Construction Trades and Engineering & Architecture

Date: 3/6/2026
Time: 9:00 - 10:30
Location: Dorothy Inghram Learning Center
Hosted by: SBCROP
Facilitator: Deidra Puentes
Advisory Documents: bit.ly/CONST_AdvDocs25-26

Advisors 1
K12 Educational Participants 1
Minutes 3
Audience Questions 10
Cross-Panel Key Takeaways 13
Cross-Panel Action Items 15
Key Takeaways and Action Items by Panelist 17
Labor Market Information 20

Advisors

Thomas Ruiz, Field Representative, LIUNA, Local 783
Deserie Lamp, Outreach Specialist, Western States Regional Council of Carpenters, Local 661
Jason Shefts, Business Agent, United Association of Plumbers and Pipefitters, Local 364
Keith Aker, Instructor, Operating Engineers Trust, Local 12
Ricardo Cisneros, Executive Board President, Inland Empire Labor Institute
Rick Purper, Training Director, IBEW, Local 440

K12 Educational Participants

Aimee Ricken, ESS Director, CTE & Secondary, Great Oak High
Alexis Tygart, Teacher, Colton-Redlands-Yucaipa ROP
Andrew Espinoza, Building and Construction Teacher, Cajon High
Andrew Wahe, Instructor, San Bernardino City Unified
Angela Hatter, Principal, Colton Joint Unified School District Adult Education
Bryce Cacho, Co-Chair & Welding faculty, San Bernardino Valley College
Charles Rizzo, Woodworking Teacher, Montclair High
Christopher Barta, Welding Instructor, Colton-Redlands-Yucaipa ROP
David Aman, K12 Pathway Coordinator, Colton-Redlands-Yucaipa ROP
David Herrera, Teacher, Etiwanda High
Doris Hernandez, Work Based Learning Technician, Colton Joint Unified
Erick Lopez, Teacher, Upland High
Evelia Terriquez, Work Based Learning Technician, Colton Joint Unified

James Hagan, Teacher, Chaffey Joint Unified High School District
Jared Cobb, Construction Trades Teacher, Rim of the World High
Jessica Vance, Teacher, Colton-Redlands-Yucaipa ROP
Jorge Gonzalez, Teacher, Ontario High
Kenneth Soldmann, Curriculum Program Specialist, Colton Joint Unified
Melissa Shaw, Job Development Specialist, Riverside Unified
Michael Yu, College and Career Readiness Teacher, San Bernardino City Unified
Moreno Robert, Teacher, Fontana Unified School District
Myrna Molina, Construction Tech Teacher, Colton-Redlands-Yucaipa ROP
Neil Little, Construction Trades Teacher, Morongo Unified
Otha Liggins, MC3 Instructor, San Bernardino Community College District
Resmi Kackery, Cajon High School Pathway Coordinator, Cajon High School
Rob Ibbetson, CTE Director, Corona-Norco Unified
Robert Green, Teacher of Special Assignment, Patriot High
Robert Jesus Moreno, Welding Instructor, Fontana High School
Seth Wallace, Teacher, Colton Joint Unified
Stephanie Medina, CTE Coordinator, Temecula Valley Unified
Stephanie Phillips, CTE Coordinator, Rim of the World High
Steven De La Portilla, CTE Teacher, San Gorgonio High
Theodore Ross, Instructor, Rialto High School
Trisha Jenkins, CTE Coordinator, Corona-Norco Unified

Minutes

The Building and Construction Trades; Engineering and Architecture Advisory was held in conjunction with the Skilled Trades Immersion event, bringing together educators, union representatives, and workforce partners. The advisory focused on strengthening alignment between Career Technical Education (CTE) pathways and registered apprenticeship opportunities across the Inland Empire. Panelists represented a range of skilled trades and labor organizations and shared insights on industry trends, workforce expectations, and strategies to better prepare students for entry into high-wage, high-demand careers in the trades.

Question 1: What emerging trends and technologies do you believe will drive the most change in this industry over the next 3-5 years, and what should teachers and students focus on to stay ahead?

Jason Shefts: Emphasized that AI is expected to significantly impact the construction industry, particularly on the pre-construction side. He explained that areas such as computer-aided drafting, layout, and planning are already shifting toward AI-supported processes. While much of the hands-on work on job sites remains difficult to replace, he noted that automation is already present in areas such as computer-aided welding, reducing the need for certain manual tasks in specific applications. He stressed that this shift is not something the industry can stop and that the focus should be on learning how to work with these tools. He highlighted that students should be prepared to use AI and evolving technologies as part of their work, as these tools will continue to become more integrated into the industry.

Thomas Ruiz: Highlighted that while technology is advancing, the fundamentals of construction remain essential and cannot be replaced. He emphasized that skills such as welding, measuring, and physically performing work on a job site are still required, and employers expect to see those abilities demonstrated in real-world conditions—not just through simulations or computer-based work. He noted the importance of discipline and focus, including the ability to follow directions, limit distractions such as phone use, and maintain productivity. He reinforced that construction work is performance-driven, and workers are expected to produce. He indicated that individuals who cannot meet expectations in these areas will struggle to remain in the trade. He also noted that construction is a broad industry that includes roles such as engineering and project management, but all roles rely on a strong foundation of core skills.

Deserie Lamp: Noted that while automation is not expected to significantly reduce hands-on construction jobs, emerging sectors are creating new opportunities within the industry. She highlighted growth in areas such as offshore wind energy, mass timber construction, and projects in remote or specialized environments. She emphasized that these developments are expanding the types of careers available beyond traditional construction pathways. She indicated that students may have opportunities to enter areas that combine construction skills with energy systems or specialized building methods, reinforcing that the industry includes a wide range of roles.

Keith Aker: Explained that technology has already transformed equipment operation, noting that tasks once completed manually—such as grading using string lines—are now performed using GPS-enabled machinery. He highlighted that equipment such as bulldozers and graders are increasingly automated, reducing the number of workers needed in some roles. He noted that mechanics and operators now rely on laptops and digital systems to troubleshoot and maintain equipment, as modern machines are heavily integrated with technology. He emphasized that workers must continuously update their skills and adapt to new systems as tools and job expectations evolve.

Ricardo Cisneros: Emphasized that automation and AI are impacting all industries, including construction, with examples such as machines that can lay masonry and AI systems used in workforce management. He noted that while these technologies may initially appear beneficial, they also have the potential to reduce jobs if workers are not prepared to adapt. He highlighted the importance of ensuring workers are trained to manage and oversee technology rather than be replaced by it. He indicated that these shifts are already occurring across sectors, including government and logistics, and that the construction industry is part of this broader trend.

Rick Purper: Noted that despite advancements in AI and automation, many aspects of trade work—particularly in electrical—require working in varied positions and environments that are difficult for technology to replicate. He emphasized that there will continue to be a need for skilled workers who can adapt to different situations and apply their knowledge in real-world conditions. He highlighted that while technology will continue to evolve, the work still requires a high level of hands-on skill and flexibility.

Question 2: How should our Career Technical Education (CTE) pathways adapt to ensure students are well-equipped to meet future demands and changes in this industry?

Jason Shefts: Emphasized that one of the most critical areas for CTE pathways to address is the development of soft skills, noting that these are often the most difficult to teach but are essential for success in the industry. He highlighted skills such as interviewing, communication, reliability, and showing up on time as key factors in employability. He explained that many individuals may be technically skilled but struggle to communicate their abilities during interviews or when asked to explain their work. He stressed the importance of preparing students to effectively present themselves, answer questions, and demonstrate professionalism, as these skills directly impact their ability to secure and maintain employment.

Ricardo Cisneros: Emphasized the importance of intentionally connecting CTE pathways to unions and apprenticeship programs, noting that many students complete coursework and earn certificates but are left without a clear pathway into the workforce. He highlighted that without these connections, students may finish programs without meaningful opportunities, and in some cases, the certificates they earn may not hold value within apprenticeship systems. He stressed that building strong relationships between schools and unions is essential to creating

direct pipelines for students. He noted that the trades have often been a “hidden gem” in communities, and that stronger alignment between education and labor partners can ensure students transition into stable, well-paying careers.

Deserie Lamp: Highlighted that exposure is critical in helping students make informed career decisions. She emphasized that students need to understand the range of opportunities available within the trades in order to identify the best fit for their interests and skills. She noted that building relationships and providing clear next steps is essential, particularly because once students graduate, unions are often unable to initiate contact, requiring students to take the lead in following up. She also explained that within a single trade, such as carpentry, there are numerous specialized pathways, and students need to be aware of these options and their respective requirements. She stressed that understanding prerequisites, available career paths, and how to navigate entry into the field is key to helping students successfully transition into apprenticeships.

Keith Aker: Reinforced the importance of soft skills, particularly work ethic, attitude, and reliability. He emphasized that simply showing up on time with a positive attitude and a willingness to work is a major factor in securing and maintaining employment. He noted that many contractors are hesitant to hire apprentices, and that demonstrating consistency, effort, and professionalism can make a significant difference in whether a student is given an opportunity. He highlighted that students entering the field often come from environments that may not have prepared them for the expectations of construction work, making it important to build these habits early.

Thomas Ruiz: Reiterated the importance of focusing on foundational skills and accountability within CTE pathways. He emphasized that regardless of technological advancements, students must be able to perform core tasks and demonstrate reliability in a work environment. He noted that many industry leaders currently managing projects are not heavily reliant on advanced technologies, reinforcing the continued importance of traditional skills. He stressed that students must be able to take direction, show up consistently, and meet expectations on the job. He also emphasized the need to build accountability within the classroom so that students are better prepared for the expectations they will encounter in the workforce.

Rick Purper: Emphasized the physical nature of the work and the importance of preparing students for the realities of the job. He noted that construction work takes place in a variety of conditions, including heat, cold, and rain, and requires sustained physical effort. He highlighted that students need to understand these expectations and develop the stamina and work habits required to succeed in these environments. He also noted that students must be prepared to perform tasks that may not align with their expectations of the trade, reinforcing the importance of adaptability and effort.

Question 3: What essential skills, educational qualifications, and certifications are currently required to gain employment in your industry, and how might these requirements change in the near future?

Jason Shefts: Explained that the minimum requirements to enter the field are typically being 18 years old and having a high school diploma or equivalent, but emphasized that meeting these basic qualifications is only the starting point. He highlighted that long-term success depends heavily on soft skills such as reliability, work ethic, and the ability to show up consistently and perform. He noted that many individuals struggle with the level of commitment required, explaining that apprenticeships involve both work and school and require sacrifice over time. He emphasized that students need to understand that entry into the trades is not immediate financial success, but a process that requires patience, effort, and persistence.

Keith Aker: Explained that apprenticeship programs are highly competitive and often require candidates to complete an application and pass an entrance or aptitude exam. He noted that applicants are ranked based on their scores, and those with higher scores are more likely to be selected more quickly. He emphasized the importance of preparation, including studying and even working with tutors to improve performance on these exams. He also highlighted that students often enter programs with unrealistic expectations about the type of work they will perform, noting that new apprentices typically begin with foundational tasks before advancing to more complex roles.

Thomas Ruiz: Emphasized that while basic entry requirements may be minimal, there are significant barriers that impact students' ability to enter and persist in the trades. He highlighted transportation as a major barrier, noting that workers are often required to travel across regions for job opportunities and must have reliable access to transportation. He also emphasized that there are often long waitlists for apprenticeship programs, and encouraged students to apply early, even if they are uncertain about their career path, to begin the process. He reinforced that entering the trades requires commitment, patience, and the ability to navigate these logistical challenges.

Deserie Lamp: Explained that entry into the carpentry field can vary, noting that individuals can directly approach job sites to seek employment, making soft skills and communication critical. She emphasized the importance of being able to introduce oneself, communicate effectively, and demonstrate interest and readiness within a short interaction. She highlighted that certifications, particularly safety certifications such as OSHA training, can make candidates more competitive by demonstrating preparedness and reducing employer risk. She also emphasized that persistence is key, noting that students may need to visit multiple job sites and continue seeking opportunities before being hired. She further explained that recognized training programs can provide students with credentials that support entry into apprenticeships, but students must still demonstrate initiative and follow through to secure employment.

Rick Purper: Explained that entry into electrical apprenticeship programs requires a high school diploma, being at least 18 years old, and demonstrating competency in math, particularly algebra. He noted that while math has traditionally been a barrier, there is an increasing challenge with reading comprehension, as applicants must be able to read and interpret written material effectively. He emphasized the importance of reading for understanding, including the ability to analyze content and identify meaning, as this is critical for success in both training and on the job. He also noted that applicants must pass entrance exams and be prepared to retake them if necessary.

Ricardo Cisneros: Emphasized that in addition to technical qualifications, students must develop strong foundational skills in math, communication, and employability. He highlighted the importance of providing students with clear information on how to access jobs and apprenticeship opportunities, noting that awareness and guidance are critical in helping students transition into the workforce. He also emphasized the value of programs that create direct connections between high schools and unions, noting that these partnerships can provide students with clearer pathways into employment and reduce barriers to entry. He reinforced that intentional alignment between education and industry is key to improving student outcomes.

Question 4: What are a few occupations within the industry that do not require advanced degrees yet offer a living wage? Additionally, what advice would you give to a recent high school graduate that would help them gain employment in your industry?

Keith Aker: Emphasized that many careers within the trades offer strong wages without requiring advanced degrees, particularly through apprenticeship pathways such as equipment operators, mechanics, and inspectors. He highlighted that entry into these roles requires preparation, including passing entrance exams, and noted that students should take advantage of available study materials, practice tests, and tutoring if needed. He stressed the importance of being prepared for these assessments, as higher scores increase the likelihood of being selected and placed into work more quickly. He also noted that apprenticeships require commitment and that students should take the process seriously, as these programs lead to careers that can provide wages comparable to or exceeding those of college graduates.

Rick Purper: Highlighted that careers in electrical work offer strong earning potential without requiring advanced degrees, but emphasized that students must be prepared to go through an application process that includes testing and interviews. He noted that interview performance is critical, as candidates must present themselves effectively to contractors and demonstrate both interest and experience working with their hands. He emphasized the importance of practicing interview skills and being able to clearly communicate relevant experiences, as employers are looking for individuals who are capable and motivated to perform the work.

Thomas Ruiz: Emphasized that many construction careers offer living wages but require physical readiness and discipline. He advised students to begin preparing physically before entering the field, noting that apprenticeship programs and boot camps can be physically demanding and that many candidates struggle if they are not prepared. He highlighted the importance of building stamina, developing strong work habits, and adjusting to early work schedules. He also stressed the need to develop routines and habits ahead of time so that students are not overwhelmed when entering the workforce.

Deserie Lamp: Emphasized the importance of researching career options within the trades, noting that students often enter without fully understanding the different pathways available and may end up in roles that do not align with their interests. She highlighted that within a single trade there are multiple specializations, and selecting the right one is critical to long-term success. She also advised students to research contractors, understand the types of projects they work on, and become involved in their unions once they enter the field. She noted that involvement, awareness, and alignment between personal interests and job responsibilities can help students avoid setbacks and remain successful in their careers.

Jason Shefts: Emphasized the importance of researching the trade and understanding the industry before entering. He noted that students should be familiar with the history of the trade, the types of work performed, and the expectations within that field. He highlighted that

demonstrating this knowledge during interviews can set candidates apart and show initiative. He also noted that apprenticeship pathways provide opportunities to earn while learning and can lead to college credit, allowing individuals to continue their education later without accumulating significant debt. Additionally, he encouraged students to explore different sectors within construction, such as heavy highway and infrastructure projects, to better understand the range of opportunities available.

Ricardo Cisneros: Emphasized the importance of dedication, adaptability, and persistence in gaining employment and succeeding in the trades. He shared an example of an individual who demonstrated commitment by adjusting quickly to the expectations of a boot camp environment and successfully completing the program. He highlighted that students must understand their purpose, remain focused on their goals, and be prepared to adapt to changing situations on the job. He reinforced that the ability to pivot, stay committed, and push through challenges is critical to long-term success in the industry.

Audience Questions

Audience Question 1: *How should the industry balance adapting to new technologies while maintaining foundational trade skills?*

Ricardo Cisneros: Responded that the focus should not be on being afraid of technology, but on getting ahead of it. Emphasized the importance of finding ways to ensure technological advancements benefit workers by minimizing job loss and creating opportunities for individuals to remain employed. Highlighted that the goal should be to position workers to work alongside technology rather than be replaced by it.

Audience Response (Robert "Mad Dog," Retired Ironworker): Emphasized the importance of maintaining foundational skills alongside technological advancement. Shared that while new tools and systems continue to evolve, workers must still understand the basics of their trade in case technology fails or is unavailable. Highlighted the need to adapt and "move with the tide," encouraging individuals to face challenges directly, continue learning, and build resilience. Reinforced that developing both technical skills and the ability to adapt will allow workers to grow and pass knowledge on to future generations.

Audience Question 2: *How can unions and industry partners provide more accessible, short-term hands-on experiences (e.g., one-day boot camps) to spark student interest while addressing barriers such as time, age, and liability?*

Rick Purper: Shared that local apprenticeship programs already offer opportunities similar to one-day experiences, noting that students can participate in structured sessions that include hands-on activities, basic math, interview preparation, and an overview of apprenticeship pathways. He indicated that these types of events are available and can be coordinated through local training centers, providing students with exposure to both the work and expectations of the trade.

Keith Aker: Highlighted that field trips and pre-apprenticeship exposure opportunities are available, including site visits where students can observe equipment in operation and participate in classroom-style instruction. He noted that while liability limits direct hands-on participation with equipment, these experiences still provide valuable insight into the industry and help students better understand the work environment. He emphasized that these opportunities often serve as eye-opening experiences that increase student interest.

Deserie Lamp: Highlighted events such as "Build Your Future" that are designed for high school seniors and provide hands-on exposure to the trades. She noted that these events typically take place on weekends, making them more accessible, and include opportunities for students to engage in activities, interact with contractors, and potentially secure employment opportunities. She also emphasized that participation may require waivers for hands-on components but provides meaningful exposure and direct industry connections.

Deidra Puentes: Suggested that increasing awareness and access to these opportunities is critical, noting that when events are open and shared with educators, they can be distributed to

students more effectively. She emphasized that stronger communication and coordination between industry partners and schools can help increase student participation and ensure more students are aware of available opportunities.

Audience Question 3: *Do students need to secure a contractor sponsor to enter apprenticeship programs, and how can they effectively present themselves and seek opportunities?*

Thomas Ruiz: Explained that there are typically two pathways to entering an apprenticeship program: applying through an official application portal or obtaining sponsorship from a union signatory contractor. He noted that contractor sponsorship can allow applicants to bypass long waitlists, which can include a significant number of candidates. He emphasized that sponsorship often comes through relationships or connections but also highlighted that persistence can create opportunities. He shared that individuals who consistently approach contractors and demonstrate initiative may eventually be given a chance, reinforcing the importance of persistence and effort in securing employment.

Keith Aker: Explained that while sponsorship opportunities exist, they are structured to ensure fairness and access for all applicants. He noted that contractor sponsorship typically requires formal submission and review, including consideration of current workforce needs and whether contractors are actively hiring apprentices. He emphasized that sponsorship is not guaranteed and that programs aim to balance opportunities for individuals with and without existing connections. He reinforced that the system is designed to ensure equitable access while still allowing pathways for those who secure sponsorship through employers.

Audience Question 4: *How can industry partners better support educators with aligned curriculum, standards, and structured resources to strengthen CTE pathway implementation?*

Ricardo Cisneros: Responded that the Inland Empire Labor Institute can serve as a central point of connection to link educators with unions and industry partners across the region. He emphasized that the goal is to create stronger alignment between education and workforce systems by connecting educators to the appropriate organizations that can support pathway development. He noted that these connections can extend beyond construction into other sectors, including public sector careers, and highlighted the importance of building coordinated systems that provide clearer pathways and support for students.

Audience Question 5: *How can industry and education systems better support students through centralized resources, reduce barriers such as transportation, and integrate emerging technologies like AI into training pathways?*

Shehzad Bojani: Responded by highlighting current efforts to better understand and address student barriers through data collection. He shared that a survey, developed in partnership with UC Riverside's Center for Social Innovation, has been distributed to CTE students to gather information on challenges such as transportation. He emphasized that the purpose of this effort is to use data to inform decisions and improve support systems for students across CTE

programs. He encouraged educators to ensure student participation in the survey to help guide future strategies and resource development.

Audience Response: Highlighted that many industry organizations already provide accessible online resources that educators and students can use to explore curriculum, assessments, and training expectations. He noted that union and training program websites often include tools such as sample curriculum, practice assessments, and "sandbox" environments that allow users to interact with materials before formally adopting them. He emphasized that these resources are typically free to explore and can help educators better understand program requirements, align instruction, and prepare students for entry into the trades. He reinforced that while these resources are available, increased awareness and utilization are needed to fully take advantage of them.

Audience Question 6: *What is the value of pre-apprenticeship or community college training when entering a union apprenticeship program?*

Ricardo Cisneros: Explained that union apprenticeship programs provide both employment and structured training, whereas other programs may offer certificates without direct job placement. He noted that students who complete pre-apprenticeship or college programs may still need to enter at the beginning of an apprenticeship, but those experiences can help them stand out to employers. He emphasized that building relationships with employers during training can improve opportunities and potentially help students bypass long waitlists.

Deserie Lamp: Noted that while students may still begin at entry-level within an apprenticeship program, prior experience and skills can influence how contractors view them. She explained that contractors may choose to pay individuals at a higher level based on demonstrated skills, even if they formally start at the beginning of the program. She emphasized that having prior training and experience can provide an advantage in securing opportunities and progressing within the field.

Jason Shefts: Highlighted that certain skills, such as welding, can provide a significant advantage when entering an apprenticeship. He explained that apprenticeship programs may not have sufficient time to fully develop these skills, so prior experience gained through community college or training programs can be beneficial. He noted that students with these skills may receive credit or advance more quickly in certain areas, depending on the program and coursework completed.

Cross-Panel Key Takeaways

These are the themes that appeared consistently across the full four questions AND the audience Q&A.

1. **Technology is reshaping the industry while reinforcing the need for strong foundational skills.** Advancements such as AI, automation, GPS systems, and digital diagnostics are transforming how work is planned and executed. However, these technologies are not replacing the need for skilled workers. Panelists emphasized that workers must be able to perform core tasks such as measuring, welding, and interpreting plans, while also adapting to and working alongside evolving technologies.

2. **Employability is driven by soft skills, communication, and the ability to self-advocate.** Work ethic, reliability, communication, and the ability to take direction were consistently identified as critical factors in hiring and retention. Panelists and audience members emphasized that students must be able to present themselves professionally, communicate effectively in interviews, and demonstrate initiative when seeking opportunities.

3. **Students need meaningful exposure to career pathways and real-world expectations.** The construction industry includes a wide range of roles, including emerging sectors such as energy and specialized construction. Students must understand both the variety of opportunities available and the physical, environmental, and performance expectations of the work to make informed decisions and successfully transition into the field.

4. **Strong pathways and industry connections are essential to successful student transitions.** Connections between CTE programs, unions, and industry partners are critical to ensuring students move from education into employment. While pre-apprenticeship and training programs provide valuable skills, there is a need for stronger alignment and clearer pathways that recognize prior learning and support student advancement.

5. **Barriers such as transportation and access continue to limit student participation.** Transportation, access to driver's licenses, and awareness of opportunities were identified as ongoing challenges that impact students' ability to enter and persist in the trades. Addressing these barriers is essential to improving access and equity in career pathways.

6. **Resources exist but require greater awareness and intentional use.** Many industry organizations provide curriculum, assessments, and training tools; however, these resources are not always widely known or utilized. Increasing awareness and access to these materials can support stronger program alignment and student preparation.

7. **Stronger alignment between education systems and industry expectations is needed.** Educators emphasized the need for curriculum-aligned resources, standards, and structured guidance that align with both educational requirements and workforce

expectations. Greater coordination between education and industry is necessary to support sustainable program implementation and student success.

Cross-Panel Action Items

These action items synthesize the most actionable guidance from the full advisory. These are the steps teachers can embed into coursework, lesson plans, or pathway design.

1. Integrate technology alongside foundational skill development.

- Embed opportunities for students to use digital tools (e.g., layout software, simulations, or equipment interfaces) while continuing to require mastery of core hands-on skills.
- Ensure students can perform tasks both with and without technology to build adaptability and problem-solving skills.

2. Strengthen soft skills and professional communication within instruction.

- Incorporate structured opportunities for students to practice punctuality, teamwork, and following directions aligned to job site expectations.
- Include mock interviews, verbal presentations, and employer-facing interactions to build confidence and communication skills.

3. Provide structured exposure to diverse construction career pathways.

- Integrate guest speakers, industry examples, and career exploration activities that highlight the range of roles within construction.
- Design learning experiences that help students identify pathways aligned to their interests and strengths.

4. Align classroom experiences with real-world industry expectations.

- Incorporate activities that simulate job site conditions, including physical tasks, time constraints, and problem-solving scenarios.
- Ensure students understand workplace expectations such as early start times, physical demands, and varied work environments.

5. Strengthen partnerships with unions and industry to create clear pathways.

- Collaborate with industry partners to provide students with direct access to apprenticeship information and application processes.
- Work toward developing agreements or consistent processes that support transitions from CTE programs into apprenticeship or employment.

6. Increase awareness and use of existing industry resources.

- Identify and utilize curriculum, training platforms, and practice assessments provided by unions and industry organizations.
- Incorporate these resources into instruction to better align classroom learning with industry expectations.

7. Address barriers that limit student access to opportunities.

- Explore strategies to support transportation needs, including connecting students to available resources.
- Provide clear guidance on entry requirements such as driver's licenses, documentation, and timelines.

8. Incorporate preparation for entry assessments and program requirements.

- Integrate reading comprehension, applied math, and problem-solving aligned to apprenticeship entrance exams.
- Provide opportunities for students to practice using sample test formats and expectations.

9. Support student persistence, initiative, and career readiness behaviors.

- Encourage students to apply for opportunities, follow up with employers, and demonstrate persistence.
- Build classroom structures that reinforce accountability, consistency, and long-term commitment.

Key Takeaways and Action Items by Panelist

These key takeaways and action item lists highlight each respondent's insights, concerns, and suggested actions to address industry trends and to prepare students for the evolving landscape within their respective industries.

Thomas Ruiz, Field Representative, LIUNA, Local 783

Key Takeaways:

- Foundational skills such as measuring, tool use, and following directions remain critical despite technological advancements.
- Work ethic, accountability, and the ability to take direction are essential for long-term success in the trades.
- Transportation and reliability are significant barriers that impact entry and persistence in the industry.
- Persistence and initiative can create opportunities, even without existing industry connections.

Action Items:

- Embed accountability structures and expectations within classroom instruction to mirror job site conditions.
- Prepare students for real-world barriers such as transportation and worksite expectations.
- Encourage persistence by having students practice applying for opportunities and following up with employers.

Deserie Lamp, Outreach Specialist, Western States Regional Council of Carpenters, Local 661

Key Takeaways:

- Exposure to a wide range of career pathways within the trades is essential for helping students make informed decisions.
- Understanding prerequisites, expectations, and different specializations is critical to student success.
- Relationships and follow-up are key factors in transitioning students into apprenticeships.
- Persistence and effort are required to secure initial employment opportunities.

Action Items:

- Provide structured career exploration activities that highlight different trades and specializations.
- Support students in understanding prerequisites and next steps for apprenticeship entry.
- Create opportunities for students to engage with industry partners and practice professional communication.

Jason Shefts, Business Agent, United Association of Plumbers and Pipefitters, Local 364

Key Takeaways:

- AI and emerging technologies are impacting pre-construction and planning processes, requiring workers to adapt.
- Soft skills such as communication, interviewing, and professionalism are critical for employability.
- Apprenticeships require long-term commitment, discipline, and understanding of delayed financial growth.
- Prior training, such as welding, can provide advantages when entering apprenticeship programs.

Action Items:

- Integrate exposure to technology and AI concepts alongside hands-on instruction.
- Incorporate mock interviews and communication practice into coursework.
- Provide opportunities for students to build foundational technical skills that support apprenticeship success.

Keith Aker, Instructor, Operating Engineers Trust, Local 12

Key Takeaways:

- Technology such as GPS and automation is transforming equipment operation and reducing manual tasks.
- Apprenticeship entry is competitive and requires preparation for entrance exams and assessments.
- Work ethic, attitude, and reliability are critical factors in hiring and retention.
- Students often enter with unrealistic expectations and must understand entry-level roles and progression.

Action Items:

- Incorporate test preparation and practice assessments aligned to apprenticeship entrance requirements.
- Expose students to equipment technology and evolving industry tools.
- Reinforce expectations around entry-level roles and long-term career progression.

Ricardo Cisneros, Executive Board President, Inland Empire Labor Institute

Key Takeaways:

- Strong connections between education, unions, and industry are essential to creating effective career pathways.
- Automation and AI require workers to adapt and position themselves to manage and oversee technology.
- Many students lack clear pathways into employment without intentional alignment between systems.

- Communication, awareness, and access to information are critical to improving student outcomes.

Action Items:
- Strengthen partnerships between schools and industry to create direct pipelines into apprenticeship programs.
- Increase awareness of available resources, application processes, and career opportunities.
- Support efforts to align education systems with workforce needs and expectations.

Rick Purper, Training Director, IBEW, Local 440
Key Takeaways:
- Careers in electrical work offer strong earning potential without requiring advanced degrees.
- Reading comprehension and math skills are critical for entry into apprenticeship programs.
- Interview performance and the ability to communicate skills effectively are key to securing opportunities.
- The work requires adaptability, problem-solving, and the ability to perform in varied environments.

Action Items:
- Incorporate reading comprehension and applied math aligned to industry expectations.
- Provide structured interview practice and opportunities for students to present their skills.
- Prepare students for the physical and environmental realities of the work.

Labor Market Information

The following labor market information was sourced from https://www.onetonline.org/ on March 31, 2026.

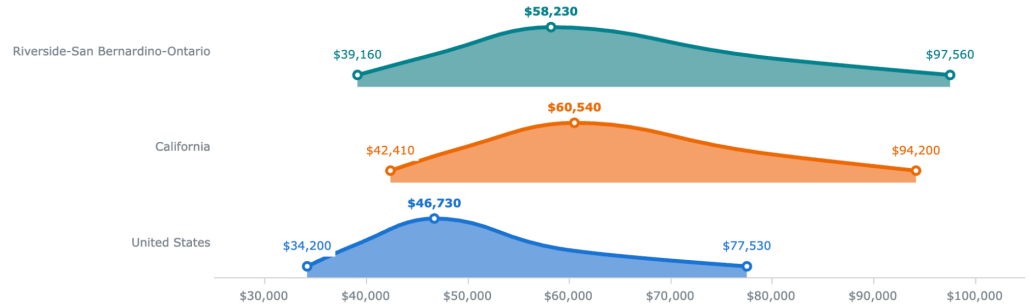
Local Wages

47-2061.00 - Construction Laborers Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$58,230**.
- 10% of workers earn **$39,160 or less**.
- 10% of workers earn **$97,560 or more**.

In California:

- Workers on average earn **$60,540**.
- 10% of workers earn **$42,410 or less**.
- 10% of workers earn **$94,200 or more**.

In the United States:

- Workers on average earn **$46,730**.
- 10% of workers earn **$34,200 or less**.
- 10% of workers earn **$77,530 or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

47-2061.00 - Construction Laborers Bright Outlook

View trends for state: California Go

In California:

Employment (2022)	126,000 employees
Projected employment (2032)	145,900 employees
Projected growth (2022-2032)	16%
Projected annual job openings (2022-2032)	13,540

In the United States:

Employment (2024)	1,457,000 employees
Projected employment (2034)	1,563,400 employees
Projected growth (2024-2034)	7% Much faster than average
Projected annual job openings (2024-2034)	129,400

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

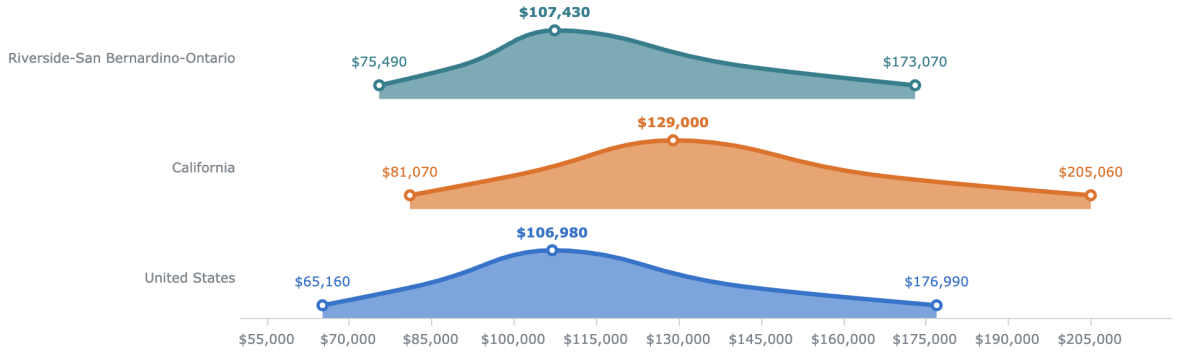
Local Wages

11-9021.00 - Construction Managers Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$107,430**.
- 10% of workers earn **$75,490 or less**.
- 10% of workers earn **$173,070 or more**.

In California:

- Workers on average earn **$129,000**.
- 10% of workers earn **$81,070 or less**.
- 10% of workers earn **$205,060 or more**.

In the United States:

- Workers on average earn **$106,980**.
- 10% of workers earn **$65,160 or less**.
- 10% of workers earn **$176,990 or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

11-9021.00 - Construction Managers Bright Outlook

View trends for state: California Go

In California:

Employment (2022)	60,600 employees
Projected employment (2032)	67,400 employees
Projected growth (2022-2032)	11%
Projected annual job openings (2022-2032)	5,190

In the United States:

Employment (2024)	550,300 employees
Projected employment (2034)	598,400 employees
Projected growth (2024-2034)	9% Much faster than average
Projected annual job openings (2024-2034)	46,800

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

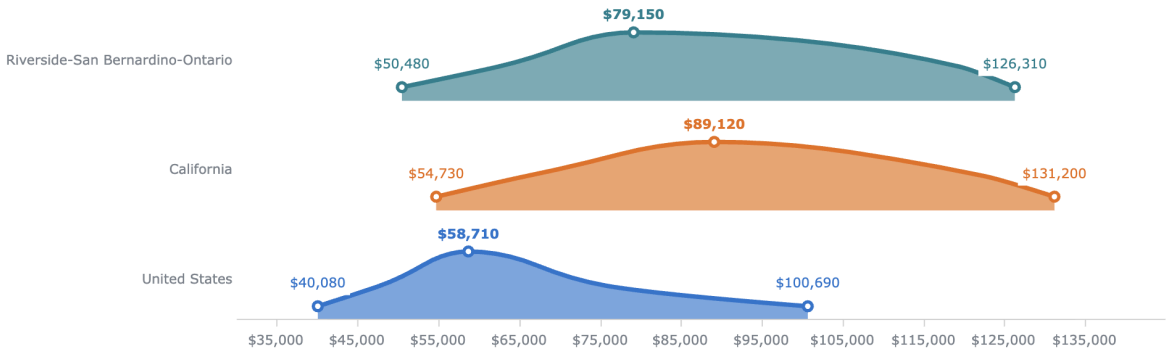
Local Wages

47-2073.00 - Operating Engineers and Other Construction Equipment Operators

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$79,150**.
- 10% of workers earn **$50,480 or less**.
- 10% of workers earn **$126,310 or more**.

In California:

- Workers on average earn **$89,120**.
- 10% of workers earn **$54,730 or less**.
- 10% of workers earn **$131,200 or more**.

In the United States:

- Workers on average earn **$58,710**.
- 10% of workers earn **$40,080 or less**.
- 10% of workers earn **$100,690 or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

47-2073.00 - Operating Engineers and Other Construction Equipment Operators

View trends for state: California Go

In California:

Employment (2022)	33,600 employees
Projected employment (2032)	38,100 employees
Projected growth (2022-2032)	13%
Projected annual job openings (2022-2032)	3,450

In the United States:

Employment (2024)	489,300 employees
Projected employment (2034)	507,100 employees
Projected growth (2024-2034)	4% Average
Projected annual job openings (2024-2034)	41,900

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

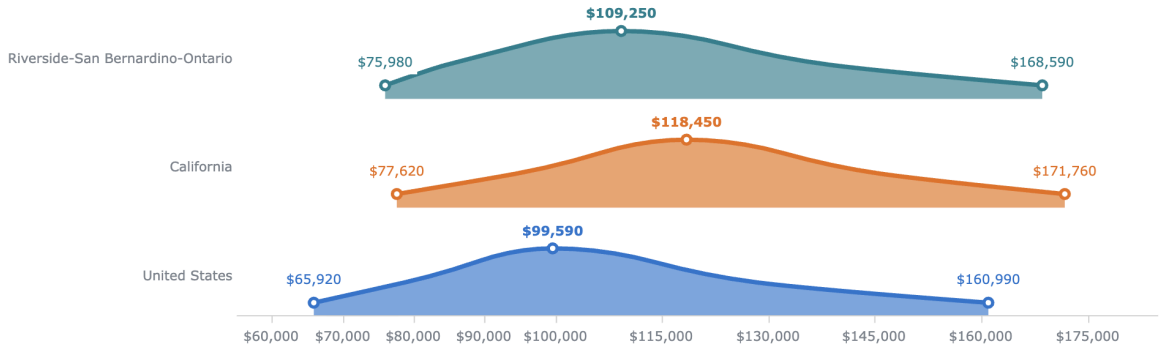
Local Wages

17-2051.00 - Civil Engineers Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$109,250**.
- 10% of workers earn **$75,980 or less**.
- 10% of workers earn **$168,590 or more**.

In California:

- Workers on average earn **$118,450**.
- 10% of workers earn **$77,620 or less**.
- 10% of workers earn **$171,760 or more**.

In the United States:

- Workers on average earn **$99,590**.
- 10% of workers earn **$65,920 or less**.
- 10% of workers earn **$160,990 or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

17-2051.00 - Civil Engineers Bright Outlook

View trends for state: California Go

In California:

Employment (2022)	50,400 employees
Projected employment (2032)	56,600 employees
Projected growth (2022-2032)	12%
Projected annual job openings (2022-2032)	3,740

In the United States:

Employment (2024)	368,900 employees
Projected employment (2034)	387,500 employees
Projected growth (2024-2034)	5% Faster than average
Projected annual job openings (2024-2034)	23,600

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

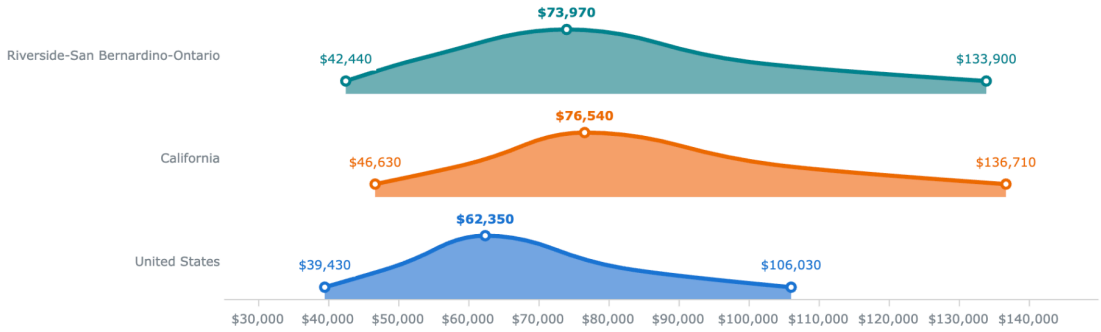
Local Wages

47-2111.00 - Electricians Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$73,970**.
- 10% of workers earn **$42,440 or less**.
- 10% of workers earn **$133,900 or more**.

In California:

- Workers on average earn **$76,540**.
- 10% of workers earn **$46,630 or less**.
- 10% of workers earn **$136,710 or more**.

In the United States:

- Workers on average earn **$62,350**.
- 10% of workers earn **$39,430 or less**.
- 10% of workers earn **$106,030 or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

47-2111.00 - Electricians Bright Outlook

View trends for state: California Go

In California:

Employment (2022)	78,200 employees
Projected employment (2032)	88,600 employees
Projected growth (2022-2032)	13%
Projected annual job openings (2022-2032)	8,310

In the United States:

Employment (2024)	818,700 employees
Projected employment (2034)	896,100 employees
Projected growth (2024-2034)	10% Much faster than average
Projected annual job openings (2024-2034)	81,000

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

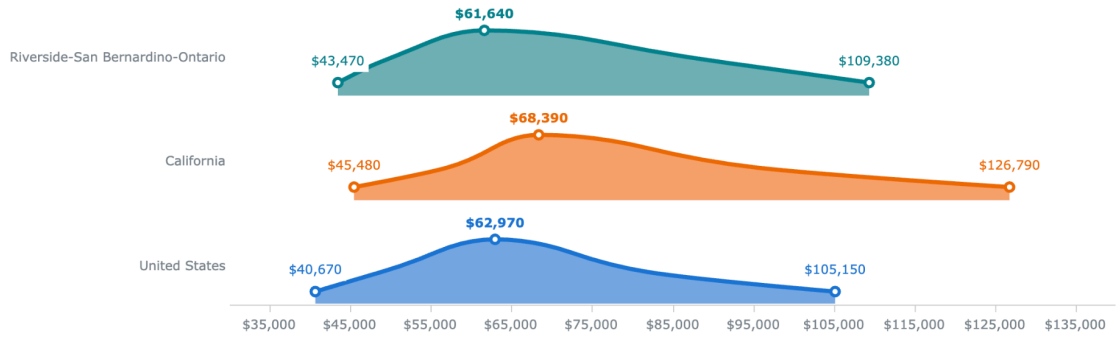
Local Wages

47-2152.00 - Plumbers, Pipefitters, and Steamfitters Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$61,640**.
- 10% of workers earn **$43,470 or less**.
- 10% of workers earn **$109,380 or more**.

In California:

- Workers on average earn **$68,390**.
- 10% of workers earn **$45,480 or less**.
- 10% of workers earn **$126,790 or more**.

In the United States:

- Workers on average earn **$62,970**.
- 10% of workers earn **$40,670 or less**.
- 10% of workers earn **$105,150 or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

47-2152.00 - Plumbers, Pipefitters, and Steamfitters Bright Outlook

View trends for state: California Go

In California:

Employment (2022)	46,500 employees
Projected employment (2032)	50,400 employees
Projected growth (2022-2032)	8%
Projected annual job openings (2022-2032)	4,520

In the United States:

Employment (2024)	504,500 employees
Projected employment (2034)	527,200 employees
Projected growth (2024-2034)	5% Faster than average
Projected annual job openings (2024-2034)	44,000

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

Local Wages

11-9041.00 - Architectural and Engineering Managers

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages

In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$170,180**.
- 10% of workers earn **$122,130 or less**.
- 10% of workers earn **$239,200+ or more**.

In California:

- Workers on average earn **$201,810**.
- 10% of workers earn **$132,880 or less**.
- 10% of workers earn **$239,200+ or more**.

In the United States:

- Workers on average earn **$167,740**.
- 10% of workers earn **$111,450 or less**.
- 10% of workers earn **$239,200+ or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

11-9041.00 - Architectural and Engineering Managers

View trends for state: California Go

In California:

Employment (2022)	35,500 employees
Projected employment (2032)	38,900 employees
Projected growth (2022-2032)	10%
Projected annual job openings (2022-2032)	2,660

In the United States:

Employment (2024)	212,500 employees
Projected employment (2034)	220,500 employees
Projected growth (2024-2034)	4% Average
Projected annual job openings (2024-2034)	14,500

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

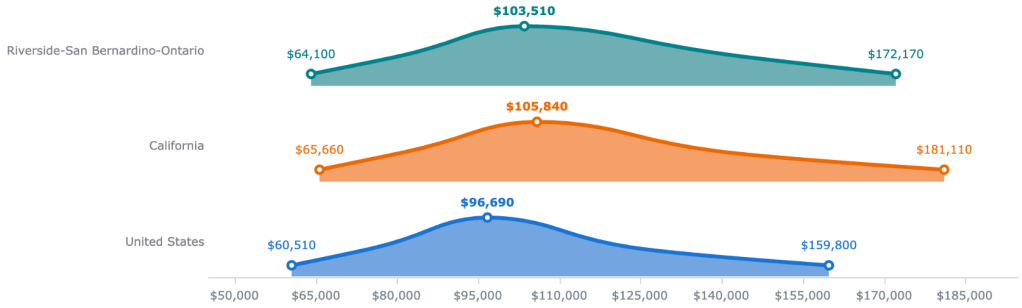
Local Wages

17-1011.00 - Architects, Except Landscape and Naval

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$103,510**.
- 10% of workers earn **$64,100 or less**.
- 10% of workers earn **$172,170 or more**.

In California:

- Workers on average earn **$105,840**.
- 10% of workers earn **$65,660 or less**.
- 10% of workers earn **$181,110 or more**.

In the United States:

- Workers on average earn **$96,690**.
- 10% of workers earn **$60,510 or less**.
- 10% of workers earn **$159,800 or more**.

Source: Bureau of Labor Statistics 2024 wage data.

California Employment Trends

17-1011.00 - Architects, Except Landscape and Naval

View trends for state: California Go

In California:

Employment (2022)	17,600 employees
Projected employment (2032)	20,500 employees
Projected growth (2022-2032)	17%
Projected annual job openings (2022-2032)	1,430

In the United States:

Employment (2024)	123,600 employees
Projected employment (2034)	128,400 employees
Projected growth (2024-2034)	4% Average
Projected annual job openings (2024-2034)	7,800

California source: Projections Central 2022-2032 long-term projections. United States source: Bureau of Labor Statistics 2024-2034 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.