



CENTER FOR A
COMPETITIVE WORKFORCE

CONSTRUCTION IN THE LOS ANGELES BASIN

AN INDUSTRY WITH GROWING “MIDDLE-SKILL” WORKFORCE SHORTAGES

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LOS ANGELES COUNTY
ECONOMIC DEVELOPMENT CORPORATION

Collectively Advancing Opportunity and Prosperity for All

CCW Report Release Webinar

CONSTRUCTION INDUSTRY



CCW

is leading industry-education partnerships to collaboratively strengthen our region's talent development ecosystem

- 1. Data-driven research on the supply and demand for talent**
- 2. Industry Councils and Regional Program Advisories**
- 3. Developing work-based learning opportunities**
- 4. Workforce & Education Portal**

Funded by the California Community Colleges Chancellor's Office under the Strong Workforce Program (SWP) as a Los Angeles Regional Project



CONSTRUCTION IN THE LOS ANGELES BASIN:

*An industry with growing
“middle-skill” workforce
shortages*

Shannon M. Sedgwick

Director, Institute for Applied Economics

Los Angeles County Economic Development Corporation

June 11, 2020

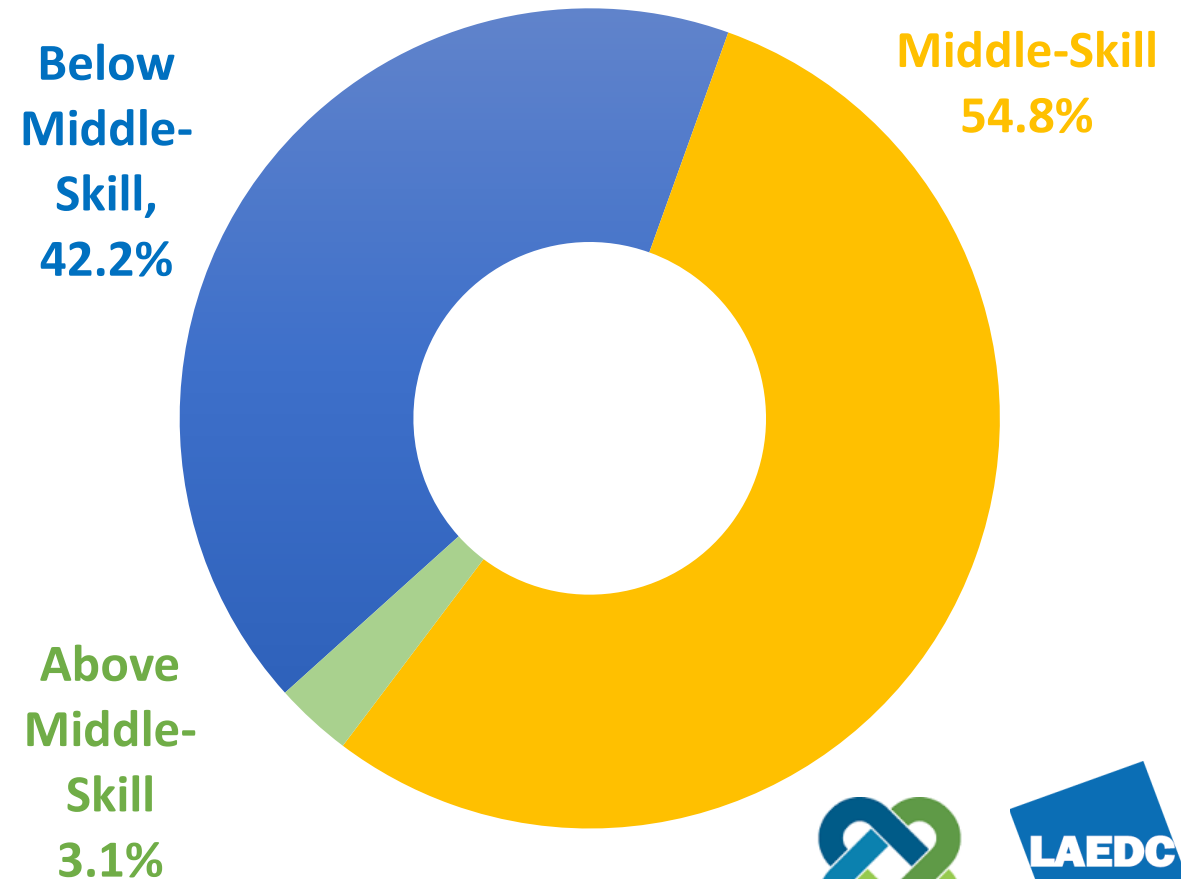


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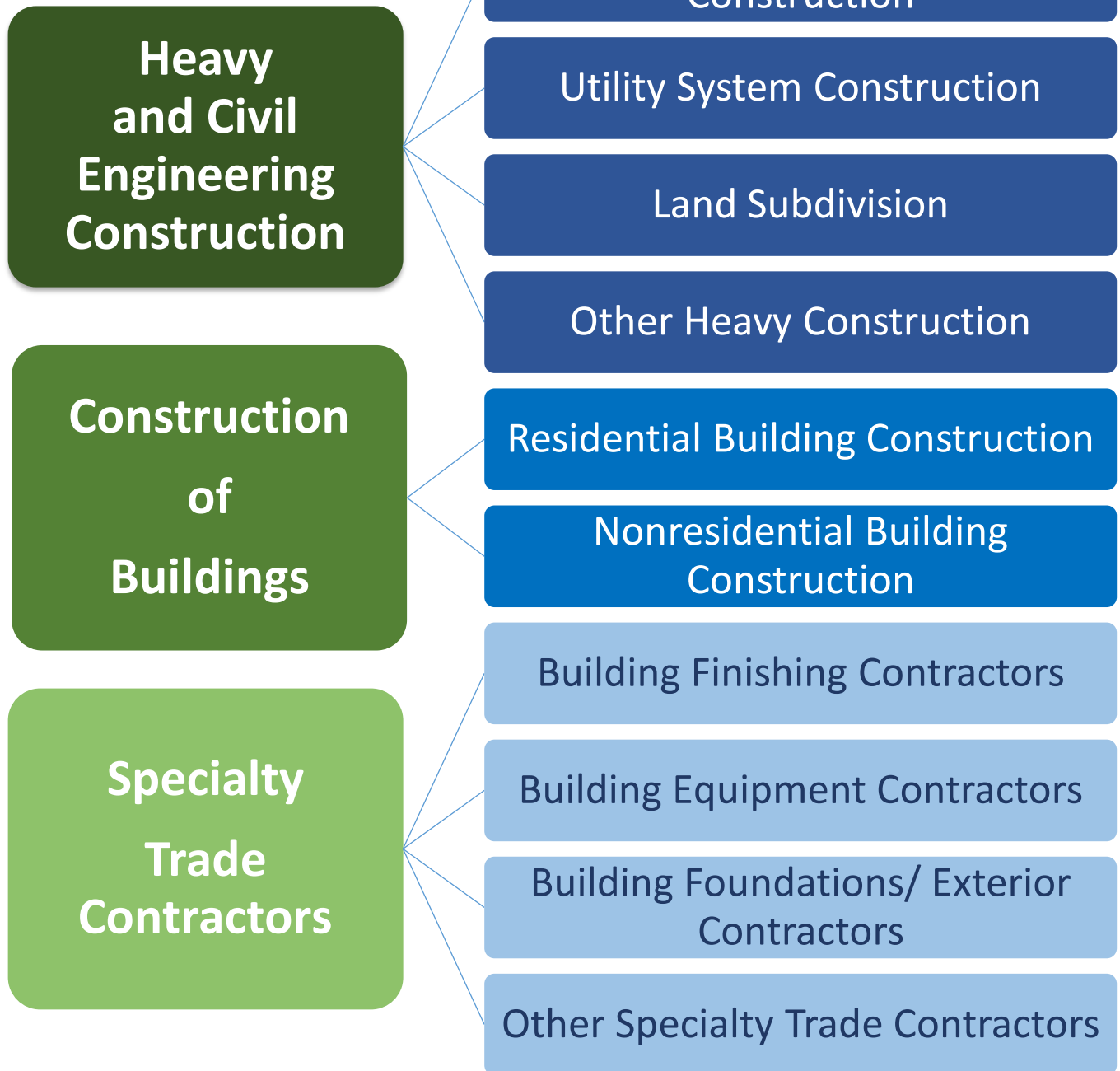
Summary of Key Findings

- There is a projected undersupply of about 7,500 construction workers
- The community college supply is not adequately meeting workforce demand in most of the target occupations
- The construction industry is comprised of a high percentage of middle-skill jobs
- Almost 55 percent of the 169,100 construction industry openings over the next five years will be in middle-skill occupations

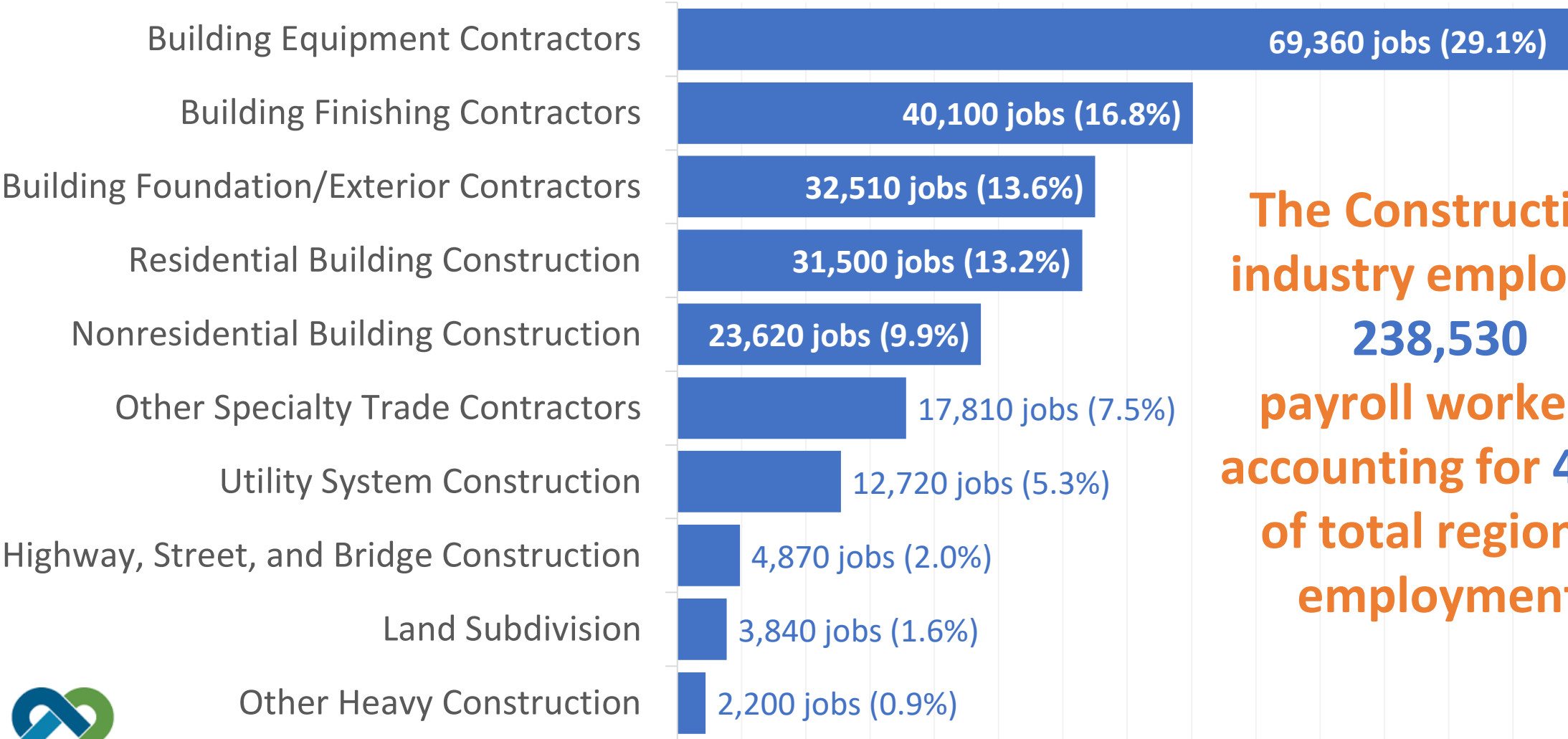
Industry Total Openings 2017-2022



The Construction Industry Defined



Sizing Construction Up – Employment:



The Construction industry employed 238,530 payroll workers, accounting for 4.5% of total regional employment



Sizing Construction Up – Employment in Construction Subsectors

Heavy and Civil Engineering

10%
23,630
workers

Specialty Trade

Contractors
67%
159,780
workers

Construction of
Buildings

23%
55,120
workers

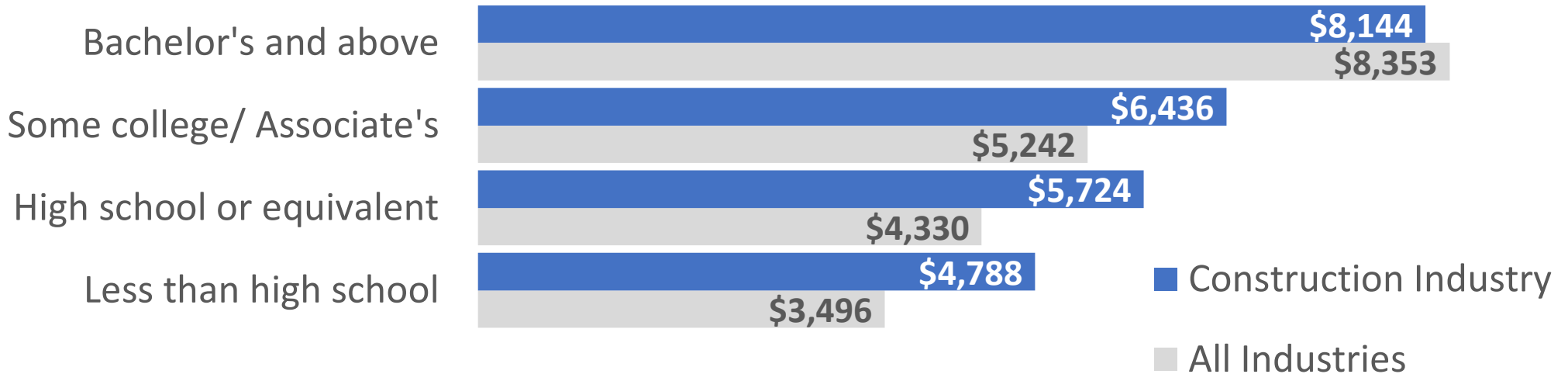


Higher Than Average Monthly Pay

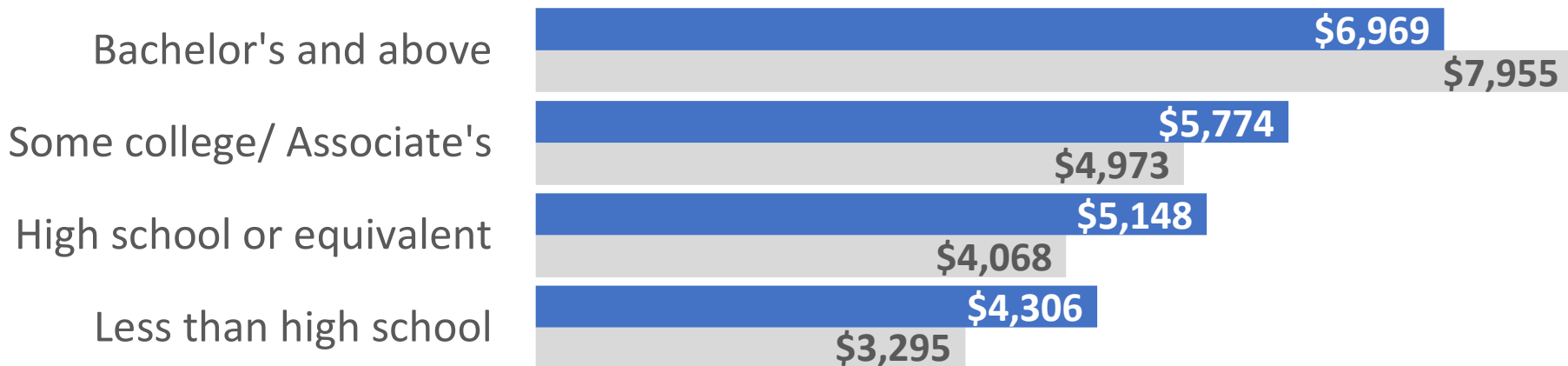
Average Monthly Earnings 2017 by Educational Attainment

Ages 25+ years

Orange County

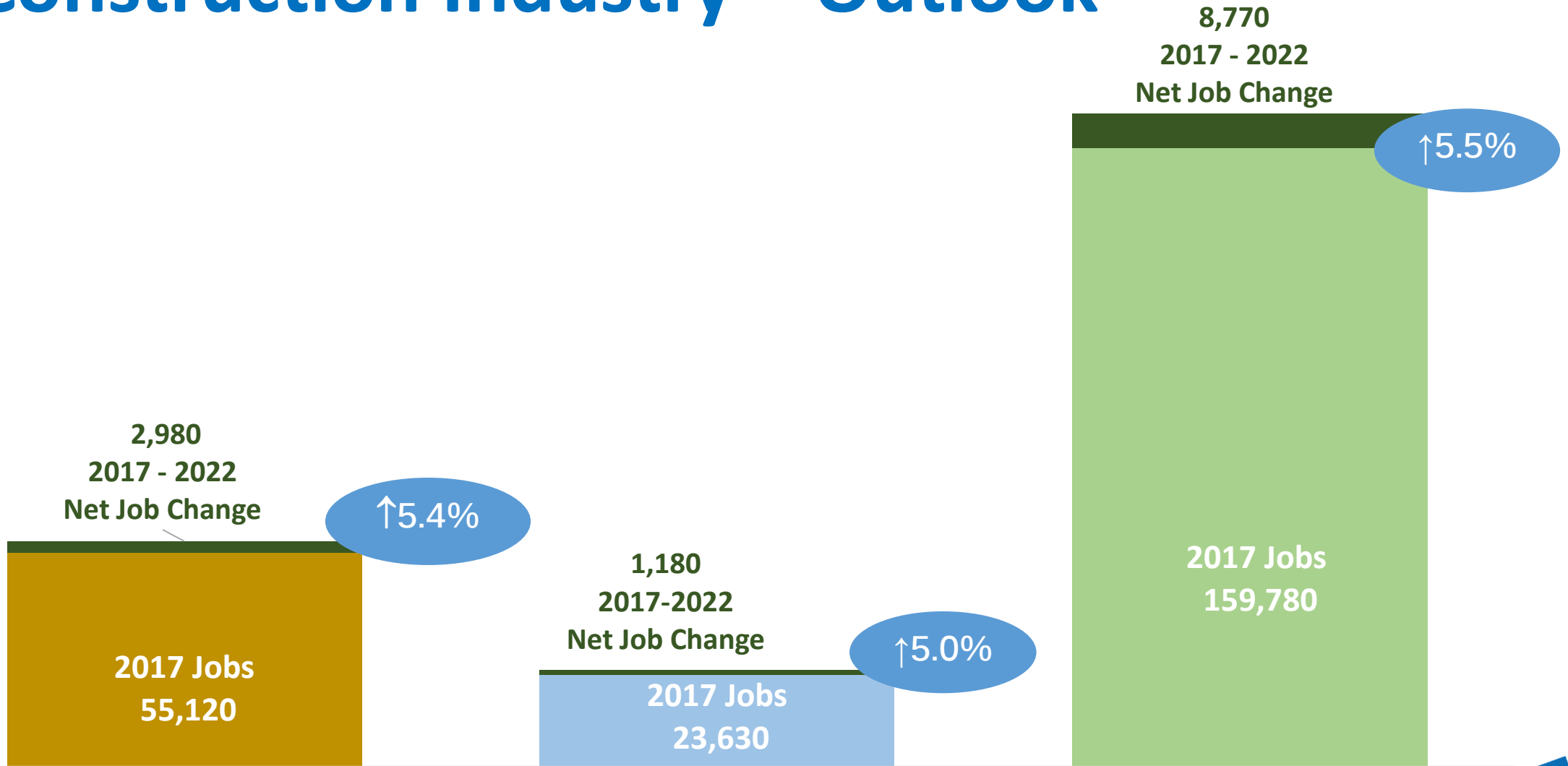


LA County



Construction Industry – Outlook

Payroll Job Increase



Risk of Automation

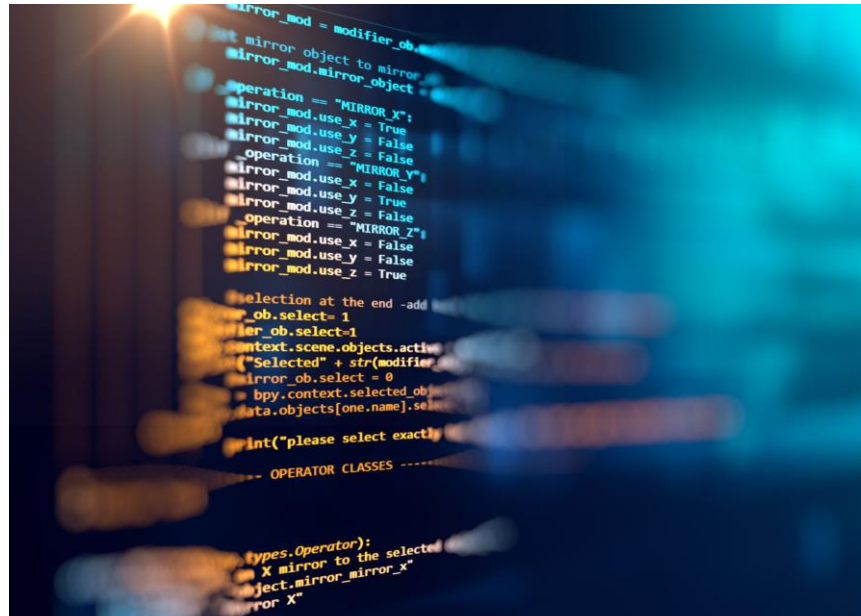
Very Little Automation	Slightly Automated	Moderately Automated	Highly Automated
<ul style="list-style-type: none">• Solar Photovoltaic Installers• Pile-Driver Operators• Tile and Marble Setters	<ul style="list-style-type: none">• Electricians• Cement Masons and Concrete Finishers• Floor Sanders and Finishers• Elevator Installers and Repairers	<ul style="list-style-type: none">• Segmental Pavers• Paving, Surfacing, and Tamping Equipment Operators• Helpers -- Roofers	<ul style="list-style-type: none">• None



Technology Adoption is Transforming the Construction Workforce, Making Work More Productive



Before the Construction Work Starts:



At the Worksite

- Modelling programs simulate project lifecycles
- Quick and simple installation through new and compressed material technologies and processes
- Self-operating equipment and artificial intelligence (AI)
- 3D printing produces parts onsite and on-demand
- Internet of Things & data analytics to assess worker performance and production quality, monitor safety, harness predictive maintenance and anticipate failures.



Transforming the Workforce - Technologies Being Rapidly Adopted

Construction of Buildings Industry:

- *Building Information Modeling (BIM) technologies*
- *Integration of unmanned aerial technologies (drones & self-operating vehicles)*
- *Three-dimensional printing*
- *Software and mobile solutions*
- *Prefabrication*
- *Data analytics and AI*

Heavy and Civil Engineering Industry:

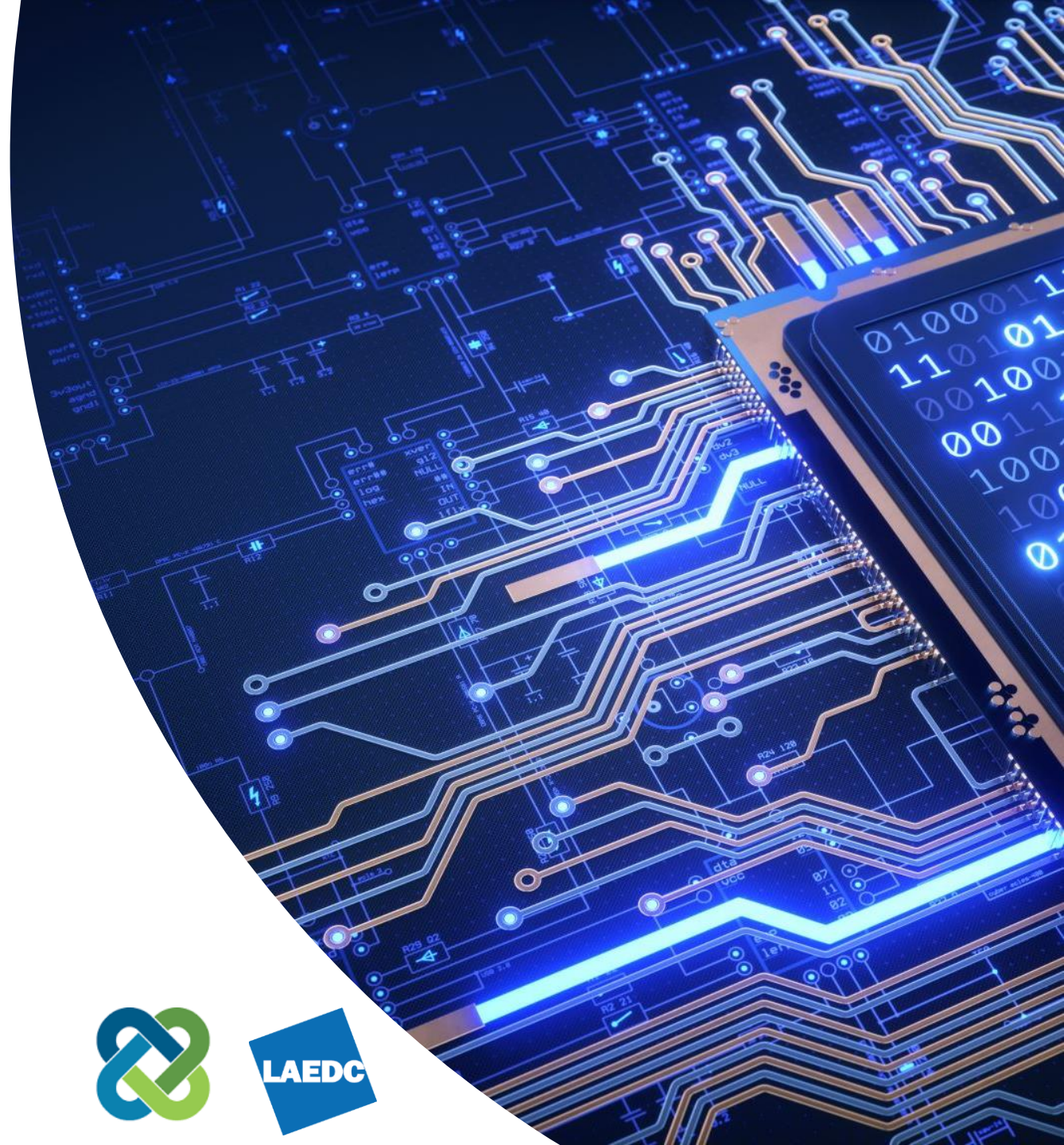
- *BIM*
- *IoT analytics*
- *AI and AR*
- *Electric vehicle charging stations and other renewable solutions*
- *Three-dimensional printing*



Transforming the Workforce - Technologies Being Rapidly Adopted

Specialty Trade Contractors:

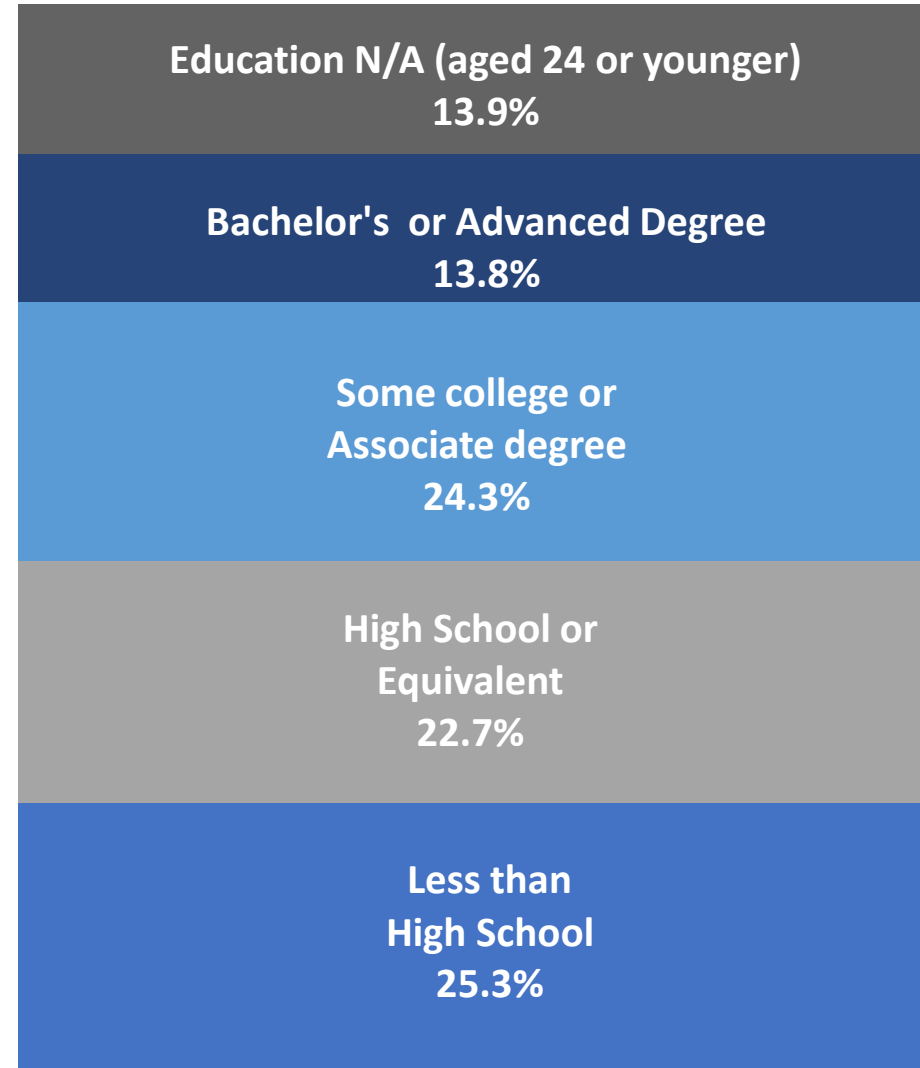
- *Information and communication technologies*
- *Wearable technologies, such as cameras and sensors*
- *IoT data analytics*
- *AI for predictive maintenance and diagnostics*
- *Augmented Reality (AR), such as glasses*
- *Three-dimensional printing*



New Hires in 2017 by Education

Where the Jobs Are for Community College Graduates

Nearly a quarter (24.3 percent) of all hires, which include the estimated number of workers who started a new job in 2017, were middle-skill workers.



Target Construction Middle-skill Occupations

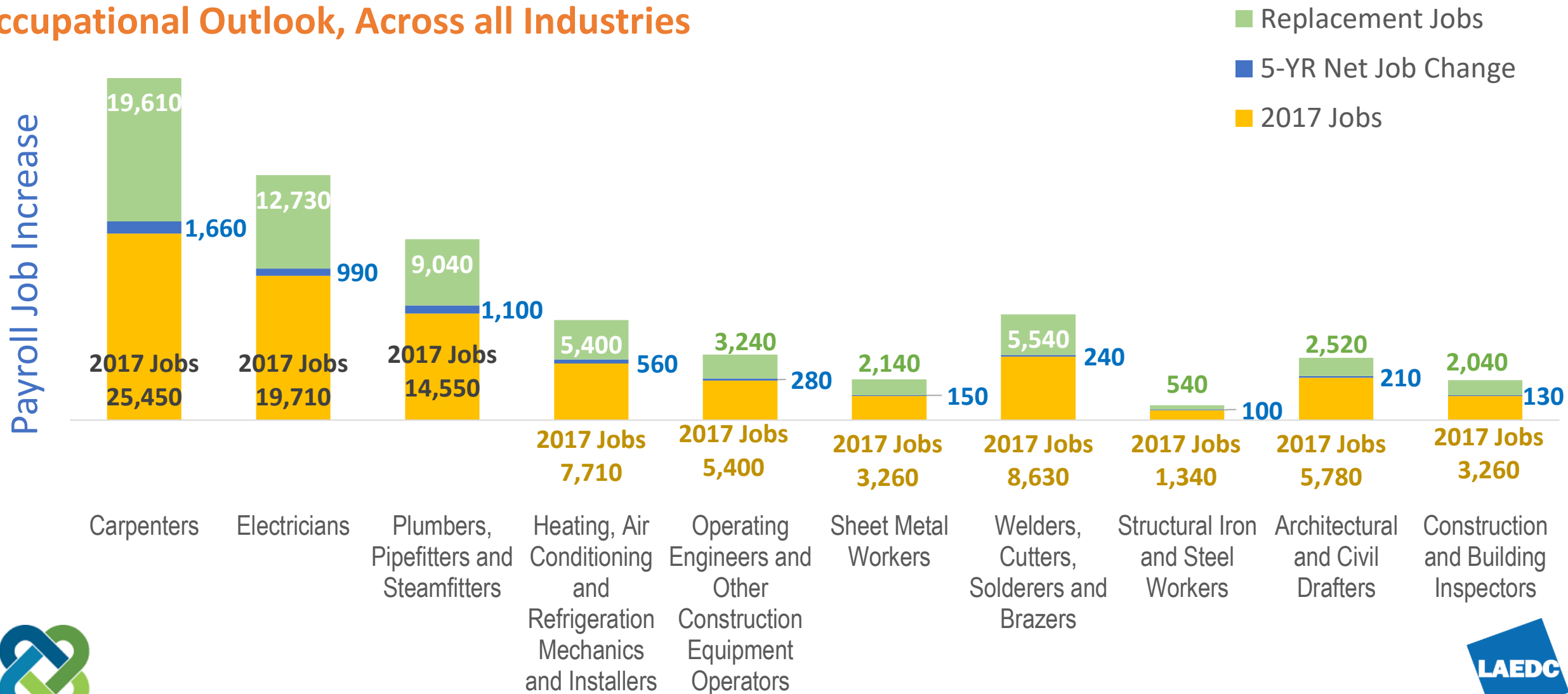
10 target middle-skill occupations that have significant job prospects over the next five years and that stand to benefit from investment in apprenticeship and non-degree and certificate training programs include:



SOC	OCCUPATION	CONSTRUCTION INDUSTRY		ACROSS ALL INDUSTRIES		MEDIAN HOURLY WAGE
		2017 EMPLOYMENT	ANNUAL OPENINGS	2017 EMPLOYMENT	ANNUAL OPENINGS	
47-2031	Carpenters	21,320	3,550	25,450	4,250	\$ 25.17
47-2111	Electricians	14,210	1,980	19,710	2,740	\$ 30.35
47-2152	Plumbers, Pipefitters and Steamfitters	12,080	1,680	14,550	2,030	\$ 24.98
49-9021	Heating, Air Conditioning and Refrigeration Mechanics and Installers	5,850	900	7,710	1,190	\$ 28.31
47-2073	Operating Engineers and Other Construction Equipment Operators	3,480	450	5,400	700	\$ 38.63
47-2211	Sheet Metal Workers	2,300	320	3,260	460	\$ 23.85
51-4121	Welders, Cutters, Solderers and Brazers	1,570	210	8,630	1,160	\$ 18.21
47-2221	Structural Iron and Steel Workers	970	90	1,340	130	\$ 27.08
17-3011	Architectural and Civil Drafters	550	50	5,780	550	\$ 28.71
47-4011	Construction and Building Inspectors	180	30	3,260	430	\$ 42.56
Total Employment		62,420	9,260	95,090	13,640	

Target Occupations 5-year Employment Outlook

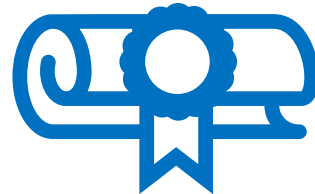
Occupational Outlook, Across all Industries



From Where the Construction Talent Will Come



*Currently,
there are 14
community
college
programs in
the LA Basin*



*1,773
certificates
and associate
degrees
conferred in
2018-19*



*preparing
students to
enter
occupations
in construction*



Addressing an Impending Worker Shortage: Recommendations & Opportunities



Create and expand community college programs targeting middle-skill occupations within the construction industry



Prioritize opportunities for students to get apprenticeships and on-the-job experience in middle-skill jobs within the construction industry



Emphasize an expertise in manual skills that are difficult to replace through automation



Increase attention to and integration of regulatory policies (safety, environmental, land use) into coursework to prepare for changes in the industry



Conclusion: Key Career Education Findings & Recommendations

Modernize college programs to emphasize technical training

Form partnerships with industry stakeholders

Ensure employment upon graduation for students by regularly taking stock of current community college enrollment.

Train students in high-growth industries with the most middle-skill opportunities



Supply-Side Analysis



Luke Meyer

Director, Los Angeles/Orange County Region

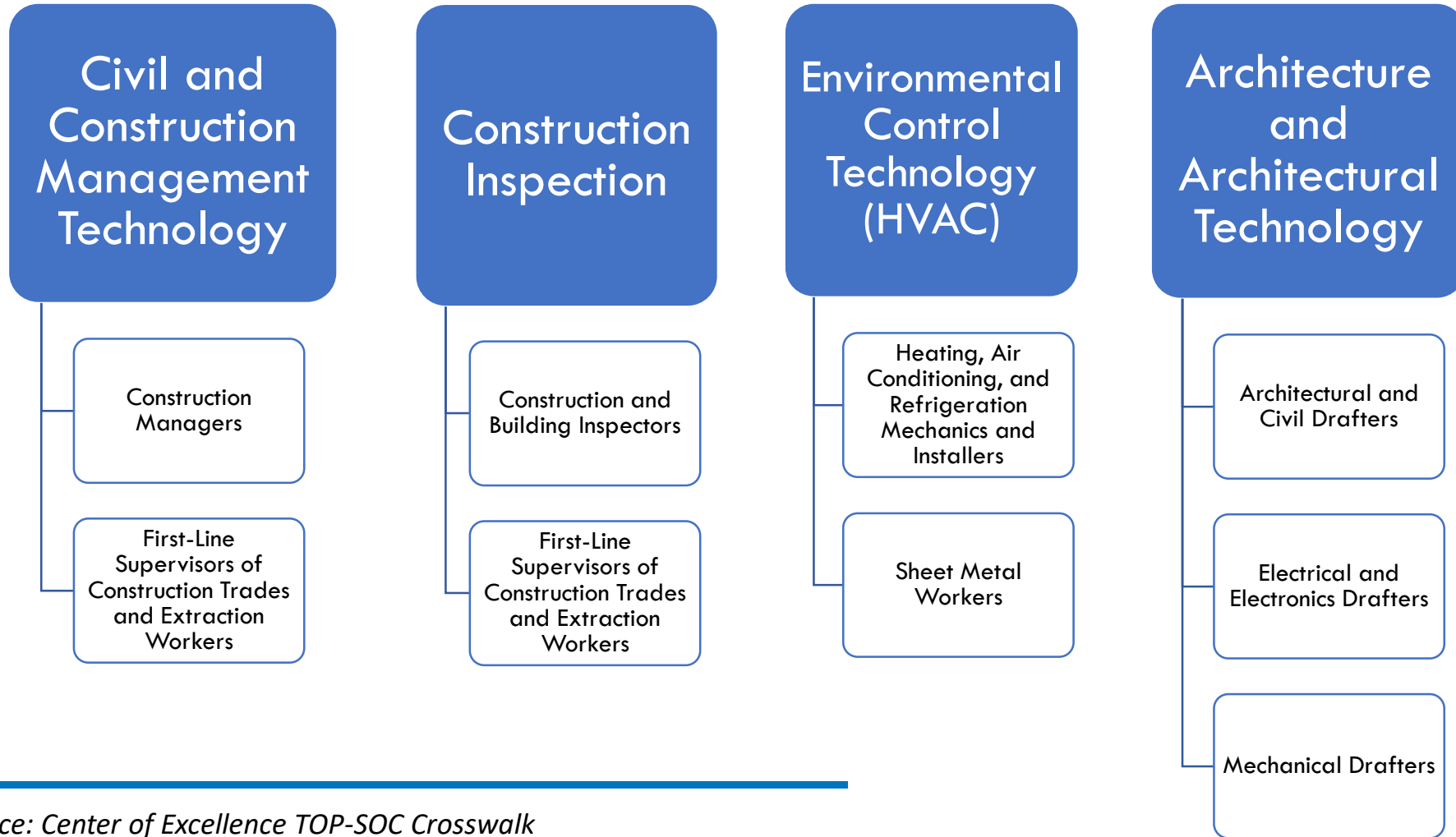
Center of Excellence for Labor Market Research



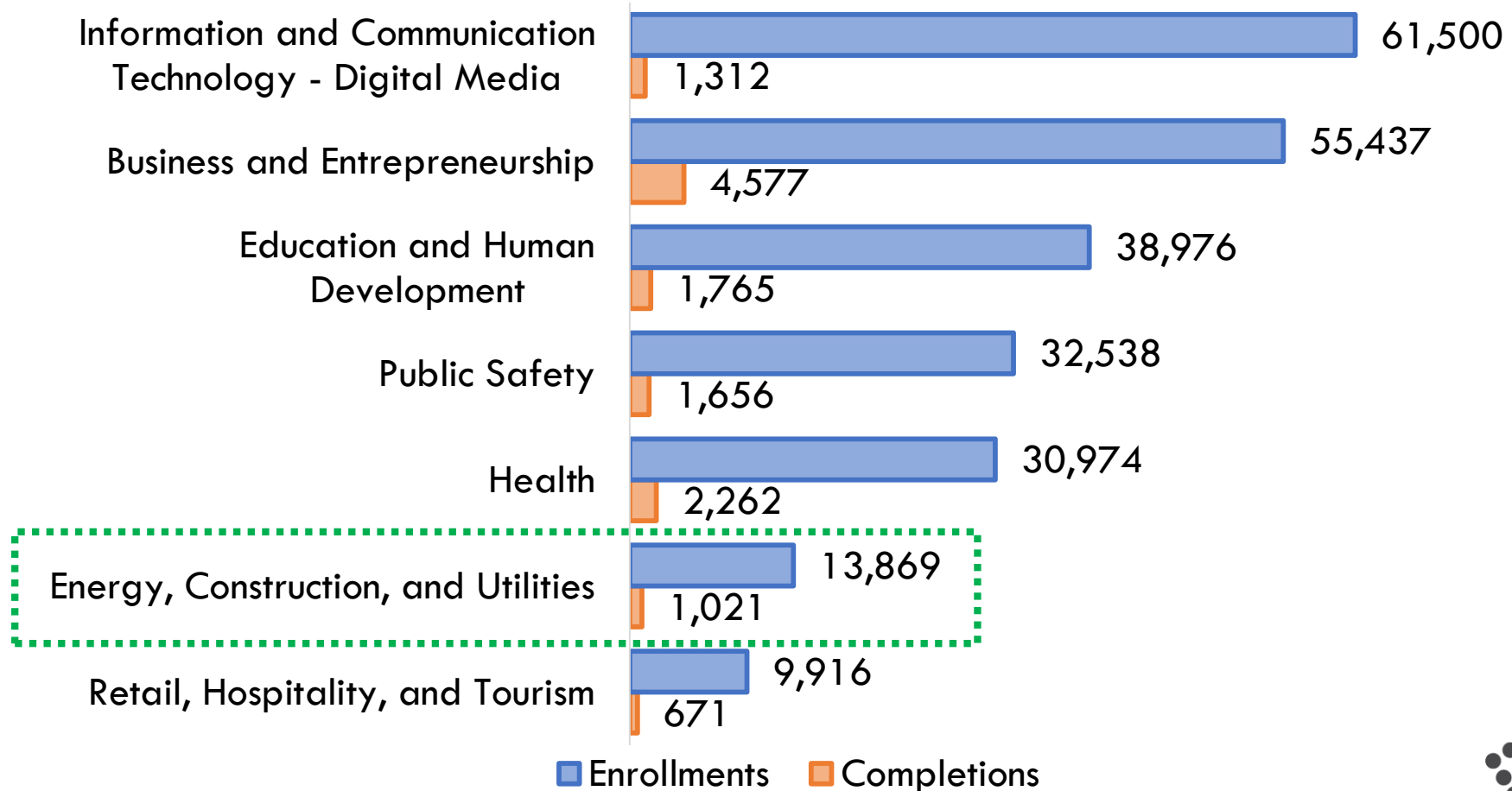
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PROGRAM TO OCCUPATION CROSSWALK



SECTOR COMPARISON



LA CONSTRUCTION PROGRAMS

Program	2016-17 Awards	2017-18 Awards	2018-19 Awards	3 Year Average Awards
Environmental Control Technology	285	278	347	303
Architecture and Architectural Technology	191	239	279	236
Drafting Technology	153	267	175	198
Electrical	133	163	132	143
Carpentry	29	38	21	29
Plumbing, Pipefitting and Steamfitting	35	35	10	27
Mill and Cabinet Work	12	32	17	20
Construction Crafts Technology	9	10	13	11
Construction Inspection	13	9	7	10
Architectural Drafting	13	8	7	9
Civil and Construction Management Technology	9	8	6	8
Sheet Metal and Structural Metal	2	1	15	6
Other Architecture and Environmental Design	6	2	2	3
Civil Drafting	7	2	1	3
Total	897	1,092	1,032	1,007

Between the 2016-17 and 2018-19 academic years regional awards increased by **15%** on average

The four largest construction programs account for **87%** of total construction awards

LA CONSTRUCTION PROGRAMS

Program	2016-17 Awards	2017-18 Awards	2018-19 Awards	3 Year Average Awards
LA Trade	305	336	260	300
Mt. San Antonio	153	157	186	165
El Camino	99	161	199	153
Cerritos	70	97	76	81
East LA	64	74	95	78
Rio Hondo	29	114	35	59
Compton	84	34	53	57
Pasadena	18	42	29	30
Long Beach	26	20	36	27
Citrus	17	19	27	21
LA Pierce	12	15	14	14
LA Harbor	12	6	8	9
LA Valley	5	13	8	9
Glendale	3	4	6	4
Total	897	1,092	1,032	1,007

Construction programs are offered at **14** regional colleges

The top five colleges confer an average of **77%** of total construction awards

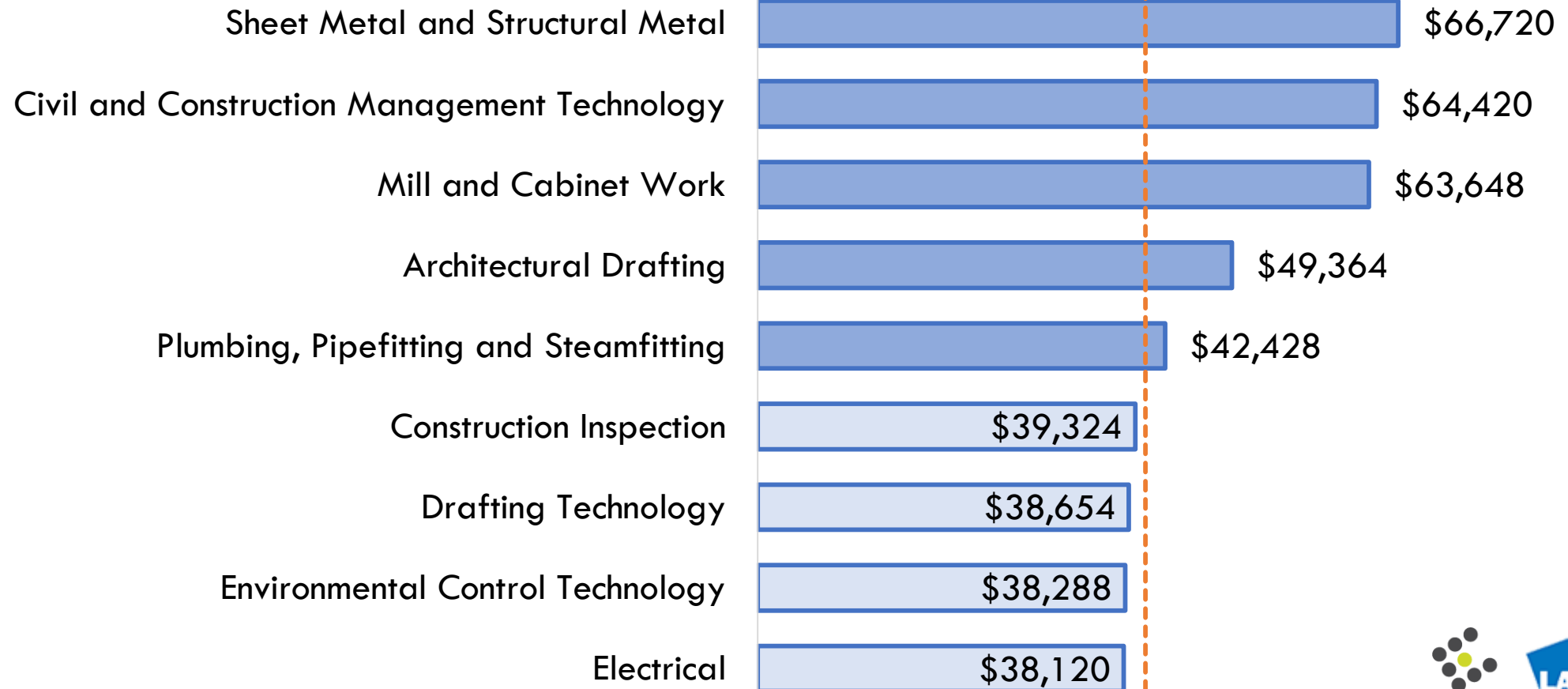


STRONG WORKFORCE PROGRAM METRICS

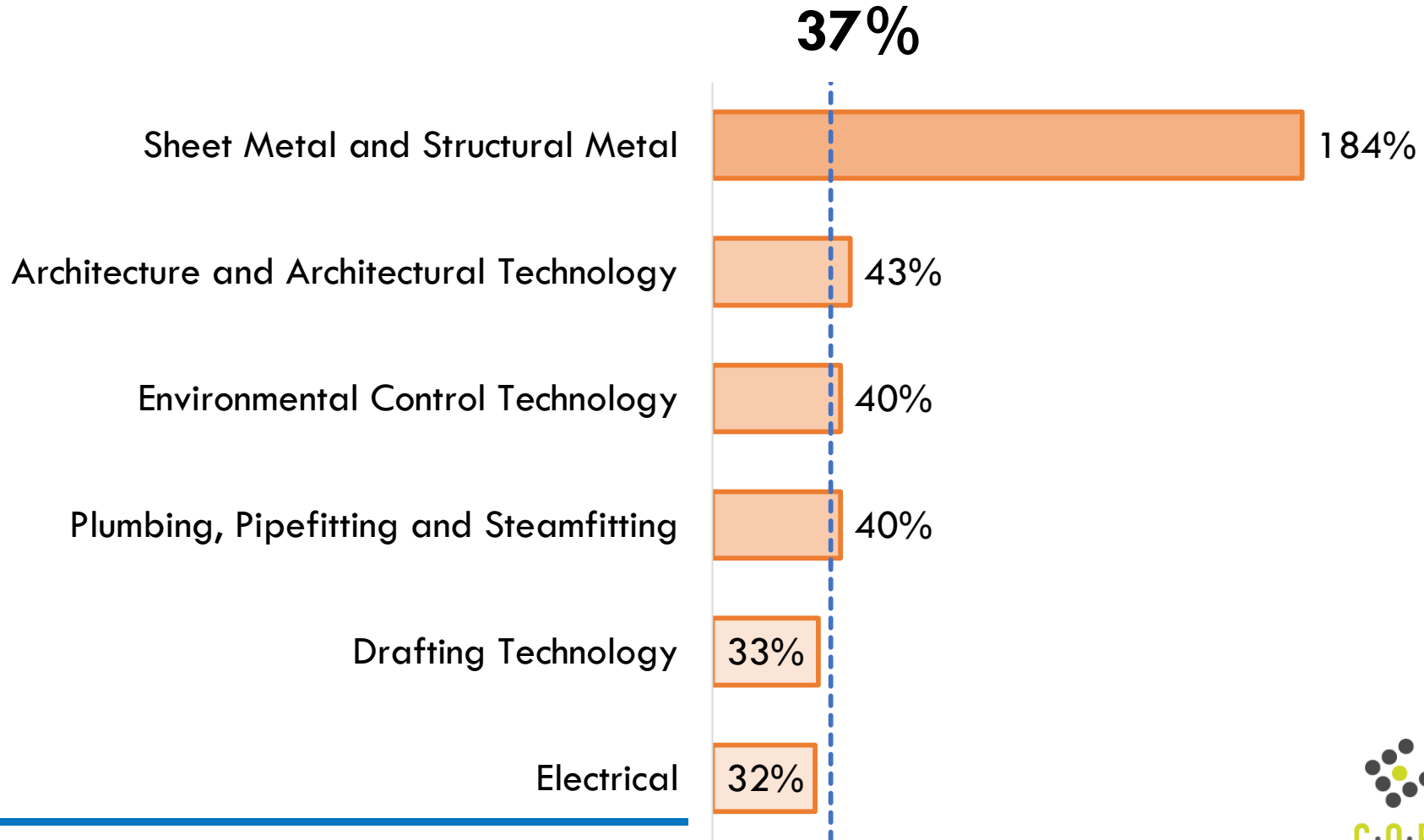
Strong Workforce Program Metrics	ECU Sector	Best Outcome	Program Producing the Best Outcome
Unduplicated count of enrolled students (2017-18)	13,869	2,976	Architecture and Architectural Technology
Students who earned a degree, certificate, or attained apprenticeship (2017-18)	1,021	158	Electrical
Job closely related to the field of study (2015-16)	79%	89%	Plumbing, Pipefitting and Steamfitting & Electrical
Median annual earnings (2016-17)	\$40,368	\$66,720	Sheet Metal and Structural Metal
Median change in earnings (2016-17)	37%	184%	Sheet Metal and Structural Metal
Attained a living wage (2016-17)	63%	93%	Civil and Construction Management Technology

MEDIAN ANNUAL EARNINGS

\$40,368



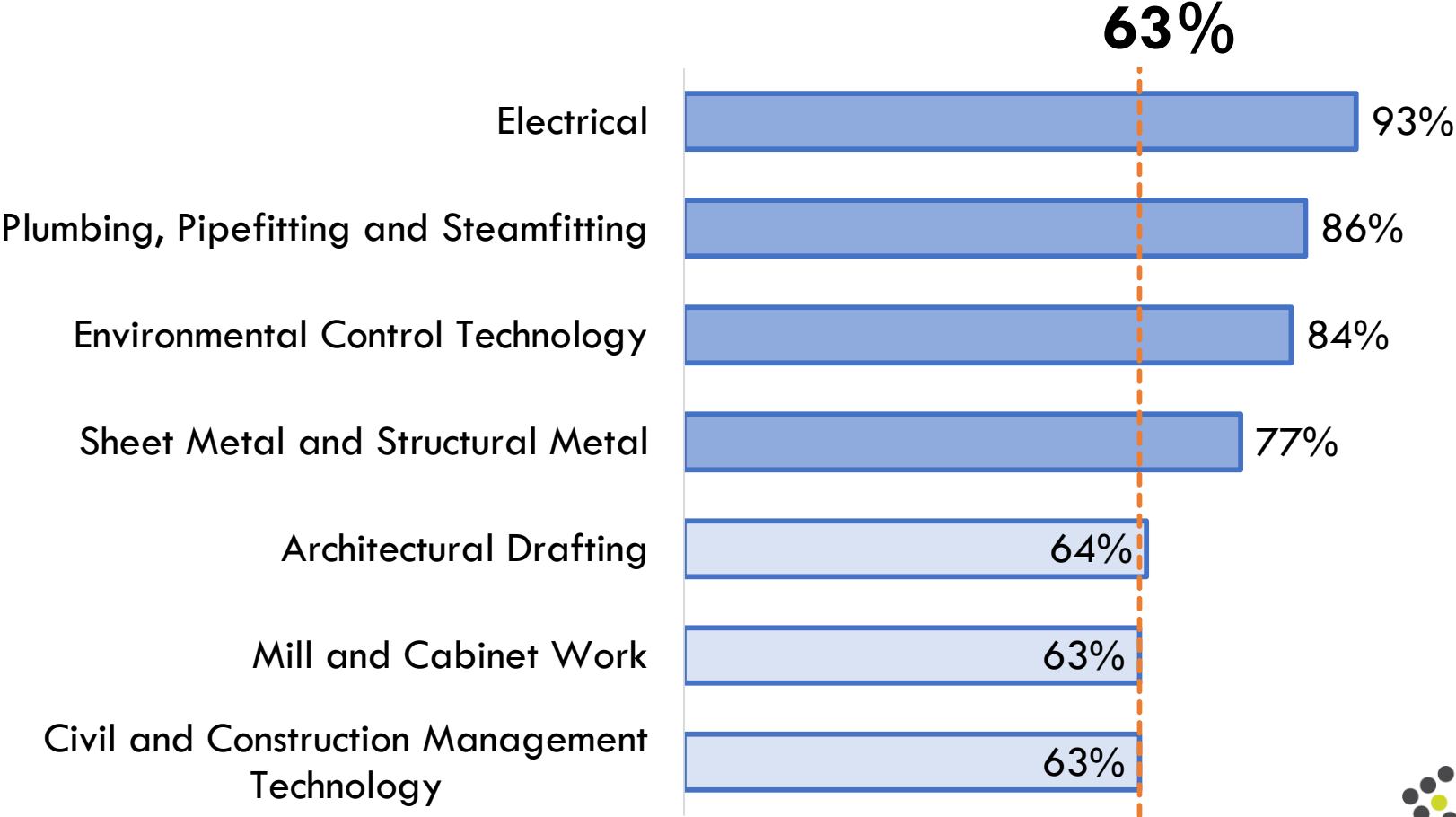
MEDIAN CHANGE IN EARNINGS



Source: Cal-PASS Plus Launchboard, 2016-17



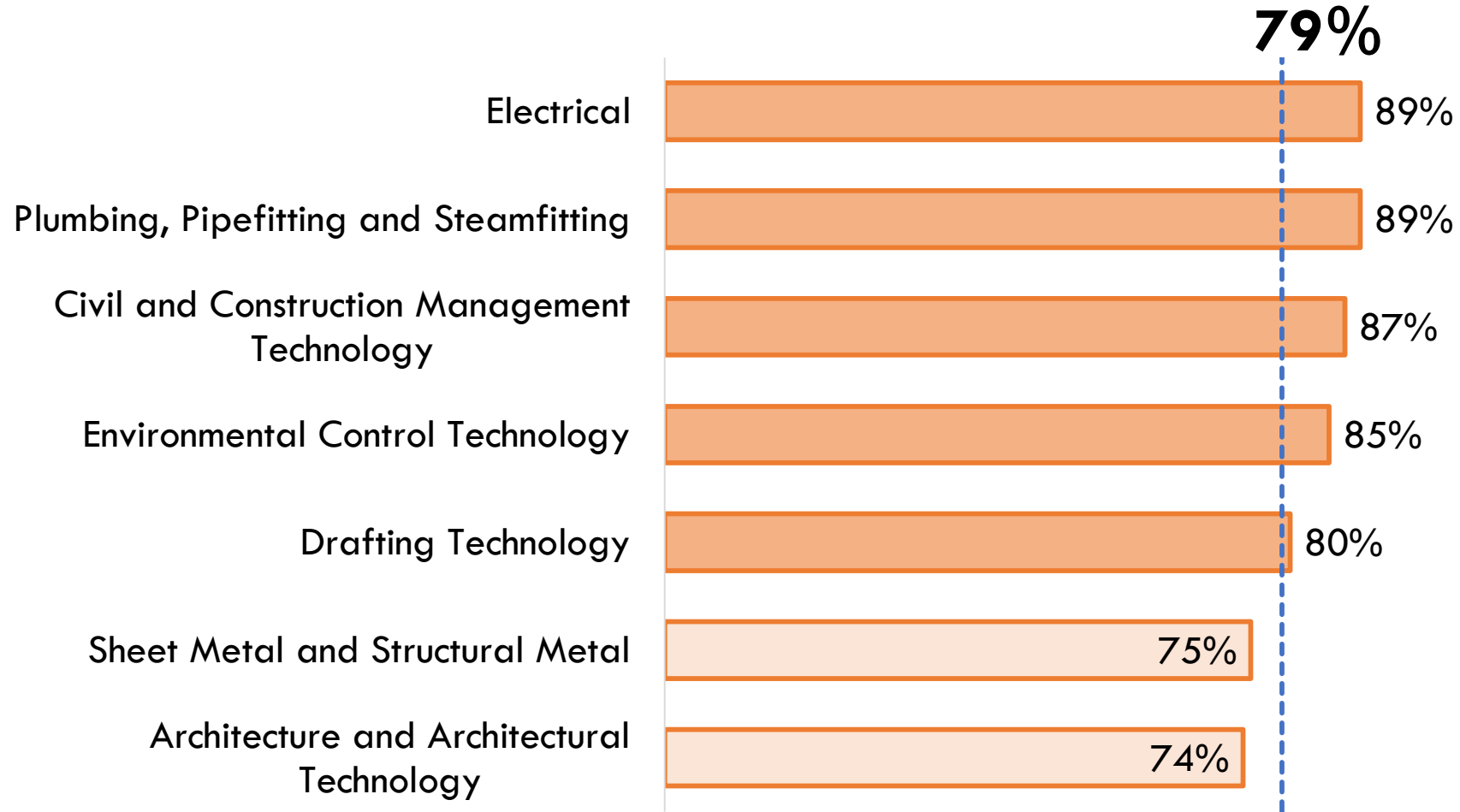
ATTAINED A LIVING WAGE



Source: Cal-PASS Plus Launchboard, 2016-17



JOB RELATED TO FIELD OF STUDY



What about COVID-19?



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CCW Construction Target Occupations

17-0000 Architecture and Engineering Occupations

- **Architectural and Civil Drafters**

47-0000 Construction and Extraction Occupations

- **Carpenters**
- **Electricians**
- **Plumbers, Pipefitters and Steamfitters**
- **Operating Engineers/Other Construction Equipment Operators**
- **Sheet Metal Workers**
- **Structural Iron and Steel Workers**
- **Construction and Building Inspectors**

49-0000 Installation, Maintenance and Repair Occupations

- **HVAC Mechanics/Installers**

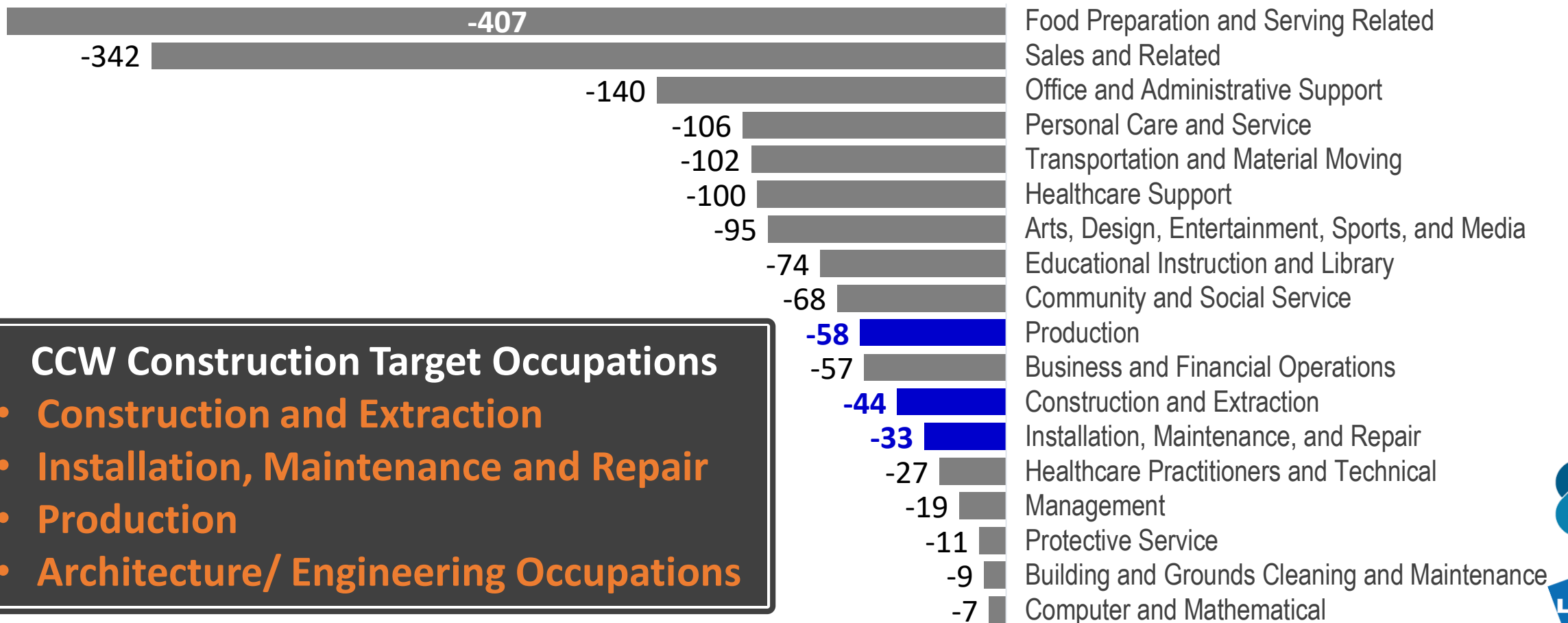
51-0000 Production Occupations

- **Welders, Cutters, Solderers and Brazers**



What Initial Job Loss Related to the COVID-19 Stay At Home Order Could Look Like in the Los Angeles-Long Beach-Anaheim MSA

Projected Number of Jobs Lost by Occupational Group, May 2020 (jobs in 000s)



Source: BLS, OES, ONET, estimates by LAEDC



Construction and COVID- 19: Negative Impacts

Budget shortfalls may cause some public projects to be delayed

Commercial projects may decline

Large home improvement/remodel projects may decline

Construction and COVID-19: Positive Impacts/ Outlook

Much of the construction industry was identified as essential

The housing shortage still exists

Commercial entities will continue to demand solar

Some may seek out lower density housing options



Final Thoughts on COVID-19

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- Workforce & Education Partner Portal
- Bioscience Portal (coming soon)
- Career Pathway Videos
- Contact Us



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Industry Outlook

L.A.'s construction industry represents a promising opportunity because it supports many middle-skill occupations — and the demand created by job openings is forecast to be substantial, with a workforce shortage likely.

L.A. Basin's construction industry is forecast to experience steady growth during the next three to five years as the region faces a deepening housing supply crisis and strives to meet ambitious environmental goals. The L.A. Basin cannot meet these co-equal demands without training and hiring enough builders, cost estimators, carpenters and other essential construction industry workers.

- Almost **55 percent** of the 169,100 construction industry openings over the next five years will be in **middle-skill** occupations
- Based on regional community college completions, there will be a projected **undersupply** of about 7,500 construction industry workers in identified occupations each year over the next five years in the L.A. Basin, as the community college supply is not adequately meeting workforce demand in most of the targeted middle-skill occupations.



THANK YOU!

The full-length Construction in the Los Angeles Basin Report and Construction Highlight Report are available for download here:

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