



Building Alaska's Construction Workforce



A Comprehensive Workforce Development Plan

A report prepared by the
Alaska Workforce Investment Board
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State of Alaska

*Frank H. Murkowski, Governor
Greg O'Claray, Commissioner*



**ALASKA DEPARTMENT OF LABOR
& WORKFORCE DEVELOPMENT**

Jobs are Alaska's Future

Building Alaska's Construction Workforce

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Alaska Workforce Investment Board

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Building Alaska's Construction Workforce

There are over 30,000 people employed in construction-related occupations in Alaska. Among these are 18,000 construction trade and craft workers who averaged over \$59,000 in earnings during 2004. Alaska is experiencing a critical shortage of resident workers with construction skills. 20 percent of construction workers are new arrivals to the state. Historically, the industry relies on non-residents to fill jobs for which they cannot find qualified Alaskans.

The Alaska Department of Labor and Workforce Development estimates construction job growth will exceed 15% over the next decade, adding thousands of new jobs. More than 40 percent of the workforce are over the age of 45 and could retire within a decade. Job growth and replacing older workers will require about 1,000 new construction workers each year. If a gas pipeline is built thousands more will be needed.

The demand for construction workers is significantly out-pacing the supply from industry and vocational trainers. Putting thousands more Alaskans to work in construction requires additional investment in training programs and capital infrastructure and a coordinated effort by industry, labor, education and government.

The Building Alaska's Construction Workforce plan was developed after studying the workforce labor market conditions and estimated new worker demand, the current supply routes for new workers, and statewide training capacity issues. A background report titled Construction Summit II adopted by the Alaska Workforce Investment Board (AWIB) in August 2005 provides useful information. The report can be found on the Web at www.labor.state.ak.us/awib/pubs.htm.

Guiding Principles

- Industry employers, trade associations, trade unions, apprenticeship sponsors, and schools are most responsible for training workers.
- An analysis of workforce supply gaps, cost-effectiveness and return on investment should guide decisions for state investment.
- The commitment of employers to hire persons trained to meet the needs of industry is imperative to results.
- The construction industry is a market-driven system and public investment must provide opportunities for training individuals.
- The nature of training in the construction trades is that people learn on-the-job and, therefore, any public training should result in employment.
- The Alaska Workforce Investment Board will provide oversight for plan implementation.

We welcome your comments on the plan. To submit them, please send your remarks to the AWIB Executive Director at john_pratt@labor.state.ak.us.

Building the Alaska Construction Workforce

Vision: Alaska has a highly skilled and competitive resident construction workforce that meets the needs of industry employers.

Goal: Increase the number of Alaskan residents working in construction to 90 percent to meet job growth projections.

Process: The plan's process will encompass four objectives that are included in each desired outcome:

- I. Increase the access to information, support services, training and employment through effective outreach and marketing of construction related occupations and careers.***
- II. Provide quality education and training that provides Alaskans with the skills necessary to competitively secure employment in construction related occupations.***
- III. Obtain employment for all who successfully complete training and demonstrate that they have the skills necessary to be competitive in Alaska's labor force.***
- IV. Insure that Alaskans who choose to enter the construction workforce have the supports necessary to complete training and stay in the workforce.***

Desired Outcomes:

1. Double the number of new trade apprentices employed.
2. Increase the number of Alaska high school students who choose construction and enter career training.
3. Increase the number of post-secondary students trained for construction, the number of students in engineering and construction management degree and non-degree programs and the number of persons receiving job training in the construction trades.
4. Increase support for operating rural training centers that provide construction training.
5. More Adult Basic Education (ABE) programs are connected to construction job training.
6. Increase the number of qualified vocational technical instructors to keep up with training demand.
7. Decrease the number of non-residents that are recruited annually to meet the needs of the industry.

Timeline: Begin activities in 2006. Plan covers a five-year period based on current labor market conditions and projections for workforce demand by 2011. Year one ramp up and begin new interventions. Year Two will see full activity toward all objectives.

Results: Increased number of residents employed in construction will strengthen the economy and construction industry and provide high paying jobs for residents. The plan provides a solid framework to build upon should additional pipeline

construction workers be needed. Strategies will provide 3,000 to 4,000 resident workers over next five years.

Resources: The plan calls for an increased investment by government to assist industry and schools with recruiting, educating, training and employing residents in construction. Activities under the plan require cost and resource analysis prior to funding.

Objective #1 - Apprentice Training

Double the number of Alaskan trade apprentices employed over five years.

Strategies:

- Create an information system that tracks apprentice hire by trade to get an accurate count of apprentices employed in Alaska and for evaluating the performance of apprenticeship sponsors.
- Research apprentice data for benchmarks to gauge strategy progress and assist programs to improve enrollment and retention rates.
- Market the benefits of hiring apprentices to industry employers and create employer and sponsor incentives for apprentice hire.
- Develop mentors for apprentices off the job who guide them in work and life decisions.
- Hold an annual apprenticeship conference to improve state efforts.
- Invest in building apprenticeship training capacity as determined by occupational demand, apprentice sponsor results and experience, capability, and leverage resources.
- Develop policies that require employers to hire apprentices on state funded construction work valued over \$2 million or where construction is performed to extract natural resources.
- Work with the apprenticeship programs to develop a competency-based program for new entrants.

Results: 50 percent of new construction workers will be Alaskan apprentices.

Resources: New investment would be for an apprentice information system, marketing to employers, apprentice sponsor/employer incentives, sponsoring an apprenticeship conference, and where applicable expansion of private sector training capacity.

Explanation: Apprenticeship training is the most common method used by Alaska's construction industry to renew the workforce. Apprentices learn through course related instruction and on-the-job training under the guidance of a journeyman. They are paid a wage set to their skill level and they advance in

hourly pay based on course completions and hours of work. Apprenticeship training is paid for by industry.

It takes an apprentice two to five years to complete training depending upon the trade they learn. Apprentices need many employers and many construction projects to get the thousands of hours of on-the-job training required to complete. Employers are not required to hire apprentices. It is a voluntary decision. Nationally about half of apprentices drop out during the first or second year due to lack of work because they can't find an employer who will hire someone in training.

There are more than ten skilled workers hired for every apprentice today (10:1) in Alaska. Industry has established a hiring ratio of four skilled workers for every apprentice (4:1). Hiring at the industry ratio of four skilled workers to one apprentice provides a market driven means for employers to train a new workforce. Dramatically increasing the number of trade apprentices employed and the number of employers that hire apprentices could significantly add to the future supply of resident workers. For example, if an apprentice were to be hired for every eight skilled workers 3,000 more residents would be construction workers.

Governor Frank Murkowski signed Administrative Order 226 in July 2005 relating to the employment of apprentices on Alaska Department of Transportation civil construction projects. The Administration's policy is to increase the number of resident skilled operators, laborers and truck drivers for the construction industry. This Administrative Order creates a precedent for future policy decisions related to hiring apprentices on publicly funded construction projects and those developed under resource leases.

Objective #2 - Vocational Education

Provide more students a path from school to work in construction.

Strategies:

1. Perform a gap analysis study to determine barriers within public education for aligning with industry standards and increasing construction vocational education in schools.
2. Develop a construction career guidance and management program for school counselors and Alaska Job Center Network vocational counselors to help advise in- and out-of-school youth.
3. Fund a media campaign to reach out to Alaska students to attract them to the exciting, high paying work construction and engineering offers.
4. Support career activities such as the Vocational Student Professional Opportunities, Career Fairs, School-to-Apprenticeship and Tech Prep.

5. Offer incentives for employers to hire youth in cooperative learning positions.
6. Assist teachers in understanding and using industry standards in classroom curricula.
7. Connect academic and vocational courses through articulated agreements that build a path for students leading to industry careers.
8. Establish standards for entry-level academic and basic skill requirements and a common assessment tool.
9. Provide summer enrichment opportunities for middle and high school students on university and training center campuses to introduce engineering and construction management programs and career opportunities.
10. Use school facilities more effectively, such as providing students with vocational training during evenings, weekends and summer breaks.
11. Provide resources for construction vocational education courses that serve high school students, older youth, students in alternative education or those who have left school.
12. Develop an inventory of best practices through the school system.
13. Develop on-the-job training (OJT) programs as an element of education internships.

Results: Improving vocational and technical education for students in high school programs will supply many applicants to trade apprenticeship programs, post-secondary schools and college.

Resources: Activities would rely on public investments over several years. Funding would be required to develop marketing campaigns, student guidance materials, to align courses, develop instructors, and offer career activities and courses.

Explanation: The foundation for a highly skilled and productive workforce is a modern vocational technical education system. Our students are the largest available pool of future resident workers. Most high school students are strongly encouraged to go to college. School counselors must have information to guide a student interested in construction as a career and students must have career information available to them. A career management and guidance program for high school counselors, teachers and parents must be developed that help everyone understand how to prepare for entering the construction workforce.

An adequate public investment in vocational and technical education to keep pace with the changing nature of work is a necessary to address resident worker shortages in many high-skill, high-pay jobs. It will take a significant long-term investment to build a modern vocational education system to meet the needs of our economy and employers. A good place to start is building a road from school to work in construction.

Vocational education for construction should meet clearly defined competency standards and use one assessment tool for measuring student skills and

knowledge. This provides a basis for entry-level assessment tests to help students understand their strengths and guide them in choosing the education and training they need to prepare for construction work. Establishing programs to a common standard gives students the right foundation.

The system framework is based on alignment of academic and vocational courses between industry and education. Education includes secondary, post-secondary and higher learning. The courses must align with industry trade apprentice courses. Alignment brings a streamlined and cost-effective approach that ensures a person always advances in skills and knowledge along a path to their career goal.

Objective #3 - Post-Secondary Vocational Technical Education

Increase capacity of post-secondary institutions to supply construction workers.

Strategies

1. Provide scholarships and support for youth who attend post-secondary construction.
2. Include post secondary instructors in professional development opportunities.
3. Align existing programs with academic and industry standards for connections with secondary and college programs via such means as articulation agreements.
4. Assess institution capacity and costs for program expansion.
5. Provide more funding to support remedial education of incoming students.
6. Assess ability to expand post-secondary training through links with regional training centers and industry.
7. Develop articulation agreements with secondary and post-secondary schools that will allow students to move easily throughout the system.
8. Develop programs that require on-the-job training (OJT) as part of the basic educational experience.

Results: Post-secondary institutions for vocational technical training have more capacity and can increase the supply of residents to the construction workforce.

Resources: The state and students pay current costs. Program improvements would be spread among costs for other objectives, such as course alignment and instructor development. Initial funds would be required for student scholarships and student support, remedial education services, institution capacity assessment and to research feasibility of expansion through regional training centers. Additional funding would be required for program expansion.

Explanation: The Alaska Vocational Technical Center (AVTEC) in Seward is our largest post-secondary vocational technical education institution. The school is

straining to meet training demand for many of Alaska's important industries. Operation costs are rising and public funding of AVTEC is not keeping pace.

Post-secondary training plays an important role in developing the future workforce. Many people who aren't going on to college need more education and vocational training to get a good job. This is an important source of new workers for the construction industry.

AVTEC provides some construction courses and delivers courses for apprentice sponsors. Increasing the demand for apprentices coupled with construction paths for high school and older youth will create more demand at AVTEC.

Alaska Technical Center (ATC) in Kotzebue is a state funded post-secondary school and offers some construction training. ATC has limited capacity for training more construction workers.

Objective #4 - Job Training

Increase public funding for construction job training to upgrade incumbent workers skills and help new workers get work experience.

Strategies:

1. Use competitive grants to increase the number of Alaskans who receive services and job training to enter or remain employed in the construction workforce.
2. Support the Denali Training Fund (DTF) and the State Training Employment Program (STEP) to continue providing resources for resident training.
3. Increase STEP funding to provide additional job training for construction and further developing distance training, instructors, and instruction technology for mobile training.
4. Base grant decisions on labor market analysis of demand and supply by occupations, the performance of training providers, and matching resources.
5. Develop an industry-centered approach with the Alaska Job Centers Network to assist job seekers and employers in a streamlined process that expedites training and employment.
6. Assist youth and adult job seekers eligible for Individual Training Accounts to access training resources at Alaska Job Centers for industry training.
7. Refer students in job training who require education enrichment to an adult education provider.

Results: Continued and expanded job training will help supply 25 percent of the resident workforce required to meet the goal. In addition, thousands of current

workers will be provided assistance with upgrade training that helps them stay working in the industry.

Resources: As our economy expands more job training will be required to meet job growth in all industries. The STEP should be increased to ensure adequate resources are available. Increasing STEP funding or providing a General Fund match for STEP would resource this objective.

Explanation: Job training is public funded training that helps job seekers get a job or keep a job. Job training is a key element for retaining a resident workforce and bringing residents into the workforce. The investment in construction job training has greatly contributed over the years to Alaska hire in construction.

In 2004 more than 2,000 workers attended public funded job training. More than 90 percent of persons trained were employed in construction and most saw annual income and length of employment increase. The majority of those trained are incumbent workers who are employed and attend courses to upgrade skills so they can remain employed. Many are job seekers looking for their first construction job.

An individual's first construction job is often used to determine if they want to continue in the industry or look for another line of work. Many may continue to learn as they work while some may choose to enter structured training through trade apprenticeship or courses at a voc-tech school.

Most construction job training grants are provided by the US Department of Labor, the Denali Commission and the Alaska Department of Labor and Workforce Development. These agencies spend several millions of dollars annually. Over 75 percent is spent training rural Alaskans.

Because of government investment construction job training is mobile today. Instructors travel to every part of the state to provide training. Most courses are less than one month long and most training is for specific projects within a community where residents will be employed.

Objective #5 - Rural Training Centers

Increase capacity of rural training centers to host construction training.

Strategies:

1. Assess centers for meeting common training standards, student performance, connectivity with regional education and capacity to provide construction training, anticipated job growth in the area and connectivity with other secondary, post-secondary and apprenticeship programs.
2. Develop common standards, assessment instruments and written agreements between the AKDOLWD and Rural Training Centers for developing industry training programs that serve rural residents.

3. Issue competitive grants to rural training centers to help support operations and training.
4. Evaluate center performance for improvements.

Results: The rural training infrastructure helps train hundreds of residents living in rural Alaska each year.

Resources: State funds for operations come from the Technical and Vocational Education Program (TVEP) and total about \$1.0 million today. This funding should continue. Increasing capacity for construction training would require an increase in TVEP funding. Shifting resources for construction training from TVEP to rural centers would diminish other vocational programs operated by AVTEC and the University.

Explanation: Several rural training centers have been created over the past few years by regional partners. Center operating funds come from partners, local sources and state grants, and through resources from the University of Alaska. These centers have become a vital part of our rural training infrastructure. Rural training centers are significantly increasing the supply of rural residents to the construction workforce by hosting training in their region.

Most of the training is for local hire on rural construction projects funded by the Denali Commission and large construction projects done by contractors. The rural centers are: the Southwest Alaska Vocational Education Center in King Salmon, Yuut Elitnaurviaat Peoples Learning Center in Bethel, the Northwest Arctic Technical Center in Nome, the SMART Center in St. Mary's, the Galena Vocational Technical Center and the Delta Career Advancement Center.

Each center has working relationships with school districts, AVTEC, university campuses, apprenticeship sponsors, and mobile industry trainers. However, each center has a separate mission with no common standards between them. Continued public funding of centers should become based on an evaluation of the center's ability to provide industry courses, and to meet common standards for center operations including instruction space, instructors, facility use, and student performance. These standards should be similar to those covering job training entities and post-secondary schools.

An increase in center operation support from the state will be required to increase construction job training in rural Alaska. Additional funding decisions should be based upon the regional demand and shortage of workers, the center's ability to meet the training demands for the region, the cost per participant for use of the facility, and previous construction student employment results.

Objective #6 - Higher Education

Students entering college select and complete engineering and construction management degree and non-degree programs to meet the needs of construction and resource development employers.

Strategies:

1. Provide financial scholarships and incentives for students who select engineering and construction management programs at the University.
2. Prepare special publication of existing financial aid available for engineering and construction management students.
3. Work with industry and private donors to develop new scholarship opportunities.
4. Work with the state to develop needs-based financial aid opportunities for students.
5. Work with high schools to develop appropriate curricula in math and science to enable students to successfully enter post-secondary engineering and construction management programs.
6. Develop mentoring and tutoring programs within the University of Alaska system to increase student success and retention.
7. Seek industry-sponsored externships that provide teachers and students exposure to the work in the industry and provide opportunities for industry experts to teach in schools.
8. Resource support programs that assist students in overcoming barriers to completing demanding courses of study such as higher math and science courses.

Results: Expansion of University programs and building awareness will provide pathways to career advancement opportunities, which, in turn, will help to replace retiring managers and professionals and supply industry needs arising from growth. Additionally, incumbent workers will have the opportunity to build their knowledge and advance their skill sets, improving their earning potential.

Resources: Public funding will need to be invested to develop University programs and align them with high school curricula. Investments from the private sector will be essential for the creation of new scholarships. Industry must play a key role in marketing available programs and financial aid, developing mentorships and coordinating with University and school districts.

Explanation: The University of Alaska is responding to industry demand by initiating construction management and engineer degree programs, and providing industry related courses at campuses across the state. The University has increased their capability to train construction engineers. Program expansion will require additional resources and involved employers. Engineer students need

mentorship, internship and work experience opportunities. Alaska employers must follow through and hire engineers trained in Alaska.

There are many resources available to assist college students. Those seeking engineering and construction management degrees should be able to access information about resources to attend school. More students could be trained if additional scholarships are developed.

Resources at the University are limited for expanding these programs. In recent years the University of Alaska has had to shift instruction resources to provide remedial education for new students. The number of students requiring remedial education increases each year. These students need pre-college education to succeed in higher learning and work.

Objective #7 - Adult Basic Education (ABE)

Increase the number of adult basic education students who receive construction job training in a defined path from initial skill acquisition to employment.

Strategies:

1. Provide ABE students with career information and guidance for construction.
2. Develop mentors to assist students on the job and when they are off work.
3. Have students complete a standard assessment before applying to a job-training program.
4. Resource training that helps adults increase English reading comprehension and math skills joined with work based job training for construction jobs.
5. Improve assessment of participant needs and design adult learning programs that are adjusted for cultural differences and learning styles.
6. Assess ABE providers for ability to link with construction job training.
7. Increase partnership grants for ABE and job training providers for construction job training that result in ABE clients being employed.
8. Inventory community ABE programs, assess ABE instructor availability and determine best practices for optimal and innovative approaches to service delivery.
9. Develop appropriate ABE training materials to meet construction skill training requirements.

Results: Adult job seekers enter the workforce and continue training to be self-sufficient.

Resources: Additional funding for Adult Basic Education programs would be required.

Explanation: People who complete general education requirements and ABE programs are ready for job training programs. Job training provides initial work experience and can lead to apprenticeship training, post-secondary vocational courses or a college education. Unfortunately, there are many residents that don't complete high school education and require ABE to move forward. There are also many new residents who speak a different language and need to learn English to join the workforce.

Some job seekers are not ready to learn the technical information they need to develop construction skills. Many need more education to improve their language, communications, reading or math skills. Connecting ABE students to construction job training programs can offer many low skilled people a route to work and skills to support themselves.

Objective #8 - Instructor Development

Increase the number of qualified vocational education teachers and industry trainers in Alaska.

Strategies:

1. Provide grants for train-the-trainer initiatives that help vocational teachers and industry trainers meet industry, academic, and government standards.
2. Develop industry employer and educator externship opportunities for teachers to experience real work settings and for employers that want to assist teachers in schools.
3. Provide matching grants for industry to assist with instructor development costs.
4. Develop a network among basic education teachers, vocational teachers and industry instructors for improving training delivery.
5. Provide instructor courses to meet requirements for training and be more effective trainers.

Results: More instructors, more education and training. Instructor development will increase the supply of persons qualified to work in construction.

Resources: Public grants and leverage resources from private training entities.

Explanation: The reduced emphasis on vocational education over the years has depleted the well of instructors available. As job growth continues more instructors will be needed to keep up with training. Instructors have to continuously learn new curricula, teaching methods and instruction technology. Making sure there are enough qualified instructors to train residents is required for plan success.

There are few professional development opportunities for high school or post-secondary teachers. One excellent program has been created by the Matanuska-Susitna School District. The school district organizes a Construction Instructor Academy each year for vocational teachers and trade apprentice instructors. Apprentice schools operated by labor and management have held annual professional development workshops in Alaska the past several years.

Developing a state based train-the-trainer initiative could help improve and expand vocational and technical training for residents and build the supply of new instructors. Aligning program and instructor standards requires teachers who know how and apply them in the classroom.