Sector Strategy 2025 Update
Aerospace and Advanced Manufacturing Sector

Please describe the greatest workforce needs facing your sector, with a focus on needs that career connected learning strategies can help to address. (2 pages max)

The Washington State Aerospace and Advanced Manufacturing industries continue to face significant technical workforce needs across the following sub-sectors:

1. Machining
2. Mechatronics
3. Aircraft Manufacturing

At the same time recent reports indicate Aerospace continues to be an important industry to our economy. Aerospace and Advanced Manufacturing workforce needs are broadly identified in the following list:

1. The placement and retention of mid-level employees and onsite management employees. *(This is important to ensure employers can manage apprenticeship and internship programs)*
    a. There is a need for dedicated funding for incumbent worker training to support mid-level employees and retain current staff.
    b. With inflation on the rise, high costs of living are continuing to impact job acceptances and retention. Applicants often turn down job offers due to high housing and living costs throughout our state, which in turn leads to recruitment and retention challenges.
2. An increase in education and training programs that inform students of the career pathway opportunities and enable them with the foundational skills to enter the industry.
    a. The development of soft skills and industry transferable skills particularly in youth.
    b. Utilizing retiring employees as both instructors and trainers in training and apprenticeship programs to leverage industry experience to train and prepare new employees.
    c. Informing students, counselors/teachers, and their families of the lucrative occupations and career pathways in both Aerospace and Advanced Manufacturing to correct any preconceived stereotypes of the industries.
3. Grow and expand Career Connected Launch programs.
    a. Apprenticeship and pre-apprenticeship programs
    b. Specifically, investing in the expansion of aerospace worker training programs and apprenticeships.
4. More transparency with industry credential needs and skills-based hiring.

5. Better the connections between industry and education to improve the alignment between what's being learned in the classroom and what is expected and/or desired by employers especially with new and evolving technology within the industry.
6. Childcare affordability and accessibility for the returning, emerging, and current workforce.
    a. This has impacted predominantly female apprentices when it comes to their ability to successfully complete apprenticeship and pre-apprenticeship programs. The issue of childcare accessibility and affordability has contributed to the lack of female workers within both the Aerospace and Manufacturing industry's workforces.
7. An aging workforce – Anticipated retirements are expected to lead to workforce shortages, especially with a significant portion of the workforce nearing retirement age.
    a. Could exacerbate current skill and talent shortages.
8. Supporting rural businesses, empowering rural communities, and ensuring efficient and equitable service opportunities across Washington.
9. More support in training programs and industry for underrepresented communities within both Aerospace and Advanced Manufacturing.
    a. Women, minorities, and immigrants.
10. The Aerospace industry needs to prepare their workforce for the ramp up of the industry projected for the end of 2025. There will be a need for more planes to be built as the FAA begins to allow more planes to be built and the industry begins to return to pre-COVID levels (as far as aircraft production). Companies are hoping to be prepared to return to higher aircraft production levels, presenting the need to ensure that workers are properly trained and skilled to do so, especially given the amount of lay-offs after the machinist strike last year.

Current barriers that affect the problem-solving of the above workforce needs include, but are not limited to:

1. Fierce competition for a technically competent and trained workforce. Many industries are vying for the same small talent pool as the skills needed for most occupations in the Aerospace and Manufacturing industries are also needed in many other high-demand industries within our state (such as Maritime, IT/Technology, Clean Energy, etc.)
2. The continuous fast-paced advancement in technology, machining, and equipment do impact education and training requirements for the industry. These quick and constant advancements make it difficult for programs to keep up with the "latest and greatest" technology, trained faculty, and equipment both financially and spatially (the amount of space the program has to house machinery and equipment needed for training).
3. The lack of qualified teachers/educators/faculty available to educational and training programs looking to hire, grow and expand. Additionally, educational and training programs are competing with industry in terms of competitive pay.
4. A lack of access in early grades to explore career pathways in Aerospace and

Advanced Manufacturing. As well as the lack of preparation activities in coursework/curriculum to introduce and prepare youth and young adults from all communities.

5. Access barriers in rural communities statewide: transportation, funding, housing, childcare, industry awareness, distance between employers, distance/access to training facilities, industry boom-bust cycles can put local employment at risk etc.
6. Anticipated retirements in organizations are expected to lead to workforce shortages, especially with a significant portion of the workforce nearing retirement age.
7. Washington State business tax burden: More than half of employers (52%) say the overall tax burden is the biggest challenge facing their business, followed by government regulations (48%)
8. New tariff barriers are now a potential threat to the industry and ultimately will affect the ability of companies to keep up with their workforce needs and production demands. Uncertainty with the tariffs, specifically tariffs that the U.S. is placing on other countries, is causing fear among the supply chain and OEMs as much of the chain is made up of materials sourced from many countries and a reliance on collaboration. The tariffs are stated as an opportunity for the industry to move more manufacturing back to the United States, meaning the industry, education, and government must work together to fill a pipeline of curious and skilled students to ensure quality and consistency to keep up with demand and innovation.
    a. Employer survey results from tariffs April 2025
        i. 72% of employers are concerned that tariffs will negatively impact business with 7% risk of closure
        ii. 35% of businesses are looking to delay planned capital expenditures

Between now and June of 2026, what are your sector's 3-6 occupations that are highest-priority for building supportive career connected learning pathways? Please focus on occupations that lead to economic self-sufficiency.

- Machinists:
    - Set up and operate a variety of machine tools to produce precision parts and instruments out of metal. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures. Machinists who primarily program or operate computer numerically controlled (CNC) equipment are classified in "Computer Numerically Controlled Tool Operators and Programmers" (51-9160)
- Welders:
    - Use hand-welding, flame-cutting, hand-soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.
- Electrical and Electronic Engineering Technologists and Technicians:
    - Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, adjust, and modify

electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions.

- Electro-Mechanical and Mechatronics Technologists and Technicians:
  - Operate, test, maintain, or adjust unmanned, automated, servomechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment to observe or record visual information at sites such as oil rigs, crop fields, buildings, or for similar infrastructure, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.
- Aerospace Engineer Operations Technician:
  - Operate, install, adjust, and maintain integrated computer/communications systems, consoles, simulators, and other data acquisition, test, and measurement instruments and equipment, which are used to launch, track, position, and evaluate air and space vehicles. May record and interpret test data.

For <u>each</u> of the occupations identified above, please provide the information below to help inform pathway development efforts and investments.

Occupation: Machinists	**Sub-sector: CNC Machining**
Average wage: $31.00 / hour (ESD OEWS, Median Wage) | Mean Hourly Wage: $33.00	
Which skills/competencies do employers use as a benchmark to hire someone in this occupation? ● Knowledge of machining equipment and tools ● Ability to follow blueprints and technical drawings ● Ability to use machining equipment ● Administrative and organizational skills for records and paperwork ● Computer Numerical Control (CNC) Machining (i.e. a manufacturing process in which pre-programmed computer software dictates the movement of factory tools and machinery) ● Eye for detail ● Problem solving ● Manual dexterity ● Effective time management ● Adaptability ● Mathematics and science skills	**Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?** ● High School diploma or equivalent ● Certificate or diploma in machining, engineering, or equivalent preferred ● Experience in operating precision tools ● CNC Machining Training Program

Please describe possible career progression opportunities for this occupation:

- Mentorship Role
- Advancement into a specialization
- Manager Role
- Head Machinist

Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:

Knowledge acquired by the most recent survey in March 2025 with manufacturing leaders as well as employer feedback through in-person meetings at technical colleges and workforce roundtables.

During the work stoppage, AFA and AWB had constant communication with the industry to take the temperature of how each business was impacted on a weekly basis. Qualitative data shared through employer relationships with the associations.

The AWB Winter 2024 Washington Manufacturers Survey highlights the barrier employers are facing in terms of hiring mid-level positions. The majority of manufacturing employers surveyed stated that it's taking a long time to fill these mid-level positions, like Aerospace Machinists.

Please describe the top barriers employers have identified to hiring for this occupation:

The supply chain is also seeing a ramp up after 2024 and the fall work stoppage. For example, Boeing is ramping up to 38 737 airplanes/month which includes new airplanes and inventory. Suppliers are discussing among themselves and associations that they are working to onboard more machinists in preparation for consistent monthly deliverables nearing the end of 2025.

Although there was widespread support and communication between Boeing and their suppliers, the industry had furloughs, shared work, and layoffs across the supply chain and OEMs due to the fall strike. Suppliers shared that there was a difficulty in rehiring those some of these workers as the uncertainty with the length of the strength. It is believed that some of these workers left the industry during this time, even those on shared work, because the weekly amount of payment was less than they were previously making. Machinists are highly sought after across sectors as companies have moved to Washington State specifically due to the quality of the workforce in the aerospace supply chain.

Employers are continuing to have difficulty hiring intro level and mid-level management Machining roles. This is thought to be due to a lack of public knowledge about the benefits and complexity of the role. The main source for new hires is through referrals of those who are or have been machinists. Employers are discussing the need for fundamentals (semi-skilled) machinists as well as curiosity, a need to improve and critical thinking skills. A connection of this with education is teaching students how to learn and being comfortable in problem-solving situations.

There could also be an avenue for media and information sharing about the Machinist role. The specific skills looking at and considering different opportunities to market for Machining roles on social media for younger generations to give a quick explanation for what the role entails. Educating the public on what the Machinist occupation is and the career pathways available through a job in machining is essential to overcoming the barrier of reaching the future workforce and filling intro/mid-level jobs.

Aerospace Machinists are required to have great attention to detail, the ability to work independently and an interest in why and how machines work. CNC Machinists are highly skilled and in-demand in areas beyond aerospace which can further crunch the industry. From employers - "We need the basics in Manufacturing". We need CNC Machinists and we need basic manual machining". CCL can continue to support CTE and CTC programs which are a major pipeline into the industry. With supporting these programs, this also allows for more knowledge about the meaning of the role through relationships and community. This could bring in even more of a workforce as statistics show that the best way to hire a machinist is through personal references.

An employer in aerospace manufacturing focusing on machining stated that they are having a difficult time retaining employees. If there is a dollar raise in a different sector or a new job that is closer to the employee's home, they are leaving the industry due to convenience. Employers are also very concerned about pending retirements, many in the industry are near retirement and there is not always a clear path to ensure the next generation is prepared. This is putting stress on the industry due to the training involved in Aerospace Machining.

Please describe the type of programs or approaches employers have found helpful in hiring for this occupation:

The WATR Center works with industry and has annual meetings to update their program to adjust their systems for industry machining needs. This is a great example of a program utilizing industry leaders from the supply chain and OEMs to ensure that their students have the necessary skills for entry level machining roles. There is also a push on soft skills with interview practice that can lead to mid-level positions in the future.

A number of community colleges including Lake Washington and Bates Technical College have prioritized machining pathways. The state commitment to double the number of jobs in Manufacturing has enabled SBCTC to prioritize the continual updating and purchasing of equipment for Machining programs in some grant applications. This has been important because in the past some Machining programs at community colleges have had to close due to the inability to maintain and upgrade equipment.

AJAC and Machinist Institute works with industry and is a part of workforce discussions to continue their partnerships with industry. Aerospace Machining programs MUST have industry representation as a part of a feedback loop. Successful programs are updating their curriculum to keep up with the needs of the industry rather than creating a program and hoping it aligns with the needs.

Occupation: Welders	**Sub-sector: Manufacturing**
Average wage: **$30.27 / hour (ESD OEWS, Median Wage) | Mean Hourly Wage: $31.17**	
Which skills/competencies do employers use as a benchmark to hire someone in this occupation? • Ability to read blueprints and use spacial recognition to apply to 3D diagram • Physical strength/hand-eye coordination • Administrative skills • Detail oriented, manual dexterity, physical strength, spatial-orientation skills • Mathematics and Technology	**Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?** • American Welding Society - Certified Welder Designation and Certification • High School diploma/GED - technical and on the job training • The American Society of Mechanical Engineers offers certification in practical welding technology for workers who are looking to enhance core competencies. • Institute for Printed Circuits offers certification and training in soldering • OSHA requires that welders complete training on electrical safety
Please describe possible career progression opportunities for this occupation: • Vocational Training or Apprenticeship • Entry-Level Welder • Certification • Experienced Welder • Senior Welder or Supervisor • Continued Education and Specialization	
Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation: Employer feedback within the aerospace and space sector with site visits. Employers in King County have stated to have openings and growth opportunities, but applicants are not showing up to interviews or do not have the hard skills needed consistently to hire on. This is beginning to be subcontracted out. Data was released in May 2024 and covers a period in May 2023. New data has not yet be released - Learn about an occupation | Employment Security Department	
Please describe the top barriers employers have identified to hiring for this occupation: High difficulty in current hiring for skilled trade workers, including welders, stems from several significant barriers identified by employers:	

Aging Workforce- Over half of the skilled tradespeople in welding and related fields are over the age of 45 years old. This demographic trend indicates a looming shortage of experienced welders as older workers retire, exacerbating the difficulty in finding qualified candidates to fill vacant positions. A number of employers have mentioned a willingness to pay more for quality welders than entry-level accounting/office staff. 95% of Welders from several educational programs have job offers well before graduation.

Welding is especially important for the industry because it is an entry-level skill that can be built upon with other skills and industry-specific knowledge and can be seen across sectors. We are hearing that companies are getting applications, but there is difficulty with a large percentage of the applicants showing up and/or having the described skills in their interviews.

Negative Misconceptions- There exists a negative misconception among the younger population regarding welding and trade roles. This perception may stem from outdated stereotypes or a lack of awareness about the lucrative career opportunities and advancements available in the welding industry. Addressing these misconceptions is crucial to attracting younger individuals to pursue careers in welding.

Preference for Four-Year Degrees- There is a higher percentage of the younger generation opting to pursue four-year degrees over vocational training or apprenticeships in skilled trades like welding. This preference may be influenced by societal pressure or a perception that white-collar professions offer greater prestige and financial stability. Consequently, there's a smaller pool of candidates entering the welding profession, further exacerbating the skills gap.

Please describe the type of programs or approaches employers have found helpful in hiring for this occupation:

Technical colleges are a great way to combat a negative association with welding. Using apprenticeship programs help to get a profession in welding kickstarted, then later welders can add degrees on top of their technical skills for management and supervisor roles.

Employers have spoken positively about Perry Technical College in Yakima. A number of employers have set up apprenticeships and hire graduates. Currently the school is at capacity with a new satellite campus. They host an annual employer expo in April (capped at 110 employers) - the expo has been full since February.

One notable program in Washington State that is successfully hiring and training welders is the Welding Technology program offered by Renton Technical College (RTC). RTC offers a Welding Technology program designed to prepare students for entry-level positions in the welding industry. The program covers various welding processes, including shielded metal arc welding, gas metal arc welding,, flux-cored arc welding, gas tungsten arc welding, and oxy-fuel cutting

AWB recently featured work between multiple Centers of Excellence positioned within Community Colleges and CCW industry leads working to streamline Welding training among various industries. This holds promise for Manufacturing as well - as the manufacturing industry overlaps with agriculture and maritime when it comes to welding demand.
https://www.awb.org/joint-effort-supports-washingtons-welding-workforce/

Occupation: Electrical and Electronic Engineering Technologists and Technicians	**Sub-sector:**
Average wage: **$40.74 / hour (ESD OEWS, Median Wage) | Mean Hourly Wage: $42.16**	
Which skills/competencies do employers use as a benchmark to hire someone in this occupation? ● Communication skills - must be able to follow instructions from engineers and others. They also need to clearly convey problems to engineers. ● Detail oriented - must pay attention to detail when assembling, troubleshooting, and repairing electronic and electrical mechanical systems. ● Math skills - use of mathematics for analysis, design, and troubleshooting tasks. ● Mechanical skills - use hand tools and soldering irons on small circuitry and electronic parts to build components by hand. ● Problem-solving skills- identify and fix problems that arise in assembling and inspecting electrical engineers' designs and prototypes. ● Writing skills - write reports about onsite construction, design problems, or testing results	**Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?** ● Associate degree ● Certification for electrical and electronic technologists and technicians (NICET) ● Certifications such as the Certified electronics Technician (CET) can help to show dedication to improving skills
Please describe possible career progression opportunities for this occupation: ● Electricians ● Supervisors ● Project Superintendents ● Production Managers in Manufacturing ● Warehouse Managers ● Maintenance Managers	
Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:	

Discussion among leaders in the industry as well as Washington State data.

Data was released in May 2024 and covers a period in May 2023. New data has not yet be released - Learn about an occupation | Employment Security Department

Please describe the top barriers employers have identified to hiring for this occupation:

There is a high need for workers to replace current electronic and electrical engineering technologists and technicians to replace current aging and retiring workforce.
In addition, there is an upkeep needed for technological advancements. Top barriers include:

Skills Gap- One of the primary barriers is the disconnect between the skills possessed by job seekers and the skills demanded by employers. Many candidates may lack the specific technical skills or hands-on experience required for the job, leading to difficulties in finding suitable candidates.

Technological Advancements- The rapid pace of technological advancements in the field of electrical and electronic engineering can create challenges for both job seekers and employers. Employers may struggle to find candidates with up-to-date knowledge and expertise in emerging technologies such as renewable energy systems and automation.

Experience Requirements- Employers often seek candidates with relevant work experience in the field. However, entry-level positions may require experience that recent graduates or individuals transitioning from other careers may not have. This experience barrier can make it challenging for employers to fill positions with qualified candidates.

Soft Skills- In addition to technical skills, employers also value soft skills such as communication, teamwork, problem-solving, and adaptability. Employers have also commented that electronics manufacturing is detailed in a way that often does not align with CTE stereotypical understanding of manufacturing. Electronics Manufacturers are looking for creative detail oriented individuals able to work with very small parts - sometimes under a magnifying glass.

Employers increasingly recognize the importance of building diverse and inclusive workforces. However, achieving diversity goals in technical fields such as electrical and electronic engineering can be challenging due to historical underrepresentation of certain demographics, such as women and minorities, in the field.

Please describe the type of programs or approaches employers have found helpful in hiring for this occupation:

Apprenticeship and Internship Programs are helping employers hire electronic and electrical engineering technologists and technicians. Some programs to note are WSU- Electrical Engineering and Technology Program, Bellevue College - Electronics Engineering Technology Program, Renton Technical College (RTC) - Electronics Technology Program, Green River College - Electrical Engineering Technology Program.

Employers report electronic manufacturing can benefit from Youth Apprenticeships, part-time scheduling for junior and senior students to experience on the job training and hosting "TON of Tours" focused on advanced robotics for local middle schools. Many employers also donate to schools and sports programs to attract the attention of CTE programs. There is a great need for expansion of pathways for this occupation now in our state and in the future as with the advancement of AI and the growth/development of electrical grids. We will need skilled and knowledgeable workers to maintain and facilitate this work. Expertise of electrical grids is critical as technology advances and there is an increase in use. This all in turn impacts the Aerospace industry as many Aerospace employers rely on these electrical grids.

The Industry requires IPC certificates in Manufacturing every 2 years https://www.ipc.org/ipc-certifications IPC Certification and Apprenticeships for Electronics Assemblers are nationally recognized credentials with extreme value to employers.

Occupation: Electro-Mechanical and Mechatronics Technologists and Technicians	**Sub-sector: Fiber Optics Controller**
Average wage: $50.08 / hour (ESD OEWS, Median Wage) | Mean Hourly Wage: $45.77	
Which skills/competencies do employers use as a benchmark to hire someone in this occupation? ● ***Communication skills -*** must be able to follow instructions from engineers. They also need to clearly convey problems to engineers. ● ***Detail oriented -*** take and record the precise measurements that engineers need. ● ***Logical-thinking and curiosity -*** to carry out engineers' designs, inspect designs for quality control, and assemble prototypes, electro-mechanical and mechatronics technologists and technicians must follow a specific sequence or a set of rules. ● ***Math skills.*** - use of mathematics for analysis, design, and troubleshooting in their tasks. ● ***Mechanical skills.*** They must be able to operate equipment such as drill presses, grinders, and engine lathes. ● ***Problem-solving skills.*** Ability to identify and fix problems that arise with engineering designs and prototypes.	**Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?** ● Electro-mechanical and mechatronics technologists and technicians may earn optional certification to demonstrate professional competence. ● Certified Control Systems Technician (CCST) and Certified Automation Professional (CAP) a plus ● Training in vocational schools, related on-the-job training experience, or an associate's degree

• ***Writing skills.*** Electro-mechanical and mechatronics technologists and technicians must write clear, well-organized reports that describe onsite construction, testing results, and problems they found in carrying out designs.	

Please describe possible career progression opportunities for this occupation:

Wages depend on industry. The highest paying industries include:

- Utilities
- Transportation and warehousing
- Management of Companies and enterprises
- Mining, quarrying, and oil and gas extraction
- Professional, scientific, and technical services
- Administrative, support and waste management services

Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:

According to the U.S. Bureau of Labor and Statistics, approximately 1,300 job openings for Electro-Mechanical and Mechatronics Technologist are projected each year, on average. Furthermore, Washington State is among the top paying states for Electro-Mechanical and Mechatronics Technologists and Technicians.

Please describe the top barriers employers have identified to hiring for this occupation:

These openings are a result of the need to replace workers who transfer to other occupations or exit the labor force (i.e. retirement). Therefore, employers have expressed that there are not enough trained individuals with the necessary skillsets to fill these positions. The machining and equipment that is needed to train students for this occupation is also very expensive and schools have difficulties finding funding to purchase and maintain the needed equipment to train students.

Please describe the type of programs or approaches employers have found helpful in hiring for this occupation:

According to the U.S. Bureau of Labor and Statistics, employers may prefer to hire graduates from accredited programs (accredited by an organization such as ABET). Associate's degree programs that include subjects such as algebra, trigonometry, and sciences are particularly helpful and necessary.

Mechatronics programs at Clover Park Technical College and Spokane Community College have been an incredibly valuable program for employers. We recently featured one of these programs in AWB's Washington Business https://www.awb.org/spokane-community-college-

graduates-filling-in-demand-jobs/

The Center for Excellence in Southwest Washington focused on Semi-Conductors at Clark College is heavily supported by industry and looking to find ways to shorten the transition between education and the workplace.

Occupation: Aerospace Engineering Operations Technician	**Sub-sector:**
Average wage: **$49.85 / hour (ESD OEWS, Median Wage) | Mean Hourly: $48.60**	
Which skills/competencies do employers use as a benchmark to hire someone in this occupation? ● ***Communication skills.*** Ability to follow instructions from aerospace engineers. They also need to clearly convey problems to their supervisors. ● ***Detail oriented.*** Precision with measurements and keep accurate records of these measurements. ● ***Interpersonal skills.*** Must be able to work well with others. They interact with people from other divisions, businesses, and governments. ● ***Math skills.*** Use of mathematics for measurement, analysis, design, and troubleshooting tasks. ● ***Mechanical skills.*** Assist aerospace engineers by building what the engineers design. They need technical skills to guide processes from design to production. ● ***Problem-solving skills.*** Must be able to help evaluate system capabilities, formulate questions, and then find the answers.	**Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?** ● Associate's degree in engineering technology or related field ● Certificate program ● Experienced engineers and technicians may obtain Professional Engineering (PE) License
Please describe possible career progression opportunities for this occupation: ● First-Line Supervisors of Mechanics, Installers, Repairers ● General and Operations Managers ● Project Management Specialists and Business Operations Specialists ● Chief Executives	

- Software Developers and Software Quality Assurance Analysts and Testers
- Computer User Support Specialists

Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:

Employers have been discussing hiring difficulty for these roles.

Employment Data was released in May 2024 and covers a period in May 2023. New data has not yet be released - Learn about an occupation | Employment Security Department

Please describe the top barriers employers have identified to hiring for this occupation:

Specialized Skills and Education: Finding candidates with the necessary qualifications can be challenging, particularly in regions with limited access to relevant educational programs.

Competition: It is difficult for some organizations to attract and specifically retain skilled aerospace engineers and technicians.

Economy and Global Supply Chain Challenges: Hiring qualified engineers and technicians may be impacted by disruptions in the supply chain, such as shortages of critical components or geopolitical tensions.

Ageing Workforce & Retention Strategies: Companies need effective retention strategies to ensure that employees remain engaged and motivated, particularly as they may be susceptible to being lured away by competitors offering attractive opportunities.

Please describe the type of programs or approaches employers have found helpful in hiring for this occupation:

Training programs are the best pipeline in hiring for Aerospace Engineers and Operations Technicians. The WATR Center (Washington Aerospace Training & Research Center) with Edmonds Community College and AMTEC with Everett Community College trains and tailors their work based on current industry needs. The WATR Center is also hired out to businesses that need specialized or specific training in certain roles. This partnership with businesses is helpful to highlight specific skills within the operations technicians to hone in on. AJAC (Aerospace Joint Apprenticeship Committee) combines classroom instruction with on the job training.

AEROSPACE & ADVANCED MANUFACTURING REGIONAL MOMENTUM:

- **Capital CCW Region** **High Priority** - *Active and Rich Employer community and needs. Some existing programming can be scaled*
  - Key Momentum Factors:
    - Expansion to focus on rural K-12 space where established partnerships between post-secondary CTCs and local employers that support CL credential opportunities that currently exist.
    - Need to keep up with evolving technologies
    - Developing curriculum that allows students the option of transferring course credits between CTE pathways for skills they acquire in the K-12 setting (such as welding, which currently is only available as part of the Core Plus Construction and Aerospace curriculums, preventing students from transferring course credit towards another CTE pathway like Maritime).
  - High-Potential Opportunities:
    - Developing three career pathways for rural students. Provides access and opportunity.
    - *2025 goal to introduce at least* 3-5 new CL credentials in occupations such as machining and welding
  - Shared Priority? Yes

- **East CCW Region** **High Priority** - *Active and diversified suppliers along the I-90 corridor. Emphasis needs to be placed to keep up with growing demand.*
  - Key Momentum Factors:
    - Annual growth forecast for Machinists (0.5%), Welding (0.6%), Electro-Mechanical and Mechatronics Technologists and Technicians (0.2%), Electrical and Electronics Engineering Technologists and Technicians (0.6%), Aerospace Engineering Operations Technicians (1.5%)
  - High-Potential Opportunities:
    - Potential for cross-sector collaboration to develop necessary training and skill sets for machinists and welders
    - Continued development on training programs. Promotion of the career opportunities with the proficiency of this skill set to keep skilled workers in the region.
    - Expanded programing for electrical technicians
  - Shared Priority? Yes - Education and Regional Networks are driving Aerospace

& Advanced Manufacturing focus

- **Southwest CCW Region **High Priority**** - *Commitment to the Industry through employer expansion and Regional Network drive.*
    - Key Momentum Factors:
        - Mechatronics Center of Excellence highly important for the Advanced Manufacturing and Aerospace Industry
        - Career Launch at Clark College and potential at Lower Columbia Basin College for Welding
        - Internships for Electrical and Electronic Engineering Technologists and Technicians growing momentum, employers expressing prioritization, and large center for electronics manufacturing
        - Clark college career launch and employer internal certification programs in place for Electro-Mechanical and Mechatronics Technologists and Technicians
    - High-Potential Opportunities:
        - Need to educate the public on what career labels mean ie. machinists include those who process metals, plastics, electronics, composites, etc.
        - Various learning pathways with versatility and high potential income
        - Aligning K-12 pathways with a new manufacturing career launch
        - High tech council center of excellence opportunity for development
    - Shared Priority? Yes - High amount of communication and commitment among sector leaders and regional networks

- **Northwest CCW Region **High Priority****- *Aerospace & Advanced Manufacturing Hub with active employers home to OEMs and suppliers. Existing programs could be scaled.*
    - Key Momentum Factors:
        - Looking ahead to develop curriculum outcomes that would enable CTE pathways for CTE dual credit opportunities regional with 3 community colleges in the region for manufacturing/engineering
        - Obtained funding in Snohomish County to support manufacturing career exploration programming through EvCC AMTEC and Goodwill, as well as recent grant applications in partnership with Boeing to continue K-12 curricular alignment work
        - Skagit Valley College has had both their Automotive Technology and Manufacturing Engineering Technology programs approved. This will increase Career Launch enrollment immediately for 2023-24.
    - High-Potential Opportunities:
        - Advancement in CTE dual credit opportunities
        - Strong relationships to build upon with training centers, community colleges, and technical colleges. These relationships can lead to further development of career exploration and career launch programs in the region.
        - Several colleges in the region are also planning to apply for Career Launch Endorsement for programs in priority sectors, such as machining at Everett Community College.
    - Shared Priority? Yes

- **King & Pierce CCW Region **High Priority**** - *Aerospace & Advanced Manufacturing Hub with active employers home to OEMs and suppliers. Existing programs and employer led programs could be scaled.*

    - Key Momentum Factors:
        - High quantity of employers and training programs for Aerospace and Advanced Manufacturing and growth of job opportunities in mechatronics skills
        - Anticipated growth by sector based on current WJI projects current/new CL programs: Advanced Manufacturing & Aerospace: 120
        - Kent Valley Air and Space collaboration exemplifies facilitated conversations with education and employer communication/problem solving
    - High-Potential Opportunities:
        - Collaboration with RN to expand pathway development and CCL opportunities.
        - Manufacturing WORKS (advanced manufacturing & aerospace sector) — a partnership with WorkForce Central, AJAC, and regional community colleges in manufacturing occupations such as machinists and welders.
        - Training and educating teachers and students on career pathway opportunities for those with welding skills. Continuing to engage training programs in conversation with industry to ensure that they are able to train students on equipment so that they are versed in the necessary skills required by industry
        - Continuing to promote secondary programs, counselors, teachers, etc so that they understand the career potentials
    - Shared Priority? Yes

- **North Central CCW Region **Growing Priority**** *-High potential in opportunity and growth within the region due to sustainable aviation. Training programs are needed to support and sustain growth.*
    - Key Momentum Factors:
        - Sustainable Aviation & manufacturing companies looking to expand and relocate to the region
        - Expanding apprenticeship opportunities within manufacturing
        - Cross sector workforce needs (agriculture, cleantech)
        - Growing access and expansion to training programs.
    - High-Potential Opportunities:
        - Manufacturing
        - Potential with alignment through sustainable aviation and clean energy
        - Access to more sustainable aviation opportunities as there is more room for growth with access to land
        - Promoting the need for electrical technicians in the area
    - Shared Priority? Yes

- **South Central CCW Region **Growing Priority**** - *High potential in opportunity and growth within the region due to sustainable aviation. Training programs are needed to support and sustain growth.*
    - Key Momentum Factors:
        - Cross sector technical workforce needs
        - Sustainable Aviation & manufacturing companies looking to expand and relocate to the region
    - High-Potential Opportunities:
        - Potential for cross-sector pathway development and essential skills.
        - Aerospace and manufacturing are in-demand

        - Potential with alignment through sustainable aviation and clean energy
    - Shared Priority? Yes

- **West Sound CCW Region **Growing Priority**** - *Numerous employers eager to expand their capacity. Geographic advantages with collaboration to manufacturing and energy.*
    - Key Momentum Factors:
        - Regional location places a great barrier when it comes to accessibility of training programs however, there is a need to retain skilled workers for occupations in the area.
        - Off shore wind is a topic of conversation throughout manufacturing with a need to ensure energy for the future
        - High demand for skilled electrical technicians in this region - not meeting skill needs.
        - Need to maintain equipment and sustain aircraft
    - High-Potential Opportunities:
        - Train and retain workers to further grow the West Sound region and increase the pool of skilled workers across multiple sectors.
        - Promotion of the occupations accessible through proficiency in electrical skill sets
        - Opportunity for more training programs in this region, demand for aerospace
    - Shared Priority? Yes

- **Mid Columbia CCW Region **Potential Future Priority**** - *This region is not on the 1-90 corridor and could become activated in collaboration with agriculture production and other industry needs especially as the need for SAF fuel comes into fruition.*
    - Key Momentum Factors:
        - Growing interest in Aerospace and strong presence in Advanced Manufacturing in this region.
        - This momentum can be seen through some access to the I-90 corridor and increased collaboration with Idaho in the supply chain
        - Cross Sector opportunities to expand apprenticeship opportunities
    - High-Potential Opportunities:
        - Opportunities for cross-sector technical skills development with Maritime and Construction as there is a need for entry level knowledge of Machining and to tap into individuals that have interest in this interest, but have not yet found the right industry.
        - Food Processing and Advanced Manufacturing
        - Continuing to keep up with evolving technology
    - Shared Priority? Yes

Please describe the types of employers in your sector who are most eager to participate in career connected learning to meet their workforce needs. Why are these types of employers interested in participating in career connected learning, and what type of career connected learning programs are most valuable to them?
We are seeing social enterprises within aerospace and advanced manufacturing successfully access and create quality CCW programs. Social enterprises within Aerospace and Advanced Manufacturing blend business with purpose, producing high-quality, supply chain-critical

materials while advancing a unique social mission, empowering the community. These businesses/organizations play a vital role in strengthening both industry resilience and social impact. Social enterprises generally have employees that work in grant writing and have experience building programs that are industry tied and tailored to workers of different backgrounds. This exemplifies part of what makes aerospace and advanced manufacturing successful as it can be for anyone, no matter someone's past.

It is important that programs are put together by businesses and/or organizations that feed into the entire industry ie. working with other aerospace and advanced manufacturing businesses to hire out their trainees.

One item to note - career connected learning needs to be accessible for companies and organizations that do not have grant writers or much experience in RFPs. We recommend these companies partnering with training organizations above to help fill the need in their pipeline if they have limited resources.

Career Prep, Career Explore, and Career Launch are highly important in our industry with each program projecting to Career Launch.

For each region below, which workforce education & training programs are *effectively* meeting employer needs, or could effectively meet their needs with adjustment or expanded capacity? Where relevant, please color code responses to reflect their relevance to specific occupations.	
Please provide your color coding key below: (M) = Machinists (W) = Welders (EE) = Electrical and Electronic Engineering Technologists and Technicians (EM) = Electro-Mechanical and Mechatronics Technologists and Technicians (AE) = Aerospace Engineering Operations Technician	
Note to Consider As you read through the below workforce education & training programs, please consider the following information about Aerospace related job growth in Washington State. This tells us that career opportunities in Aerospace are continuing to grow and you do not have to have a background in engineering to work in Aerospace. The 5 identified high-priority occupations in both the Aerospace and Advanced Manufacturing sectors showcase both career pathways in both engineering and non-engineering roles and there are plenty of opportunities for people with or without a background in engineering in these sectors.	

Capital	• The Machinists Institute Career Accelerator (Machinists Institute) (M)
	• Business2Youth Advanced Manufacturing Career Prep (Thurston County Chamber of Commerce Foundation) (M)
	• Welding Technologies CTC (Centralia College) (W)
	• STEAM into Tech (Big Brother Big Sisters of Southwest Washington) (EE) (EM) (AE)
	• Centralia College (W) (EE) (EM) (AE)
	  ○ Engineering
	  ■ Mechanical/Aerospace Engineering (AS-MRP or AS-T2)
	  ■ Electrical Engineering (AS-MRP or AS-T2)
	  ○ Technology, Trades, & Manufacturing
	  ■ Associate in Applied Science: Electronics, Robotics & Automation
	  ■ Mechatronics (AS - MRP)
	  ■ Certificate of Proficiency: Industrial Trades
	  ■ Associate in Applied Science: Welding
	  ■ Certificate of Proficiency: Welding
	  ■ (Evening Program) Certificate of Completion: Welding
	• Grays Harbor College (W)
	  ○ Associate in Technology: Welding

East	• Manufacturing Connections (Greater Spokane Valley Chamber of Commerce) (M) (AE) (EM) • The Academy Builder Program (East Valley School District) (M)

	• Aerospace Career Launch (North Central WDC/SkillSource) (M) (AE) • Youth Academy/Career Accelerator Career Launch (Machinists Institute) (M) • Manufacturing w/ AJAC Registered Apprenticeship (Spokane Workforce Council) (M) • Machinists Institute - Youth Academy/Career Accelerator Career Launch - Spokane Workforce Council (M)

King & Pierce	• Renton Technical College (RTC) (W)
	• Manufacturing Engineering Technologies CTC (Clover Park Technical College) (AE) (EE) (EM)
	• STEM + Manufacturing Career Explore (Seattle Goodwill Industries) (M)
	• Bates Technical College (M) (AE) (EM) (W) (EE)
	  ○ Advanced Manufacturing
	  ■ Associate of Applied Science: Machinist
	  ■ Certificate of Training: CNC Operator
	  ■ Certificate of Training: Toolmaking Technology
	  ○ Science, Technology, Engineering and Math (STEM
	  ■ Associate of Applied Science: Electronic Equipment Service Technician
	  ■ Associate of Applied Science: Automation and Mechatronics
	  ■ Certificate of Training: Robotics Specialist
	  ■ Associate of Applied Science: Electrical Engineering Technology
	  ■ Certificate of Training: Engineering Technology
	  ■ Associate of Applied Science: Mechanical Engineering Technology
	  ■ Certificate of Training: Engineering Technology
	  ○ Transportation and Trades
	  ■ Associate of Applied Science: Sheet Metal Technology
	  ■ Certificate of Training: Sheet Metal Production Support
	  ■ Associate of Applied Science: Welding
	  ■ Certificate of Training: Welder
	• Clover Park Technical College (M) (AE) (EM) (W) (EE)
	  ○ Aerospace and Aviation
	  ■ Associate of Applied Technology/Associate in Applied Science - T : Aviation Maintenance Technician
	  ■ Certificate: Avionics Technician
	  ■ Bachelor of Applied Science: Operations Management
	  ○ Advanced Manufacturing
	  ■ Bachelor of Applied Science: Operations Management
	  ■ Bachelor of Applied Science: Mechatronics Engineering Technology & Automation (BAS-META)
	  ■ Mechatronics
	  • AAS - T
	  • AAT
	  • Certificate
	  ■ Nondestructive Testing

	● AAT or AAS-T ● Certificate ○ Welding Technology ■ Associate of Applied Technology or AAS-T: Welding Technology ■ Certificate: Basic Welding ■ Certificate: Gas Tungsten Arc Welding ■ Certificate: Layout & Fabrication Welding ■ Certificate: Shielded Metal Arc Welding ■ Certificate: Shielded Metal Arc Welding Pipe ■ Certificate: Wire Feed Welding ● Green River College (W) (M) (EM) ○ Associate in Applied Science: Mechanical Computer - Aided Design ○ Associate in Applied Science: Maintenance Mechatronics ○ Certificate: Maintenance Mechatronics ○ Associate in Applied Science -Transfer : Maintenance Mechatronics ○ Associate in Applied Science: Welding Technology ○ Certificate: Welding Technology ● Highline College (EE) ○ Associate of Sciences: Computer & Electrical Engineering (AS-T Track II MRP) ● Machinist Institute Training Programs - Tukwila (M) ○ Machinist Training Programs ■ Exact Aerospace ■ Machinists Inc. ■ Beckwith & Kuffel ● Aerospace Joint Apprenticeship Council (AJAC) - Manufacturing Career Launch - Seattle/King County WDC (M) ● Lake Washington Institute of Technology (M) (W) (EE) (EM) ○ Engineering & Manufacturing ■ Electronics Technology ● Certificate: PCB Design Technician ● Certificate: Aerospace Assembly Specialist ● Certificate: Aerospace Manufacturing ■ Machining Technology ● Associate in Applied Science: Machining Technology ● Bachelor of Applied Science: Design ● Certificate of Completion: CNC Production and Inspection ● Certificate of Proficiency: Machining Technology ● Certificate of Completion: Milling Setup and Operation ● Certificate of Completion: Multi-Axis Programming, Setup, and Operation ● Certificate of Completion: Turing Setup and Operation

	■ Mechanical Design ● AAS-T: Mechanical Design Technology ● Certificate of Completion: AutoCAD ● Certificate of Proficiency: Mechanical Design Technology ● Certificate of Completion: SolidWorks ■ Welding Technology ● Associate in Applied Science: Welding Technology ● Certificate of Completion: Welding Introduction ● Certificate of Proficiency: Welding Technology
Mid-Columbia	● SEATech - AJAC Production Technician Registered Youth Apprenticeship Program - Advanced Manufacturing and Welding Technology Program (Walla Walla Public Schools) (M) (W) (EE) ● Columbia Basin College (M) (W) (EE) ○ Career and Technical Education ■ Manufacturing Technology ● Associate of Applied Science: Precision Machining ● Supplemental Type Certificate: Solid Modeling for Manufacturing ■ Welding Technology ● Associate of Applied Science: Welding Technology ● Certificate: Welding Technology ■ Engineering ● Associate of Applied Science: Engineering Technology ■ Machining ● Supplemental Type Certificate: Basic Machining ● Supplemental Type Certificate: Introduction to CNC ● Certificate: Manual Machining
North Central	● Aerospace Career Launch (North Central WDC/SkillSource) (M) (AE) ● Machining Technology CTC (Wenatchee Valley College) (M) ● Engineering Career Launch (Wenatchee Valley College) (EE) (AE) ● Industrial Technology Electronics CTC (Wenatchee Valley College) (EE) (EM) ● Big Bend Community College (EM) (AE) (W) (EE) ○ Aviation ■ Associate of Applied Science: Aviation Maintenance Technology ○ Manufacturing and Process Technology ■ Associate of Applied Science - T : Manufacturing & Process Technology: Maintenance Emphasis ■ Associate of Applied Science - T : Manufacturing & Process Technology: Mission Critical Operations

	Emphasis ■ Associate of Applied Science - T : Manufacturing & Process Technology:Robotics & Automation Emphasis ○ Welding ■ Associate of Applied Science: Welding Technology ■ Welding Certificate of Achievement ■ Welding Certificate of Accomplishment ○ Engineering ■ AS - T Pre-Engineering: ME/CE/MS&E/AERO (OTRE) ● mechanical/civil/aeronautical/material science engineering (OTRE) or in electrical/computer hardware engineering (CEE)
Northwest	● Manufacturing Technology Career Launch (Skagit Valley College) (EE) (AE) ● Manufacturing Engineering Technologies CTC (Skagit Valley College) (AE) ● AMTEC - Advanced Manufacturing Training & Education Center (Everett Community College) (M) (W) (EE) (EM) (AE) ○ Associate in Technical Arts Degree in Advanced Manufacturing Tech - Precision Machining ○ Principles of Precision Machining Certificate ○ Manufacturing Pre-Employment Certificate ○ Associate in Technical Arts Degree in Advanced Manufacturing Technology - Mechatronics ○ Mechatronics Systems Certificate ○ Robotics Foundation Certificate ○ Associate in Technical Arts in Advanced Manufacturing Technology in Technical Design, CAD ○ Auto CAD Certificate ○ CAD Certificate ○ CATIA 3D Experience Certificate ○ Mastercam Machining Certificate ○ NC Programming Mastercam and Vericut Certificate ○ Numerical Control Programming Foundation Certificate ○ Solid Works Certificate ○ Associate in Technical Arts Degree in Advanced Manufacturing Technology - Composites ○ Aerospace Composites Foundations Certificate ○ Aerospace Composites Technician Certificate ○ Associate in Technical Arts Degree in Welding and Fabrication ○ Certificate in Welding ○ TIG Welding Certificate ○ Entry Level Welding Certificate ○ Advanced Manufacturing Technology - Welding and Fabrication Certificate ● Bellingham Technical College (M) (AE) (EM) (W) (EE) ○ Advanced Manufacturing ■ Associate of Applied Science: Industrial Maintenance

	& Mechatronics ■ Associate of Applied Science: Instrumentation & Control Technology ■ Associate of Applied Science: Machining ■ Certificate of Training: Machining - Principles of Machining & CNC Operation ■ Certificate of Training: Machining - Quality Assurance ■ Bachelor of Applied Science: Operations Management ■ Associate of Applied Science: Process Technology ■ Certificate of Training: Process Technology ■ Associate of Applied Science: Welding & Fabrication Technology ■ Certificate of Training: Basic Welding Skills ○ Engineering Technology ■ Associate of Applied Science: Composites Specialization ■ Associate of Applied Science: Mechanical Design Specialization ■ Certificate of Training: Mechanical Design Specialization - AutoCAD and/or SolidWorks ■ Bachelor of Applied Science: Engineering Technology ○ Industrial Technology ■ Associate of Applied Science: Electrician ■ Associate of Applied Science: Welding & Fabrication Technology ■ Certificate of Training: Welding & Fabrication Technology - Basic Welding Skills ● Edmonds College & Washington Aerospace Training & Research (WATR) Center & Advanced Manufacturing Skills Center (AMSC) (M) (AE) (EM) (EE) ○ Engineering & Manufacturing ■ Aerospace ● Certificate from WATR Center (12 Week Program) ■ Advanced Manufacturing & Materials Engineering Technology ● Bachelor of Applied Science: Manufacturing and Materials Engineering Technology (BAS-AMMET) ■ Engineering ● AS-Track 2 for Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering ● AS-Track 2 for Computer and Electrical Engineering ■ Engineering Technology ● AAS-T Robotics and Automation ● ATA Manufacturing and Materials Science ● ATA Mechatronics and Automation Technology ● Certificate of Completion: Manufacturing and Quality Assurance

	● Certificate of Completion: CAD with 3D Printing ● Skagit Valley College (EM) (W) (EE) (M) ○ Industrial Technology and Transportation ■ Bachelor of Applied Science: Advanced Manufacturing ■ AAS-T Engineering Technology ■ Associate in Applied Science: Engineering Technology ■ Certificate: Manufacturing Technology ■ Micro-Certificate: Composites Repair Technician ■ Micro-Certificate: Manufacturing Automated Systems Technology ■ Micro-Certificate: Manufacturing Computer Numeric Control (CNC) Operator ■ Associate in Applied Science: Welding Technology ■ Certificate: Welding Technology ■ Specialty Certificate: Welding Technology - Aluminum ■ Specialty Certificate: Welding Technology - Flux Cored Arc ■ Specialty Certificate: Welding Technology - Shielded Metal Arc Welding ■ WABO Certification: Welding Technology ■ Micro-Certificate: Automotive Engine Machinist
South Central	● Aerospace Career Launch (North Central WDC/SkillSource)Aerospace Career Launch (North Central WDC/SkillSource) (M) (AE) ● Big Bend Community College (EM) (AE) (W) (EE) ○ Aviation ■ Associate of Applied Science: Aviation Maintenance Technology ○ Manufacturing and Process Technology ■ Associate of Applied Science - T : Manufacturing & Process Technology: Maintenance Emphasis ■ Associate of Applied Science - T : Manufacturing & Process Technology: Mission Critical Operations Emphasis ■ Associate of Applied Science - T : Manufacturing & Process Technology: Robotics & Automation Emphasis ○ Welding ■ Associate of Applied Science: Welding Technology ■ Welding Certificate of Achievement ■ Welding Certificate of Accomplishment ○ Engineering ■ AS - T Pre-Engineering: ME/CE/MS&E/AERO (OTRE) ● mechanical/civil/aeronautical/material science engineering (OTRE) or in electrical/computer hardware engineering (CEE) ● Aerospace Joint Apprenticeship Council (AJAC) - Manufacturing Career Launch - South Central Washington WDC (M)

Southwest	• Wahkiakum County Career Explore (Washington State University) (M) (AE)
	• The Machinists Institute Career Accelerator (Machinists Institute) (M)
	• Semiconductor Career Launch (Workforce Southwest) (EE) (AE)
	• Clark College (EM) (AE) (W) (EE)
	  ○ Advanced Manufacturing and Mechanical
	  ■ Mechatronics
	  ● Associate in Applied Technology: Mechanical & Instrumentation Automation
	  ● Certificate of Achievement : Mechanical Automation
	  ● Certificate of Completion: Mechatronics Fundamentals
	  ■ Welding
	  ● Associate in Applied Technology: Welding Technologies
	  ● Certificate of Proficiency: Welding Technician
	  ● Certificate of Achievement: Gas Tungsten Arc Welding
	  ● Certificate of Achievement: Shielded Metal Arc Welding
	  ● Certificate of Achievement: Flux Core Arc Welding
	  ● Certificate of Achievement: Gas Metal Arc Welding
	  ■ Mechanical, Civil & Aeronautical Engineering
	  ● Associate in Science (AST2)
	  ■ Electrical and Computer Engineering
	  ● Associate in Science (AST2)
	• Machinists Institute Training Programs - Southwest Washington (M)
	  ○ Machinist Training Program
	  ■ Innovative Composite Engineering
	  ■ Kyocera
	  ■ USNR

West Sound	• Seattle Goodwill Industries - Evergreen Goodwill - STEM + Manufacturing Career Explore - Olympic Consortium WDC (M) (EM) (AE) (W) (EE)
	• Olympic College (M) (EM) (AE) (W) (EE)
	  ○ Manufacturing & Engineering Technology
	  ■ Associate in Applied Science: Engineering Technology- Manufacturing Technology
	  ■ Associate in Applied Science: Engineering Technology - Manufacturing Machining
	  ■ Certificate: Manufacturing Technology - Computer Numerical Control
	  ■ Certificate of Completion: Manufacturing Technology
	  ■ Associate Controls Specialist Apprenticeship
	  ■ Associate in Technical Arts: Industrial Trades Technician

	■ Associate in Technical Arts: Technical Design ■ Certificate of Completion: Mechanical Technician ■ Certificate: Technical Design ■ Associate in Technical Arts: Welding ■ Certificate of Proficiency: Welding Technology ■ Certificate: Aluminum Welding ■ Certificate: Precision Metal Cutting ○ Engineering ■ AS-T: Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering ■ AS-T: Electrical and Computer Engineering ● Skills Center Bremerton and Grays Harbor ● Jefferson County

What is needed to increase participation of BIPOC students in your sector's high priority occupations? To increase participation of students from rural areas? Which programs are doing this well? (2 pages max)

Goal 1: Expand awareness and access to Aerospace and Advanced Manufacturing Career Pathways with an emphasis on partnerships and engagement with organizations for BIPOC youth, women, students from rural communities, and other historically under-invested populations

- Map and identify gaps in the availability of Career Prep and Career Launch opportunities across rural and urban Washington communities, especially in regions seeing growth in sustainable aviation (e.g., North Central, South Central).
- Partners participating in the Good Jobs Challenge have been impactful in thinking through programmatic connections for women with an equity lens.
- Connect with culturally responsive and community-led programs featuring leadership and participation from BIPOC students, families, and rural educators - sector leads can be the connection piece into Industry employers
- Strengthen early exposure programs by supporting continued student visits to aerospace, space, and supply chain companies—especially in agriculture-dominant regions now expanding aerospace presence.
- Prioritize multigenerational engagement, including programs and outreach targeted to parents and trusted family members, recognizing their key role in post-secondary and career decisions.
- Expand collaboration with CorePlus Aerospace and other proven partners to support paid pathways to post-secondary degrees and guaranteed employment.
- Work with employers to highlight career progression opportunities—from entry-level roles to engineering and leadership—through storytelling, video features, and school presentations
- Implement Career Exploration and awareness-building programs at the elementary and middle school levels, including immersive tours
- Continue engagement efforts for students with immigrant and refugee backgrounds with high sensitivity and protection of student information

Goal 2: Remove structural barriers and build foundational tools to advance an equitable and inclusive aerospace and advanced manufacturing workforce development system

- Supplement current labor market data by collecting qualitative insights from rural employers, BIPOC youth, and underserved communities to better assess workforce supply and demand across the state.
- Support the AWB Manufacturing Council subcommittee's efforts to increase BIPOC and women's participation and leadership in the sector, including pilot programs focused on peer networks and fast-track upskilling
- Engage with Career and Technical Education (CTE) programs and school districts to identify and remove barriers related to enrollment, curriculum alignment, and exposure to aerospace career options
- Elevate community voices, including Native and immigrant communities, in identifying and designing solutions to local workforce challenges.
- Promote and invest in existing community-driven and school-based programs with a track record of success in supporting diverse student engagement in aerospace and manufacturing
- Advocate for policy changes that increase support for regional pre-apprenticeship programs, contextualized career learning, and employer-driven program models
- Support workplace innovations, such as multilingual manufacturing floor layouts and inclusive workflow design (e.g., Kass Tailored), to ensure job access regardless of language or physical ability

What overarching strategies do you recommend to support pathway development for the highest-priority occupations in your sector? (2 pages max)

Employer Engagement, Data & Industry Convenings

- Publish statewide surveys from trusted associations with industry trends and workforce needs, employer convenings, visit manufacturers and training programs annually, and include regional leaders and other partners when possible to strengthen employer connections
- Develop a collaborative matrix of cross-sector baseline skills, modeled after the M.A.C. Cross Sector Welding & Fabrication Framework

Industry Recognition

- Launch a standardized and transparent Manufacturing Awards Program and continue Fall tours of Washington State manufacturing businesses with statewide leaders
- Create an annual one-page industry overview with data on sector growth by CCW region to highlight industry priorities

Work-Based Learning & Talent Development

- Strengthen educator - industry relationship, ensuring workforce training aligns with real-world employer needs
- Working with employers to adopt a skills - based hiring framework and approach when looking to hire new talent. Additionally, Core Plus Aerospace already utilizes this methodology and works with training programs to ensure that the skills students are learning are in alignment with the skills - based hiring framework implemented by Boeing and correlate to a direct occupation within aerospace manufacturing. We would engage other employers in this practice to benefit talent development for the industry.
- Reduce the ratio of open positions to qualified candidates by enhancing career guidance and expanding access to industry - recognized credentials
- Educate and market roles within the aerospace and advanced manufacturing to show the variety of careers within the industry

Policy & Legislative Advocacy

- Organize industry site tours for legislators, alongside visits to community & technical college programs, showcasing workforce challenges & solutions within the industry
- Advocate for policies that support workforce diversity, inclusion, and equitable access to advanced manufacturing and aerospace careers

Diversity, Inclusion & Workforce Accessibility

- Expand outreach efforts to ensure manufacturing and aerospace reflect Washington's diverse workforce
- Foster an inclusive talent pipeline by deepening industry connections with underrepresented communities, women, and rural populations
- Highlight industry role models through media campaigns and events to inspire the next generation of manufacturing and aerospace professionals

Please describe the types of activities and tactics you believe are needed to make progress against each recommendation between now and June of 2026, including:

1. **Key activities and tactics you would like to prioritize as a fully-funded Sector Leader**
2. **Key activities other partners should consider advancing**

Continued Integration of Educational Partners with Fast Evolving Employer Needs

- Foment strong facilitated roundtable discussions to build trusted local relationships (similar to the existing work in Kent Valley - Aerospace/Space Roundtable)
- These roundtables will occur in local communities with local business leaders and regional network leads
- Reports from roundtables will be shared with local participants confidentially to ensure trust building

- Lead workforce events, such as the AFA Summit, that brings in industry leaders, education, and training organizations to develop relationships
- Continue collaboration with CorePlus Aerospace to ensure more employer involvement and a stronger pipeline for the industry

Goal: Action items that arise from the discussions will be shared out and spur existing regional planning and result in interconnected industry/education programs at the state-level and responsive to regional needs.

Redesign Engagement with Manufacturing Week to Prioritize Relationship Building and Engagement

- Cultivate and maintain strong relationships that have been established as a result of our outreach for Manufacturing Week
    - Generate momentum and trust for site visits and field trips outside of Manufacturing Week
    - Work with current and past Manufacturing Week employers on how best to develop a student oriented experience including recommendations on how best to engage educational partners.
- Prioritize student connection to Manufacturing Education programs in order to support enrollment and early understanding of industry
- Track other partners engagement in October from educational partners and regional plans in order to better integrate and build upon industry engagement/awareness
- Look for Teacher/Regional CCW leads to participate on tours
- Look for roundtable discussions to focus employer conversation on diversification of industry

Goal: Enhance Industry Exposure and increase student enrollment in training programs.

- Map out a matrix of baseline skills needed in multiple sectors to give students the opportunity to find their sector and employees a larger pool of applicants
- Market and showcase student success stories within the Aerospace & Advanced Manufacturing sector
- Represent the voice and needs of industry and the business community through employer engagement.
- Engage with education/training partners to keep them up to date on what industry needs as industry representatives on boards and councils
- Continue to build relationships with Regional Networks, Career Connected Learning Coordinators, and Sector Leaders who share areas of alignment in strategy and pathway development.