

**TESTIMONY TO THE SENATE COMMERCE, SCIENCE AND TRANSPORTATION COMMITTEE
Aviation Operations, Safety and Security Subcommittee**

by

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Good morning. I am Reba Gilman, Chief Executive Officer and Principal of Aviation High School.

Thank you for holding this hearing today and inviting me to testify.

I am a veteran educator, whose career has included teaching business and marketing, serving as an administrator of a large, comprehensive high school and as a Director of one of our state's skills centers. These experiences, combined with working in the private sector for a major aerospace company and owning my own business, have led to a deep understanding of the critical needs in education and the workforce...and to the founding of Aviation High School, which I have led since its inception and development over the past decade.

At Aviation High, we have hosted hundreds of visitors from different parts of the United States and even different countries since opening our doors in 2004. Most of those visitors are interested in replicating our teaching, learning, and partnership model. It would be an honor to host you and your committee members at our current interim site and then again when we move to our new state-of-the-art school that is being constructed just across the street from here and that will be ready to occupy in 2013.

It is important to note that we just completed a \$43.5 million capital campaign to construct this new school. Partnering with the Museum of Flight, the school embarked upon a public/private capital campaign that successfully culminated this past summer. Located on the Museum's West-Side Campus, with the new Space Gallery and a future Air Transport Gallery, the school will have the best location imaginable. We believe that the creative, cutting edge educational programming that can be crafted through collaboration of our two institutions and the 200 aerospace-related entities that surround Boeing Field, including Boeing's R&D facility, will be of unparalleled benefit to education and the workforce.

We believe it is critical for theme-based, industry responsive schools to reside where they are closest to the resources that will help students get ready for further education and careers.

Aviation High is a college prep high school where students have an affinity for aviation and aerospace, and it is a critical part of the US effort to stay competitive in global air and space innovation. Aviation High students are pursuing STEM education and career pathways at nearly double the rate (77%) of their peers in other Washington State high schools... with 48% pursuing engineering pathways—which is about five times that of other high schools in the state.

As I mentioned earlier, Aviation High School was conceived in 2000 in response to the critical need to improve student achievement in math and science to ensure that our graduates were

prepared for the rigors of college *and* the demands of a high-tech, global workplace. A Strategic Planning team of educators, business, labor, and government leaders came together to address these critical needs. We were intent on creating a teaching and learning model that required students to use their minds well, be passionate about the work in which they were engaging, and solve authentic and complex problems occurring in the work place. We landed on creating an aviation/aerospace-themed school because Seattle, being the birthplace of modern aviation with a huge reliance on a STEM-proficient workforce, was the right model for our region.

When our grassroots planning team proposed our model to The Superintendent and Board of Highline Public Schools, they embraced the concept of blending the best practices in career and technical education with high academic demand...and gave us a green light to move forward if we could find initial funding. We found it from the **Bill & Melinda Gates Foundation and Sea-Tac Airport**.

We opened our doors in 2004 in rented space on the Duwamish campus of South Seattle Community College, just up the street from the Museum. Since our first year, we have been intent on perfecting our model of project-based learning, deep scientific inquiry, and high-stakes performance assessment in which students present and defend their learning to industry experts—engineers, technicians, and aerospace leaders who can provide the kind of feedback that is needed to inspire further learning and pursuit of a STEM education and career pathway.

Aviation High currently has an enrollment of 420 students with approximately 100 students in each grade level, 9-12. Each student is immersed in a college prep curriculum that makes them attractive and eligible candidates to any college of their choice.

Extensive research shows that small learning communities with a focused curriculum and effective instructional practices are more likely to achieve higher results in student learning than large, comprehensive schools. Our school model is designed to be personalized, rigorous, and relevant. Our goal, therefore, is not to become larger but rather, replicable to other parts of the state and country that have similar needs.

Aviation High teachers are a huge part of our formula for success, with 60% having experience outside of education, including engineering, computer science, research, and general aviation.

Seven years after its founding, Aviation High School has developed from an experiment in public education to a proven model of extraordinary success:

- Students in all four graduating classes have consistently scored in the top 5% of Washington high schools in science, math, reading, and writing. AHS serves a significantly larger population of low-income and ethnic minority students than any other school in this category.
- Out of nearly 22,000 schools analyzed by U.S. News & World Report in 2010, AHS was rated one of the top six high schools in Washington State and among the top 500 in the nation, for preparing all students for college.
- Our average daily attendance rate is between 95-99%, which is remarkable given that some students commute 120 miles or more per day to attend school. AHS is a regional school that attracts students from 22 school districts.

- Our graduation rate is 98%.
- AHS ranks 8th in the State of Washington for percentage of students taking Advanced Placement exams.
- Disciplinary issues are almost nonexistent—the lowest number of sanctions in a district of 17,000+ students
- 94% of AHS students meet or exceed the requirements for college admission as set forth by the Higher Education Coordinating Board. Students take four years of math and science, three years of English and Social Studies/History, and two years of a world language, all which include an aviation context where appropriate.
- Graduates are being accepted to top-level colleges and post-secondary institutions in the country, including MIT, Berkeley, and military academies. Each graduating class has collectively earned between \$1-\$1.7 million in scholarship awards, some on full rides from organizations such as FIRST Robotics or ‘golden tickets’ to university engineering programs.
- The Washington State Legislature designated Aviation High School as a Lighthouse Model of STEM Excellence in recognition of its best practices in teaching and learning and stellar results in student achievement.
- ‘Sports of the mind’ teams dominate the culture of our school as opposed to athletic teams. Our FIRST Robotics, Science Olympiad, and Speech and Debate teams successfully compete at regional, state, and national levels. They are ambassadors of STEM education who mentor elementary and middle school students to inspire learning and consideration of a STEM pathway.

The successes that we have experienced over the years have resulted in nearly three times the number of students applying for admission than we can accept. It is reaffirming to know that so many young people are inspired by aviation and aerospace and want to be part of the solution in filling the critical gaps in the STEM workforce; at the same time, this incredible demand reinforces the need to replicate our model if we are intent on having the quality and quantity of students in the STEM pipeline.

In preparing for my testimony I read the Labor and Workforce recommendations of the “Future of Aviation Advisory Committee” and wholeheartedly agree with them. I understand there has been an MOU signed between the Departments of Education and Transportation which may mean more assistance for schools like ours. I have been to Washington DC on occasion to discuss Aviation High; and we have also hosted a visit to our school for Secretary of Education Arne Duncan. In being completely transparent, there seems to be a good deal of interest in our school from DOE officials, and we have been told at the highest levels that the Department wants to create “more schools like AHS,” but there has not been much follow-up.

Thanks to Congressmen Smith and McDermott, who represent parts of our district, we will use about \$600,000 in federal money for lab equipment in our new \$43.5 million school. We hoped for more support from the federal government for construction and are pleased to see construction-related recommendations in the report.

At this point, Aviation High School could use assistance creating relevant and innovative programs with federal aviation and aerospace agency help. The biggest challenge faced by this committee and industries that rely on STEM innovators, is turning the rhetoric from federal

agencies into action. I do want to applaud the work of the men and women of the FAA locally. They are dedicated professionals who want to share their passion and knowledge with our students. We appreciate their serving as mentors and subject matter experts.

Aviation High School is completely committed to helping fill the stem pipeline. We are working with other STEM schools in the state to do just that. We are very willing to work closely with you to fill that pipeline as well, and here are three recommendations that will help us all:

First, we ask that you help us formalize a relationship with the FAA by having the agency provide a full-time staff person at the school, offer paid internships to students and help expose and familiarize our students with cutting edge technologies in which it is currently engaged – Next Gen, UAVs, commercial space, systems safety, etc.

Secondly, the committee should consider working with industry, federal agencies and Aviation High to help replicate schools like ours in other parts of Washington State and the country;

And third, we recommend, even in this austere time, that you find ways to provide funding. We recognize that due to budget deficits, it is oftentimes necessary to cut programs; however, money should be spent on creating and expanding the STEM pipeline to keep this nation's aviation and aerospace industry competitive in the midst of growing threats from elsewhere in the world.

I want to leave you with a few examples of the sort of innovation we want our students to emulate—innovation that has made this nation the premier aviation and aerospace leader in the world. The first three innovations were created by Washingtonians and have been adopted worldwide.

Mr. Joe Clark, owner of Aviation Partners located just across the field from the Museum, along with his colleague Bernie Gratzler invented blended winglet technology, which saves hundreds of millions of dollars in fuel costs, protects the environment, modernizes aircraft, and makes them perform better. The winglet is now the standard on all commercial jets...and as their website states, "The future is on the wing."

Steve Fulton was recently selected as a Pathfinder in Aviation by The Museum of Flight. As a former Alaska Airlines technical pilot, Captain Fulton knew first-hand how important it was to improve aircraft departure and arrival operations in Alaska. He led the development of what is now known as Required Navigation Performance (RNP) and now provides RNP solutions for airlines and air navigation providers around the world.

When completed, our new school will be named Raisbeck Aviation High School after James Raisbeck, a world-renowned aerodynamicist and entrepreneur who owns and operates Raisbeck Engineering, located just a couple of miles from here—a firm that is dedicated to conceiving, engineering, designing, flight-testing, certifying and manufacturing performance improvement systems for the world's business and commercial jet-powered aircraft. James has an uncanny ability to see a need and innovate a solution. For example, after what we now refer to as 9/11, Raisbeck created secured cockpit doors that are now standard equipment on new

and existing commercial aircraft worldwide. This innovation by our local icon has raised safety and security for flight crews to a new level.

I cannot talk about local innovation without mentioning Bonnie Dunbar, former astronaut and CEO of the Museum of Flight, Doug King, current CEO/President of the Museum, and all of the trustees and stakeholders of the Museum who believed that a premier high school and a premier education museum ought to partner for the benefit of students and their future contributions to the economy and to humanity. They are the ultimate innovators in creating a positive future for our youth and the air and space industry.

The innovations that I have cited are of the same nature as students at Aviation High School want to create in the future. Our first crop of students graduating from college will enter the workforce next year. Already, some are being recruited by major commercial jet engine manufacturers and other critical players in this nation's air and space industry.

With your help, Aviation High can increase the number of innovators it is producing, both through offering better opportunities at our school and helping to replicate the Aviation High model in other places.

Thank you for giving me the opportunity to testify today. Our school stands ready to assist you in filling the STEM pipeline with the intellectual and technical capital that ensures the prominence of aerospace innovation in the Washington State and national economies.