

**The Urban Center for Innovative Partnerships  
IPZ #15 - Auburn**

**“Advanced Skills and Technology Center”**

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## INTRODUCTION

The American manufacturing renaissance is real. After years of eroding competitiveness due largely to low labor costs in China and elsewhere, U.S. manufacturers have started to onshore high value-added activities back home. But this renaissance as a sustained movement relies on innovation and human capital. These factors in turn depend on a combination of robust technical training and public-private partnerships that facilitate strong relationships between training institutions, manufacturers, and deployment of public assets in ways that allow for maximum return in the form of constantly increasing productivity.

The Urban Center for Innovation Partnerships, a State-designated Innovation Partnership Zone (IPZ), is proposing the development of an Auburn Advanced Skills and Technology Center within the city limits. These efforts represent a collaborative approach to build skills in the local workforce, with direct involvement from industry, community colleges, and other local stakeholders. The proposal entails the creation of a shared training facility that will directly address the capacity constraints that have become increasingly acute for community colleges and other technical and vocational training programs. Situated within the boundaries of the Auburn Innovation Partnership Zone, the proposal center will be uniquely positioned to respond to local manufacturing skill needs, to provide collaborative spaces for training, and to facilitate a symbiotic relationship between industry and training programs that effectively and fluidly communicate industry skill demands.

In this report, we outline the needs being directly addressed by the IPZ's proposal, the demands on industry more broadly, the skills challenge, and how the proposed facility uniquely meets these challenges.

## AUBURN'S INDUSTRIAL AND AEROSPACE LANDSCAPE

The Washington State Office of Financial Management forecasts aerospace manufacturing to remain above 90,000 workers through 2018. These forecasts are based on projected demand for FTEs, which are in turn a function of forecast demand. Moreover, job projections reflect workers directly employed in firms classified as aerospace. Of the approximately 650 firms in Washington identified as meaningfully engaged in aerospace, only about a quarter of these businesses are officially classified as “aerospace,” and thus reflected in OFM’s estimate. Machine shops, metal fabricators, advanced tooling design, engineering & research, advanced materials and composites, and other related activities that support aerospace manufacturing in Washington belong to this larger estimate of suppliers.

Auburn is already an important hub for manufacturing and aerospace-related activities. Within the City of Auburn, in 2011 there were 7,265 workers employed in manufacturing. This was equivalent to 19.4% of the entire covered workforce, compared with less than 10.1% for the entire four-county Puget Sound Region.<sup>1</sup> Out of 90 jurisdictions in the four-county region, Auburn has consistently ranked as the seventh largest manufacturing base for total jobs, and fifth within King County.

Auburn is centrally located in the heart of the Green River Valley, the largest industrial manufacturing complex in the Pacific Northwest. The region’s manufacturing firms are well supported with a complex supply and distribution network, including highways 167 and 18, nearby access to I-5, and rail yards for both BNSF and Union Pacific. In 2012, the district adjacent to the municipal airport and including many logistics and warehousing facilities was designated by the State as an Innovation Partnership Zone. The zone—the Urban Business Center for Innovative Partnerships—is purposed with leveraging public-private partnerships to help repurpose surplus warehouse space into high value-added engineering and manufacturing activities—jobs that pay high wages and drive greater economic development throughout the region through their large multiplier effects.

According to a study by King County (2013), there are 34 companies engaged in the aerospace supply chain within the City of Auburn. Activities range from machine shops (e.g., Orion Industries, Miller Fabrication, Inc., Dylan Manufacturing, Tooling Design Company), maintenance, repair, and overhaul

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<sup>1</sup> King, Pierce, Snohomish, and Kitsap Counties. Data is based on city-level estimates by the Puget Sound Regional Council, which revises Employment Security Department covered employment estimates.

operations (e.g., Aero Controls Inc., North Star Aerospace), parts and equipment distribution (TORR Technologies), to parts and manufacturing (e.g., Composite Solutions Corp., Westwood Manufacturing, Inc., LMI Aerospace Inc.). Machine shops are the largest segment of Auburn's aerospace footprint, constituting more than half of all identified firms.

## **STATE OF AEROSPACE IN WASHINGTON**

The importance of the aerospace industry to Washington State is nearly impossible to overstate, and is often taken for granted and under-appreciated, as software and technology vies for the media spotlights. In terms of direct, indirect, and induced impacts, aerospace impacts are in the tens of billions of dollars and hundreds of thousands of jobs each year. The anchor original equipment manufacturer (OEM) in Washington, Boeing Commercial, is the largest exporter in the U.S. and is a major driver of Washington's economy.

The completion of the 787 and planning production of the 737 MAX reflect a growing shift within developed markets that are putting a premium on fuel efficiency and operation profitability. There is strong and continuing demand in Asia, driven largely by economic growth in China; Boeing projects that between 2011 and 2031, China will purchase 5,260 new aircraft, including 3,650 single aisle and 1,190 twin aisle aircraft (Boeing, 2012). The anticipated next generation 777 (777X) will, like the 787, redefine the industry and bring significant economic benefits to the region in which the new aircraft is built.

## **SKILLS—NEEDS AND GAPS**

Human capital is increasingly the foundation for the new, innovation-driven economy. While low-cost labor markets in China and elsewhere have eroded segments of the U.S. manufacturing base over the years, high tech and advanced manufacturing firms have put a premium on labor productivity and skills over labor costs, helping to drive a new manufacturing renaissance in the U.S. (Boston Consulting Group, 2011). Manufacturing firms are putting greater emphasis on workers with strong competencies in numeracy, technical/vocational machine training, and problem solving.

The challenges faced by the aerospace industry are many, but at the top of this list is human capital. In the latest workforce study by Aviation Week, more than 80% of business respondents identified a highly skilled workforce as the predominant challenge for their operations over the next three to five years (Aviation Week, 2012). According to the report, aerospace company respondents reported that "a highly skilled workforce and business process innovation are the

two most important factors to their success and growth opportunities in the near term.”

The aerospace industry also faces an attrition challenge. Aviation Week further found that the average age of Aerospace & Defense workers nationally in 2011 was 45 years old. Among hourly manufacturing workers, 19% will be eligible for retirement in 2013, 21.5% in 2014, and nearly a quarter (24.3%) in 2015. The numbers are greater among large firms—by 2016, almost half (47.7%) of workers in firms of 100,000 workers or more will be eligible for retirement. Based on Aviation Week’s survey, 35.2% of all workers in firms of between 10,000 and 49,999 employees were at least 50 years old, 43.9% among firms between 50,000 and 99,999 workers, and 42.9% among firms of 100,000 workers or more (Aviation Week, 2012, pp. 14-15).

Cultivating a deep and talented aerospace workforce is a core adopted objective of the Washington Aerospace Industry Strategy. Governor’s Office of Aerospace states, “[the] workforce demands of the industry, immediately as well as those anticipated in the future, suggest the need not only for more engineers, but many additional workers possessing a broad array of aerospace-related skills” (Governor's Office of Aerospace; Washington Aerospace Partnership, 2013, p. 16).

Over the past five years, several studies have been commissioned by the state and/or local partners to assess key issues and challenges in the aerospace industry. In all of these reports, skills figured importantly in the State’s competitive position for retaining and attracting new aerospace activities.

## CURRENT STATE OF SKILLS GAPS IN WASHINGTON

The Washington State Training and Education Coordinating Board, using ESD's 2012 projections, found that among aerospace-related occupations "there would be 5,086 average annual net openings between 2015 and 2020 [of which] 1,655 will be due to job growth, while 3,431 (or 67 percent of the total average annual openings) will be due to replacement of retiring workers. This is a 3.6 percent average annual increase in employment [with survey] responses indicate that the increase might be higher" (Workforce Training and Education Coordinating Board, 2012, p. 14).

Each year the Washington State Employment Security Department publishes detailed projections for employment growth by occupation. Estimates are of net openings—change due to retirements and industry growth minus turnover, or "churn." The most recent study, using 2011 data, projects that "installation, maintenance, and repair" occupational employment—a category that includes avionics technicians, mechanics, and service technicians—will grow at an annual rate of 1.5% between 2011 and 2016, and 0.8% between 2016 and 2021.

The macro category of production occupations, which includes many types of assembly line work and machining, is projected to grow in employment by 2.1% between 2011 and 2016, resulting in a net increase of almost 3,700 new position openings attributable to growth (instead of turnover). Within this category, assemblers and fabricators are forecast to grow 2.9% between 2011 and 2016, while "aircraft structure, surfaces, rigging, and systems assemblers" are projected to grow 2.8% per year through 2016 (Washington State Employment Security Department, 2013). These forecasts represent jobs, not whether these jobs can be filled—hence projected demand.

The Washington State Training and Education Coordinating Board further found that among aerospace-related occupations "there would be 5,086 average annual net openings between 2015 and 2020 [of which] 1,655 will be due to job growth, while 3,431 (or 67 percent of the total average annual openings) will be due to replacement of retiring workers. This is a 3.6 percent average annual increase in employment [with survey] responses indicate that the increase might be higher" (Workforce Training and Education Coordinating Board, 2012, p. 14).

Community and Technical Colleges play an integral part in addressing the skills gap as not only educators, but as liaisons to industry and the state's educational systems. Recently, the Association of Washington Business and the State Board for Community and Technical Colleges partnered to conduct 10 industry skills gap forums, attended by 100 employers and 150 educators around the state. Their results—that technical proficiency is crucial across all Washington industries—

holds true for aerospace especially, where skills gaps exist for machinists, aircraft mechanics, composites, and machine tool maintenance (Association of Washington Business Institute, 2013, p. 4).

The 2011 Washington Aerospace Partnership Aerospace Competitiveness Study identified the state education system as a major current and potential future problem, citing cuts to higher education as only further aggravating this challenge, inhibiting the state's ability to "produce the innovative, quality engineering talent that Boeing and others require to compete" (Washington Aerospace Partnership, 2011, p. 3). However, the corporate author of the report, Accenture, highlighted recent positive actions by the state to address aerospace industry needs. These actions included: 1) a \$3 million allocation of discretionary federal funds to help veterans and unemployed workers for training to develop skills to work in the aerospace industry; and 2) an investment of more than \$20 million bi-annually in the Community and Technical colleges for training aerospace workers, as well as 3) a recently received a federal DOL \$20 million grant to double the state's investment in aerospace training.

From 2006 to 2011, two-year colleges increased training in aerospace and manufacturing fields by 37% to address demand in these fields, yet in 2012, two vacant STEM (science, technology, engineering, and math) jobs existed for every unemployed person in Washington (Washington State Board for Community and Technical Colleges, 2012, p. 4). Washington community and technical college programs are uniquely unified to meet regional workforce needs, but despite this, state employers still report that lack of a skilled workforce is a barrier to the growth of the industry (Association of Washington Business Institute, 2012, p. 4).

But while community and technical colleges recognize increasing demand from aerospace and play a key part of building Washington state manufacturing capacity, successful aerospace workforce development will require a variety of pathways into aerospace jobs.

## INVESTING IN THE IPZ

Innovation Partnership Zones (IPZs) represent a new model of economic development, created to accelerate “bottom-up, organically driven collaborations to advance innovation and growth of industry clusters.” IPZs are purposed with stimulating regional economic development by “building a collective strategy and relationships between industry clusters, sources of ideas, entrepreneurs, capital providers, education organizations, infrastructure and others, both externally and internally to the region. The intent is to turbocharge the development of new technologies, marketable products, company formation, investments, exports, and job creation (Washington State Department of Commerce, 2012, p. 5).

The Urban Center for Innovation Partnerships—an IPZ designated by the State of Washington in 2011—embodies this new, flexible and responsive vision of economic development. It entails direct involvement and participation from local industry stakeholders and fluid relationships and communication between employers and training programs. The Advanced Skills and Technology Center proposed by the Urban Center of Innovation Partnerships will further enhance the IPZs regional economic base and advance the State’s strategic goals in support of aerospace, as articulated in **Exhibit A**.

The Advanced Skills and Technology Center will provide a platform, as well as physical location, for the seamless connectivity between local manufacturers, Green River Community College, and Orion Industries. The center will be managed by the IPZ, which is led by a board that includes representatives from higher education (Washington State University, Green River Community College), private businesses, and local officials. The IPZ’s governance over the center ensures that employers will have an effective means of communicating training needs to participating training programs and linking employers with six Green River training programs in Auburn.

## Exhibit A. Alignment of Proposed Center with State Aerospace Skills Objectives

State Aerospace Skills Objective	Aligned?	Comments
Sustaining and expanding Air Washington programs identified as most beneficial.	√	The proposed project will greatly enhance the Green River CC's training capabilities for aerospace.
Supporting the strategic and targeted expansion of workforce training provided by community and technical colleges, as well as apprenticeship, short-term industry programs, and workforce development councils, in high demand fields.	√	Programs will focus on aerospace machinist skills in high demand, in partnership with Orion Industries.
Seeking National Career Readiness and National Association of Manufacturers certifications for high school and training program graduates.	√	
Developing an aerospace training center in the central Puget Sound region that incorporates training programs from various community and technical colleges, apprenticeship programs, and high school skills centers.	√	Partners include both industry (e.g., Orion Industries) and Green River CC. The IPZ advisory board includes WSU, the local school district, and Green River CC.
Recognizing the cost differential between technical and general education training programs and redirecting funding in a way that supports additional technical training capacity.	√	Final programming of the training center will be based on specific feedback from the Washington State Department of Veterans Affairs and from focus group discussions to be held between Veterans Affairs, the Washington State National Guard, City of Auburn Community Services, Washington Aerospace Training & Research Center, and training and employment partners.
Supporting the development and expansion of pre-employment/pre-apprenticeship programs across the state.	√	
Develop programs to train aviation maintenance technicians to European Aviation Safety Administration specifications to establish an internationally literate aerospace workforce.	√	
Work with the Department of Veterans Affairs, Center for Advanced Manufacturing Puget Sound, AJAC, U.S. Military, National Guard, and private employers to support programs that put veterans and guardsmen/women to work in aerospace-related careers.	√	

Source: Governor's Office of Aerospace; Community Attributes.

## **BIBLIOGRAPHY**

- Association of Washington Business Institute. (2012). *2012 Challenges & Opportunities for Manufacturers in Washington State: Key Findings from the Association of Washington Business*.
- Association of Washington Business Institute. (2013). *Addressing Skills Gaps, Creating Careers: Key Findings from the Association of Washington Business*.
- Aviation Week. (2012). *Aviation Week Workforce Study 2012*. Aviation Week.
- Boeing. (2012). *Boeing Current Market Outlook, 2012-2031*.
- Boston Consulting Group. (2011). *Made in America, Again: Why Manufacturing Will Return to the U.S.*
- Governor's Office of Aerospace; Washington Aerospace Partnership. (2013). *The Washington Aerospace Industry Strategy*.
- King County. (2013). *King County Aerospace Sector Reports by City*.
- Washington Aerospace Partnership. (2011). *Aerospace Competitiveness Study*.
- Washington State Board for Community and Technical Colleges. (2012). *Field Guide to Washington State Community and Technical Colleges*.
- Washington State Department of Commerce. (2012). *Innovation Partnership Zones 2012 Report: Toward a More Data-Driven Assessment*. Olympia, WA.
- Washington State Employment Security Department. (2013). Long-term occupational projections. Olympia, WA. b`
- Workforce Training and Education Coordinating Board. (2012). *Aerospace Manufacturing Skills*.