

## Aerospace – Will Washington State Make the Grade?

By Crai S. Bower

In an economic era beset with intransigent labor v. management struggles, broken government and populist uprisings, the cooperation that produced one of the largest wins in Washington economic history is especially monumental, if not revolutionary. Not only did the Boeing machinist union and management team quietly forge a far reaching “win-win” contract extension, state, county and city governments worked intimately with industry aerospace leaders to confirm the region’s position as the world’s foremost aerospace manufacturing hub. The benefits of this collaboration enhance not just the area’s well established upper blue collar citizens but also boost educational institutions from kindergarten to the universities, civic infrastructure and cultural interests across the state.

This is not to say that building the 737 MAX is free from potential liability as the current workforce ages and a potential dearth of qualified machinists and engineers looms. However, comprehensive preparation for a robust future during a period of uncertain economic times fueled in part by a public’s dependence upon instant gratification serves as one example of how far the local aerospace model may reach. According to several experts, the blueprint for winning Boeing’s approval (and subsequent record 737 MAX \$19B jet order with Southwest Airlines) should serve as a rubric for other business communities, not only in Washington State, but also across the nation.

“We build better airplanes than anyone around the planet, from engineers to the machinists on the line to test pilots,” states Jeff Marcell, President and Chief Executive Officer of enterpriseSeattle, “but how do we best maximize this economy which impacts our communities across the spectrum?”

The King County Aerospace Alliance, led by county executive Dow Constantine and the Washington Aerospace Partnership (WAP), led by Governor Gregoire and industry leaders were formed to address this question and to best position Washington’s hundreds of aerospace companies in the intensely competitive bidding process for manufacture of the 737 MAX and future projects. The WAP hired Accenture to conduct the “Aerospace Competitiveness Study,” a candid appraisal of the state’s competitiveness individually and in comparison to primary



Students in Renton Technical College’s Aerospace Assembly Mechanic Training Program. Photo courtesy of Renton Technical College.

competitors including Texas, South Carolina and Oklahoma, all states with far fewer business regulations and less compensated, i.e. costly, workforces.

Accenture’s Craig Gottlieb led the study. “When we looked at Washington compared to other states with aerospace capabilities, what stood out was, while the other states present a lower cost of doing business, Washington’s work force and the productivity of the work force. The well established supply chain also presented a clear advantage.”

Gottlieb’s team applauded the local community and technical colleges in training highly skilled, quality workers. The study also cited the vast network of existing Boeing and supplier facilities that support 737 MAX manufacturing investments. However, the Operations Management Consultant expressed concern about competitor states gaining on Washington’s highly skilled workforce through innovative STEM K-12 science and math programs, a threat exacerbated by recent deep cuts in Washington’s education funding, reductions more severe than in other states.

“The primary goal for Washington is to maintain its advantage,” Gottlieb continues. “Washington will never adopt the policies of other states to make it a cheaper investment. Yet workforce quality stands out. Because of this, investments in the present and future workforce are vital through apprentice and work investment programs from foundational matters like elementary math and science education to graduate school in engineering at the UW, as well as machinist skills at technical and two year colleges.”

The study called for several immediate actions: a strengthening of the state’s existing post-high school aerospace certification and apprenticeship programs; an increase in the number of high quality engineering graduates and expansion of aerospace-relevant research at UW and WSU; improvement in the readiness of current high school students to meet new work force needs; strengthening of the current manufacturing and research base by state tax credit extensions; and the continuation of the government’s role in developing positive relationships between government, Boeing, its suppliers and organized labor.

The study also recommended several actions within the next 12 to 24 months: increased student engagement and performance in math and science in grades K-8; creation of a position within the governor’s office to ensure and coordinate the ongoing support for the aerospace industry and its workforce; and work with national political representatives to fund and support workforce education for veterans and others.

“The challenge starts in kindergarten and continues all the way up,” observes J. Tayloe Washburn, co-chair of the Washington Aerospace Partnership. “We also need more focus on teacher training in science and math. If we invest strategically in putting elementary aerospace training curriculum into our grammar and middle schools, then kids can get machinist training in high school. Other kids will continue to UW and WSU for engineering degrees, so we need more space there as well.”

An attorney at Foster Pepper PLLC and a board member of the Seattle Chamber of Commerce, Washburn says he joined the Washington Aerospace Partnership because he saw an opportunity to increase the state’s education funding while improving the economy. “The reason I got into this was the recognition that at our local, county and state level we have less revenue, and we are making terrible cuts in education. But it seems just as obvious to me that if we create jobs, we reverse this trend. In this state, aerospace is the key to our growth. We have to recognize this.”

With the Aerospace Competitiveness Study in hand, the Washington Aerospace Partnership proposed several concrete funding initiatives to the legislature that included: a \$150,000 investment in two skills centers; a \$300,000 start-up grant to 12 high schools for aerospace assessment and manufacturing support; \$250,000 in start-up support for advanced aerospace related high school courses.

The proposed legislation agenda also includes: post-graduate credit in aerospace related courses; more rigorous teacher standards in science and math; \$1.5 million in start-up funds to form a Center for Aerospace Technology Innovation at UW and WSU; extension of the B&O tax credit until 2034; and \$7.6 million to support additional engineering students at UW and WSU.

“We’ve already convened meetings with several school district superintendents to determine how we can improve science and math in K-5 schools as well as with deans from the state’s universities and colleges with an eye on filling critical roles in the aging aerospace workforce,” states Marlina Sessions, Chief Executive Officer of the Workforce Development Council of Seattle-King County. “Being a very education oriented community, parents and students alike aspire to four year engineering degrees, but representatives from Boeing and their suppliers are telling us that there will be many great careers that require a two year degree, or less. By the numbers, 318 of the 360 different occupations inside Boeing require just a two year degree.”

“I had to be picked off the floor when we received the \$1M,” exclaimed Linda Lanham, President and Executive Director of the Aerospace Futures Alliance (AFA), whose organization received the

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grant to offer new student loan funding specifically for aerospace training programs. "It's difficult to have the work but not the training with our aging workforce. Parents who are strapped would love their kids to get this education with a 90% hiring rate, but they couldn't afford to pay up front, so the ability to pay off in three years is huge."

The grant, designated to students working in programs at the Washington Aerospace Training and Research Center, Renton Technical College and Spokane Aerospace Technology Center was implemented in November and has qualified 22 applicants who will begin the training this month, 50% of whom are between the ages of 19-25.

"Five to six thousand aerospace employees will retire within the next five years," Lanham concludes, "programs like this will help fix the aging workforce issue."

AFA is instituting several other programs as well, including two high school certificate programs that will prepare potential workers

within six months of graduation from high schools in Kent, Auburn and Yakima. "Cool Girls in Aerospace" has teamed with the Boys and Girls Club to get girls interested in aerospace at a younger age. Still, the 28-year aerospace veteran remains cautious.

"Right now aerospace is the hot button," Lanham says, "but when the economy is humming along people walk away from it. Each time we become the

hot button then we have to start from scratch. For years we have downsized and people have walked away, now we need to ramp up again and fast."

Lanham believes the current collaboration and subsequent publicity may finally erase the former boom or bust trends in

Washington's aerospace industry, beginning with the public's preconception that the local aerospace industry consists of just one company, Boeing.

"We have over 650 aerospace companies located in 29 of



Illustration of Boeing 737 Max. Photo courtesy of The Boeing Company.

Washington's 39 counties, and a quarter of those businesses employ less than 100 people. This acute relationship of small companies within the aerospace industry was a key element to getting the 737 MAX project," she says. "It's what makes the industry successful. Everyone is beginning to understand the importance of taking care of

every facet, that other aerospace companies need our attention."

Preparedness (The 737 MAX will be in full production when today's six graders enter the workforce!) remains the preeminent question according to all aerospace industry experts from the governor's office to the Accenture study to a lawyer who volunteers his time to secure the region's aerospace future as a strategy to reverse dangerous trends in education and, potentially, in the community's health.

"We must do more, we must do it quickly and we must do it well," Marlena Sessions states unequivocally, observing that in her career she has never seen such cooperation between government, industry and educational institutions.

Agrees Linda Lanham, "I have been in the industry for a long, long time and this is the most exciting time I can recall."

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