolations in charts below). This would predict 9,485 apprentice placements (note, many apprentices would likely be placed on more than once as projects get underway, so it doesn't mean 9.485 unique people) over the 5-year duration of the BEXV construction schedule.</p> <p>The potential to increase SPS enrollees and Black apprentices with an SCWA are unlimited. The City showed dramatic change in apprentice profile before and after their SCWA: City has 45% apprentices of color, 24% of their apprentices are female. The overall construction workforce for City is 10% from Seattle residents. Starting from 1% women, 1% Seattle residents, 1% African American, 3% People of Color that SPS currently has, the SCWA is likely to make meaningful shifts towards a much more inclusive apprentice placement.</p>					
Contractor count	90 + 1 prime	35 + 1 prime	62 + 1 prime	90 + Prime	104 + GC/CM	
Contractors reporting hiring apprentices by project	19 out of 90	8 out of 36	9 out of 63	22 out of 91	17 to-date	154 out of 365 40% of all contractors
Contractors approved as training agent by project (<i>an estimated 90% - 95% of training agents are union</i>)	34 out of 96	12 out of 36	29 out of 63	29 out of 91	52 of 107	75 out of 393 19%
Total hours worked by project	165,406	Not yet complete		183,583		
Total hours worked per \$ spent	.00603			.005609		.00582
Core Workers: contract count that appears likely to have needed 3 or fewer workers	69 out of 97 (72%)	Not yet complete		81 out of 107 (76%)		

BEXV Project List - Construction values for analyzing impact and project counts at various SCWA thresholds.

Project Owner	Project Threshold for Agreement	
City of Seattle	\$5M	Set in 2015; confirmed by City Council in 20017.
King County	\$15M but revisiting to \$5 million	Criteria whether: <ul style="list-style-type: none"> size, complexity and time: (i) construction estimates are =/GT \$25 million, and (ii) project encompasses multiple years involves many trades and crafts. urgency of the project lends harm if delayed due to labor disruptions. PLA is expected to provide cost, efficiency, quality, safety, and/or schedule benefits. decision approved by Executive.
Port of Seattle	\$5M as starting threshold with a conjoined opt-in project analysis	Port does not recommend project review due to burden of internal decision-making process. Decisions approved by Executive.
Sound Transit	All projects covered under ST 2 and ST 3 measures	All public works done under the specified funding source, regardless of contract or project value and any other project that Sound Transit, in its sole discretion, feels should be covered by the PLA.

SPS BEXV				Estimated Labor Hours and Impacts: Extrapolations					
Project	Schedule	Total Project Cost	Estimated Construction Cost as share of total budget	Total estimated hours	Estimated BEXV Apprentice Hours using 15%	Current rate of 3.8 % apprentices of color (hours)	AFTER SCWA POTENTIAL People of color 45% apprentices (hours)	Current rate of women apprentices at 1% (hours)	AFTER SCWA POTENTIAL Women apprentices for City of Seattle 24% (hours)
			Uses 68% to convert total cost into construction cost re: Richard Best +Bagley	Estimated using .00582/ \$ re: Arbor Heights & Olympic Hills		Extrapolation from Olympic Hills and Arbor Heights	City of Seattle "after" Dec 2018, City of Seattle Annual Report, page 8	Extrapolation from Olympic Hills and Arbor Heights	City of Seattle 2019 reporting period, all projects.
Alki ES	Alki Elementary Replacement,	\$ 66,856,808	\$45,462,629	264,569	39,685	21,988	260,388 (45%)	5,686 Female	138,873 (24%)

	Planning starts, Winter 2021 Construction starts Summer 2023 School opens, Fall 2025					People of Color (3.8%) @ current rate	share of potential BEXV apprentice hours that would be filled by POC if using the City composition rates	(1%) @ current rate	share of potential BEXV apprentice hours that would be filled by POC if using the City composition rates
Kimball Elementary Replacement	Planning starts, Summer 2019 Construction starts, Summer 2021 School opens, Fall 2023	\$ 56,375,922	\$38,335,675	223,113	33,467				
John Rogers School	Rogers (John) Elementary Replacement Planning start, Winter 2021 Construction start Summer 2023 School open, Fall 2025	\$ 91,537,404	\$62,245,434	362,268	54,340				
Montlake School	Montlake Elementary Modernization Planning start, Winter 2021 Construction start Summer 2023 School open, Fall 2025	\$ 64,821,447	\$44,078,583	256,537	38,480				
Northgate School	Northgate Elementary Replacement Planning start, Summer 2019 Construction start, Summer 2021 School open, Fall 2023	\$ 60,181,530	\$40,923,440	238,174	35,726				
Van Asselt ES	<u>Van Asselt (Original) Interim Site Addition</u> Planning start, Summer 2021 Construction start, Summer	\$ 44,129,280	\$30,007,910	174,646	26,186				

	2021 School open, Fall 2023								
Viewlands	Viewlands Elementary Replacement Planning start, Summer 2019 Construction start, Summer 2021 School open, Fall 2023	\$88,094,475	\$59,904,243	348,642	52,296				
Asa Mercer School	School Replacement	\$152,542,598	\$103,728,966	603,792	90,555				
Rainier Beach HS	Rainier Beach High School Replacement Planning starts, Summer 2019 Construction starts, Summer 2022 School opens, Fall 2025	\$238,150,426	\$161,942,289	1,286,035	207,905				
		\$862,685,000	\$586,626	3,375,776 all hours	578,640 apprentice hours				
Lincoln HS	Seismic Upgrades	\$ 25,968,384	\$17,658,501	102,772	1,512				
West Seattle	West Seattle Elementary Addition Planning start, Spring 2019 Construction start, Summer 2021 School open, Fall 2022	\$ 23,762,175	\$16,158,279	94,042	14,106				
William Cullen Bryant School	Multi-purpose room addition	\$14,565,600	\$9,904,608	57,645	8,646				
West Seattle HS	Roof Replacement	\$9,341,998	\$6,352,558	36,972	5,546				

Fort Lawton-Discovery Fields	New Playfields	\$8,762,490	\$5,958,493	34,678	5,202				
Catherine Blaine School	Ceiling Fans, Playground, Electrical doors	\$7,999,811	\$5,438,714	31,653	4,748				
Nathan Eckstein School	Exterior	\$7,704,945	\$5,239,362	30,493	4,574				
Grand Total \$5 million and above				3,764,031	622,974				
Ingraham HS	Electrical System	\$6,872,128	\$4,673,047						
Nathan Eckstein School		\$5,424,282							
Jane Addams Junior High		\$5,402,367							
Thurmond Marshall ES	Roof Replacement	\$4,696,357							
Green Lake School	Playground, Door, Electrical, Sound	\$4,129,408							
Louisa Boren School	HVAC	\$4,364,870							
South Shore Middle School	Exterior	\$4,456,868							
Franklin HS	Roof Replacement	\$3,439,171							
Lincoln HS	Theater	\$3,000,000							
McGillvra	multiple	\$3,422,905							
BF Day	Window Replacements	\$2,846,779							
Marcus Whitman Jr HS	Fire Alarm System & Field Lights	\$2,133,574							
James Madison Intermediate School	Field Replacement	\$2,705,414							

Jane Addams Junior High		\$2,705,040							
Wedgewood ES	Playground & Roof Replacement	\$2,551,249							
Ballard HS	Field Replacement	\$2,052,518							
Worth McClure School	Cladding, doors, windows	\$2,864,907 \$2,309,289							
Bailey Gatzert School	Electrical System Upgrades	\$1,882,225							
Sanislo School	4 mixed project items	\$1,692,888							
Lowell	playground & ceiling fans	\$1,071,504							
Jane Addams Junior High	Various	\$1,256,283							
Franklin HS	Fire System	\$1,566,613							
North Queen Anne Service School	Multiple	\$2,181,547 \$2,496,430 \$1,280,725							
Nathan Eckstein School	Ceiling Fans, Exterior cladding, windows	\$1,095,409							
Beacon Hill	minor system upgrades	\$894,359							
Dearborn Park School	Playground & Sound	\$462,000							
Dunlap School	Playground Upgrades	\$182,070							
McDonald International School	Ceiling Fans	\$491,530							
Gatewood School	Playground & Doors	\$345,000							
Graham Hill School	playground	\$295,000							
Hawthorne School	Playground	\$182.070							

John Hay School	Playground	\$189,353							
John Muir	Sound	\$253,192							
Laurelhurst	Playground	\$168,794							
Leschi	Playground & doors	\$289,723							
Maple School	ground & ceiling fans	\$729,796							
North Beach	Site & doors	\$776,615							
Sacajawea ES School	Windows	\$644,820							
Queen Anne ES	Ceiling Fans	\$444,717							
Schmitz Park ES	Seismic	\$575,589	\$						
View Ridge	Playground & Ceiling Fans	\$775,000							
West Woodland ES	Exterior Doors	\$154,703							
Olympic View ES	Exterior Windows	\$182,000							
James Monroe Intermediate	Ceiling Fans	\$495,131							
RH Thomsen	Ceiling Fans	\$998,039							
Whitworth	Playground	\$102,000							
Jane Addams Junior High	Various	\$52,020 \$925,012							
Chief Sealth	Security Gates	\$156,000							
Garfield HS	Exterior Cladding	\$555,776							
Roosevelt HS	Exterior	\$898,134							

Columbia Service School	Seismic, ceiling fans	\$828,152							
Queen Anne Gym	Roof Replacement	\$2,526,812							
Columbia Annex	Seismic + Fire Alarm	\$88,428 \$42,783							

Various thresholds by nearby agencies:

WSDOT	project by project	
City of Seattle	At or above \$5,000,000 set by Seattle City Council in 2015	reviewed and maintained by City Council in 20017 Allows projects that are under the limit for those who wish to avoid a CWA environment; administrative costs for small dollar value projects don't offer the same return on investment
King County	project by project	<p>In deciding whether to use a PLA, an IA shall consider the following criteria:</p> <ul style="list-style-type: none"> • Whether the size and complexity of the project and the time needed for completion are significant. Specifically, projects are considered significant when: (i) construction cost estimates are equal to or greater than \$25 million, and (ii) the project schedule encompasses multiple years wherein labor rate agreements must be negotiated or wherein the potential for labor disruptions, such as strikes, lockouts, or slowdowns could affect completion of the project and/or ongoing operations and services. • Whether the project is expected to involve a substantial number of trades and crafts. • Whether the need and urgency of the project is such that there could be harm to the public if completion of the project is delayed due to labor disruptions. • Whether the use of a PLA is otherwise expected to provide cost, efficiency, quality, safety, and/or schedule benefits to the project. <p>The IA decision to use a PLA in connection with a construction project shall be made prior to or along with selecting the method of contracting for the project and shall be supported by written findings submitted to and approved by the Executive. The written findings shall clearly demonstrate how the use of a PLA will benefit the project and the interests of the public and King County based on the above criteria.</p>
Sound Transit	All	All public works done under the specified funding source, regardless of contract or project value. PLA covers all Link light rail construction, all Sounder station construction, and any other project that Sound Transit, in its sole discretion, feels should be covered by the PLA. We do not have a dollar value threshold, or funding source determination of PLA coverage. Almost all of projects have been covered by PLA.
Port of Seattle	\$5 million	\$5 million threshold

Number of subcontract bidders for the Webster School project, which we had to rebid. Below is the number of bidders for our Daniel Bagley Elementary School project:

- BP 1 – Demo – 5 Bidders
- BP 2 – Structures – 1 Bidder
- BP 3 – Metal Siding and Flashing – 2 Bidders
- BP 4 – Roofing – 2 bidders
- BP 5 – Storefronts & Glazing – 3 Bidders
- BP 6 – GWB & Framing – 5 Bidders
- BP 7 – ACT – 5 Bidders
- BP 8 – Paint (initial bid) – 1 Bidder
- BP 9 – Tile & Resilient Flooring – 4 Bidders
- BP 10 – MCCM – 2 Responses to the RFQ
- BP 11 – ECCM – 2 Responses to the RFQ
- BP 12 – Fire Suppression – 2 Bidders
- BP 13 – Doors, Frames, Hardware, Misc Furnishings – 1 Bidder
- BP 14 – Earthwork – 2 Bidders
- BP 15 – Landscaping & Site Concrete – 1 Bidder
- BP 16 – Casework – 2 Bidders
- BP 17 – Carpet – 2 Bidders

APPENDIX 9

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding ("MOU") executed this 8th day of Nov, 2019, between ANEW and Peninsula School District (PSD).

I. Purpose

WHEREAS, PSD and ANEW have a shared interest in supporting the career access and advancement efforts of youth, minorities and people of color.

WHEREAS, PSD and ANEW believe that by working in partnership their collective actions will assist youth in exploring apprenticeships, nontraditional occupations, and the construction industry.

WHEREAS, PSD and ANEW believe recognized pre-apprenticeship programs provide a link to registered apprenticeship programs and construction industry careers.

WHEREAS, PSD and ANEW believe the quality of pre-apprenticeship programs must be high and there must be industry commitment to maintain the standards of programming.

NOW THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

II. Agency Commitments

A. PSD Responsibilities.

1. PSD will provide pre-apprenticeship programming for high school students in the school system.
2. PSD will provide the instructor and supplies for the pre-apprenticeship program.
3. PSD will ensure the standards of the program will meet the criteria of ANEW.
4. PSD will allow ANEW to monitor the class and obtain evaluation information from students.
5. PSD will cooperate and provide data and program information to assist with grant acquisition which will mutual benefit both programs.
6. PSD will provide ANEW with updates and stories, including pictures, to share on social media and other media outlets, including cohort graduations and news.
7. PSD will provide student data and demographic information to ANEW for grant reporting and issuing of completion certificates.
8. PSD will partner to explore common use of facilities for cohorts serving PSD communities.

B. ANEW Responsibilities

1. ANEW will provide curriculum and design assistance.
2. ANEW will provide ANEW completion certificates to PSD students who successfully complete the pre-apprenticeship course.
3. ANEW will assign cohort numbers to PSD cohorts and enroll students in the cohort and in the Apprenticeship Opportunity Project and assist students with barriers to employment after program completion.
4. ANEW will help provide career connected learning aspects including guest speakers, apprenticeship and jobsite tours, and employer connections.
5. ANEW will highlight PSD programming and students on social media and other media outlets.
6. ANEW will complete any reports with cohort and demographic information to funders, if necessary.

C. MOU Partner Results

ANEW and PSD believe that their collective efforts will result in:

1. Greater awareness and exposure of apprenticeships and career pathways within the construction industry.
2. Greater recruitment and retention of young adults, people of color and women in pre-apprenticeship, apprenticeship and construction trades.
3. Students obtaining the required education and training for career pathways that lead to sustainable living wages.
4. A direct pathway for students to obtain employment, post-secondary education, and/or enrollment in apprenticeship in the construction industry.

III. Indemnification

Each party to this agreement (PDS and ANEW) agrees that, to the fullest extent permitted by law, it will hold harmless, defend and indemnify each other party and each other party's agents, employees, and board members from any liability, costs or expense, including without limitation penalties, losses, damages, attorneys' fees, taxes, expenses of litigation, judgments, liens, and encumbrances, to the extent arising out of or resulting from any act or omission by the indemnifying party. The terms of this section shall survive the termination of this Agreement.

IV. Miscellaneous

A. Nothing herein shall be construed to create a partnership or joint venture among the parties and any of their successors or permitted assigns, nor shall any of the terms, provisions or conditions of this MOU cause the parties to be considered joint venturers or members of any joint enterprise.

B. The parties herein shall not assign this MOU without the prior written consent of both parties.

C. Failure, waiver or delay on the part of a party to exercise any right, power or privilege under this MOU shall not operate as a waiver thereof. No waiver by a party of any breach or default under this MOU shall be deemed to be a waiver of any other subsequent breach or default hereunder.

D. Each individual executing this MOU on behalf of the respective entity represents and warrants that he or she is duly authorized to execute and deliver this MOU on behalf of such entity, and that this MOU is binding upon that entity in accordance with its terms.

E. If any provision hereof shall be determined by a court of competent jurisdiction to be invalid or unenforceable, the invalidity or unenforceability shall not affect the remaining provisions of this MOU.

V. Amendments

Any party to this agreement may request an amendment to this MOU at any time during the effective period, including an extension to the time-period for implementation. All parties must agree to an amendment and sign the amendment for it to be effective.

VI. Effective Dates

This MOU shall be effective from the date hereof until June 30, 2021. At the end of the term of this MOU, it can be extended based on mutual written agreement.

VII. Termination

Any party to this agreement may terminate their participation in this agreement with 30 days written notice to all parties to this agreement, at any time, for any reason.

This MOU represents the entire agreement between the parties.

IN WITNESS WHEREOF, the parties have caused this MOU to be executed as of the day and year listed above.

By: Karen Dove
Karen Dove
Executive Director
ANEW

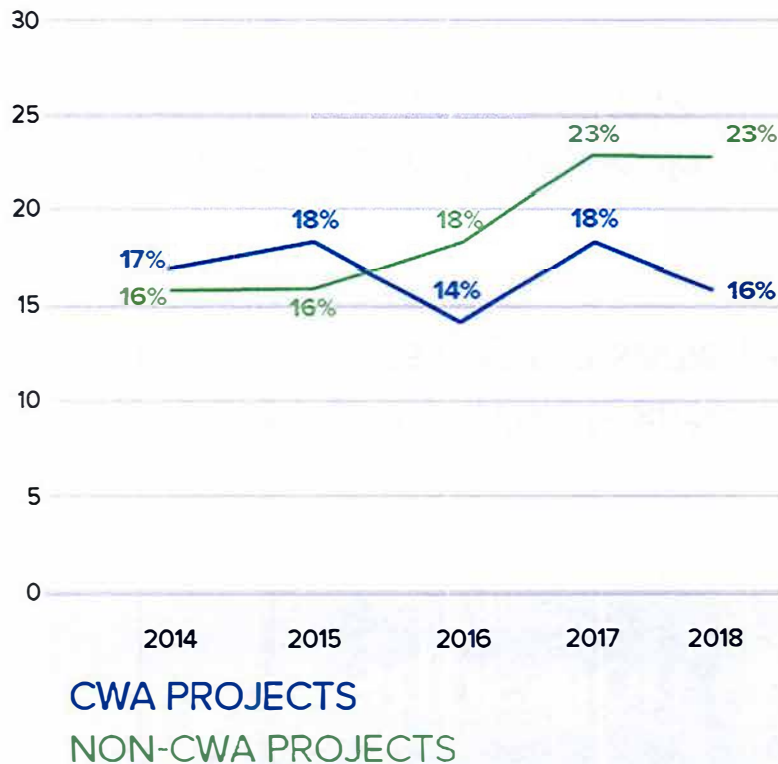
Date: 11/8/19

By: Arthur Jarvis
Arthur Jarvis
Superintendent
Peninsula School District

Date: 11/8/2019

WMBE Spent

on CWA and Non-CWA Projects (January 2014-December 2018)

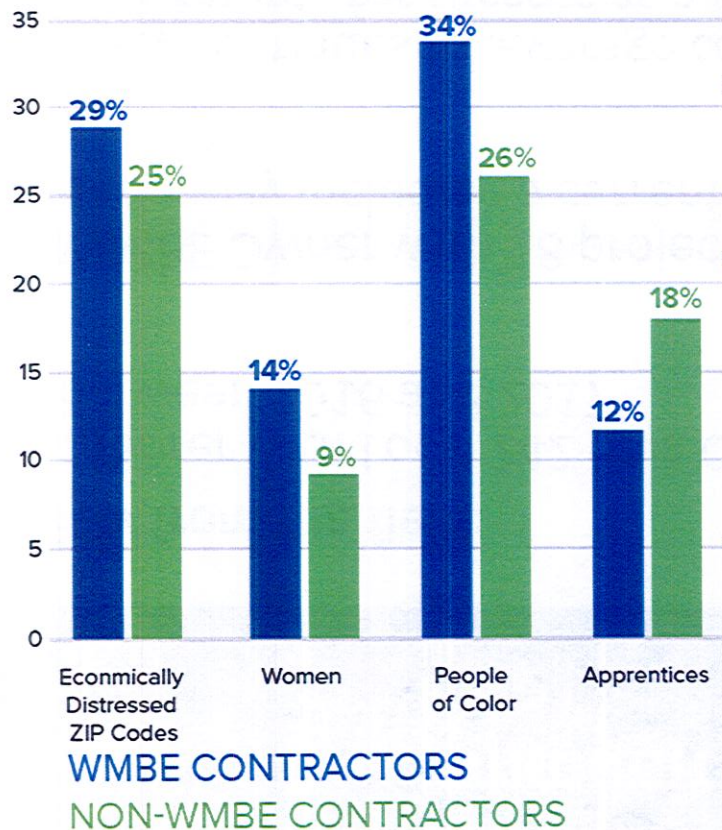


Source: City of Seattle, 2019.

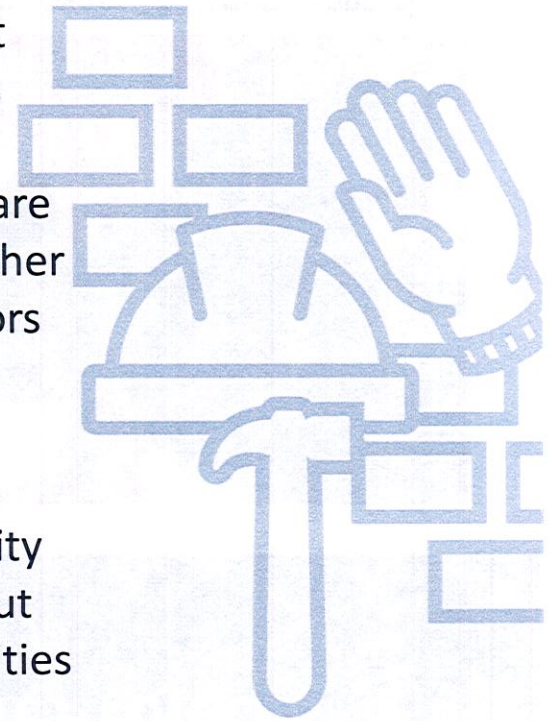
- Women- and minority-owned (WMBE) firms participated on CWA projects at similar levels as past years, earning 17% of all dollars on CWA projects through December 2018.
- This share compares closely to the 19% of dollars WMBE firms earned on all other projects during the same time period.
- WMBE utilization on non-CWA projects increased each year since 2014, while utilization on CWA projects generally stayed level

Contractor Workforce

by Hours on CWA Projects (November 2013-December 2018)



- WMBE contractors employ the most diverse workforces on CWA projects
- Increasing the WMBE contractor share of work on CWA projects would further racial equity outcomes for contractors and their workforces
- In the City 2017 and 2018 Annual Reports to Mayor and Council the City highlights efforts to learn more about improving and expanding opportunities on CWA projects



Source: City of Seattle, 2019.

City of Seattle Construction Hiring Analysis

CONTRACTOR SURVEY

November, 2016

President & CEO:
Chris Mefford

Lead Analyst:
Eric Viola

Analysts:
Mark Goodman
Madalina Calen
Kristina Gallant

Community Attributes Inc.
1411 Fourth Ave, Suite 1401
Seattle, Washington 98101
www.communityattributes.com



OUTLINE

1 INFORMATION AND BACKGROUND

- Background
- Research Questions
- Terms and Concepts

2 EXECUTIVE SUMMARY

3 SURVEY

- Contractors and Subcontractors
- Open-Shop and Union

BACKGROUND

The City has received anecdotal information on the administrative and personnel costs and other impacts to contractors working under the CWA, and desires a more thorough review to better understand the actual impact. This analysis leverages stakeholder interviews and a survey to qualitatively assess impacts among City construction contractors, particularly open-shop and women- and minority-owned (WMBE) contractors, on existing and past work for the City.

RESEARCH QUESTIONS

What have CWA contractors and subcontractors experienced on their CWA projects compared to similar non-CWA public projects?

What are contractor and subcontractor perceptions of the CWA's impact to their respective administrative processes and related costs?

Based on contractor and subcontractor experience, will the CWA impact future bids from potential contractors and subcontractors? Will bids by WMBE contractors be impacted?

TERMS AND CONCEPTS

The Worker Dispatch Process is the process by which a union refers workers for employment to contractors under the authority of a collective bargaining agreement. The process typically mandates the distribution of work via a "first in, first out" priority but can legally be adjusted via special agreements, like a CWA, to allow for out of order dispatching and priority worker hiring.

Joint Administrative Committee (JAC) meetings are monthly meetings to address safety, targeted hiring, apprenticeship utilization, preferred entry, and job progress on covered projects. Only prime contractors are required to attend these meetings.

Pre-Job Meetings are required for all contractors on CWA projects. These meetings provide a setting for the City to explain the CWA and required documentation and subcontractors to explain their contract scopes and ask and answer questions. These may be one-time meetings: once a contractor attends one pre-job meeting, they may submit a waiver for similar scopes of work in the future.

METHODOLOGY

CAI employed two methods to elicit contractor feedback: a survey and a set of in-depth interviews.

The **survey** was deployed to 118 contractors, of which 32 provided responses (27% participation rate). While this represents a large sample size, it is important to note that contractors with strong opinions about the CWA may be more likely to respond to the survey. While the survey was representative of different subsets of contractors (e.g. union and open-shop, WMBE and non-WMBE, prime contractors and subcontractors, and a range of public-private revenue splits), the survey may not provide a complete picture of the perceptions and experiences of all contractors.

Additionally, CAI conducted eight **in-depth interviews** with contractors. These interviews focused on contractors' experiences working on CWA-covered projects, eliciting feedback through open-ended questions. As with the survey, contractors who had stronger opinions about the CWA may have been more likely to respond to the interview request than contractors who had a neutral experience.

OUTLINE

1 INFORMATION AND BACKGROUND

- Background
- Research Questions
- Terms and Concepts

2 EXECUTIVE SUMMARY

3 SURVEY

- Contractors and Subcontractors
- Open-Shop and Union

Survey respondents revealed common concerns through responses to open-ended questions:

- Four respondents felt that small businesses are impacted more by the CWA than larger businesses. Three interviewees also expressed this sentiment.
- Six respondents said that they felt the worker dispatch process does not always work as intended due to a shortage of qualified union workers.
- Three respondents expressed apprehension at or frustration with working together with unions.

EXHIBIT 1. HOW DID YOUR ADMINISTRATIVE COSTS ON CWA PROJECTS COMPARE TO SIMILAR NON-CWA PUBLIC PROJECTS?

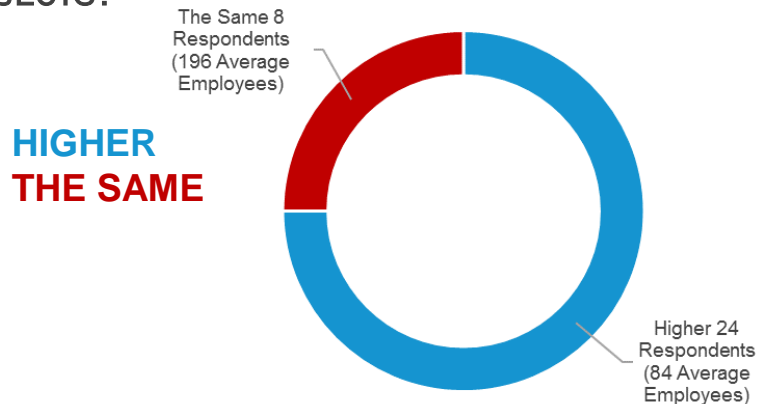


EXHIBIT 2. WILL YOU BID ON FUTURE CWA PROJECTS?

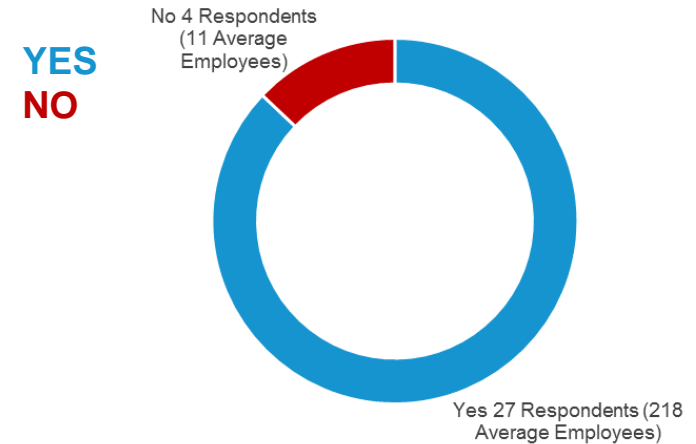


EXHIBIT 3. WMBE AND NON-WMBE RESPONDENTS WHO RATED AT LEAST ONE CWA TASK AS “VERY IMPACTFUL”

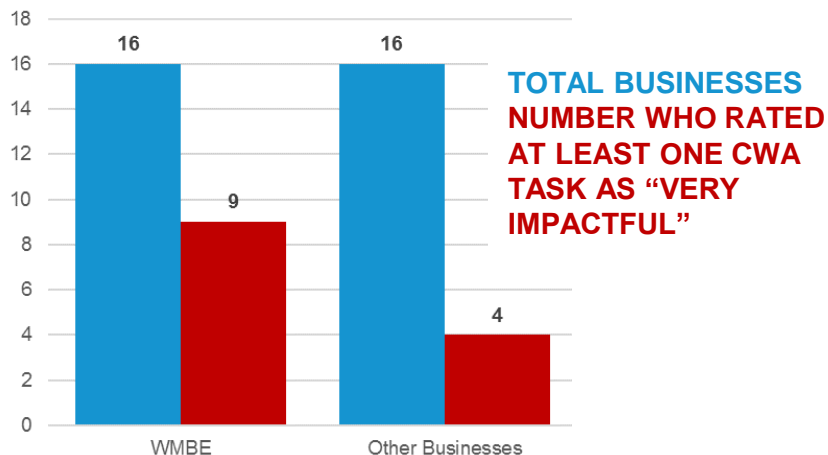


EXHIBIT 5. BASED ON YOUR EXPERIENCE, DOES THE CWA IMPACT THE NUMBER OF WMBE SUBCONTRACTORS WILLING TO BID?

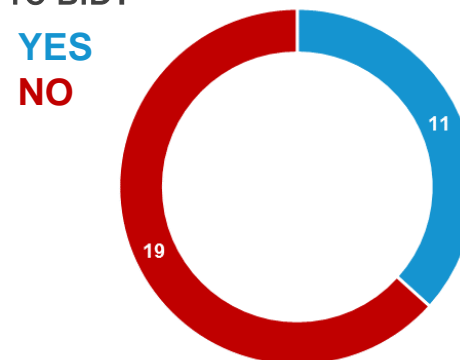
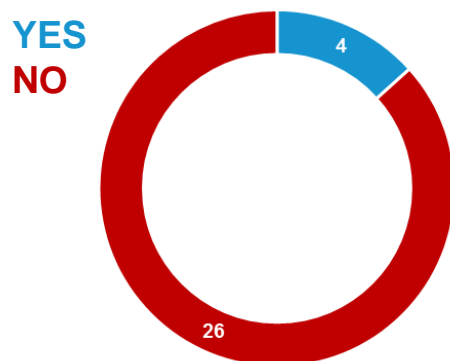


EXHIBIT 4. BASED ON YOUR EXPERIENCE, DOES THE CWA IMPACT THE NUMBER OF SUBCONTRACTORS WILLING TO BID?



OUTLINE

1 INFORMATION AND BACKGROUND

- Background
- Research Questions
- Terms and Concepts

2 EXECUTIVE SUMMARY

3 SURVEY

- Contractors and Subcontractors
- Open-Shop and Union

OTHER CWA OR PLA WORK

Overall, 23 of 32 respondents (72%) indicated that they had worked on another CWA or PLA project for another public agency. Four respondents said they didn't know, and five said they had not worked on a CWA or PLA project for another public agency.

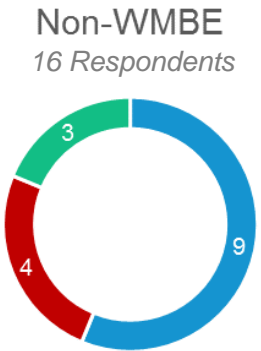
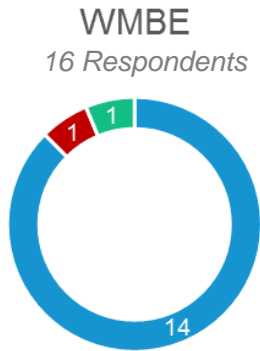
A total of 79% of open-shop businesses and 67% of Union businesses said that they had worked on a PLA or CWA project. (**Exhibit 6**)

WMBE businesses were much more likely to have worked on another CWA or PLA project than non-WMBE businesses: 14 out of 16 WMBE respondents said they had worked on another CWA or PLA project compared to nine out of 16 non-WMBE businesses. (**Exhibit 7**)

Four out of seven Prime contractors and respondents who said they were both a prime contractor and a subcontractor on CWA projects said that they had worked on a CWA or PLA project for another agency (57%). Subcontractors were more likely to say yes to this question: a total of 19 out of 25 subcontractors said they had worked on a CWA or PLA project for another agency (76%). (**Exhibit 8**)

EXHIBIT 7. OTHER CWA AND PLA PROJECT WORK

WMBE and Non-WMBE Contractors

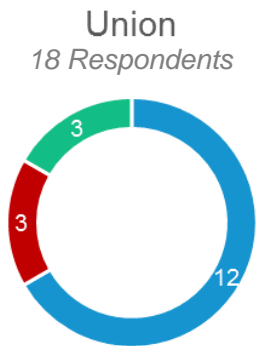


■ Yes ■ No ■ Don't Know

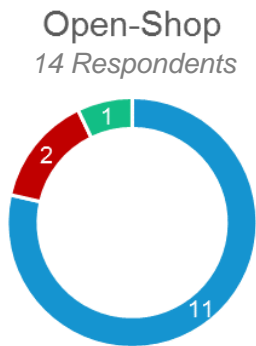
■ Yes ■ No ■ Don't Know

EXHIBIT 6. OTHER CWA AND PLA PROJECT WORK

Union and Open-Shop Contractors



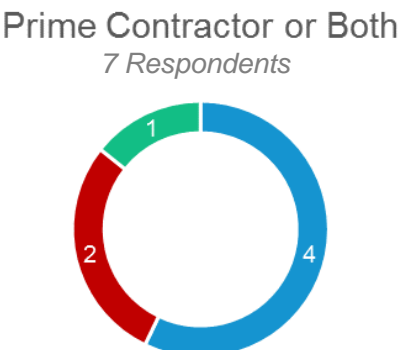
■ Yes ■ No ■ Don't Know



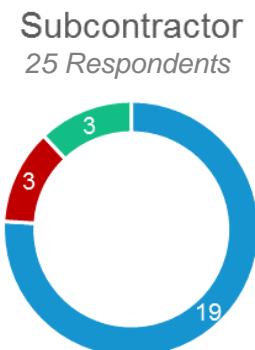
■ Yes ■ No ■ Don't Know

EXHIBIT 8. OTHER CWA AND PLA PROJECT WORK

Subcontractors and Prime Contractors or Both

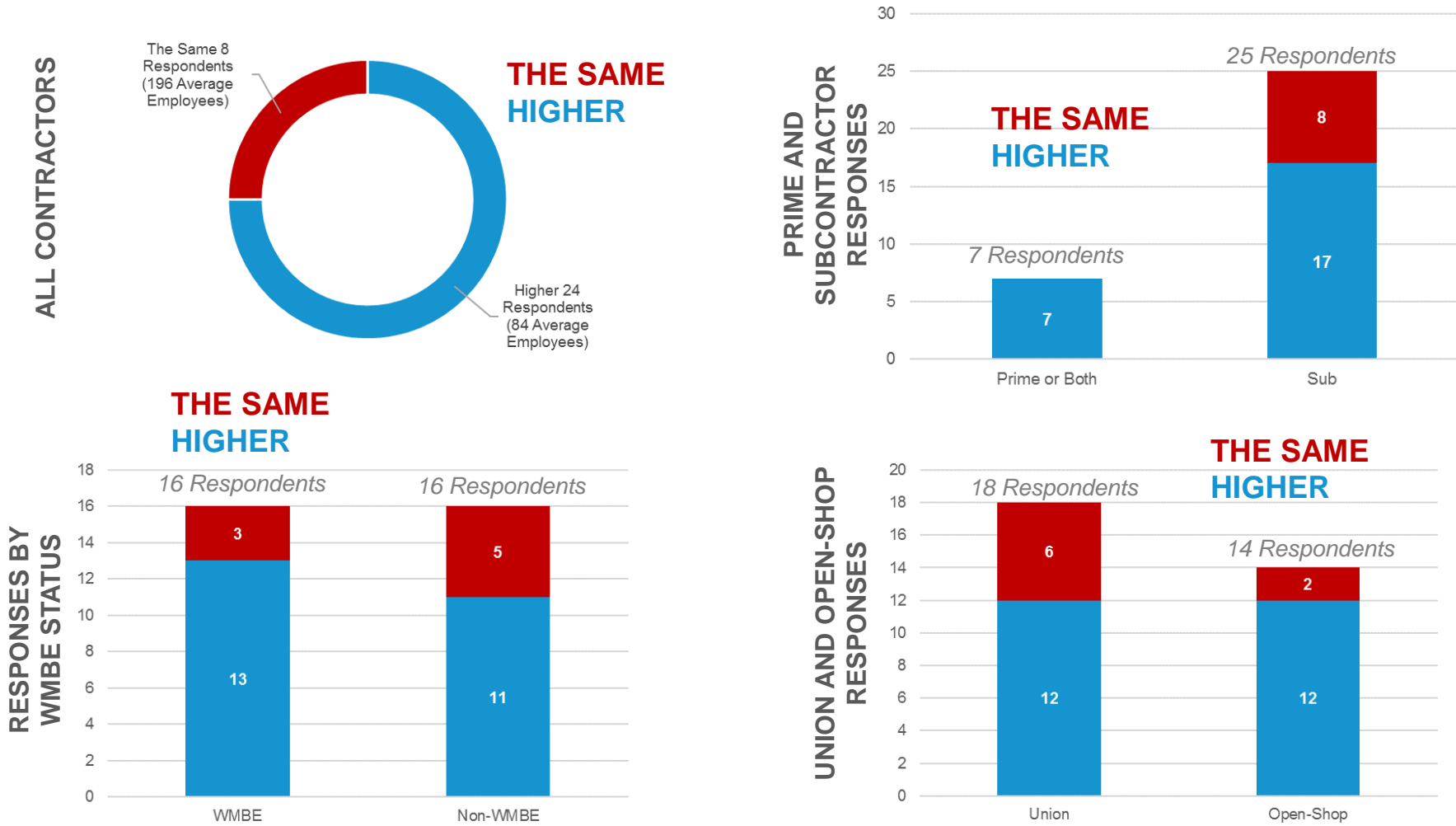


■ Yes ■ No ■ Don't Know



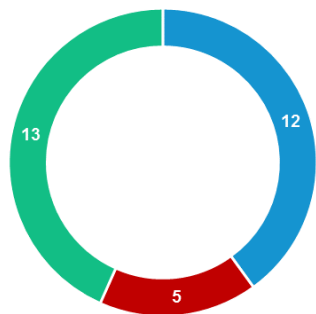
■ Yes ■ No ■ Don't Know

EXHIBIT 9. HOW DID YOUR ADMINISTRATIVE COSTS ON CWA PROJECTS COMPARE TO SIMILAR NON-CWA PUBLIC PROJECTS?



Source: Community Attributes Inc., 2016.

EXHIBIT 10. HOW DOES YOUR COMPANY MANAGE TRUST FUND PAYMENTS?



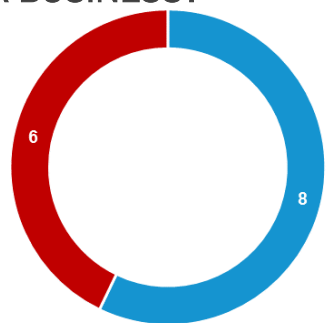
Trust Fund Payments are Taken out of the Prevailing Wage Rate

Trust Fund Payments are Made on Top of the Prevailing Wage Rate

Not Sure

Respondents in these three categories had similar splits between prime and subcontractors, union and open-shop status, employment size, and WMBE status.

EXHIBIT 11. DID THE CORE WORKER PROVISION IMPACT YOUR BUSINESS?



YES

NO

Two respondents indicated that the Seawall core worker provision was too small (two core workers), while others said it was the right amount. For projects after the CWA was implemented, the core worker provision allows five core workers.

EXHIBIT 12. DID YOU UNDERSTAND THE WORKER DISPATCH PROCESS?

YES

NO

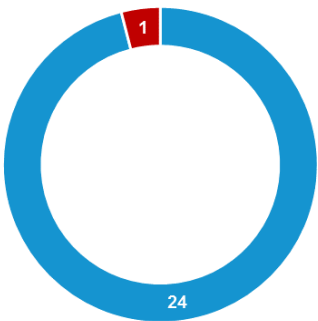
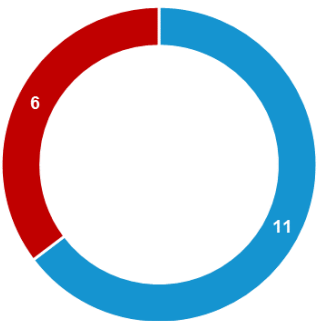


EXHIBIT 13. DID YOU RECEIVE THE WORKERS YOU REQUESTED?

YES

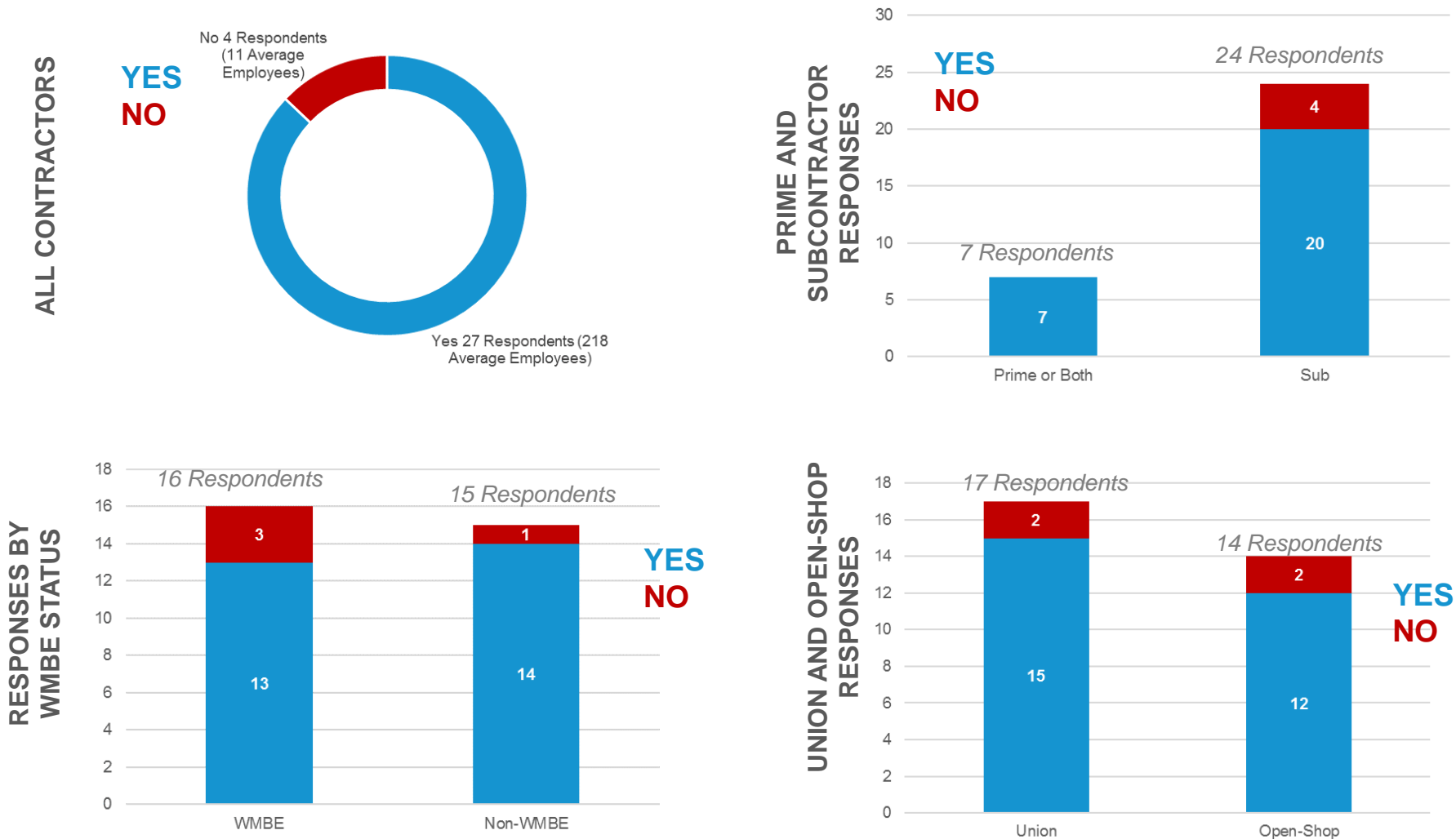
NO



"They don't have the capacity, we are forced to recruit/train workers and give them to the union."

"Unions aren't set up to get these people into the programs. Pre-apprenticeship takes 6 months alone, and it takes 4-5 months to train, but no company is going to request and hire these people 4-5 months ahead of a project they haven't even won yet. So there's a lag, a gap. It can be cumbersome. The unions said 'no problem, we can get you whatever you need' but that's easier said than done"

EXHIBIT 14. WILL YOU BID ON FUTURE CWA PROJECTS?



“CWA is part of doing business.”

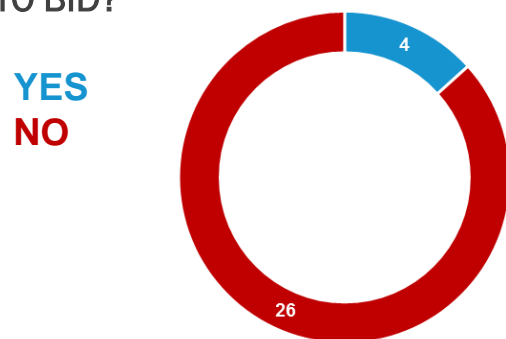
“We don’t have much option if we want to work.”

“I know of several other small businesses that will not work on CWA projects.”

Source: Community Attributes Inc., 2016.

Half of the contractors who said they would not bid on future projects were union businesses and half were open-shop. One of the four contractors represented WMBE businesses. All four were subcontractors, and they were tended to be smaller businesses: they had an average of 11 employees compared to 218 average employees for those who said yes.

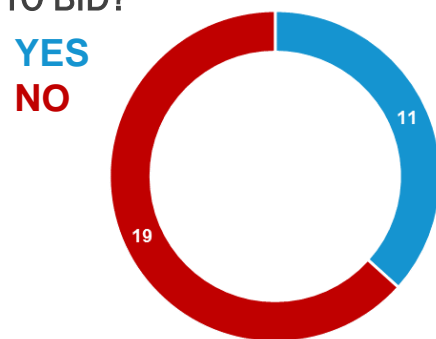
EXHIBIT 15. BASED ON YOUR EXPERIENCE, DOES THE CWA IMPACT THE NUMBER OF SUBCONTRACTORS WILLING TO BID?



“Some subcontractors will not bid on work with the CWA...we had one on our CWA project for Seattle recall their quote because of the CWA.”

Source: Community Attributes Inc., 2016.

EXHIBIT 16. BASED ON YOUR EXPERIENCE, DOES THE CWA IMPACT THE NUMBER OF WMBE SUBCONTRACTORS WILLING TO BID?



City of Seattle Construction Hiring Analysis

ANALYSIS OF COST DATA

November, 2016

President & CEO:
Chris Mefford

Lead Analyst:
Eric Viola

Analysts:
Spencer Cohen, PhD.
Madalina Calen

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Seattle, Washington 98101
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OUTLINE

1 BID POOL

- Summary Statistics
- Data Challenges
- Addressing Data Challenges

2 DUAL BENEFIT REIMBURSEMENT

- City of Seattle Methodology
- Additional Data Analysis

EXISTING RESEARCH ON COMMUNITY WORKFORCE AGREEMENTS AND SIMILAR AGREEMENTS

The City of Seattle enacted its Community Workforce Agreement (CWA) in April 2015. CWAs and Project Labor Agreements (PLAs) are authorized under the National Labor Relations Act, and have been used in various forms in the United States since the 1930s.

As a result, there have been several research studies done on the impacts of CWAs and PLAs to project costs. These studies vary in the methodology employed, but all use project data from before and after PLAs or CWAs were enacted in order to better understand the impacts of PLAs and CWAs.

- The Employee Policy Foundation found that project costs under a PLA or CWA increase by up to 7% as a result of requiring contractors to pay their workers the union wage rate rather than the prevailing wage rate. (Cato Journal, 2010)
- A 2009 study by the Cornell University School of Industrial and Labor Relations found that PLAs and CWAs do not discriminate against employers and workers, limit the pool of bidders, or raise construction costs. (Cornell University School of Industrial and Labor Relations, 2009)
- The Beacon Hill Institute developed studies in 2003, 2004, and 2006, and found that costs increased by up to 20% for CWA or PLA projects in Connecticut, New York, and Massachusetts. (Beacon Hill Institute, 2003-2006)
- A 2009 study to determine whether these agreements should be used in Department of Veterans Affairs' projects found that costs would increase if CWAs or PLAs were used. Notable, this project found that costs would increase the highest in areas with low union presence, and would increase the lowest in areas with high union presence. IN San Francisco and New York, the study found that the high union presence might even result in cost savings under PLAs or CWAs. (Rider Levett Bucknall, 2009)

METHODOLOGY

CAI compared non-CWA projects from before the CWA was enacted with similar non-CWA projects after the CWA was enacted. This acts as a kind of control, attempting to distinguish if differences between project bids before and after the CWA were related to time.

ALL BIDS

- There were 18 bids across four projects.
- On average, bids were 13.1% lower than the engineer's estimate for each project, with a variance of 2.1%

PRE-CWA BIDS

- There were 11 bids on two projects before the CWA was enacted.
- On average, bids were 21.6% lower than the engineer's estimate with a variance of 1.3%.

CWA BIDS

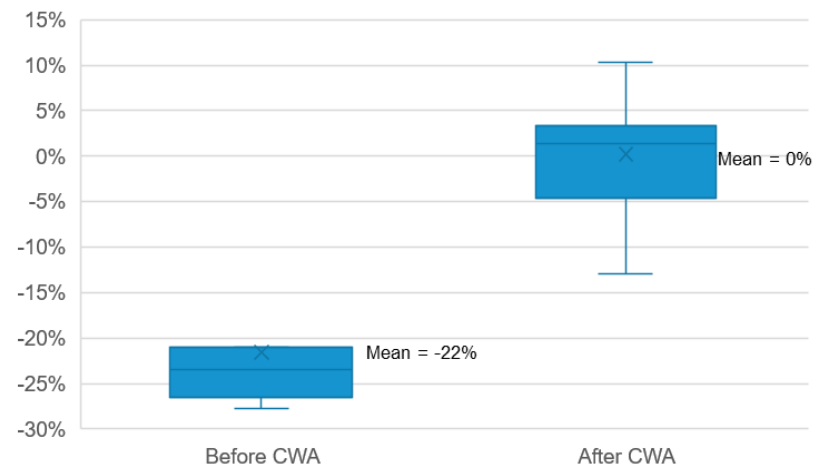
- There were 7 bids on two projects after the CWA was enacted.
- On average, bids were 0.2% higher than the engineer's estimate, with a variance of 0.5%.

CONCLUSION

Differences between contractor bids and engineer's estimates were higher in the time period after the CWA was enacted than they were in the time period before the CWA. However, the small sample size prevents any conclusions from being drawn on this observation. Additionally, the four projects analyzed here involved asphalt and concrete paving. The projects analyzed in the next section are for fire stations and buried reservoirs. These projects are significantly different from one another, and it is therefore difficult to compare Exhibit 1 and Exhibit 2.

EXHIBIT 1. BOXPLOT OF DIFFERENCES BETWEEN ENGINEER'S ESTIMATE AND BID

Non-CWA Projects Before CWA and Similar Projects Post-CWA



Sources: City of Seattle, 2016; Community Attributes Inc., 2016.

METHODOLOGY

In order to normalize bid data from pre-CWA projects and CWA projects, CAI chose to primarily investigate the differences between individual contractor bids and the engineer's estimate for each project. This limits inflation and cost of materials as confounding factors, as both are included in contractor bids and engineer's estimates.

The CWA was enacted in 2015. As a result, looking at post-2015 CWA projects and comparing them to similar pre-2015 projects may introduce time as a confounding variable: **Post-CWA projects could be more expensive due to external factors that may not be adequately captured in the engineer's estimate.**

Because the CWA was only recently enacted, there is too little data available on CWA project bids to draw statistically significant conclusions. In order to assess whether or not there was enough CWA bid data to draw conclusions, CAI performed simple statistical analyses, which is presented here. CAI looked at three CWA projects that had similar projects before the CWA was enacted. There were not enough similar projects that occurred in the same time frame to provide a truly accurate comparison group.

ALL BIDS

- There were 68 bids across 16 projects from 2011 to 2016.
- On average, bids were 13.5% higher than the engineer's estimate for each project, with a variance of 4.1%

PRE-CWA BIDS

- There were 59 bids on 13 pre-CWA projects.
- On average, bids were 13.0% higher than the engineer's estimate with a variance of 3.6%.

CWA BIDS

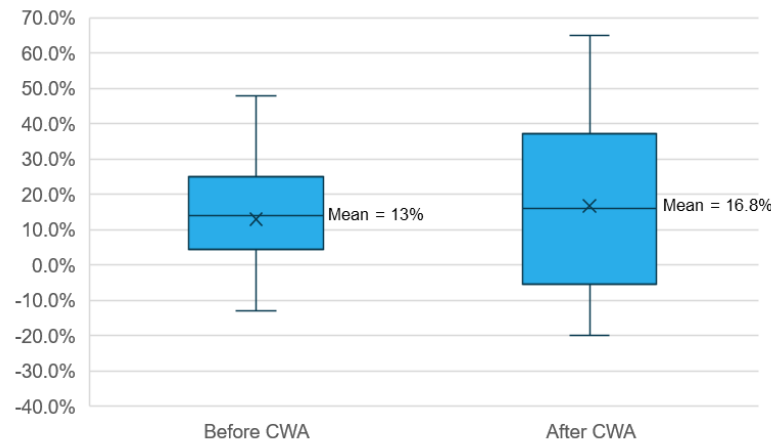
- There were 9 bids on 3 CWA projects.
- On average, bids were 16.8% higher than the engineer's estimate, with a variance of 7.7%.

CONCLUSION

While CWA bids were higher on average than pre-CWA projects, there is not enough data on CWA bids to conclude that the CWA is responsible for the increase in cost with statistical certainty. In addition, engineer's estimates are based on estimated costs while contractor bids are based on actual costs and the difference between the two fluctuates over time. Administrative costs in engineer's estimates are based on general industry information. Contractor's administrative costs, however, are specific to their business model, and vary by business.

EXHIBIT 2. BOXPLOT OF DIFFERENCES BETWEEN ENGINEER'S ESTIMATE AND BID

All CWA Buried Reservoir and Fire Station Projects and Similar Pre-CWA projects



Sources: City of Seattle, 2016; Community Attributes Inc., 2016.

ENGINEER'S ESTIMATE

- > Engineer's estimates are based on estimated costs. Contractor bids are based on actual costs.

ADMINISTRATIVE COSTS

- > Administrative costs in engineer's estimates are incidental and are based on generalized industry analysis. Administrative costs (e.g. contractor's overhead, profit and social equity) in contractor bids are specific to their business model, and vary by business type and level of effort.

SAMPLE SIZE

- > There were only 3 CWA projects that had comparable non-CWA projects. Additionally, there were only 9 bids on these CWA projects. As a result, analysis of the difference between pre-CWA and CWA project bids is not statistically significant.

OUTLINE

1 BID POOL

- Summary Statistics
- Data Challenges
- Addressing Data Challenges

2 DUAL BENEFIT REIMBURSEMENT

- City of Seattle Methodology
- Additional Data Analysis

BACKGROUND

Open-shop contractors with existing employee benefit programs may request reimbursement for those costs for the hours worked on priority hire projects. When open-shop contractors contribute into both an existing employer-sponsored benefit plan while also making required payments into the trust fund, they are eligible for dual benefit reimbursement. This prevents them from paying more than other contractors.

CITY OF SEATTLE METHODOLOGY

It is important to note that, to date, no contracts under the CWA have been closed. As a result, there is no final project cost data to analyze.

The City of Seattle has provided data on the total amounts paid on CWA projects through September 2016 and the total dual reimbursement paid on CWA projects through October 2016. **Exhibit 3** summarizes this information. At this time, there are no pending dual reimbursement requests.

EXHIBIT 3. DUAL REIMBURSEMENT AND TOTAL PAID ON PROJECTS

All CWA Projects

Project	Total Paid on Project	Dual Reimbursement Paid on Project	Share
Elliott Bay Seawall	\$283,163,041	\$56,033	0.02%
Denny Substation	\$13,265,295	\$0	0.00%
Denny Network	\$7,337,151	\$0	0.00%
Fire Station 32	\$3,695,368	\$0	0.00%
Fire Station 22	\$1,820,872	\$0	0.00%
Buried Reservoir Seismic Program--Maple Leaf & Myrtle	\$5,275,160	\$88,363	1.68%
Blue Ridge Conduit Replacement	\$1,903,052	\$0	0.00%
Total	\$316,459,939	\$144,396.51	0.05%

Sources: City of Seattle, 2016; Community Attributes Inc., 2016.
 Notes: Total Paid is accurate through September 2016 and Dual Reimbursement Paid is accurate through October 2016.

APPENDIX

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AGC of Washington supporting materials for contractor panel discussion

December 4, 2019

Social equity concerns with PLA or CWA:

Do PLA's support [Seattle School Board Policy 0030, Ensuring Educational and Racial Equity](#) for students when;

- Black and Hispanic owned firms are likely future employers of minority student populations and PLA's generally block the use of non-union contractors and their employees, and 98% of black and Hispanic owned firms are non-union, (see attached: declining Women and Minority Business Enterprise participation under CWA and minority worker employers in the City of Seattle), and
- [PLAs are opposed by the National Black Chamber of Commerce](#), the Latin Builders Association, the U.S. Pan-Asian Chamber of Commerce, the American-Asian Contractors Association and Women Construction Owners and Executives, USA and the Small business and Entrepreneurship Council and others. Quotes from the NBCC are shared by AGC of Washington with express consent of Mr. Harry Alford, President & CEO of the National Black Chamber of Commerce (NBCC):
 - *"PLAs are de facto segregation...African-American workers are significantly underrepresented in all crafts of construction union shops...PLAs are non- competitive and, most of all, discriminatory."* **NBCC**
 - *"...project labor agreements generally block the use of non-union contractors and their employees. As approximately 98% of African-American and Hispanic construction companies are non-union, the use of a project labor agreement on public work projects greatly restricts the opportunities for African-American and Hispanic construction companies and construction workers on such projects."* **NBCC**
 - *"Show me a PLA and I will show you Jim Crow employment plus a locking out of most Black-owned firms that happen to be nonunion most of the time."* **NBCC**
 - *"The National Black Chamber of Commerce, Inc. is firmly against union-only Project Labor Agreements. Such agreements result in anti-small business activity which is predatory to Black owned businesses and curtail the potential for employment opportunities within urban areas."* **NBCC**
 - *"The ultimate effect of the San Francisco Airport PLA is clear...once the PLA was implemented minority business prime contract participation dropped 91.9%. This PLA has been a disaster for minority-owned businesses."* **Asian American Contractors Association**
 - *"We believe PLAs make it more difficult for minority-owned contractors to compete...they effectively work against the goals of increasing the number of projects awarded to minority-owned businesses by placing roadblocks in the way."* **Latin Builders Association**
 - *"WCOE opposes government mandated PLAs...PLAs will disproportionately impact small business, particularly those owned by women and minorities."* **Women Construction Owners and Executives**

Social equity concerns with PLA or CWA (*continued*):

- PLA's are not necessary to impose community workforce hiring, or local or minority owned business utilization goals on school projects. Non-PLA methods of achieving these goals are prevalent in the private sector and have many successful examples in public works. Recent examples are Seattle Housing Authority and Tacoma Public Schools projects which exceeded minority business goals and met apprenticeship goals without discriminating through a PLA.
- The only non-discriminatory method for including community workforce or business inclusion goals on a project is to include the goals in the construction contract documents and allow fair and open competition to utilize all pathways available to achieve the goals.

PLA and CWA Cost and Competitiveness

It is important to preface this section by noting the implementation of prevailing wage means [union and non-union workers are paid equivalent wages and benefits when working on Seattle Public Schools projects](#) whether a PLA would be imposed or not. However, there are deep concerns regarding significant loss of public benefit due to other cost concerns when imposing PLAs.

There are many cases locally and across the country of projects going out to market with a PLA only to be re-bid without a PLA due to lack of bidders or cost overruns. For a thorough study on this topic, please see this study [2011 PLA's & The Public Record of Poor Performance \(pricing, competitiveness, social equity\)](#). Here is more information and recent local examples on the topic:

- **September 2019:** Port of Seattle Request For Qualifications on Restoration Project Terminal 117 attracted 8 bidders with no PLA. Three were shortlisted to respond to the Request For Proposal (invitation to bid the project), but the RFP came out with a PLA attached. Two of the three shortlisted contractors refused to bid the project with a PLA. With only one bidder, the project looks to be approximately 30% higher in price than there would have been in a competitive bidding environment.
- **June 2019:** [The Anticompetitive Effects of Government-Mandated Project Labor Agreements on Construction in Washington State](#)
 - PLA's reduce the average number of bidders for construction projects by 18.26%
 - Concludes PLAs artificially restrict competition and increase project costs.
 - Shows the reduced competition in the projects completed with a PLA increased the cost of these publicly funded projects by \$589 million to \$879 million.
- **Deterrents for both union and non-union contractors considering CWA or PLA projects include:**
 - Increased paperwork and administration
 - Difficulty meeting contractual agreements for small and minority business contracting goals due to the CWA's exclusionary labor agreement and burdensome administrative requirements
 - Lack of access to priority workers (local, women and people of color) from the union hiring halls put contractors at risk for not meeting contractual requirements
 - Additional worker hours required to ensure jobsite safety for new workers who have entered complex jobsite environments through preferred entry
 - Continued p. 3

- **Deterrents for both union and non-union contractors considering CWA or PLA projects include (continued):**

- Union trust payments are required for non-union employees even if benefits are already being paid by the employer. These dual benefit payments increase cost per non-union worker and leave small employers non-competitive and vulnerable to cash flow issues and union lawsuits
- Difficulties keeping workforce employed due to hiring restrictions
- Pre-job conferences to divide work among unions delay projects and are not standard in the marketplace for union contractors
- Union jurisdictional disputes throughout the project increase risk to contractors, and project delays
- Difficulty finding specialty contractors to fill sub-tier scopes due to exclusionary contracting
- Interference with existing union work rules already in place

Cost increases due to PLA's on School Construction Projects:

"Multiple studies of hundreds of taxpayer-funded school construction projects found that PLA mandates increase the cost of construction between 12 and 18 percent compared to similar non-PLA projects. In addition, recent government-mandated PLAs on federal and federally assisted projects have resulted in litigation, reduced competition, increased costs, needless delays and poor local hiring outcomes."

National Black Chamber of Commerce

- 2019 [Government Negotiated PLA's \(CWA\) in Washington State increase costs: 18.26%](#)
- 2019 [New Jersey Public School PLA Cost Study: PLA's increase costs 16.25%](#)
- 2017 [Ohio Public School PLA Cost Study: PLA's increase costs 13%](#)
- 2010: [National University Study on school construction in California: PLA's increase costs 13-15%](#)
- 2004 [Connecticut School Building Project PLA Study: PLA's increase costs 17.9%](#)

Looking at the data, there is a high probability in substantial loss of benefit to Seattle Public School students by imposing a PLA or CWA. It is likely to see fewer new schools, less robust building maintenance, and fewer technology and efficiency upgrades than currently planned by recent capital levy programs due to increased cost.

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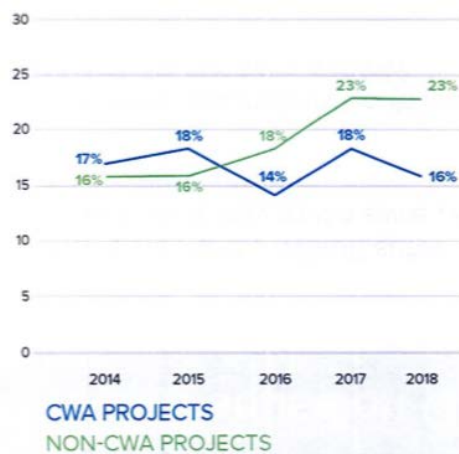
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Attachment 1 (City of Seattle City Purchasing & Contracting data):

WMBE Spent

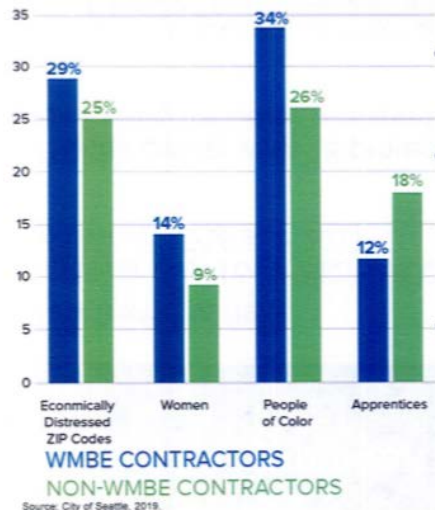
on CWA and Non-CWA Projects (January 2014-December 2018)



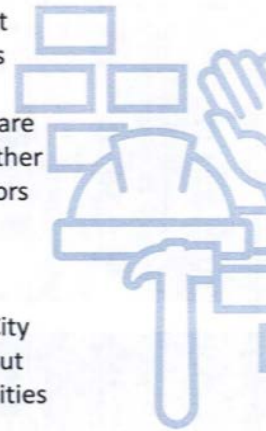
- Women- and minority-owned (WMBE) firms participated on CWA projects at similar levels as past years, earning 17% of all dollars on CWA projects through December 2018.
- This share compares closely to the 19% of dollars WMBE firms earned on all other projects during the same time period.
- WMBE utilization on non-CWA projects increased each year since 2014, while utilization on CWA projects generally stayed level

Contractor Workforce

by Hours on CWA Projects (November 2013-December 2018)



- WMBE contractors employ the most diverse workforces on CWA projects
- Increasing the WMBE contractor share of work on CWA projects would further racial equity outcomes for contractors and their workforces
- In the City 2017 and 2018 Annual Reports to Mayor and Council the City highlights efforts to learn more about improving and expanding opportunities on CWA projects



APPENDIX 14

Port of Seattle paid internship program for high school students

Internships: The model can be scaled up or down to accommodate student availability and program development:

- A pilot can be established and ramped up over time.
- The pilot can be offered by a contractor or it can be directed and managed by the SPS CTE program, likely using funding from the contractor(s) for administration and for student wages. Either approach can then be stipulated within the construction contract.
- Requires the host (either SPS or a contractor) to obtain a minor work permit to hire those under 18. The rules for a minor work permit, set by the State of Washington Labor & Industries Department, are restrictive unless the youth are working within a state recognized program such as the ANEW pre-apprentice program or an SPS pre-apprenticeship program. Note that the Seattle Skills Center for automotive is such a program, and the Port therefore hires a number of those students to be interns for the Port.
- The students in the Port program receive CTE credits and paid income, as well as experience and exposure to their field of interest. This is important in solving the financial barriers that youth face in pursuing construction trades.
- The students are paid approximately \$17 an hour; they are not performing tasks that are therefore subject to prevailing wages but are paid greater than minimum wage. The Port Human Resources office establishes the appropriate wage for their particular program.
- For SPS, the CTE students would be recruited for competing for available internships.
- The Port finds a natural race/ethnic diversity in the students selected for the program; female gender and those identifying with as female in the gender-spectrum are not as well represented. SPS construction trades CTE program has similar challenges for gender representation.
- The Port is considering narrowing their program focus to King County youth only; this will naturally bring greater opportunities for SPS students, especially if SPS adopts the pre-apprentice program recognition for the CTE construction trades.

The Port program offers other approaches that should be considered by SPS with a program design. The Port also offers to provide technical assistance to SPS in designing such a program for SPS construction trade CTE students:

- The Port program offers part-time 60 internships for spring and 20 in the fall. Full-time work is offered for 60 students in the summer. The Port program is at full capacity and will not expand further.
- Approximately 60% of the Port interns are selected competitively, undergoing interviews and selection processes by the contractor who will have the student at their contractor site. However, another 40% are selected from partners who focus on at-risk youth or those with economic, race or social justice disadvantages. Partners used by the Port include the YMCA and Teen Adventures.

- The Port has programs for plumbers, sheet metal and welders, in addition to automotive, aviation and marine maintenance. SPS may wish to consider those trades first for pilot experience, as those would have a more robust starting point for design.

APPENDIX 15

Regional Public Owners Construction Workforce Analysis FINAL REPORT

August 2, 2018

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Senior Economist*

*Doudou Feng
Economics Analyst*

Outline

- Terms and Concepts
- Data Sources and Challenges
- Key findings
- Tri-County Construction Industry Forecast
- RPO Construction Supply and Demand
- Appendix

Terms and Concepts

- The RPO (Regional Public Owner group) includes the City of Seattle, King County, Port of Seattle, City of Tacoma, Sound Transit, and the Washington State Department of Transportation.
- The study region includes King, Pierce, and Snohomish counties (the “Tri-County Region”).
- The construction industry forecast describes the anticipated equilibrium of future labor market supply and demand in the construction industry.
- The construction occupation forecast is the detailed version of the construction industry forecast. This forecast only considers occupations in the construction industry that require construction skills, such as masons, electricians, and truck drivers. This forecast includes new openings and retained workers. The retained workforce includes turnover within the industry and region while new openings are entirely new jobs. In the gap analysis, the occupational forecast is referred to as occupational demand.
- Workforce supply represents the pool of qualified workers and includes the following:
 - Existing workers from previous year
 - Unemployment Insurance (UI) claimants previously employed in construction occupations
 - New apprenticeship openings in construction crafts
 - Educational program completions in programs related to construction
- The gap between demand and supply indicates a shortage in the overall labor in the region. However, while there is a projected gap, it is assumed these openings will be filled by workers from outside the region.
- Job counts use 1,500 hours for Full Time Equivalent (FTE) employees.

Data Sources and Challenges

Data sources:

- Data from RPO members, 2017
- Conway Pedersen Economics, 2017
- Puget Sound Regional Council, 2017
- Washington State Department of Revenue, 2017
- Washington State Employment Security Department, 2016

Challenges:

Some RPO members do not have data on the duration of planned future projects, nor projections of construction labor demand for these projects.

Key Findings

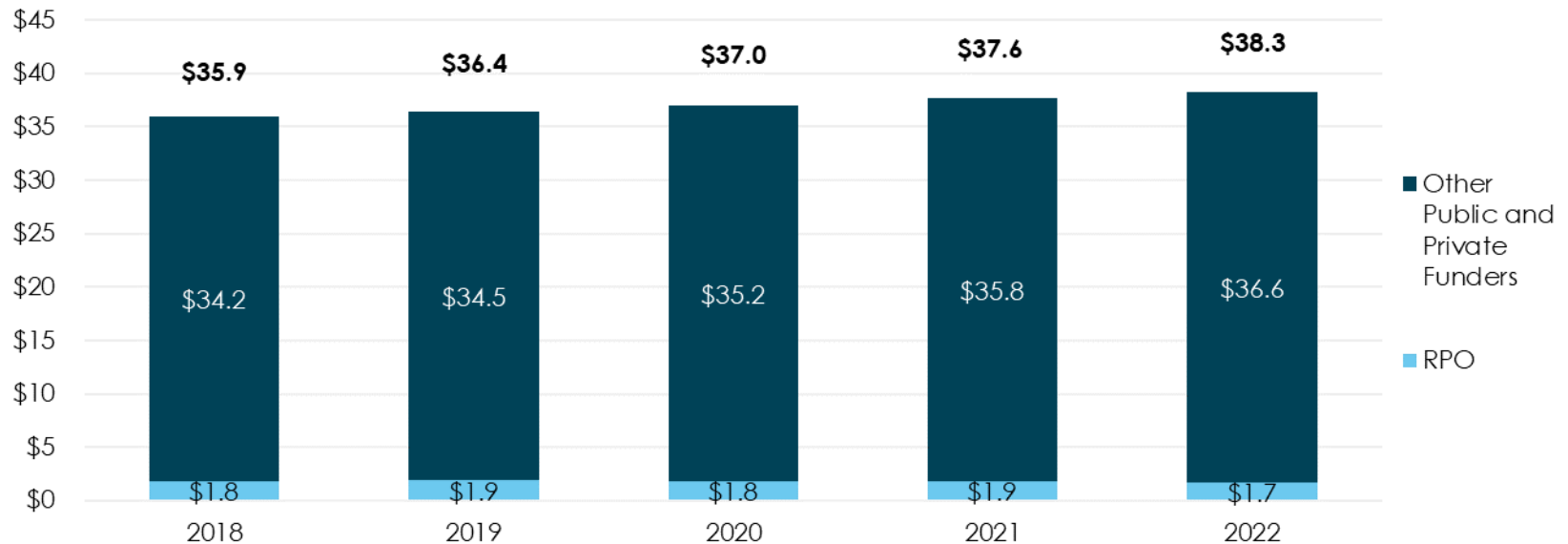
- For 2018-2022, the construction industry can expect an average annual region-wide labor shortage of 9.7% for the occupations it will need to execute construction projects. By comparison, the manufacturing industry in King County has less than a 1% annual shortage forecasted for the same time period.
- The number of first-year apprentices increased from 330 in 2009 to 1,940 in 2017. The ratio of first-year apprentices out of total active apprentices increased from 7.5% in 2009 to 57.8% in 2017.
- Out of 3,360 active construction apprentices within King, Snohomish and Pierce counties in 2017, 93.2% are male.
- Construction projects from RPO members will support an estimated 6,700 full-time equivalent (FTE) positions per year through 2022. The top three occupations by demand will be carpenters (1,180 FTEs), heavy and tractor-trailer truck drivers (860 FTEs), and construction laborers (850 FTEs).
- With a 15% apprenticeship utilization rate, apprentices needed by RPO construction projects is projected to be on average 1,000 per year between 2018 to 2022.

Tri-County Construction Forecast

Projected Construction Spending

Tri-county Region

Projected Construction Spending by Year, Tri-County, Billions \$

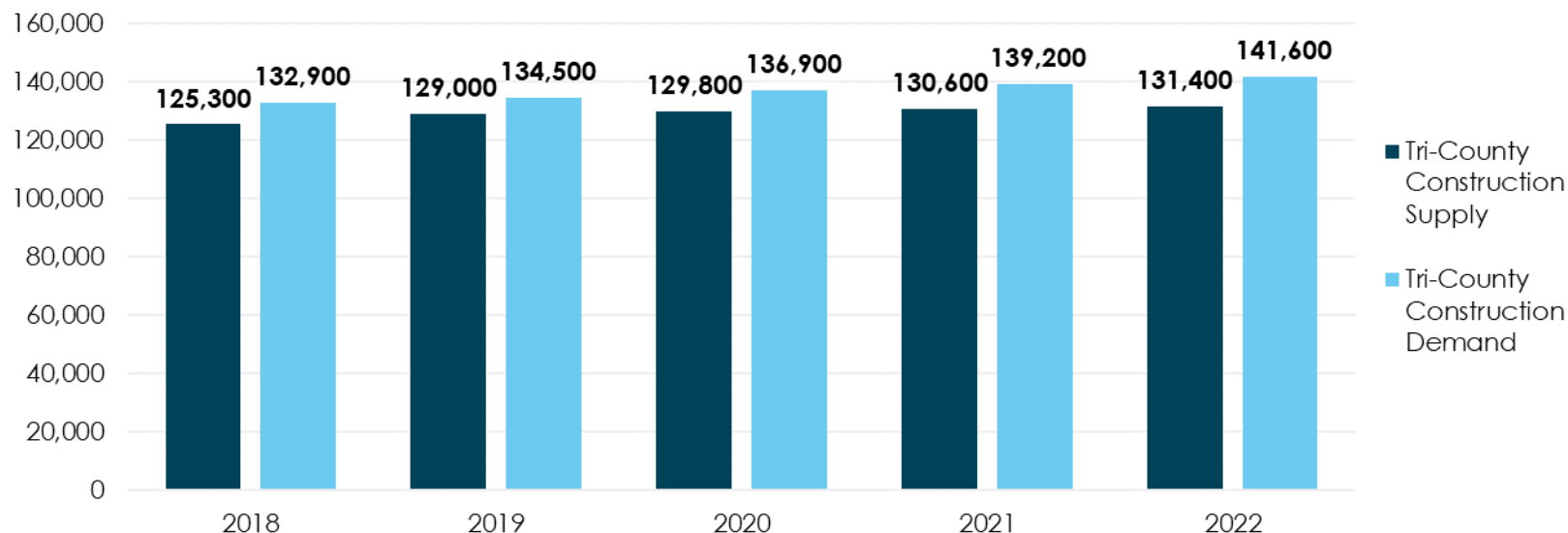


Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; Community Attributes Inc., 2018.

- Construction spending is predominately from the private sector. From 2018 to 2022, on average 95.1% of total construction spending is expected to come from private and other public (non-RPO) sources.
- RPO members can expect strong labor force competition for construction workers.

Projected Construction Supply and Demand Tri-county Region

Construction Employment Projection by Year, Tri-County



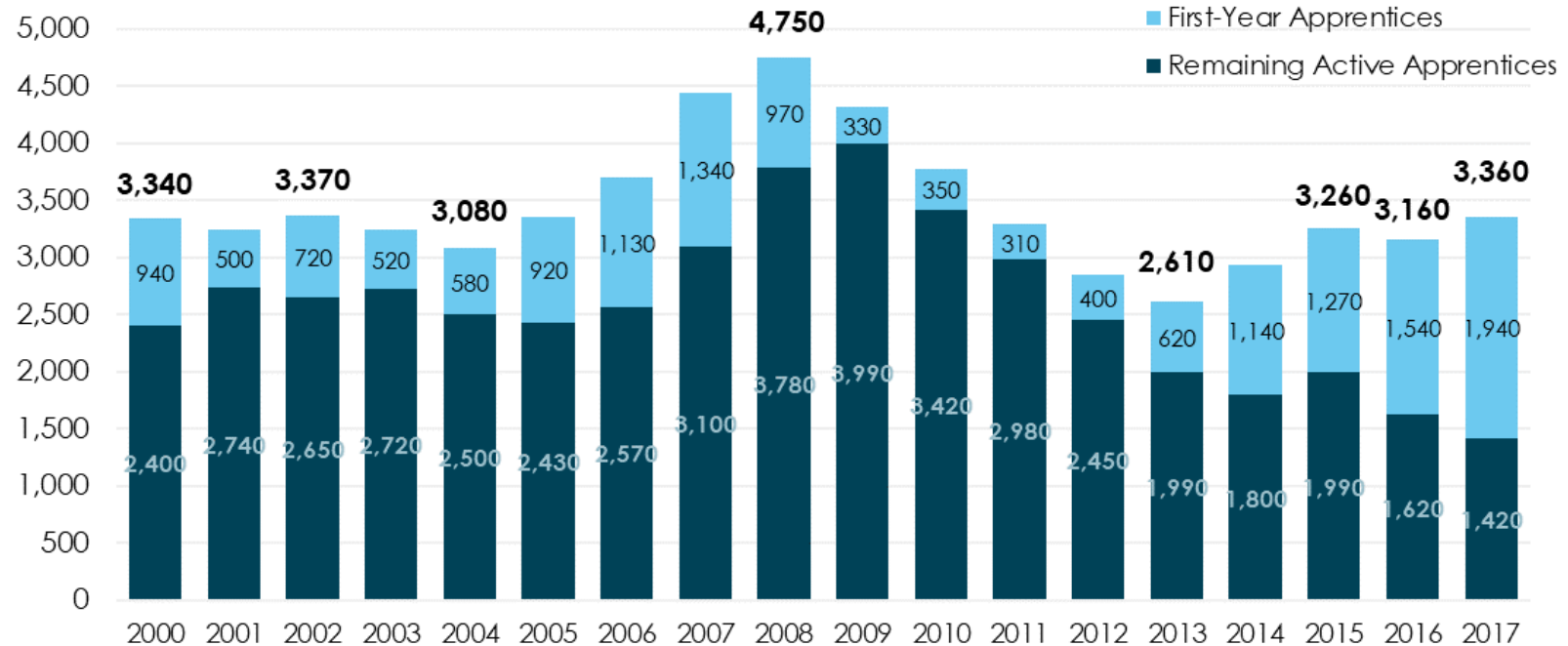
Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017 ; Washington State Employment Security Department, 2016; Community Attributes Inc., 2017.

- The construction industry in King, Pierce and Snohomish counties is projected to reach 132,900 jobs in 2018 and grow at 1.6% per year through 2022.
- In 2018, an estimated 125,300 jobs in the construction industry will be filled by workers living in King, Pierce and Snohomish counties. The supply within the Tri-County is expected to grow at a 1.2% compound annual growth rate (CAGR) through 2022.

Active Construction Apprenticeship

Tri-County Region

Active Apprentices by Year, Tri-County



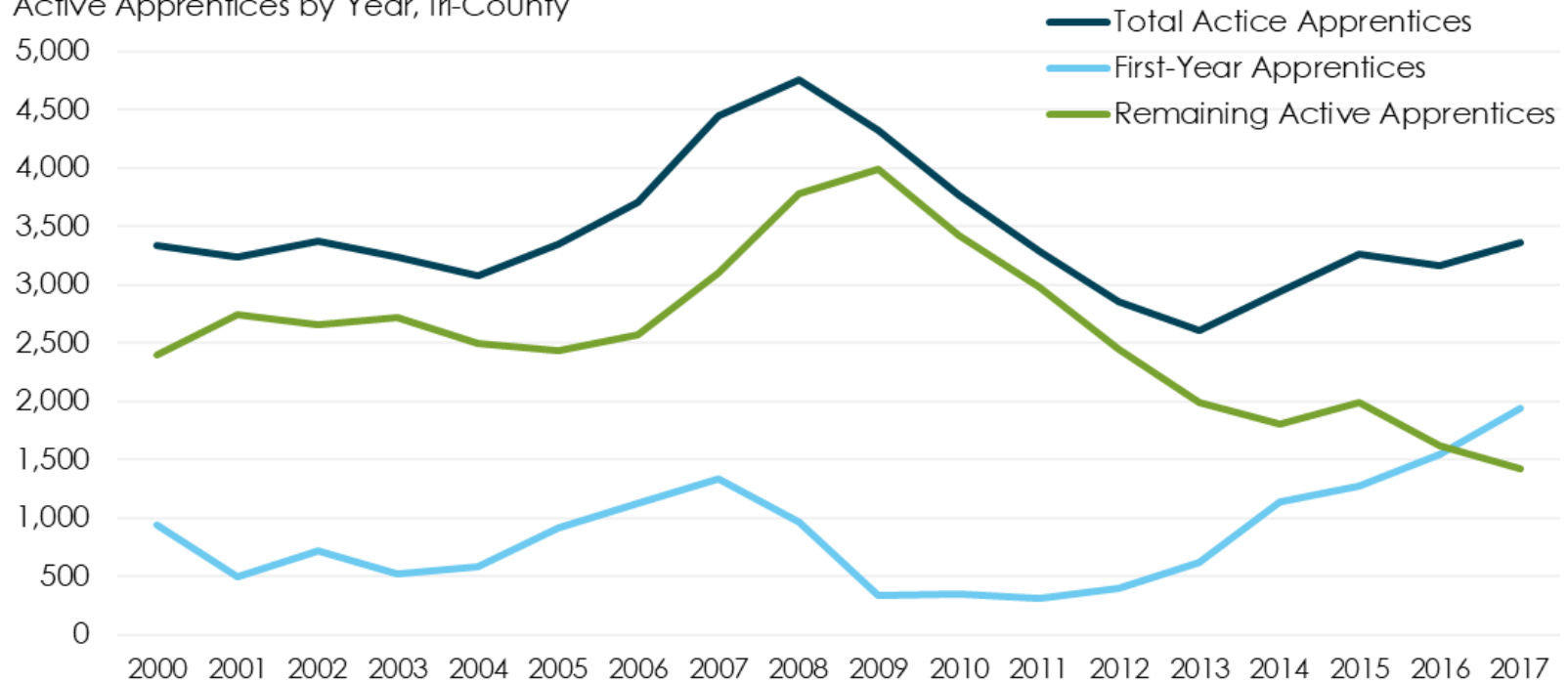
Sources: Washington State Labor & Industries Department, 2018; Community Attributes Inc., 2018.

- The number of active construction apprentices reached a peak of 4,750 in 2008. Due to the recession in 2008-2009, the number decreased to recent low of 2,610 in 2013 and then recovered back to 3,360 in 2017.
- The ratio of first-year apprentices out of total active apprentices increased from 7.5% in 2009 to 57.8% in 2017. In 2017, out of a total of 3,360 active apprentices, 1,940 were first-year apprentices.

Active Construction Apprenticeship

Tri-County Region

Active Apprentices by Year, Tri-County



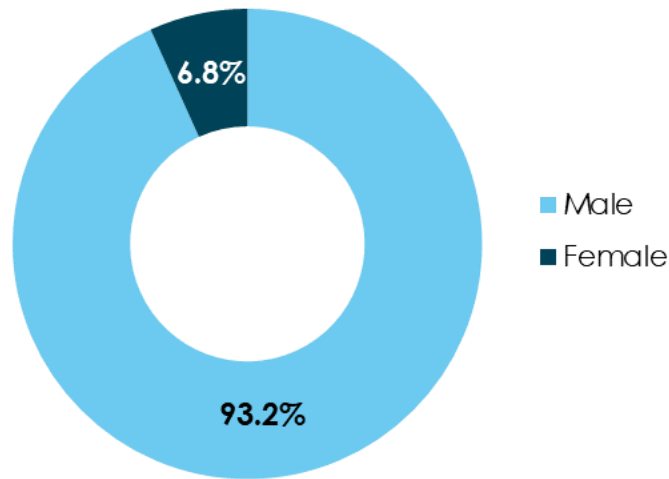
Sources: Washington State Labor & Industries Department, 2018; Community Attributes Inc., 2018.

- The number of first-year apprentices grew at a 25.0% compound annual growth rate (CAGR) between 2009 and 2017.

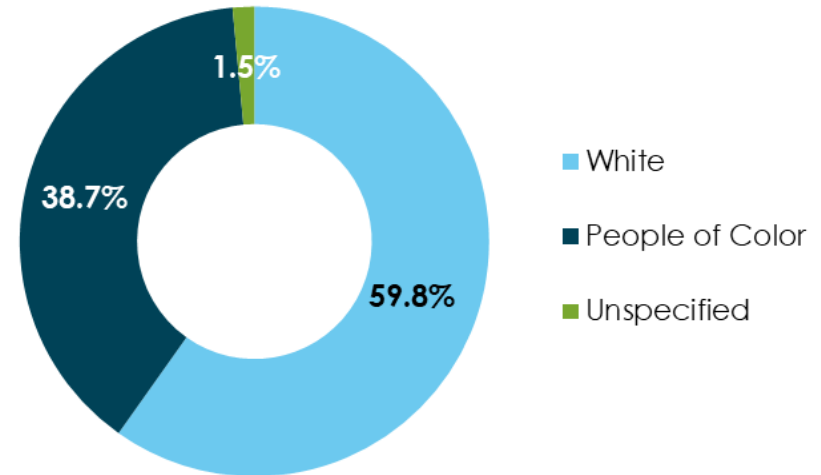
Active Construction Apprenticeship

Tri-County Region

Active Apprentices by Gender, 2017



Active Apprentices by Race, 2017



Sources: Washington State Labor & Industries Department, 2018; Community Attributes Inc., 2018.

- The number of construction apprentices has remained primarily male. In 2017, 93.2% of active construction apprentices were male within a total of 3,360 construction apprentices in King, Snohomish, and Pierce counties.
- The ratio of race composition (white-to-people of color) within total active construction apprentices in 2017 was 6:4.

Active Apprenticeship Projections

Tri-County Region

Occupation	2018	2019	2020	2021	2022
Construction Electrician	620	630	630	640	650
Carpenter	530	540	540	550	560
Construction Laborers	340	350	350	350	360
Plumbers, Pipefitters, and Steamfitters	290	290	290	300	300
Ironworker	220	230	230	230	230
Gypsum Drywall Systems Installer	210	210	210	210	220
Residential Sheet Metal Worker	160	160	160	160	170
Elevator Constructor Mechanic	120	130	130	130	130
Cement Mason	110	110	110	110	110
Roofer	100	100	100	100	100
Construction Equipment Operator	90	90	90	90	100
Painter and Decorator	70	70	70	80	80
Electrician Constructor	70	70	70	70	70
Refrigeration Mechanic	60	60	60	60	60
Commercial Glazier	40	40	40	40	40
Drywall Finisher	40	40	40	40	40
Brick Layer	30	30	30	30	30
Plasterer	30	30	30	30	30
Tile/Terrazzo/Marble Finisher	20	20	20	20	20
Heavy Duty Mechanic Repairman	20	20	20	20	20
Insulation Applicator	20	20	20	20	20
Asbestos Worker	20	20	20	20	20
Boilermaker	10	10	10	10	10
Teamster	9	10	10	10	10
Tilelayer	8	8	9	9	9
Firestop/Containment Worker	7	7	7	7	7
Carpet/Linoleum/Resilient Tile	7	7	7	7	7
Industrial Millwright	6	6	6	7	7
Water Pipe Worker	5	5	5	6	6
Marble Setter	4	4	4	4	4
Terrazzo Worker	1	1	1	1	1
Total	3,290	3,320	3,330	3,380	3,440

Sources: Washington State Labor & Industries Department, 2018; Community Attributes Inc., 2018.

- The table summarizes the short-term forecasts for active apprentices on an annual basis.
- The number of occupations with more than 10 apprentices are rounded to the nearest multiples of 10. The sum total of all occupations may slightly differ with the total number in the table due to rounding.
- On average, the number of active apprentices is projected to average 3,350 per year between 2018 to 2022.

First-Year Apprenticeship Projections

Tri-County Region

Occupation	2018	2019	2020	2021	2022
Construction Electrician	290	300	300	300	310
Construction Laborer	220	220	220	220	230
Carpenter	210	220	220	220	220
Plumbers, Pipefitters, and Steamfitters	130	130	130	130	140
Gypsum Drywall Systems Installer	100	100	100	100	100
Ironworker	80	90	90	90	90
Residential Sheet Metal Worker	80	80	80	90	90
Cement Mason	60	60	60	60	60
Elevator Constructor Mechanic	60	60	60	60	60
Roofer	60	60	60	60	60
Painter and Decorator	50	50	50	50	50
Construction Equipment Operator	40	40	40	40	40
Electrician Constructor	30	30	30	30	30
Commercial Glazier	30	30	30	30	30
Refrigeration Mechanic	30	30	30	30	30
Drywall Finisher	20	20	20	30	30
Brick Layer	20	20	20	20	20
Plasterer	20	20	20	20	20
Asbestos Worker	10	10	20	20	20
Tile/Terrazzo/Marble Finisher	10	10	10	10	20
Insulation Applicator	9	10	10	10	10
Heavy Duty Mechanic Repairman	7	7	7	7	7
Teamster	7	7	7	7	7
Boilermaker	6	6	6	6	6
Carpet/Linoleum/Resilient Tile	4	4	4	4	4
Firestop/Containment Worker	4	4	4	4	4
Tilelayer	4	4	4	4	4
Industrial Millwright	3	3	3	3	4
Marble Setter	2	2	2	2	2
Total	1,600	1,620	1,620	1,640	1,670

Sources: Washington State Labor & Industries Department, 2018; Community Attributes Inc., 2018.

- The table summarizes the short-term forecasts for apprentices newly registered on yearly basis.
- The number of occupations with more than 10 apprentices are rounded to the nearest multiples of 10. The sum total of all occupations may slightly differ with the total number in the table due to rounding.
- On average, the number of first-year apprentices is projected average 1,630 per year between 2018 to 2022.

Apprenticeship Completion Projections

Tri-County Region

Occupation	2018	2019	2020	2021	2022
Construction Electrician	90	90	90	90	90
Carpenter	70	70	70	70	70
Construction Laborer	50	60	60	60	60
Plumbers, Pipefitters, and Steamfitters	40	40	40	40	40
Residential Sheet Metal Worker	30	30	30	40	40
Ironworker	30	30	30	30	30
Electrician Constructor	20	20	20	20	20
Construction Equipment Operator	20	20	20	20	20
Gypsum Drywall Systems Installer	20	20	20	20	20
Elevator Constructor Mechanic	20	20	20	20	20
Roofer	10	10	10	10	10
Cement Mason	10	10	10	10	10
Painter and Decorator	10	10	10	10	10
Refrigeration Mechanic	8	8	9	9	9
Drywall Finisher	8	8	8	8	8
Brick Layer	7	7	7	7	7
Commercial Glazier	5	5	5	6	6
Water Pipe Worker	5	5	5	5	5
Heavy Duty Mechanic Repairman	5	5	5	5	5
Boilermaker	4	4	4	4	5
Insulation Applicator	3	3	3	3	4
Tile/Terrazzo/Marble Finisher	3	3	3	3	4
Teamster	3	3	3	3	3
Tilelayer	2	2	2	2	2
Asbestos Worker	2	2	2	2	2
Plasterer	2	2	2	2	2
Marble Setter	1	1	1	1	1
Terrazzo Worker	1	1	1	1	1
Firestop/Containment Worker	1	1	1	1	1
Industrial Millwright	1	1	1	1	1
Carpet/Linoleum/Resilient Tile	1	1	1	1	1
Total	490	490	500	500	510

Sources: Washington State Labor & Industries Department, 2018; Community Attributes Inc., 2018.

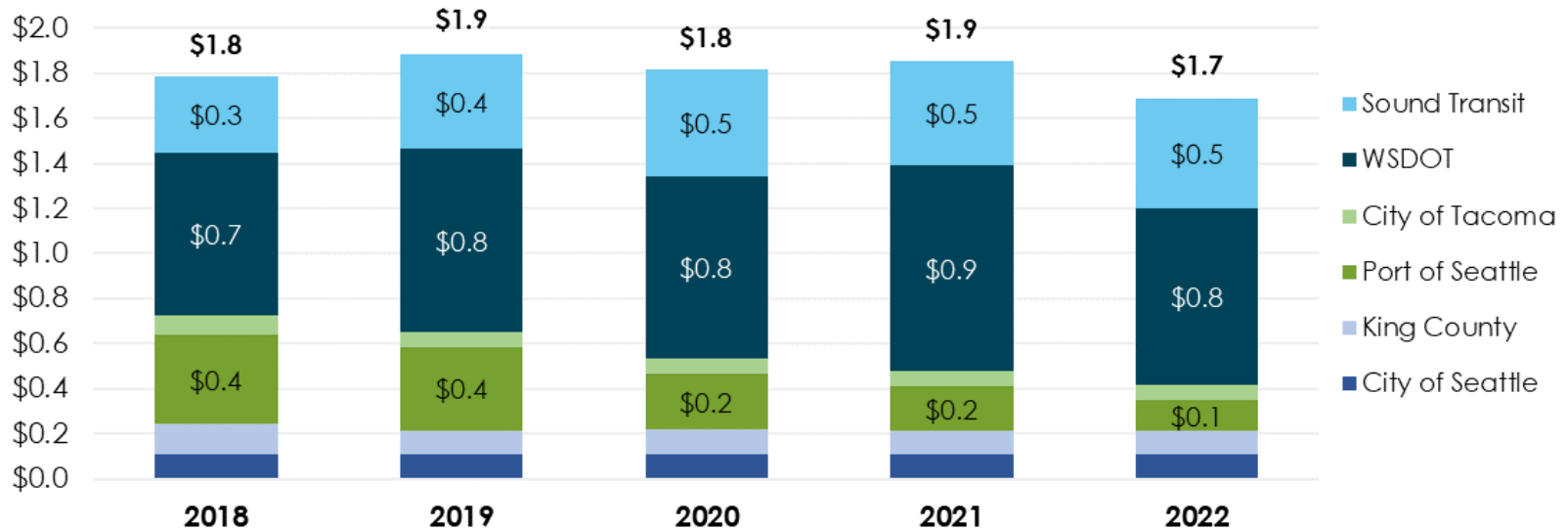
- The table summarizes the short-term forecasts for apprenticeship completions on an annual basis.
- The number of occupations with more than 10 apprentices are rounded to the nearest multiples of 10. The sum total of all occupations may differ slightly with the total number in the table due to rounding.

RPO Construction Supply and Demand

Projected Construction Spending

RPO 2018-2022

Projected RPO Construction Spending by Year, Billions \$

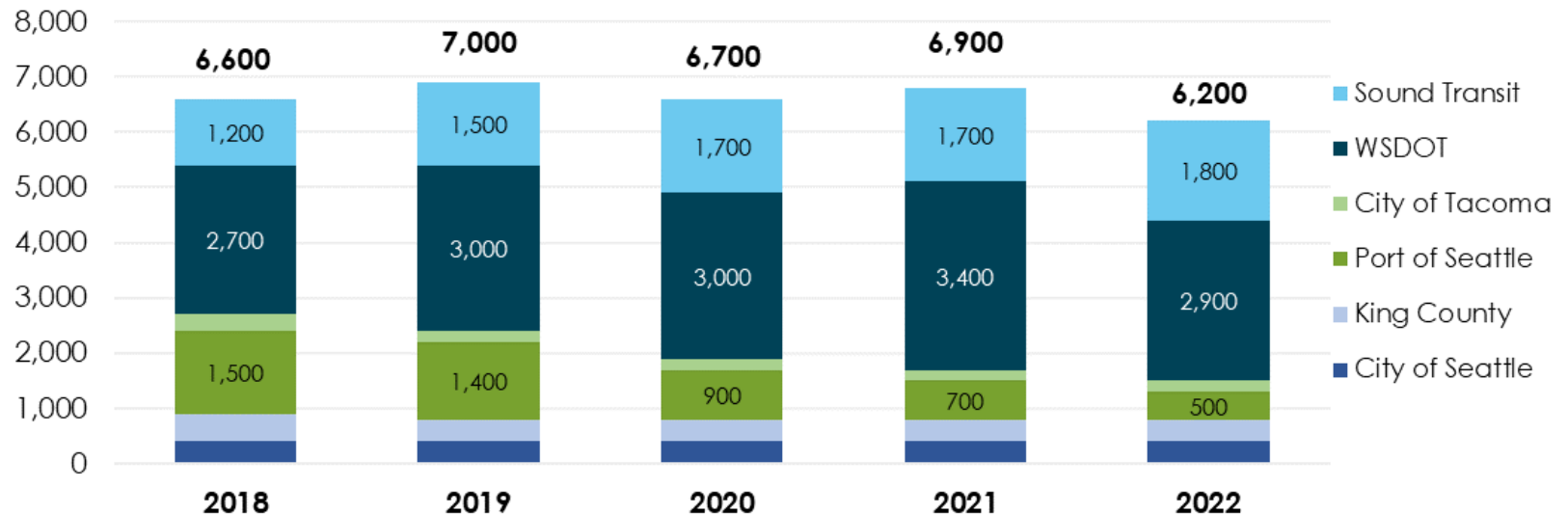


Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

- The RPO members are projected to spend \$1.8 billion on construction projects in 2018. The spending is expected to be comparatively steady through 2022.
- Due to data limitations and RPO projections, there is less certainty on RPO construction expenditures beyond the year 2022. The decrease from 2021 to 2022 may be due to uncertainty in forecasting future construction plans.

Projected Construction Employment Demand, RPO 2018-2022

Projected RPO Construction Employment Demand by Year



Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

- Based on an estimate of \$270,400 in output per worker for Washington state construction workers, RPO construction projects are projected to require 6,600 construction workers in 2018 and average 6,700 workers per year between 2018 to 2022.

Projected Construction Occupational Demand, RPO 2018-2022

RPO Member	2018	2020	2022	CAGR, 2018-2022
City of Seattle	400	400	400	0.0%
King County	500	400	400	-5.4%
Port of Seattle	1,500	900	500	-24.0%
City of Tacoma	300	200	200	-9.6%
WSDOT	2,700	3,000	2,900	1.8%
Sound Transit	1,200	1,700	1,800	10.7%
Total	6,600	6,700	6,200	-1.6%

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

- Estimates for Seattle and Tacoma are modeled estimates. Other RPO member demand projections are based on data provided by staff to CAI for inclusion in analytics, though some further modeling was required in some cases to estimate spending and employment demand per year.
- Combined, WSDOT and Sound Transit constitute on average 68% of all RPO construction demand between 2018 and 2022. In 2018, these two sources will represent 59% of all demand.
- The employment demand from Port of Seattle is expected to decrease to 60% of its 2018 employment demand in 2020. This may be due to the completion of the International Arrivals Fac-IAF project in 2020, which has been a major source of workforce demand.

Projected Construction Occupational Demand, RPO 2018-2022

Top Occupations	2018	2019	2020	2021	2022	2018-2022 Average
Carpenters	1,170	1,230	1,190	1,210	1,100	1,180
Heavy and Tractor-Trailer Truck Drivers	850	890	860	880	800	860
Construction Laborers	840	880	850	870	790	850
Painters, Construction and Maintenance	640	680	660	670	610	650
Electricians	490	520	500	510	460	500
First-Line Supervisors of Construction Trades and Extraction Workers	390	410	390	400	370	390
Construction Managers	380	400	380	390	350	380
Plumbers, Pipefitters, and Steamfitters	330	350	340	350	320	340
Roofers	150	150	150	150	140	150
Operating Engineers and Other Construction Equipment Operators	150	150	150	150	140	150
Drywall and Ceiling Tile Installers	140	150	140	150	130	140
Sheet Metal Workers	120	120	120	120	110	120
Tapers	100	110	110	110	100	100
Construction and Building Inspectors	80	90	80	80	80	80
Tile and Marble Setters	80	90	80	80	80	80
<i>All Other Occupations</i>	<i>690</i>	<i>780</i>	<i>700</i>	<i>780</i>	<i>620</i>	<i>730</i>
Total FTE Demand	6,600	7000	6,700	6900	6,200	6700

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

- The table above summarizes the short-term forecasts for select construction occupations.
(Please see Appendix for the full list of occupational demand.)
- The types of demand by RPO members differs from overall Tri-County industry occupational demand due to the types of projects funded by RPO members.

Projected Construction Occupational Demand, RPO 2018-2022

Occupations	RPO	Regional*	
	Average Annual Demand 2018-2022	Average Annual Demand 2018-2022	Average Annual Gap 2018-2022
Carpenters	1,180	27,000	2,700
Heavy and Tractor-Trailer Truck Drivers	860	19,000	1,900
Construction Laborers	850	18,400	1,800
Painters, Construction and Maintenance	650	14,300	1,500
Electricians	500	10,800	1,000
First-Line Supervisors of Construction Trades and Extraction Workers	390	8,800	800
Construction Managers	380	8,500	600
Plumbers, Pipefitters, and Steamfitters	340	7,500	700
Roofers	150	3,300	300
Operating Engineers and Other Construction Equipment Operators	150	3,300	300
Drywall and Ceiling Tile Installers	140	3,300	300
Sheet Metal Workers	120	2,700	300
Tapers	100	2,400	200
<i>All Other Occupations</i>	890	19,400	2,000
Total FTE	6,700	148,700	14,400

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

* Average Annual Gap data is from 2017 Sound Transit ST3 Occupational Analysis. Estimates represent the region-wide labor market, including the residential and commercial market.

Projected Construction Apprenticeship Demand, RPO 2018-2022, based on 15% utilization rate

Apprentices	2018	2019	2020	2021	2022
Carpenters	180	180	180	180	170
Heavy and Tractor-Trailer Truck Drivers	130	130	130	130	120
Construction Laborers	130	130	130	130	120
Painters, Construction and Maintenance	100	100	100	100	90
Electricians	70	80	70	80	70
First-Line Supervisors of Construction Trades and Extraction Workers	60	60	60	60	50
Construction Managers	60	60	60	60	50
Plumbers, Pipefitters, and Steamfitters	50	50	50	50	50
Roofers	20	20	20	20	20
Operating Engineers and Other Construction Equipment Operators	20	20	20	20	20
Drywall and Ceiling Tile Installers	20	20	20	20	20
Sheet Metal Workers	20	20	20	20	20
Tapers	20	20	20	20	10
Construction and Building Inspectors	10	10	10	10	10
Tile and Marble Setters	10	10	10	10	10
Cement Masons and Concrete Finishers	10	10	10	10	10
<i>All other apprentices</i>	<i>80</i>	<i>120</i>	<i>100</i>	<i>110</i>	<i>100</i>
Total	990	1,040	1,010	1,030	940

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

- The table above summarizes the projection for apprentices required by RPO construction projects using a representative apprentice utilization rate of 15%.

Projected Residence of Construction Workers

City of Seattle, Based on City Priority Hire Zip Code List, 2017 – 2022

ZIP Code	Neighborhood	Tier	2017	2018	2019	2020	2021	2022
98101	Downtown	Tier I	110	120	120	120	120	120
98102	Capitol Hill/Eastlake	Tier I	420	440	450	450	450	460
98104	Downtown/ID	Tier I	120	120	130	130	130	130
98106	Delridge	Tier I	720	740	760	760	770	770
98107	Ballard	Tier I	600	620	630	640	640	650
98108	S. Beacon Hill/South Park	Tier I	650	670	690	700	700	700
98109	Interbay/Queen Anne	Tier I	400	410	420	430	430	430
98118	Rainier Valley/Rainier Beach	Tier I	890	920	940	950	960	960
98121	Belletown	Tier I	250	250	260	260	270	270
98122	Central District	Tier I	540	560	570	580	580	580
98125	Lake City/Northgate	Tier I	720	740	760	770	770	780
98126	Delridge/High Point	Tier I	620	640	660	660	670	670
98133	Bitter Lake/NW Seattle	Tier I	1,240	1,280	1,320	1,330	1,330	1,340
98144	N. Beacon Hill	Tier I	670	690	710	710	720	720
98146	White Center	Tier I	980	1,010	1,040	1,050	1,060	1,060
98178	Rainier Beach/Skyway	Tier I	550	570	580	590	590	590
Sub-Total		Tier I	9,480	9,780	10,040	10,130	10,190	10,230
All City of Seattle Priority Hire Zip Codes			26,250	27,050	27,810	28,000	28,170	28,310
Total Tri-County Construction Supply			125,300	129,000	129,800	130,600	131,400	132,300

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; U.S. Census Bureau, 2018; City of Seattle, 2018; Community Attributes Inc., 2018.

Estimates were based on the distribution of construction workers by zip code of residence in the ACS, and then applied to total construction labor force in the region as a method of allocation.

Projected Residence of Construction Workers

City of Seattle, Based on City Priority Hire Zip Code List, 2017 – 2022 (Continued)

ZIP Code	Neighborhood	Tier	2017	2018	2019	2020	2021	2022
98002	Kent/Auburn	Tier II	1,450	1,500	1,540	1,550	1,560	1,570
98003	Federal Way	Tier II	2,210	2,270	2,340	2,350	2,370	2,380
98007	Bellevue	Tier II	360	370	380	380	380	380
98023	Federal Way	Tier II	2,030	2,090	2,150	2,160	2,180	2,190
98030	East Kent	Tier II	1,010	1,040	1,070	1,080	1,080	1,090
98031	Northwest Kent	Tier II	1,290	1,330	1,370	1,380	1,390	1,400
98032	West Kent	Tier II	1,520	1,570	1,610	1,620	1,630	1,640
98047	Pacific	Tier II	280	290	300	300	300	300
98055	South Renton	Tier II	660	680	700	700	710	710
98056	Northeast Renton	Tier II	1,520	1,560	1,610	1,620	1,630	1,640
98057	Central Renton	Tier II	500	520	530	540	540	540
98148	Burien	Tier II	420	440	450	450	450	460
98168	Boulevard Park/Tukwila	Tier II	1,370	1,400	1,450	1,460	1,460	1,470
98188	SeaTac/Tukwila	Tier II	700	720	740	740	750	750
98198	Des Moines	Tier II	1,450	1,490	1,530	1,540	1,550	1,560
Sub-Total		Tier II	16,770	17,270	17,770	17,870	17,980	18,080
All City of Seattle Priority Hire Zip Codes			26,250	27,050	27,810	28,000	28,170	28,310
Total Tri-County Construction Supply			125,300	129,000	129,800	130,600	131,400	132,300

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; U.S. Census Bureau, 2018; City of Seattle, 2018; Community Attributes Inc., 2018.

- The table above summarizes the projection for the supply of construction workers in selected zip-codes.
- From 2017 to 2022, an annual average of 27,600 construction workers is anticipated to be supplied in all City of Seattle priority hire zip codes region. It reflects 21% of all tri-county regional construction workforce supply.

Projected Residence of Construction Workers

King County, Based on County Priority Hire Zip Code List, 2017 – 2022

ZIP Code	Neighborhood or City	2017	2018	2019	2020	2021	2022
98001	Auburn	1,280	1,320	1,360	1,360	1,370	1,380
98002	Auburn	1,450	1,500	1,540	1,550	1,560	1,570
98003	Federal Way	2,210	2,270	2,340	2,350	2,370	2,380
98007	Bellevue	360	370	380	380	380	380
98023	Federal Way	2,030	2,090	2,150	2,160	2,180	2,190
98030	Kent	1,010	1,040	1,070	1,080	1,080	1,090
98031	Kent	1,290	1,330	1,370	1,380	1,390	1,400
98032	Kent	1,520	1,570	1,610	1,620	1,630	1,640
98036	Lynnwood	1,320	1,360	1,400	1,410	1,420	1,420
98037	Lynnwood	880	910	930	940	950	950
98043	Mountlake Terrace	860	890	910	920	930	930
98047	Pacific	280	290	300	300	300	300
98055	Renton	660	680	700	700	710	710
98057	Renton	500	520	530	540	540	540
98087	Lynnwood	1,180	1,210	1,250	1,260	1,260	1,270
98092	Auburn	2,100	2,160	2,230	2,240	2,250	2,270
98101	Downtown	110	120	120	120	120	120
98102	Capitol Hill/Eastlake	420	440	450	450	450	460
98103	Green Lake	1,170	1,200	1,230	1,240	1,250	1,260
98104	Downtown/ID	120	120	130	130	130	130
98105	Laurelhurst/University District	610	630	640	650	650	660
98106	Delridge	720	740	760	760	770	770
98107	Ballard	600	620	630	640	640	650
98108	S. Beacon Hill/South Park	650	670	690	700	700	700
98109	Queen Anne	400	410	420	430	430	430

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; U.S. Census Bureau, 2018; City of Seattle, 2018; Community Attributes Inc., 2018.

Projected Residence of Construction Workers

King County, Based on County Priority Hire Zip Code List, 2017 – 2022 (Continued)

ZIP Code	Neighborhood or City	2017	2018	2019	2020	2021	2022
98118	Rainier Valley/Rainier Beach	890	920	940	950	960	960
98121	Belltown	250	250	260	260	270	270
98122	Central District	540	560	570	580	580	580
98125	Lake City	720	740	760	770	770	780
98126	Delridge	620	640	660	660	670	670
98133	Bitter Lake	1,240	1,280	1,320	1,330	1,330	1,340
98134	Industrial District	20	20	30	30	30	30
98144	Mount Baker	670	690	710	710	720	720
98146	White Center	980	1,010	1,040	1,050	1,060	1,060
98148	Burien	420	440	450	450	450	460
98168	SeaTac/Tukwila	1,370	1,400	1,450	1,460	1,460	1,470
98178	Rainier Beach	550	570	580	590	590	590
98188	SeaTac/Tukwila	700	720	740	740	750	750
98198	Des Moines	1,450	1,490	1,530	1,540	1,550	1,560
98204	Everett	1,880	1,930	1,990	2,000	2,010	2,030
98208	Everett	2,320	2,380	2,450	2,470	2,480	2,500
98251	Gold Bar	290	300	310	310	310	310
98321	Buckley	830	860	880	890	900	900
All King County Priority Hire Zip Codes		41,487	42,678	43,829	44,120	44,371	44,602
Total Tri-County Construction Supply		125,300	129,000	129,800	130,600	131,400	132,300

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; U.S. Census Bureau, 2018; City of Seattle, 2018; Community Attributes Inc., 2018.

- From 2017 to 2022, an annual average of 43,500 construction workers is anticipated to be supplied in all King County priority hire zip codes region. It reflects 33.5% of all tri-county regional construction workforce supply.

*The King County list of zip codes does not distinguish between tier I and tier II zip codes in this analysis.

Appendix

Appendix

- Modeling Assumptions
- Methodology
- Projected Construction Occupational Demand, RPO 2018-2022
- Projected Construction Apprenticeship Demand, RPO 2018-2022

Appendix

Key Modeling Assumptions

- **Project Completion and Duration**

Given data on total project elements and project duration but not on the scheduled completion of elements, CAI assumed project elements were to be completed continuously for the duration of each project. For example, if a project comprised two underground stations and 3 miles of underground track to be completed in two years, CAI translated this to one station and 1.5 miles of track per year.

- **FTEs**

Translating hours to jobs requires using an annual average of hours. While the federal standard is 2,050 hours per FTE, local employment data represents a headcount of employees, counting both full-time and part-time workers equally. For this reason, CAI assumed one job was equal to 1,500 hours.

- **GBI/FTE ratio for Washington, NAICS Code 2373**

To translate construction spending to FTEs, CAI assumed a GBI/FTE ratio of \$270,400 per FTE for Washington State construction workers for all RPO projects. This ratio is generated from the 2017 Sounds Transit ST3 Occupational Analysis.

- **Construction Spending/CIP ratio (based on Port of Seattle ratio)**

For City of Tacoma, CAI assumed 41.4% of its CIP falls into construction spending, which is based on the Construction Spending/CIP ratio from Port of Seattle.

Appendix

Methodology

METHODOLOGY – RPO EMPLOYMENT DEMAND FORECAST

Developing employment demand forecasts for RPO members relied heavily on Sound Transit ST3 Occupational Analysis. First, by collecting data about future construction projects from RPO members, CAI estimated the annual construction spending for each RPO members, and forecasted the construction spending through 2027 by applying industry growth rate from Conway Pedersen Economics Forecast.

The next key step was to translate the construction spending to FTE demand by using a estimated GBI/FTE ratio for Washington 2373 Worker.

The final step in estimating occupational needs by applying the occupation model that was developed based on Sound Transit ST3 Occupational Analysis for each RPO members.

METHODOLOGY – APPRENTICESHIPS AND EDUCATIONAL COMPLETIONS

The apprenticeship pipeline for each year in the 2018-2022 period represents the 2015-2017 annual average multiplied by the average industry growth rate for the two preceding years. This represents the scenario where programs expand or contract in response to general industry conditions. This methodology was informed by interviews conducted with five construction apprenticeship program representatives.

Appendix

Methodology

METHODOLOGY – RESIDENCE OF CONSTRUCTION WORKERS PROJECTION.

First, the ratios of construction workers in each tri-county zip codes out of the total construction workers in the tri-county region were calculated from 2014, 2015 and 2016 ACS five-year estimates of construction employment. The average of 2014, 2015 and 2016 ratios was used to estimate the construction workforce composition ratio in the tri-county region from 2017 to 2022. In the final step, the construction workforce supply in the tri-county from 2017 to 2022 from the previous analysis was used as control total and was distributed by the estimated ratio.

Projected Construction Occupational Demand, RPO 2018-2022

Occupations	2018	2019	2020	2021	2022	2018-2022 Average
Carpenters	1,170	1,230	1,190	1,210	1,100	1,180
Heavy and Tractor-Trailer Truck Drivers	850	890	860	880	800	860
Construction Laborers	840	880	850	870	790	850
Painters, Construction and Maintenance	640	680	660	670	610	650
Electricians	490	520	500	510	460	500
First-Line Supervisors of Construction Trades and Extraction Workers	390	410	390	400	370	390
Construction Managers	380	400	380	390	350	380
Plumbers, Pipefitters, and Steamfitters	330	350	340	350	320	340
Roofers	150	150	150	150	140	150
Operating Engineers and Other Construction Equipment Operators	150	150	150	150	140	150
Drywall and Ceiling Tile Installers	140	150	140	150	130	140
Sheet Metal Workers	120	120	120	120	110	120
Tapers	100	110	110	110	100	100
Construction and Building Inspectors	80	90	80	80	80	80
Tile and Marble Setters	80	90	80	80	80	80
Cement Masons and Concrete Finishers	70	70	70	70	60	70
Glaziers	50	60	50	50	50	50
Pipelayers	50	50	50	50	40	50
Reinforcing Iron and Rebar Workers	40	40	40	40	40	40
Structural Iron and Steel Workers	40	40	40	40	40	40
Helpers--Carpenters	40	40	40	40	30	40
Floor Sanders and Finishers	30	40	30	40	30	30
Highway Maintenance Workers	30	30	30	30	30	30
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	30	30	30	30	30	30
Stonemasons	30	30	30	30	20	30
Carpet Installers	20	30	30	30	20	30

Projected Construction Occupational Demand, RPO 2018-2022 (Continued)

Occupations	2018	2019	2020	2021	2022	2018-2022 Average
Brickmasons and Blockmasons	20	20	20	20	20	20
Hazardous Materials Removal Workers	20	20	20	20	20	20
Elevator Installers and Repairers	20	20	20	20	20	20
Insulation Workers, Mechanical	20	20	20	20	20	20
Paving, Surfacing, and Tamping Equipment Operators	20	20	20	20	20	20
Septic Tank Servicers and Sewer Pipe Cleaners	20	20	20	20	20	20
Insulation Workers, Floor, Ceiling, and Wall	20	20	20	20	20	20
Fence Erectors	20	20	20	20	20	20
Helpers--Electricians	20	20	20	20	10	20
Floor Layers, Except Carpet, Wood, and Hard Tiles	20	20	20	20	10	20
Segmental Pavers	10	10	10	10	10	10
Plasterers and Stucco Masons	10	10	10	10	10	10
Terrazzo Workers and Finishers	10	10	10	10	10	10
Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	10	10	10	10	10	10
Construction and Related Workers, All Other	10	10	10	10	10	10
<i>All Other Occupations</i>	10	70	10	80	0	40
Total FTE Demand	6,600	7,000	6,700	6,900	6,200	6,700

Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

Projected Construction Apprenticeship Demand, RPO 2018-2022

Apprentices	2018	2019	2020	2021	2022
Carpenters	180	180	180	180	170
Heavy and Tractor-Trailer Truck Drivers	130	130	130	130	120
Construction Laborers	130	130	130	130	120
Painters, Construction and Maintenance	100	100	100	100	90
Electricians	70	80	70	80	70
First-Line Supervisors of Construction Trades and Extraction Workers	60	60	60	60	50
Construction Managers	60	60	60	60	50
Plumbers, Pipefitters, and Steamfitters	50	50	50	50	50
Roofers	20	20	20	20	20
Operating Engineers and Other Construction Equipment Operators	20	20	20	20	20
Drywall and Ceiling Tile Installers	20	20	20	20	20
Sheet Metal Workers	20	20	20	20	20
Tapers	20	20	20	20	10
Construction and Building Inspectors	10	10	10	10	10
Tile and Marble Setters	10	10	10	10	10
Cement Masons and Concrete Finishers	10	10	10	10	10
Glaziers	8	8	8	8	7
Pipelayers	7	7	7	7	6
Reinforcing Iron and Rebar Workers	6	6	6	6	6
Structural Iron and Steel Workers	6	6	6	6	6
Helpers--Carpenters	5	6	6	6	5
Floor Sanders and Finishers	5	5	5	5	5
Highway Maintenance Workers	5	5	5	5	4

Projected Construction Apprenticeship Demand, RPO 2018-2022 (Continued)

Apprentices	2018	2019	2020	2021	2022
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	4	4	4	4	4
Stonemasons	4	4	4	4	4
Carpet Installers	4	4	4	4	4
Brickmasons and Blockmasons	4	4	4	4	3
Hazardous Materials Removal Workers	3	3	3	3	3
Elevator Installers and Repairers	3	3	3	3	3
Insulation Workers, Mechanical	3	3	3	3	3
Paving, Surfacing, and Tamping Equipment Operators	3	3	3	3	3
Septic Tank Servicers and Sewer Pipe Cleaners	3	3	3	3	2
Insulation Workers, Floor, Ceiling, and Wall	2	3	2	3	2
Fence Erectors	2	3	2	3	2
Helpers--Electricians	2	2	2	2	2
Floor Layers, Except Carpet, Wood, and Hard Tiles	2	2	2	2	2
Segmental Pavers	2	2	2	2	2
Plasterers and Stucco Masons	2	2	2	2	2
Terrazzo Workers and Finishers	2	2	2	2	2
Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	2	2	2	2	1
Construction and Related Workers, All Other	1	2	1	2	1
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Mar	1	1	1	1	1
Boilermakers	1	1	1	1	1
Earth Drillers, Except Oil and Gas	1	1	1	1	1
Rail-Track Laying and Maintenance Equipment Operators	1	1	1	1	1
Total	990	1,040	1,010	1,030	940

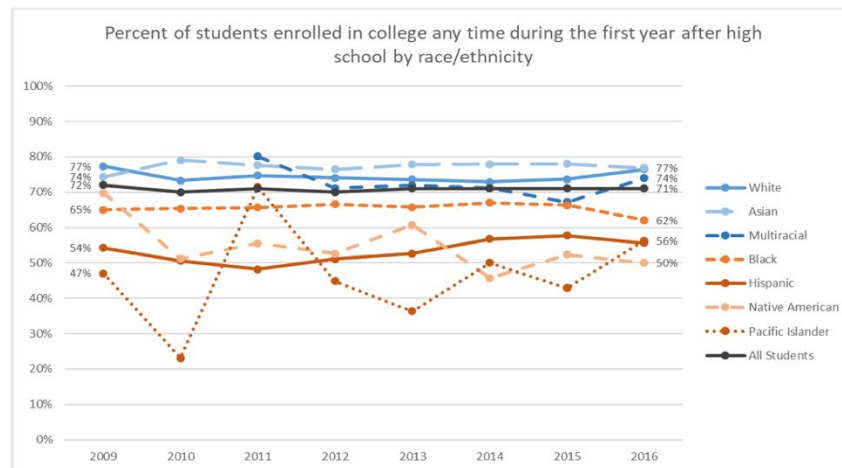
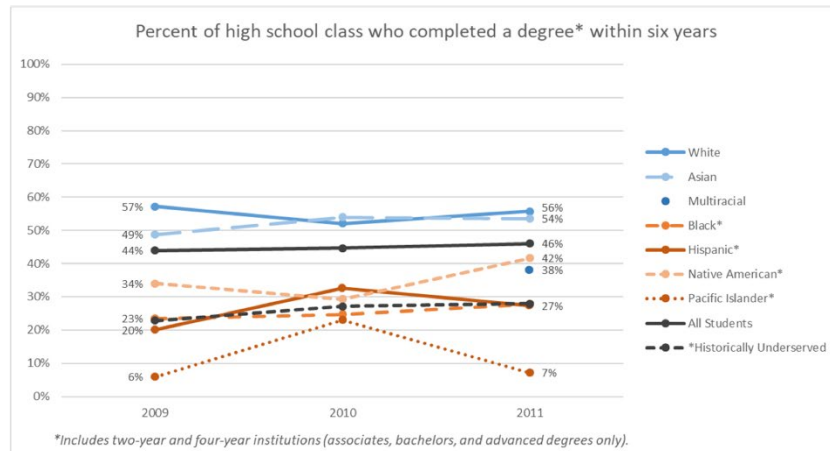
Sources: Conway Pederson Economics, 2017; Puget Sound Regional Council, 2017; Washington State Employment Security Department, 2016; King County Finance & Business Operations Division, 2017; Port of Seattle, 2017; Washington State Department of Transportation, 2017; Sound Transit, 2017; Community Attributes Inc., 2018.

APPENDIX 16

WEBSTER SUBCONTRACTOR BIDDING			
Updated 11/1/19		BID DATE	# OF BIDDERS
02.40	Demo & Abatement	01/08/19	4
14.20	Elevator	01/10/19	1
22.00	Electrical	01/10/19	1
21.00	Fire Protection	01/17/19	2
26.00	Mech & Plumbing	01/17/19	2
31.00	Civil & Site Conc	01/29/19	2
04.21	Masonry	01/31/19	3
09.01	GWB Assemblies	02/07/19	1
09.50	Acoustical Assemblies	02/14/19	1
09.60	Floor Coverings	02/21/19	2
09.68	Carpet	02/21/19	2
08.41	Windows, Glass, & Glazing	02/26/19	1
07.50	Roofing, Sheet Metal, & WRB	02/27/19	0
03.00	Structures	02/28/19	1
06.40	Arch Casework	02/28/19	1
08.10	Doors, Frames, & Hardware	02/28/19	0
09.90	Painting & Coatings	02/28/19	2
11.00	Food Service Equipment	03/07/19	2
32.90	Irrigation & Landscaping	03/07/19	2
26.00	Electrical - RE-BID	03/14/19	4
06.40	Arch Casework - RE-BID	03/19/19	2
07.51	Roofing & Flashings - RE-BID	03/26/19	5
07.52	Siding & Flashings - RE-RE-BID	04/04/19	2
31.00	Civil & Site Conc - RE-BID	04/02/19	4
08.10	Doors & Hardware - RE-BID	07/02/19	1
08.42	Storefront & Glazing - RE-BID	04/04/19	2
08.43	Polycarbonate - RE-BID	04/04/19	2
08.44	Wood Windows - RE-BID	04/04/19	1
09.62	Floor Coverings - RE-BID	04/04/19	4
09.64	Wood Flooring - RE-BID	04/04/19	2
09.90	Painting & Coatings - RE-BID	04/04/19	5
		AVG	2

APPENDIX 17

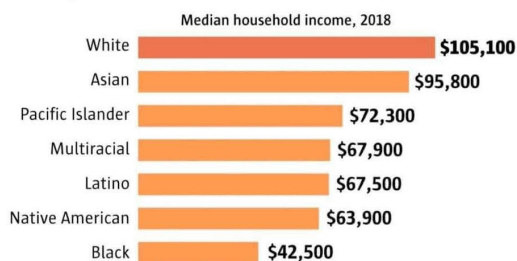
Outcomes of current SPS students. Source: SPS.



Incomes and unemployment in student and community homes vary significantly by race, with particularly poor results for African-American (black) families in the SPS boundaries. Census, 2018.

Seattle income by race

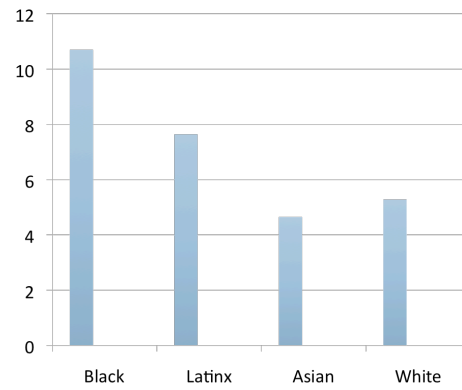
White households have the highest median income in Seattle, and more than double that of black households.



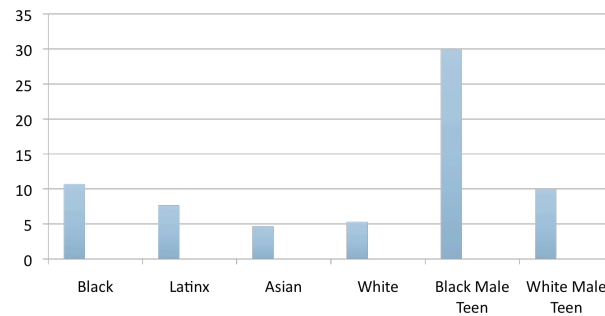
Source: U.S. Census

JAMES ABUNDIS / THE SEATTLE TIMES

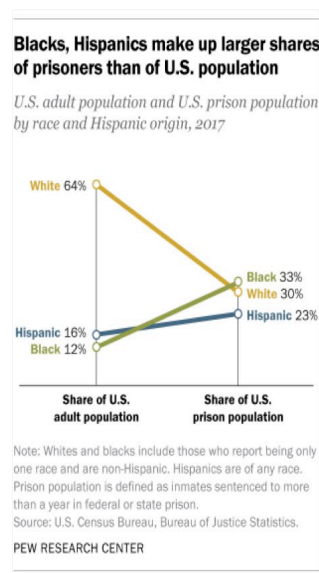
Unemployment Rates, Seattle Average, BLS Labor Statistics, 2019



Unemployment Rates, National Average, Black Teens. BLS Labor Statistics, 2019



Incarceration Rates, National Average, US Census Bureau, 2017, Pew Research



APPENDIX 18

References for Black Male Teen unemployment barriers

Compiled by Nancy Locke

There are several reasons that black teen joblessness remains well above the broader 12.8 percent teenage unemployment rate. Blacks still face discrimination and often lack a network of contacts who can provide job referrals, says Heidi Schierholz, economist at the left-leaning Economic Policy Institute. They also may live in lower-income neighborhoods that don't have good access to transportation to job sites, she says. Some have been "raised in environments of trauma, which has significant effects," says Willa Seldon, a partner in the Bridgespan Group, a nonprofit that fights poverty. And while a disproportionate share of black teenagers may lack college or even high school degrees, "Studies show that these teens have the skills but not the credentials," says Seldon. "More employers have begun hiring these youth and have found them to be great employees with higher retention."

<https://www.usatoday.com/story/money/2018/10/05/jobs-report-black-teen-unemployment-lowest-record/1536572002/>

Also see:

https://www.realclearpolicy.com/blog/2016/09/02/the_jobless_rate_for_young_black_men_is_a_national_disgrace.html

From: Chris Reykdal <Chris.Reykdal@k12.wa.us>
Sent: Wednesday, December 12, 2018 11:16
Subject: Using Community Workforce Agreements for Capital Projects

APPENDIX 19

Superintendents, WSSDA leadership, and school board members,

I hope your holiday season is off to a great start. The OSPI team wishes each of you rest, relaxation, and family time over the coming weeks.

I'm writing today to share an important opportunity with you as you contemplate future capital projects. Please share this message broadly to local directors. Not a week goes by that I don't get an email or call with concerns that one of our K-12 capital projects is experiencing tension due to a lack of understanding about prevailing wage, apprenticeship utilization, and/or other statutory requirements. There may be conversations in the Legislature this year to build training capacity for school board members before they seek voter approval and before they select contractors for capital projects.

I think one of the most powerful tools to address these concerns, retain local dollars in the community, and ensure some of our students are able to work toward careers in the trades is through the use of Community Workforce Agreements (CWAs) by local school districts.

In 2011, Cornell University conducted a [study where the researchers reviewed 185 Project Labor Agreements](#) (PLAs) nationwide. PLAs are similar to Community Workforce Agreements. The study concluded that PLAs "provide value for government and corporate purchasers of construction services – getting the best work for the money with far greater likelihood of on-time, on-budget performance." It appears from the research that these practices yield higher on-time and on-budget projects, with a higher level of local workers being utilized.

PLAs and CWAs also provide the ability to include our current students in the projects. Agreements can be structured to partner with schools to provide training to local students in the various construction trades, supplementing their normal curriculum. They can then provide an avenue for those students to directly enter into apprenticeship programs in the area and across the state.

Nothing in RCW 28A.335.190 or RCW 39.04 precludes a school district from using a CWA. No provision in any Washington statute or in the Washington Administrative Code prohibits their use. In fact, relevant RCWs provide school districts with broad authority in contracting out construction work.

RCW 28A.335.190 requires school districts to advertise for bids and utilize competitive bid procedures for construction work performed over a threshold dollar amount, and to use the criteria listed in RCW 39.26.160. Under RCW 39.26.160(f), criteria other than those specifically listed may be used by a school district in determining who constitutes the lowest responsible bidder before awarding work.

In addition, under RCW 39.04.350, a government entity "may adopt relevant supplemental criteria for determining bidder responsibility applicable to a particular project which the bidder must meet." Taken together, these statutes grant school districts the authority to use additional criteria, such as a contractor's willingness to sign onto a CWA. Several governor executive orders have also affirmed the state's interest in CWAs.

I would also note that many school districts throughout the country have used CWAs and/or PLAs. The list includes Detroit Public Schools, New Jersey Schools Development Authority, NYC School Construction Authority, Buffalo Schools Construction Board, Akron School Board, LA County Schools, San Diego Unified School District Board of Education, and San Francisco Unified School District.

I believe CWAs can provide exceptional value to our local school districts, both in direct costs and in indirect benefits such as training our local community members and students. Furthermore, I believe they are lawful to implement, and strongly encourage their use throughout our state. As you consider future capital projects, please spend some time between leadership teams and boards to understand CWAs and the opportunity they may provide your community.

Chris Reykdal
State Superintendent
360-790-3151

APPENDIX 20

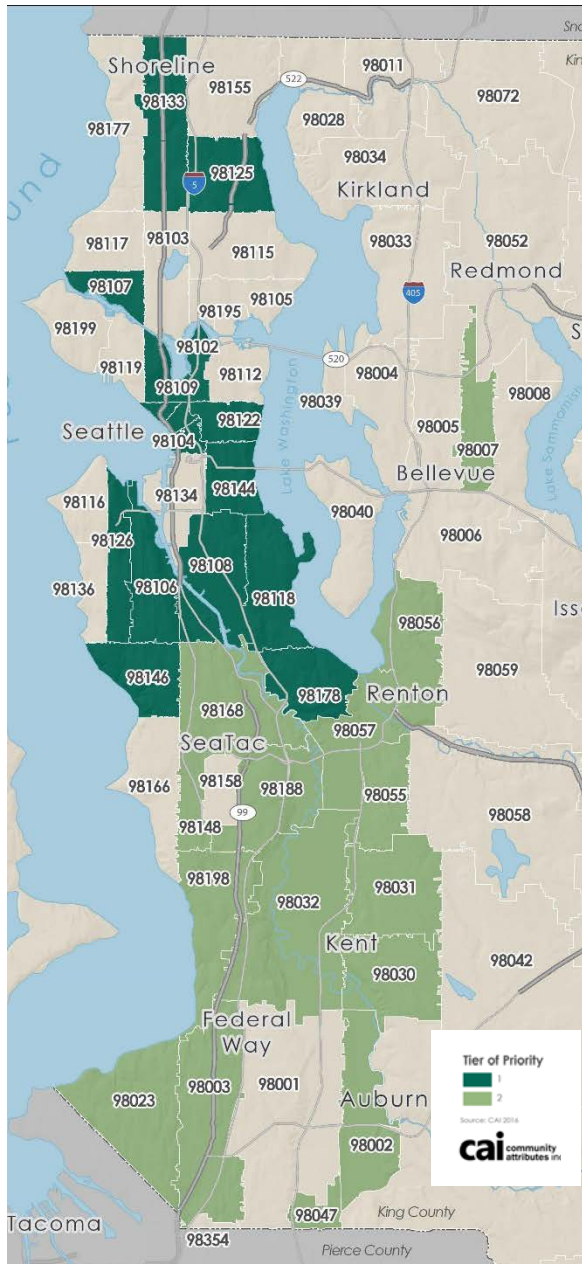


PRIORITY HIRE in the CITY of SEATTLE and KING COUNTY

Economically distressed ZIP codes in Seattle and King County are based on several indicators:

1. People living under 200% of the federal poverty line.
2. Unemployment rate.
3. Those over 25 without a college degree.

Priority Hire Economically Distressed ZIP Codes



Tier 1	Seattle Neighborhood	ZIP Code
Tier 1	Downtown	98101
Tier 1	Capitol Hill/Eastlake	98102
Tier 1	Downtown/ID	98104
Tier 1	Delridge	98106
Tier 1	Ballard	98107
Tier 1	S. Beacon Hill/South Park	98108
Tier 1	Interbay/Queen Anne	98109
Tier 1	Rainier Valley/Rainier Beach	98118
Tier 1	Belletown	98121
Tier 1	Central District	98122
Tier 1	Lake City/Northgate	98125
Tier 1	Delridge/High Point	98126
Tier 1	Bitter Lake/NW Seattle	98133
Tier 1	N. Beacon Hill	98144
Tier 1	White Center	98146
Tier 1	Rainier Beach/Skyway	98178
Tier 2	King County Neighborhood	ZIP Code
Tier 2	Kent/Auburn	98002
Tier 2	Federal Way	98003
Tier 2	Bellevue	98007
Tier 2	Federal Way	98023
Tier 2	East Kent	98030
Tier 2	Northeast Kent	98031
Tier 2	West Kent	98032
Tier 2	Pacific	98047
Tier 2	South Renton	98055
Tier 2	Northeast Renton	98056
Tier 2	Central Renton	98057
Tier 2	Burien	98148
Tier 2	Boulevard Park/Tukwila	98168
Tier 2	SeaTac/Tukwila	98188
Tier 2	Des Moines	98198

Source: Community Attributes Inc., Priority ZIP Codes, 2016.

Updated January 2017

Department of Finance and Administrative Services
700 Fifth Avenue, 41st Floor

Tel (206) 684-0444
LaborEquity@seattle.gov



America is facing an unprecedented skilled labor shortage. According to the Department of Labor, the US economy had [7.6 million unfilled jobs, but only 6.5 million people were looking for work](#) as of January 2019 and it is more apparent than ever that our country is suffering because of it.

Take our infrastructure for instance. Roads, highways, bridges, locks, dams, harbors, water systems, and airports have been neglected or only marginally repaired in the last twenty years. Each year the cost to fix or replace the crumbling systems soars, with estimates now in the multi trillions of dollars. And that's just to fix what's already there and falling apart.

The President has called for at least \$1.5 trillion for infrastructure construction, fueled with government spending including public private partnerships and cutting red tape. Congress has appropriated some spending and promises to spend more. If they get this done, the impact on skilled labor jobs will be massive.

Aside from federal infrastructure spending, projected job growth in many building trades continues to be positive. The Bureau of Labor Statistics [projects better than average employment in the building trades at least through 2026](#). The only problem is, there simply may not be enough workers to employ.

This issue is partly due to our culture's emphasis on going to college. Many high schools look to their university placement as the best judge of a quality education. That statistic discriminates against students for whom college is just not a good fit, especially when schools do little to inform students of non-collegiate options. It is unfortunate for those students who try college, but eventually drop out, feeling like a failure, when in fact, it wasn't the right place for them from the start.

Recognizing high tuition costs, long term student loan debt, and difficulties finding a job in the field of their college major should be motivating young men and women to look at better paying alternatives from the onset. Many are already skilled at working with their hands, and prefer jobs where they can move around rather than sitting at a desk all day. High school career counselors would be doing students a big favor by informing them about the benefits of getting into technical trades. Parents who best understand their son or daughter's interests may also do well to encourage career options aside from immediately attending college. It's time we reduce the stigma around technical training. Skilled labor is not a fallback position, but a genuine positive career choice.

While speaking recently with a group of high school seniors, most raised their hands when asked who is planning to go to college. A young woman in the class bucked the trend and said she was going into carpentry, hoping to eventually become a construction manager. She will either attend a private career education school at a cost of a few thousand dollars (often covered with available scholarships) or join a labor union where her education is paid for by private employers.

She had obviously thought this through. A union carpenter, she said, serves as an apprentice for four years, while earning a paycheck and attending classes. Her starting pay would be above \$40,000, and increase every 1,000 hours

worked with health care and retirement benefits. Long term, her plan is to work for five years, save some money, get additional training as a foreman, take college courses and eventually become a project manager. Though it's the opposite track of the student who attends college first, then gets a job, she will be bringing a treasure trove of experience to the university classroom when she does attend and I have no doubt she will be very successful.

Many other areas of building trades continue to see considerable growth. Joelle Salerno, the Government Affairs director for National Electrical Contractors Association of Western PA said the nationwide market demand for skilled electricians will remain high. Currently, there are 16,000 job openings for electricians with more anticipated as many current electricians are near retirement age. Future jobs growth in the electrical field will be with energy efficiency, power over ethernet, and retrofitting buildings.

"We've drilled into children's heads 'college, college, college' all their life, and we need to get to students earlier to let them know of these career options," said Salerno. She noted that at some International Brotherhood of Electrical Workers training centers a student will earn an associate degree, all the while receiving a paycheck.

Luckily, Congress is already working to address this issue. U.S. Representatives Anthony Gonzalez (R-OH) and Cedric Richmond (D-LA) [recently introduced H.R. 3497, the Jumpstart Our Businesses By Supporting Students \(JOBS\) Act](#). This bill expands federal educational grant eligibility to technical school training, incentivizing students to pursue opportunities other than the traditional four year degree.

With tens of thousands of current job openings and hundreds of thousands anticipated over the coming year, my question is this: why aren't we telling more of our kids about these options for their future? A smart, dedicated, young man or woman develops a lot of life skills on the job. Technical careers demand the same level of leadership, collaborative teamwork, productivity, and problem solving in an equally complex and challenging environment as any other employment opportunity.

Rewarding career? Yes. Hard work? Yes. Good pay? Yes. Long term opportunity? Absolutely. Sounds like the American dream to me.

Author: Sarah Chamberlin

APPENDIX 22

SPS PROJECT LIST

Implementation Plan, Richard Best, original dated Nov. 12, 2019.
Updated with corrections for Aki, Asa, Lincoln and Rainier Beach High by Nancy Locke, May 19, 2020.
Chart with final confirmation by Richard Best on June 11, 2020.

Funding	Project	Schedule	Procurement Method/ Projected Selection or Bid Dates	Total Project Cost	Estimated Construction (Cost as share of total project budget). SPS uses 66-68% to convert total cost into construction cost, re: Richard Best + Bagley
BEX V	Aki Kurose Middle School	Planning begins: Spring 2021		\$8,000,000	
BEX V	Alki Elementary School	School Replacement Planning starts: Winter 2021 GC/CM Selection: Fall 2021 MC/CM Selection: Spring 2022 Construction starts: Summer 2023 School opens: Fall 2025	GC/CM RFQ goes out Fall 2021	\$66,856,808	\$43,456,925
BEX V	Asa Mercer International Middle School	School Replacement Planning starts: Winter 2021 GC/CM Selection: Spring 2020 MC/CM and EC/CM Selection: Fall 2020 Construction starts: Summer 2023 School opens: Fall 2025	Merged with Van Asselt. GC/CM selection under way. Addendum noting potential SCWA issued.	\$152,542,598	\$99,152,688
Distressed Schools Grant	Coe Elementary School	Six Classroom Addition Planning starts: Spring 2018 Design/Bid/Build: Spring 2020 Construction starts: Summer 2020 School opens: Fall 2021	Bids due: June 10, 2020	\$7,900,000	\$5,135,000
BEX IV	Daniel Bagley Elementary School	School Replacement Planning starts: Winter 2016 Construction starts: Summer 2019 School opens: Summer 2020	Work under way	40,344,411	26,223,867

BEX V	Fort Lawton- Discovery Fields	Two New Playfields and Asphalt Parking Lot Planning starts: Spring 2021 Design/Bid/Build Spring 2022 Construction starts: Summer 2022 Fields opens: Fall 2024	2022	\$8,762,490	\$5,695,618
BEX V	John Rogers Elementary School	School Replacement Planning starts: Winter 2021 Design/Bid/Build: Spring 2023 Construction starts: Summer 2023 School opens: Fall 2025	2023	\$91,537,404	\$59,499,312
BEX V	Kimball Elementary School	School Replacement Planning begins: Summer 2019 Construction starts: Summer 2021 Design/Bid/Build: Spring 2021 School opens: Fall 2023	2021	\$84,563,883	\$54,966,524
BEX V	Lincoln High School	Seismic Upgrades Planning begins: Summer 2019 GC/CM Selection: Spring 2020 Construction starts: Summer 2021 School opens: Fall 2022	RFQ for GC/CM selection on the street. Responses due June 12. Addendum noting potential SCWA issued.	\$25,968,384	\$16,879,449
Distressed Schools Grant	Madison Middle School	Eight Classroom Addition Planning begins: Spring 2020 Design/Bid/Build: Spring 2021 Construction starts: Summer 2021 School opens: Fall 2022	2021	\$10,500,000	\$6,825,000
BEX V	Montlake Elementary School	School Modernization and Addition Planning starts: Winter 2021 GC/CM Selection Fall 2021 MC/CM Selection Spring 2022 Construction starts: Summer 2023 School opens: Fall 2025	GC/CM 2021	\$64,821,447	\$42,133,940
BEX V	Nathan Eckstein Middle School	Exterior Cladding and Window Repairs Design/Bid/Build Planning starts: Spring 2021 Construction starts: Summer 2022	Bids 2022	\$23,039,816	\$14,975,880

		Construction Completes: Summer 2023			
BEX V	Northgate Elementary School	School Replacement Planning begins: Summer 2019 GC/CM Selection Fall 2019 MC/CM and EC/CM Selection: Spring 2021 Construction starts: Summer 2021 School opens: Fall 2023	GC/CM Selection complete.	\$90,272,294	\$58,676,991
BEX V	Rainier Beach High School	School Replacement Planning begins: Summer 2019 GC/CM Selection Spring 2020 MC/CM and EC/CM Selection Fall 2020 Construction starts: Summer 2022 School opens: Fall 2025	RFQ for GC/CM on street, due June 2. Addendum noting potential SCWA issued.	\$238,150,426	\$154,797,777
BEX V design	Sacajawea Elementary School	Planning Only: Planning begins: Spring 2021	Design Only	\$4,644,829	
BEX V	Van Asselt Elementary School	School Replacement GC/CM Selection: Spring 2020 MC/CM and EC/CM Selection: Fall 2020	GC/CM RFQ process closed March 5. Addendum adding SCWA issued.	\$44,129,280	\$28,684,032
BEX V	Viewlands Elementary School	School Replacement Planning begins: Summer 2019 Design/Bid/Build Spring 2021 Construction starts: Summer 2021 School opens: Fall 2023	2021	\$88,094,475	\$57,261,408
BTA IV	Webster School	School Replacement Planning starts: Winter 2016 Construction starts: Summer 2019 School opens: Fall 2020	Work under way	\$39,837,094	\$25,894,111
BEX V	West Seattle High School	Roof Replacement Purchasing Cooperative	Ineligible due to contract mechanism	\$9,341,998	\$6,072,298
BEX V; K-3 CSR	West Seattle Elementary School	Twelve Classroom Addition Planning begins: Spring 2019 Design/Bid/Build Spring 2021 Construction starts: Summer 2021	2021	\$28,162,175	\$18,305,413

		School opens: Fall 2022			
BEX V; Distressed Schools Grant; K-3 CSR	West Woodlands Elementary School	12-classroom and Gymnasium Addition Planning begins: Fall 2018 Design/Bid/Build Spring 2020 Construction starts: Summer 2020 School opens: Fall 2021	Bids due: May 19, 2020. Hard bid.	\$19,665,600	\$12,782,640
BEX IV	Wing Luke Elementary School	School Replacement Planning begins: Winter 2016 Construction starts: Summer 2018 School opens: Fall 2020	Work under way	\$47,513,684	\$30,883,849
TOTAL			\$1,194,649,096		\$776,521,912

Below are projects with estimated construction cost less than \$5,000,000

Funding	Project	Schedule	Procurement Method/ Projected Selection or Bid Dates	Total Project Cost	Estimated Construction Cost (as share of total project budget)
BTA III	Adams Elementary School	Fire suppression system install	Design/Bid/Build	\$625,806	406,773
BEX V	Jane Addams Middle School	Site Improvements, Playground, Seismic Improvements, Field Lights, Ceiling Fans	Design/Bid/Build Multiple bid packages, in addition work will be performed by SPS personnel	\$11,093,972	\$7,211,081
BEX V	African American Academy	Roof Replacement Construction Complete Summer 2020	Purchasing Cooperative	\$7,508,761	\$4,880,694
BEX V	Bailey Gatzert School	Electrical System Upgrades	Design/Bid/Build	\$1,882,225	\$1,223,446
BEX V	Ballard High School	Field Lighting	Purchasing Cooperative	\$2,052,518	\$1,334,136
BEX IV	Beacon Hill Elementary School	Seismic Improvements Construction Complete: Summer 2020	Design/Bid/Build		
BEX V	Beacon Hill Elementary School	Minor system upgrades; Ceiling fans; Playground improvements; Safety and security; Sound attenuation	Design/Bid/Build Multiple bid packages, Work performed by SPS personnel	\$893,999	\$581,099
BEX V	Catherine Blaine K-8 School	Ceiling fans; electric improvements; exterior doors; playground; safety and security	Design/Bid/Build Design/Bid/Build Multiple bid packages, Work performed by SPS personnel	\$7,999,811	\$5,199,877
BEX IV	Catherine Blaine K-8 School	Seismic Improvements Construction Complete: Summer 2019	Design/Bid/Build		

BEX IV	Broadview-Thomson K-8 School	Seismic Improvements Construction started: Summer 2019 Construction Complete: Summer 2020	Design/Bid/Build		
BEX V	Bryant Elementary School	Exterior windows, Safety	Design/Bid/Build	\$3,465,020	\$2,252,263
BEX V	B.F. Day Elementary School	Window replacements	Design/Bid/Build	\$2,846,779	\$1,850,406
BEX IV	Cascadia Elementary School	Safety	Work performed by SPS personnel		
Distressed School Grant	Cedar Park Elementary School	Restroom addition	Design/Bid/Build	586,000	\$380,900
BEX V	Cedar Park Elementary School	Safety	Work performed by SPS personnel		
BEX V	Center School	Safety	Work performed by SPS personnel		
BEX V	Chief Sealth	Security Gates	Design/Bid/Build	\$156,060	\$101,439
BEX V	Cleveland STEM High School	Safety	Work performed by SPS personnel		
BEX V	Coe Elementary School	Safety	Work performed by SPS personnel		
BEX V	Columbia Annex	Seismic + Fire Alarm	Design/Bid/Build	\$88,428 \$42,783	\$57,478 \$27,808
BEX V	Columbia Service School	Seismic, ceiling fans	Design/Bid/Build	\$828,152	\$538,298
BEX V	Concord Elementary School	AV, Safety, Tech enhancements	Design/Bid/Build		

BEX V	Dearborn Park Elementary School	Playground, sound	Purchasing Cooperative, Design/Bid/Build	\$461,272	\$299,826
BEX V	Decatur Elementary School	Playground, sound, safety	Purchasing Cooperative, Work performed by SPS personnel		
BEX V	Denny International Middle School	AV systems, safety, tech	Work performed by SPS personnel		
BEX V	Dunlap Elementary School	Playground Upgrades	Purchasing Cooperative	\$182,070	\$118,345
BEX V	Robert Eagle Staff Middle School	Safety, improvements to exterior doors, windows, cladding, ceiling fans	Work performed by SPS personnel, Design/Bid/Build		
BEX IV	Eckstein Middle School	Sunshades, Seismic Improvements, Phase II BEX IV IN CONSTRUCTION	Design/Bid/Build	\$15,334,871	\$9,967,666
BEX V	Emerson Elementary School	AV, safety, technology enhancements	Work performed by SPS personnel		
BEX V	Fairmount Park Elementary School	Window repairs and safety	Work performed by SPS personnel		
BEX IV	Franklin High School	Door and window replacements, Phase I Construction Complete: Summer 2020	Design/Bid/Build	\$8,826,114	\$5,736,974
BEX V	Franklin High School	Roof Replacement	Design/Bid/Build	\$3,439,171	\$2,235,461
	Franklin High School	Field lights	Purchasing Cooperative		
BEX V	Franklin High School	Fire System	Work performed by SPS personnel	\$1,566,613	\$1,018,298
BTA IV	Garfield High School	Track and Field Construction Complete: Fall 2019	Design/Bid/Build		
BEX V	Garfield High School	Exterior Cladding	Design/Bid/Build	\$555,776	\$361,254

BEX V	Gatewood School	Playground and Doors	Purchasing Cooperative; Work performed by SPS personnel	\$325,000	\$211,250
BEX V	Bailey Gatzert Elementary School	AV, electrical, safety, technology	Work performed by SPS personnel, Design/Bid/Build		
BEX V	Genesee Hill Elementary School	Safety	Work performed by SPS personnel		
BEX V	Graham Hill School	Safety	Work performed by SPS personnel		
BEX V	Graham Hill School	playground	Purchasing Cooperative	\$295,000	
BEX V	Green Lake Elementary School	Playground, Door, Electrical, Sound	Purchasing Cooperative, Design/Bid/Build	\$4,129,408	\$2,684,115
BEX V	Greenwood Elementary School	Safety	Work performed by SPS personnel		
BEX V	Hale, Nathan	safety	Work performed by SPS personnel		
BEX V	Hamilton International	Safety	Work performed by SPS personnel		
BEX V	Hawthorne School	Playground	Purchasing Cooperative	\$182,070	\$118,345
BEX V	Hay, John Elementary School	Playground, safety	Purchasing Cooperative, Work performed by SPS personnel		
BEX V	Highland Park	Safety, technology	Work performed by SPS personnel		
BEX V	Ingraham High School	Electrical System	Design/Bid/Build	\$6,872,128	\$4,466,883
BEX V	Jane Addams Middle School	Field Improvements Construction Complete: Summer 2020	Design/Bid/Build	\$2,283,000	
BEX V	Jane Addams Middle School	Seismic Improvements	Design/Bid/Build	\$5,402,367	

BEX V	Jane Addams Middle School	Asphalt Repairs	Design/Bid/Build	\$52,020 \$925,012	
BEX V	Jane Addams Middle School	Playground Demolition, Ceiling Fans	Design/Bid/Build	\$977,732	
BEX V	James Madison Intermediate School	Field Replacement	Design/Bid/Build	\$2,705,040	\$1,758,276
BEX	James Monroe Intermediate	Ceiling Fans	Design/Bid/Build	\$495,131	\$321,835
BEX V	John Hay Elementary School	Playground	Purchasing Cooperative	\$189,353	\$123,079
BEX V	John Muir Elementary School	Sound	Design/Bid/Build	\$253,192	\$164,574
BEX V	Martin Luther King Jr. Elementary School	AV Systems, safety, tech	Work performed by SPS personnel		
	Lafayette Elementary School	Fire suppression system install, HVAC upgrades, seismic improvements Construction Scheduled: Summer 2021	Design/Bid/Build	\$4,411,225	\$2,867,296
BEX IV	Laurelhurst Elementary School	Seismic Construction Complete: Summer 2019	Design/Bid/Build		
BEX V	Laurelhurst Elementary School	Playground	Purchasing Cooperative	\$168,794	\$109,716
BEX V	Lawton Elementary School	Safety	Work performed by SPS personnel		
Distressed Schools grant	Leschi Elementary School	4 classroom addition Construction Scheduled: Summer 2021	Design/Bid/Build	\$4,400,000	\$2,860,000
BEX V	Leschi Elementary School	Playground and doors	Design/Bid/Build	\$289,723	\$188,319

BEX V	Licton Springs K-8	Safety	Design/Bid/Build		
BEX V	Lincoln High School	Theater	Design/Bid/Build	\$3,000,000	\$1,950,000
BEX V	Louisa Boren STEM K-8 School	HVAC + other items	Design/Bid/Build	\$4,364,870	\$2,837,165
BEX V	Lowell Elementary School	playground and ceiling fans	Purchasing Cooperative, Design/Bid/Build	\$1,071,504	\$696,477
BEX V	Loyal Heights Elementary School	Safety	Work performed by SPS personnel		
	Madison Middle School	Field improvements, field lights No bid schedule given Summer 2021 construction	Design/Bid/Build, Purchasing Cooperative	\$2,705,040	\$1,758,276
Distressed Schools Grant	Magnolia Elementary School	Six Classroom Addition Planning starts: Spring 2018 Construction starts: Summer 2020 Design/Bid/Build Spring 2020 School opens: Fall 2021	Design/Bid/Build	\$4,300,000	\$2,795,000
BEX V	Madrona Elementary School	Safety, tech	Work performed by SPS personnel		
BEX IV	Maple Elementary School	Seismic Construction Complete Summer 2020	Design/Bid/Build		
BEX V	Muir, John Elementary School	AV, sound, safety, tech	Work performed by SPS personnel, Design/Bid/Build	\$474,301	\$308,295
BEX IV	Maple Elementary School	Seismic Construction Complete Summer 2020	Design/Bid/Build		
BEX V	Maple Elementary School	ground and ceiling fans	Design/Bid/Build	\$729,796	\$474,367
BEX V	Thurgood Marshall Elementary School	Roof replacement, safety, tech	Design/Bid/Build		
	McClure Middle School	Seismic improvements, science classroom improvements	Design/Bid/Build	\$1,912,677	\$1,243,240

		Construction summer 2021			
BEX V	Marcus Whitman MS	Fire Alarm System and Field Lights	Work performed by SPS personnel, Purchasing Cooperative	\$2,133,574	\$1,386,823
BEX V	McDonald International Elementary School	Ceiling Fans	Design/Bid/Build	\$491,530	\$319,494
BEX V	McGilvra Elementary School	Multiple	Design/Bid/Build	\$3,422,905	\$2,224,888
BEX V	Meany Middle School	safety	Work performed by SPS personnel		
	Muir Elementary School	Geothermal wells BTA III Construction Complete: Summer 2019	Design/Bid/Build		
BEX V	Nathan Eckstein Middle School	Ceiling fans	Design/Bid/Build	\$1,095,409	\$712,015
BEX V	Nathan Eckstein Middle School	Exterior Cladding	Design/Bid/Build	\$5,424,282	\$3,525,783
	Nathan Hale High School	Field improvements, track repairs	Design/Bid/Build		
	North Beach Elementary School	Asphalt repairs Construction Complete Summer 2020	Design/Bid/Build		
BEX V	North Beach Elementary School	Site and doors	Design/Bid/Build	\$776,615	\$504,799
BEX V	North Queen Anne Service School	Multiple IN CONSTRUCTION	Design/Bid/Build	\$2,181,547 \$2,496,430 \$1,280,725	\$1,418,005 \$1,622,679 \$832,471
BEX V	Nova High School	Safety	Work performed by SPS personnel		
BEX V	Olympic Hills Elementary School	safety	Work performed by SPS personnel		

BTA III	Olympic View Elementary School	Roof repairs Construction Complete: Summer 2019	Purchasing Cooperative		
BEX V	Olympic View Elementary School	Playground, safety	Purchasing Cooperative, Work performed by SPS personnel		
BEX V	Olympic View Elementary School	Exterior Windows	Design/Bid/Build	\$182,000	
BEX V	Pathfinder K-8	Safety	Work performed by SPS personnel		
BEX V	Queen Anne Elementary School	Ceiling fans	Design/Bid/Build	\$444,717	\$289,066
BEX V	Queen Anne Gym	Roof Replacement	Design/Bid/Build	\$2,526,812	\$1,642,427
BEX V	Rainier View Elementary School	Safety	Work performed by SPS personnel		
BEX V	RH Thomsen	Ceiling Fans	Design/Bid/Build	\$998,039	\$648,725
	Roosevelt High School	Field Lighting	Purchasing Cooperative		
BEX V	Roosevelt High School	Exterior Cladding	Design/Bid/Build	\$898,134	\$583,787
BEX V	Sacajawea Elementary School	Asphalt Repairs Construction Complete: Summer 2020	Design/Bid/Build		
BEX V	Sacajawea Elementary School	Windows	Design/Bid/Build		
BEX V	Salmon Bay K-8	Ceiling fans, safety	Design/Bid/Build, Work performed by SPS personnel		
BEX V	Sand Point Elementary School	Safety	Work performed by SPS personnel		

BEX IV	Sand Point Elementary School	Seismic improvements Construction Complete: Summer 2020	Design/Bid/Build		
BEX V	Sanislo Elementary School	Ceiling fans, sidewalks, safety, sound, tech	Design/Bid/Build		
BEX V	Sanislo Elementary School	Four mixed project items	Design/Bid/Build	\$1,692,888	
BEX IV	Schmitz Park Elementary School	Seismic	Design/Bid/Build	\$575,589	\$374,132
BEX V	Seattle World School @ TT Minor	Safety, tech	Work performed by SPS personnel		
BEX V	South Lake High School	Safety, AV, tech	Work performed by SPS personnel		
BEX V	South Shore K-8	Safety	Work performed by SPS personnel		
BEX V	South Shore Middle School	Exterior	Design/Bid/Build	\$4,456,868	\$2,896,964
BEX V	Stanford International Elementary School	Safety	Work performed by SPS personnel		
BEX V	Stevens Elementary School	Safety	Work performed by SPS personnel		
BEX V	Thornton Creek Elementary School	Safety	Work performed by SPS personnel		
BEX V	Thurmond Marshall Elementary School	Roof Replacement	Design/Bid/Build	\$4,696,357	\$3,052,632
	TOPS K-8	Safety	Work performed by SPS personnel		

BEX IV	View Ridge Elementary School	Seismic Improvements Construction Complete: Summer 2020	Design/Bid/Build		
BEX V	View Ridge Elementary School	Playground and Ceiling Fans	Purchasing Cooperative, Design/Bid/Build	\$774,507	\$503,429
BEX V	Washington Middle School	Safety, tech, AV Seismic, science upgrades Construction 2021	Work performed by SPS personnel		
BEX V	Wedgewood Elementary School	Roof replacement, seismic improvements	Design/Bid/Build	\$2,894,906	\$1,881,688
BEX V	West Seattle Elementary School	AV, building addition	Design/Bid/Build		
	West Seattle High School	Roof Replacement Construction Complete: Fall 2020	Purchasing Cooperative	\$9,341,998	\$6,072,298
	West Seattle High School	Field improvements, batting cages No bid schedule given Construction Fall 2020	Design/Bid/Build		
	Whitman Middle School	Seismic improvements, science classroom improvements	Design/Bid/Build		
BEX V	Whittier Elementary School	Safety	Work performed by SPS personnel		
BEX IV	Whitworth Elementary School	Seismic	Design/Bid/Build		
BEX V	Whitworth Elementary School	Playground Construction Complete: Summer 2019	Purchasing Cooperative	\$102,000	
BEX V	Hazel Wolf K-8	Safety	Work performed by SPS personnel		