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# TROUBLED SKIES: THE AVIATION WORKFORCE SHORTAGE'S IMPACT ON SMALL BUSINESSES

## HEARING

BEFORE THE

## SUBCOMMITTEE ON CONTRACTING AND WORKFORCE

OF THE

## COMMITTEE ON SMALL BUSINESS
## UNITED STATES
## HOUSE OF REPRESENTATIVES

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# TROUBLED SKIES: THE AVIATION WORKFORCE SHORTAGE'S IMPACT ON SMALL BUSINESS

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**WEDNESDAY, SEPTEMBER 26, 2018**

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SMALL BUSINESS,
SUBCOMMITTEE ON CONTRACTING AND WORKFORCE,
*Washington, DC.*

The Subcommittee met, pursuant to call, at 10:01 a.m., in Room 2360, Rayburn House Office Building. Hon. Steve Knight [chairman of the Subcommittee] presiding.

Present: Representatives King, Knight, Blum, Evans, Murphy, and Clarke.

Chairman KNIGHT. Good morning. This hearing will come to order. Thank you all for coming.

I would especially like to thank our witnesses for being here today. I know some of you came from long distances and it is very much appreciated.

So today's hearing will be a little interesting, but I think it is very important to have hearings like this. Aviation gets into your blood. There is no doubt about it. As a child, we are told that the sky is the limit. I personally believe the sky is not the limit, but the Wright Brothers pushed that limit in 1903, on my birthday, not the same year, when they flew over Kitty Hawk for the first time. These are the families steeped in aviation that have developed a passionate network of small businesses vital to continuing the existence of worldwide commerce and geopolitics as we know it. Fixed based operators, overhaul stations, maintenance operators, and other firms in aviation are dominated by what many would consider mom and pop operations.

But as Baby Boomers are beginning to retire, the economy has begun to feel the strains of their departure. These highly experienced and highly skilled employees are leaving the industry at an exponentially faster rate than the new labor is being brought in.

Studies and anecdotal evidence show that we are only just beginning to experience the first effects of this shortage. Reports currently project that by 2027, there will be a 9 percent fault between supply and demand for aviation mechanics and a need to hire hundreds of thousands of new pilots in the next 2 decades. With airlines growing and their need for pilots and mechanics ever increasing, small businesses are particularly vulnerable to losing their workforce at a faster rate than their competitors.

Case in point; this Committee invited the owner of a small charter company in my district to testify today. However, this small business owner had to cancel his trip at the last minute. He was unable to staff enough pilots today and had to fly customers him or risk taking financial loss. The Small Business Committee does not like financial loss so we were okay with that. This Committee has unfortunately lost the opportunity to hear his story as a direct result of this shortage.

In sum, we know far too little about how these shortages are impacting the small businesses that support the aviation industry. Small businesses have concerns and additional complexities that need to be shared and explored. The point of this hearing is not only to hear the stories of those having boots on the ground, but to also inform those who are entering the workforce that aviation is a viable option for their future. Our economy needs pilots and mechanics, and our witnesses are here to tell their stories they are having about hiring people right here, like you, and right now. We look forward to your testimony.

Remember, this testimony is to look at what is happening in the economy today, not just from small businesses, but what is going to happen in the future. We have talked about several things in Small Business and in SST and in other Committees about how aviation is going to change in the next 20 years. How we are going to be flying across this country at Mach 2, probably within 20 years. I would hope it is sooner than that, but we have been flying at Mach .7 since 1961 across this country and you can see that we are now trying to push this envelope forward so that we can do these things. Aviation is going to be growing in the movement of goods, in the movement of people. We are seeing companies like Amazon—this is my personal PSA, it is off the script—but we are seeing companies like Amazon that are moving toward moving goods very quickly, overnight, in 2 hours in some circumstances in some cities. Goods movement and people movement is quickly growing and quickly going faster. That is one of the purposes of this Committee hearing is that we know this is not 1985 where we jump into an L-1011 and we go across country. Aviation is not just in our blood but it is everything that we do today as far as moving goods and people.

So now I would like to yield to the Ranking Member, Ms. Murphy, for her comments.

Ms. MURPHY. Thank you, Mr. Chairman.

While the U.S. economy has improved over the past decade, small business owners across the Nation continue to face challenges finding skilled, qualified workers. By 2020, it is estimated that our economy will have approximately 55 million job vacancies, and about 40 percent of those jobs are expected to be new openings, while the remaining 60 percent will be jobs left vacant by workers from the Baby Boomer generation. And this is a staggering projection.

And today, we are going to focus on the workforce challenges facing the aviation industry and its ability to recruit and retain qualified workers to occupy jobs across the aviation ecosystem. And I think that is a very important topic for us to take a look at on this Committee.

Over 90 percent of the businesses in the aviation industry are small businesses involved in airline transportation, air transport support, and aviation manufacturing. And these small firms provide the support and technical knowhow that is necessary to ensure safe plan travel, operations, and maintenance.

The aviation workforce helps communities across the country access the global transportation network and generate economic activity. For example, in my district, the Orlando Sanford International Airport provides economic opportunities to local small businesses, it increases local tourism, and it provides additional transportation to the traveling public, which is particularly important in a destination like Orlando.

As the demand for air travel continues to increase and aircraft engineering becomes more innovative, some in the aviation industry have expressed concerns about a growing labor shortage.

And these concerns largely stem from a perceived decline in the number of people pursuing certifications in the aviation sector, combined with an anticipated increase in the rate of Baby Boomer retirements within the next decade.

And there have also been concerns raised in the past that outsourcing has negatively impacted aviation mechanics, so I hope to learn from this hearing about ways to mitigate this problem.

Additionally, I want to take a moment to make clear that I believe that weakening critical safety regulations would be misguided. When it comes to our pilot supply, it is important that we focus our efforts on getting more young people excited about the aviation profession and making financial aid for their training more accessible.

From 2001 to 2009, we had six fatal crashes in regional airlines, and since the new safety rules were implemented, we have had zero. And so I think those results speak for themselves.

While the impact of aviation workforce shortages on small business is largely underreported and more data needs to be compiled to provide us with a more holistic understanding of the issue, I think the potential effect will ripple across the aviation industry and have broader implications for the U.S. economy. And today's testimony from our witnesses will help to inform us about the steps that can be taken to ensure our country's vital aviation industrial base is strong and sustainable.

So I thank the witnesses for being here and look forward to hearing how we can help support our aviation workforce and ensure America's small businesses are empowered to move our economy forward.

Thank you, Mr. Chairman, and I yield back the remainder of my time.

Chairman KNIGHT. Thank you very much.

And now we will introduce our witnesses.

First, I would like to introduce Mr. Brett Levanto, Vice President of Operations for Obadal, Filler, MacLeod, and Klein, and Vice President of Communications for the Aeronautical Repair Station Association (ARSA). Mr. Levanto has been immersed in public engagement and service throughout his personal and professional life, actively volunteering in support of aviation, military, and veteran services, and previously working as a civilian consultant to the Ma-

rine Corps. At OFM&K, Mr. Levanto's primary focus is on workforce development, airman certification, and training matters.

We welcome you today.

Now, I would like to yield to Mr. Blum for Mr. Lenss introduction.

Mr. BLUM. Thank you, Chairman Knight.

I am proud to introduce our second witness, Mr. Martin Lenss. Mr. Lenss is the Director of the Eastern Iowa Airport in Cedar Rapids, located within my district. He has 25 years of airport experience, including having held similar positions at regional airports in Minnesota and Wisconsin—and we will not hold that against you, Marty. Mr. Lenss has created, organized, and led a regional economic development forum on the pilot shortage, focusing on impacts to Iowa's communities, and led one of the first multistate airport forums on the pilot shortage issue.

Thank you for sharing your time with us today, Marty, and we look forward to your testimony.

And I yield back, Mr. Chairman.

Chairman KNIGHT. Thank you very much.

Our third witness, Ms. Sarah Oberman Bartush. Ms. Bartush is the Chief Marketing Officer and Director of Business Development for CI Jets, the executive jet charter division of Channel Islands Aviation located in Camarillo, California. Ms. Bartush started her career managing the flight school at Channel Islands Aviation founded by her parents in 1976. Since then, she has obtained nearly every certificate or approval for a flight school in the State of California, and created the Youth Aviation Academy in 2012, to inspire youth to pursue careers in aviation. Ms. Bartush is currently involved in pilot recruitment, aircraft management, charter sales, and marketing, while also supervising operation of Channel Islands Aviation Flight School.

We welcome you here today.

Now, I would like to yield to the Ranking Member for our fourth witness.

Ms. MURPHY. It is my pleasure to introduce Dr. Ken Witcher, the Dean of the College of Aeronautics at Embry-Riddle Aeronautical University in Daytona Beach, right up the street from my district. Dr. Witcher's aviation experience includes 20 years of service in the United States Air Force, during which he was superintendent of an operational test and evaluation squadron and field training detachment chief for multiple aircrafts and supporting systems. Dr. Witcher previously served as chair of the Nevada Aerospace and Defense Sector Council, reporting directly to the Governor's Workforce Investment Board. He received a Masters of Aeronautical Science from Embry-Riddle Aeronautical University and a Doctorate in Philosophy in Business Administration with a focus in Aviation Science and Public Administration from North Central University. He is testifying on behalf of the Aerospace Industry Association today.

Welcome, Dr. Witcher, and thank you for your service.

Chairman KNIGHT. Okay. Okay. So a couple housekeeping. Upon hearing that this Subcommittee would be meeting on this issue today, professional aviation organizations reached out to my office and this committee asking to submit letters for the record.

Organizations such as Helicopter Association International, National Business Aviation Association, the Regional Airlines Association, and the National Air Transportation Association felt as though their small business members were uniquely impacted and had specific concerns that needed to be part of the proceedings today. At this time, I would like to submit copies of their letters for the record.

If Committee members have an opening statement prepared, I ask that they be submitted for the record.

I would like to take a moment to explain what those lights are in front of you and what they are going to be doing. You will each have 5 minutes to testify today. As the yellow light comes on you have a minute. And then as Chairman Chabot always says, when you have the red light comes on that means start wrapping it up. So we will be very flexible today and we would like to hear your testimony. So just kind of take that with a grain of salt.

Okay. Let's move on. And we are going to start witnesses. Mr. Levanto, you can start, and you have 5 minutes.

**STATEMENTS OF BRETT LEVANTO, VICE PRESIDENT OF COMMUNICATIONS, AERONAUTICAL REPAIR STATION ASSOCIATION; MARTIN LENSS, AIRPORT DIRECTOR, THE EASTERN IOWA AIRPORT; SARAH OBERMAN BARTUSH, CHIEF MARKETING OFFICER & DIRECTOR OF BUSINESS DEVELOPMENT, CI JETS; KENNETH WITCHER, PH.D., DEAN, COLLEGE OF AERONAUTICS, EMBRY-RIDDLE AERONAUTICAL UNIVERSITY**

**STATEMENT OF BRETT LEVANTO**

Mr. LEVANTO. Thank you very much, Chairman Knight, Ranking Member Murphy. I will be loyal to my 5 minutes because I am dangerous if given leeway when it comes to time limits.

Thank you for having this discussion and involving the Aeronautical Repair Station Association, an organization that represents businesses from across the aviation industry performing work and operating international and U.S. civil aircraft around the world, and also performing work on government contracts and military equipment. In addition to the core independent repair stations, these are organizations bearing certification from the U.S. FAA or other international aviation authorities. ARSA also represents and works with manufacturers, parts producers, airlines and other operators, in addition to service providers and industry stakeholders to maintain and perform work across the entire aviation system.

These companies form an international and interconnected industry that in the United States employs nearly 300,000 Americans and produces $47 billion in annual economic activity. The Subcommittee is well represented. The seven states on this body employ nearly 80,000 men and women who generate $12 billion annually in economic activity. That means that those seven states represent more than a quarter of employment in the economy of aviation maintenance and parts production services.

For these businesses, recruitment and retaining of skilled, technical individuals to perform work on aircraft has become the industry's most pressing, strategic challenge. It involves itself in every

discussion and has become a part of doing business. Now, the industry structure might be interesting to most of the general public who view aviation as the bastion of big businesses and large organizations from whom they buy tickets and with whom they ship goods.

But the reality is that small businesses are the rule. ARSA's data indicates that the average repair station employs just 46 people, and that number is inflated by the few large players in the market such that the typical repair station is actually much smaller. They operate in small teams, using high-tech capabilities to perform a specialized set of tasks and passing both savings and increased quality onto their customers in civil industry and the government, and on to the flying public and the entire American community.

The aviation market is a hopeful one. ARSA's members plan to capitalize on expanding growth and hopeful future workforce projections by adding to their own workforces. However, they have reported for years now nearly unanimous difficulty in finding and retaining technically skilled workers. That work does require a high level of skill, not just from certificated personnel, but from different kinds of technicians with varying levels of experience and responsibility and specialized technical abilities in order to perform work on civil aircraft and articles. Continuing the capabilities of this workforce requires robust employer-managed training programs, not just to onboard personnel, which can take years in terms of creating a useful and profitable technician in the workplace, but also to maintain continuing skills and technical capabilities to keep up with advancing technologies and meet customer demands to keep aircraft airworthy.

The greatest challenge facing this workforce was touched on by Ranking Member Murphy in her opening remarks, and that is that technician skills are attractive across every high-tech industry, all of which are suffering to find personnel to fill vacancies. That means that small aviation businesses, which is four out of five of the 4,000 firms in the United States, must compete for talent against the automotive, heavy equipment, and even amusement park industry for personnel who find their skills to be attractive. Considering the high demands and personal responsibility placed on aviation workers, this is a tough pull for small businesses who have tight margins and heavy regulatory burdens of their own.

The impact is strong. ARSA's analysis indicates that right now the open technical positions at U.S. repair stations are already costing the industry $2 billion a year and forcing businesses to increase time to complete their work, delay accepting new orders, delay facility expansions, and even rejecting new work opportunities.

The stark reality of this is as you mentioned, Chairman Knight, projections do not even indicate that we are already in a point of a workforce shortage. Our own data indicates that the year 2022 is our year of reckoning because that is when supply of available technicians will officially fall short of demand from industry and will continue growing worse thereafter. Considering that the numbers do not even show that we are in a shortage yet and we are already suffering so greatly at the challenge of finding technical

talent, I think it is clear that the industry is facing a gathering storm.

ARSA and its members look forward to working with you to continue to foster industry and government collaboration, stimulate investment in technical training, develop and nurture technical skills and a cultural appreciation for hands-on work, and establish robust aviation career pathways for certificated mechanics and noncertificated technicians in order to help remind the world that it cannot fly without us.

Thanks very much.

Chairman KNIGHT. Thank you very much.

And Mr. Lenss, you now have 5 minutes.

**STATEMENT OF MARTIN LENSS**

Mr. LENSS. Good morning. And thank you, Chairman Knight and Ranking Member Murphy, and members of the Subcommittee. And special thank you for Congressman Blum for the kind introduction.

It is a privilege to testify about the most pressing threat facing aviation today. Often lost in this discussion about the shortage of pilots and aviation mechanics is the impact this problem has on local economies. Thank you for including an airport in a small community perspective in this discussion today.

Now, airports do not train, we do not hire, and we do not employ pilots or technicians, but we certainly depend on them. Pilots in the entire aerospace industry enable our communities to be connected, and connectivity to the national transportation system is essential to ensure both our local communities and small businesses remain vibrant.

The Iowa City/Cedar Rapids region is known as ICR Iowa. It includes seven counties and is home to half a million people. ICRI was also home to several key economic drivers. To name a few: Rockwell Collins, Transamerica, World Class Healthcare, ACT. Maybe many of you took the ACT exam to get into college. Procter & Gamble, Cargill, Quaker Oats, CRST International, and of course, our beloved Hawkeyes at the University of Iowa. CID is very proud to connect these entities to the world.

As important though are the many small businesses which make these major employers successful. These are suppliers, vendors, contractors, customers, and others, all depend on CID's air service directly or indirectly. The shortage of pilots is threatening this service, and therefore, these jobs. The pilot shortage is very real and it is here now. The U.S. is not producing nearly enough pilots to meet industry's needs. Less than half the need is met each year. Passenger traffic is increasing, yet our departures nationally are decreasing. Despite a strong economy, service continues to shrink and CID is just a microcosm of this. The Eastern Iowa Airport, we are on pace for a record year in passengers this year. Our unemployment rate is now under 3 percent, but our departures are down 7 percent. Clearly something more is going on when your economy is this robust and airlines are reducing service.

Frequent, reliable air service is critical for local business. It keeps us connected to the global business system. At CID, we can only withstand so many cuts before our employers are negatively

impacted. According to a survey conducted by Iowa DOT, the top three issues affecting business decisions to expand or relocate your communities are workforce, taxes, and air service. To build on the air service a little bit more, Peoria, Illinois, recently lost a key economic driver when nearly after a century Caterpillar moved its corporate headquarters from Peoria to Chicago for better transportation. In 2011, Chiquita left Cincinnati for Charlotte. In 2013, Archer Daniels Midland announced it was leaving Decatur for Chicago. Each major employer's departure has a ripple effect through the small business and philanthropic communities.

Small communities see this trend. The service disruptions dominate our news. There is no silver bullet. Increased collaboration is very much needed across industry, government, and communities is absolutely imperative.

Some things for us to further talk about, and Ranking Member Murphy spoke of lowing the financial profession barriers to the profession. We believe that to be key. Increasing the number of pathways to accrue the necessary training and experience, modernizing the pilot training. All of this can be done and improve safety within the existing regulatory framework. Virtually every state has an airport that will face the loss of service in the coming years. Already, 3 dozen communities have lost air service. Another 2 dozen have lost 75 percent. Unless we mitigate this crisis, the damage to our Nation's communities, our industry and small businesses will be devastating.

Thank you again for including my perspective, and I look forward to answering any questions you may have. Thank you.

Chairman KNIGHT. Thank you very much.

Ms. Bartush, you are now recognized for 5 minutes.

**STATEMENT OF SARAH OBERMAN BARTUSH**

Ms. BARTUSH. Okay. Good morning, Chairman Knight, Ranking Member Murphy, and other esteemed members of Congress here today. It is a pleasure for me to be here.

My name is Sarah Oberman Bartush, and I am from Camarillo, California. I have grown up in the aviation industry as my parents, Mark and Janie Oberman founded our business, Channel Islands Aviation, in 1976.

Our business is unique in the fact that we operate an executive charter operation under our DBA CI Jets. We have a busy flight school where we train pilots professionally, and we also have a maintenance operation to maintain our fleet. The workforce shortages are deeply impacting our business.

First off, our flight school does not have enough flight instructors. We currently have 115 active students with only 10 flight instructors on staff. In the past 3 years, we have lost 19 flight instructors to either corporate or regional airlines. Right now, we desperately need to hire, yet we are not getting any resumes in the door. We have a waitlist right now for flight students, 13 people long, so we desperately need to hire. I need to have at least three more full-time instructors on staff right now. If we are unable to find flight instructors in the future, we will not be able to sustain our flight training business.

Another problem facing our flight school is that becoming a flight instructor is not a necessary step in a commercial pilot's career anymore. Historically, commercial graduates would go and flight instruct for a couple years before they move on to say a corporate position or a regional airline. However, right now, our graduates with as little as 200 hours of flight time are taking jobs flying as copilot in jets for charter operators. Just last week I got an email from a fellow operator on our field that operates a large fleet of business jets and he said that he had six position openings and they were looking to hire our new commercial graduates. So our graduates are looking at either flying the right seat of a jet or they are looking at flying for us in a small, single engine Cessna. And obviously, they are going to go fly something that is bigger and faster. So we are losing those opportunities just right in our flight school right there.

The next issue that we are facing in our maintenance department is that we have been unable to hire and retain aircraft mechanics. We have been continuously hiring mechanics for the past 2 years, and due to the fact that we have such a workforce shortage with mechanics, our flight school has experienced many delays and flight cancelations due to the fact that we cannot get aircraft out of the shop. We have been operating sometimes with as little as only two mechanics on the floor, and we operate a fleet of 12 aircraft in our flight school, while also doing outside maintenance.

Over in CI Jets, our executive jet charter division, we operate four jet aircraft and employ seven pilots. Traditionally, when a pilot chooses to go corporate or fly private aircraft, they maintain that course, or they might go for the airlines. And traditionally, they will actually retire in that position. However, right now we are seeing our corporate pilots take the plunge and go fly for the airlines because the packages and the sign-on bonuses and all the benefits for the airlines is so compelling that they are making a career change.

In the past year, we have had two of our highest paid and most senior pilots give resignation to go fly for the major airlines. Both were making about $200,000 a year flying a $20 million airplane all over the world to exotic destinations, so that has been a big challenge for us in losing pilots to the airlines. When we do lose a pilot, it is a financial burden to us because the training event to bring on a new pilot costs anywhere from $10,000 to $60,000, and so with the turnover and the continuous cost of training, it is really, really hard for us to sustain being in this business.

It is really important right now to get the word out that it is a really good time to become a pilot. I mean, there are so many job opportunities out there and companies like mine could definitely benefit from that. But without enough flight instructors to train incoming pilots, it is going to be impossible to produce them. And without corporate pilots, many businesses that rely on corporate aviation as a means of conducting business and going to different locations, they are not going to have that option.

So I really appreciate this topic being brought forth today, and I look forward to taking all of your questions. It is a pleasure being here. Thank you.

Chairman KNIGHT. Thank you very much.

Dr. Witcher, you have 5 minutes. We look forward to your testimony.

**STATEMENT OF KEN WITCHER**

Mr. WITCHER. Thank you, Chairman Knight and Ranking Member Murphy, and members of the Committee. Thank you so much for allowing me to come here today to talk about this topic that is certainly very important to us. Aviation is in my blood as well, Mr. Knight, and this is an important topic to us at the university as well. I have had the chance for the last 5 years to lead the College of Aeronautics at the Embry-Riddle worldwide campus, and it is an exciting time to be in aviation.

Embry-Riddle as a whole has been in this business for about 90 years educating this workforce that we have out there. We offer degrees. We also offer professional education to companies out there as well that we are able to support as we move forward.

The big picture, and I think you guys have captured this in your testimonies you had this morning and the testimonies from our previous Committee or panelists up here, is if you look at the research, going back as far as in the early 1980s, there was clear research that connected an economic impact to the air service of the community. So there is a connection here to the small businesses and to economic growth without a doubt.

So what is happening with the industry today? And if you look at it from a global perspective, as the large manufacturers produce a forecast each year, they are saying in the next 20 years or so we are going to need about 790,000 pilots globally. Here in the United States that would be about almost 200,000 pilots, and about 754,000 maintainers globally just to match the growth that is happening in the industry that was mentioned previously. That is a lot of folks, and these are skilled labor forces, so this is not just—there are really no nonskilled labor forces here in the area.

So as we talk about this as a whole, let's come back to the pilot shortage in particular. And by the way, you mentioned a report that you got from the National Business Aviation Association. I think that one is an important one to pay attention to as well. The folks that they represent, about 97 percent of their companies are small to medium businesses. As you are hearing up here today, that is a big impact out there, not just to the Boeings of the world and the Deltas of the world, but also to the small businesses that we have out there that we support.

So the pilot shortage in particular, Sarah was just saying there is usually two tracts to become a pilot. One is through the military, of course. They produce about 1,000 pilots a year. They are growing as many of you might have heard just in the last week or two, that Secretary Wilson, Heather Wilson had mentioned that they were trying to grow I think 73 squadrons is what she was saying. So they are going to put a burden on that training pipeline into this that is usually typically supported this commercial world. And then there are the flight schools. And many of those flight schools are small businesses, but then there are flight schools that are larger. What you are hearing from Sarah in particular is what our flight schools are experiencing. So as the large organizations, the Deltas,

Uniteds of this world are out there and they need resources, they need pilots, they have resources to attract that talent.

If you look at pilot pay in the majors, over the last few years it has increased. I think that is a pretty good indicator of them trying to bring in good talent. Now, where do they take their pilots from? Well, they are taking their pilots from these corporate aviation organizations and from the regionals. And when we take pilots from the regionals, what are we doing? Well, we are reducing service. That was mentioned here by one of the other panelists. And it keeps going down until you get to this problem that Sarah very clearly identified, which is that CFI problem. And without the instructors, how do we educate and train the students and the pilots of the future? So that is where that problem really does kind of become a significant issue for all of us that are wanting to support the aviation industry.

And that has two impacts on small business. Like I was mentioning, reduced services out there and then the things that Sarah identified, the ability to support these small flight training schools and those type of organizations that rely on this talent and this workforce.

So the technician piece of this house is very similar. It has been identified by our first witness down there as well. If you look at just the United States, we are saying about 154,000 or so. Some of the reports out there indicate that we will need that kind of talent. The interesting thing here though is that with the pilot problem, the pilot issue challenge that we are facing, there are a lot of people that want to be pilots. We heard that. And there are aircraft out there to do that. What we are missing is that CFI part of this.

In the technician piece of the house it is a little different. We have got capacity in those schools and we have got to figure out a way to get that talent in there and through that capacity the technician problem could be as big to small businesses as we heard earlier with some of the MROs as the pilot shortage is.

So just to kind of summarize this thing, there are challenges out there without a doubt. There are a lot of people out there, including up here on the Hill, that are working very hard to solve those challenges. And one of those things that we have been able to get very excited about recently is this opportunity to look at our career skill bridges that happen out there. It is where we take and we are separating military folks and we are bringing them in with certain types of training and getting them into these areas. In particular, these areas where they are wanting this 3 to 5 years' experience in these skill sets.

So a lot of opportunity out there. Some answers to some of these challenges, and I look forward to your questions. Thank you.

Chairman KNIGHT. Very good. We will go through the Committee up here and ask a few questions. We try to keep our questions to 5 minutes, too, and if we can, we come back for another round.

But I have got a question kind of for the panel. We see that if there is a pilot shortage and there is an instructor shortage, which I firmly agree that there is, but the technician shortage of maintaining the aircraft, of making sure that we are putting safe aircraft in the air, where are we looking to get them? So if I go to

Embry-Riddle and I get pilots out of there or I get them somewhere else across the country, where are I getting my maintainers? Maybe Mr. Levanto, you can help me with that. I am betting some come from the military, so I am going to take that one kind of off the board. But where are the rest coming?

Mr. LEVANTO. Sure. Well, answering that question requires very briefly understanding the different types of individuals that perform work in maintenance facilities. So certificated mechanics, A&P, airframe and power plant mechanics attract the most attention and are the gold standards. They bear individual certifications from the FAA to perform work on civil aircraft and they have a variety of privileges and responsibilities that go along with that. There are also individuals holding repairman certificates who have not necessarily gone through the same pathway to get to their certification, but they have a specialized skill that makes them particularly valuable and effective in performing work on a civil aircraft. And they get their certificate under their employer's endorsement. And it is tied to that employer and tied to the specific work that they perform in order to be a part of the civil aviation landscape. Those certificated individuals are supported by noncertficated technicians who have knowledge and skills, and in fact, are required to have knowledge and skills and access to necessary data to perform work and they do so in coordination with their certificated coworkers who provide supervision support and sign off on work for return to service. So understanding all the pieces of that pie show that there is actually a variety of pathways through which individuals can get into a maintenance environment.

Chairman KNIGHT. So we are looking at maybe four or five steps of people that work on aircraft for their certain skill level, their certain certification, and their certain education that they have in that arena?

Mr. LEVANTO. Yes, sir.

Chairman KNIGHT. Are we finding that the—I do not want to say the lower step, but the step that is not certified, that is, as you say, the repairman that goes in there, is working on a specific aircraft and a specific place, like maybe Ms. Bartush's business, is there a huge shortage there or is that kind of an on-the-job training of we are trying to grab people and they are working for us and we are putting them into this position?

Mr. LEVANTO. Actually, in many ways that is a resource we can take further advantage of. Aviation businesses tend to focus on certificated personnel, and there is some sense behind that. But those are the individuals that are getting those gold standard skills that are then getting poached out of their 147 programs or they are experienced to go work in other industries. The groups that we have worked with, the organizations that have had a lot of success are those who have developed robust internal training to turn noncertificated personnel who are eager to learn, have the character necessary to show up to work every day and perform exemplary, and growing them through the experience requirements of part 65 into individuals eligible to get their personal certification. And a great example of that from Alaska, Warbelow's Air actually has a helper program built into their training program which they are required

to have under their own certification, and they have been growing technicians over the course of 3 to 5 years into individuals who are ready to take their tests and take their own A&P certification.

Chairman KNIGHT. Okay. So let me expand this out a little bit.

In my district, we build a lot of airplanes. We have a lot of aviation in my district. We are doing some innovative things over the next 20, 30, 50 years, and we needed some folks. So we built a program though our junior college. It is called the AFAB Center, and it is for basically basic fabrication of airplanes. Need to be able to show up, need to be able to pass a urine test because it is a DOD job, and need to be able to have a basic understanding of schematics. And we have a very robust group there that is being hired now by many of the companies at about a 97 percent clip. So if you make it through this program, you are probably going to be hired, and it is going to be a good job and good benefits and all of that.

I think, because of the economy and just kind of follow me here, we need to look at some of these kind of connections to our junior colleges. We all have junior colleges. We all have tech schools. We all have universities in our districts or in our state that are very willing to open up certified programs. We all know about the 4-year degrees, but we also know that we need people in jobs to put the square peg in the square hole quicker sometimes. And that means getting the certification that you need, getting the training that you need, and getting into the job. So I think that that is part of our goal in Congress is making sure that we are getting the workforce in to work. And that is obviously a goal here at the Small Business. We want the opportunities to be filled by folks that can take advantage.

So I will come back to me, but I would like to go to the Ranking Member, Ms. Murphy.

Ms. MURPHY. Thank you, Mr. Chairman.

Just as Mr. Chairman said, I am very interested in seeing that we get folks into jobs, but particularly veterans. And so I have a particular interest in the Department of Defense Skill Bridge program that you mentioned. Specifically, we just were able to pass into law some changes to the Transition Assistance program to enable greater emphasis on educating service members as they transition into civilian life about career opportunities, career and technical training, education options, as well as entrepreneurship potential. So hopefully, that will be an opportunity to highlight a program like the Skill Bridge program.

But I was wondering, you know, is it for all types of aviation skills, not just pilots? Also, what kind of throughput are you currently seeing? And then finally, the witnesses have talked a lot about certification. How do we translate military experience into civilian certification in a way that is portable?

Mr. WITCHER. Yeah. Thanks, Ms. Murphy. That is a great question. And you are right. The Skill Bridge program is part of the transitioning service member program. It is approved. It is very exciting. And what we are looking for, as Mr. Knight mentioned, we need skill sets. We need the square peg in the square hole here. We do not necessarily need a 4-year degree, although that is a valuable product in this business. But we need to get the skillsets out there. So we have these folks that spent 3 to 5 to 7 to 20 years

in some cases serving in the military, working on these high performance aircraft. Why could we not take them out and fill some of this need that we have out there. And in particular, a lot of the smaller businesses that are out there that are in the MO world, they are looking with somebody with 3 to 5 years' experience because, as we mentioned, that cost to train somebody internally. So somebody that comes with experience would be a big benefit. These are those folks. And to Mr. Knight's comments there, they can pass a drug test typically, and they know how to show up for work showing out of the service. So these are the folks that would meet that bill.

Now, there is no direct correlation, unfortunately, from their experiences in the service to the certificate from the FAA, but that is not a game killer there. There are still some opportunities there. The part 65 that was mentioned earlier is a way that we can take that skillset if they have enough to pass, to meet the experience criteria, we can provide the education part of this and very clearly close that gap.

But even more important than that, what we are hearing from the industries that we are talking to now about starting this career skills gap program with the A&P mechanics is that they do not necessarily need the A&P certificate. They are looking for the capability, the skillset that is coming out of there. So we can quickly cross that gap with some of these processes, some of these programs, such as this transition program that you mentioned. So, and in some cases, they are not even needing folks that have experience on aircraft. They want somebody that is mechanically inclined. Some of these large manufacturers—and I apologize. I am under an NDA. I need my job. So I cannot tell you exactly who we were talking to there right now. I would love to later. But these companies, large companies, are seriously looking for any type. They are getting kind of desperate to look for bus drivers in some cases. Not anything wrong with bus drivers. But they are looking for a skillset that has a capability out there. So anybody coming out of a MOS or an AFIC that has a mechanical inclination, they believe with us, our help and their training programs, we can make them a productive member to meet this gap that you so clearly identified.

Ms. MURPHY. That is great. Thank you so much for that thorough answer.

Mr. Levanto, I had a question on a separate issue. You know, I understand that there have been concerns about a growing share of aircraft maintenance being offshored to repair facilities located overseas. Does competition from the overseas repair facilities affect your industry's ability to retain employees and attract new employees to the maintenance workforce?

Mr. LEVANTO. Thank you for that question. It is important to remember that maintenance is taking place all over the world, and in fact, it is a requirement that facilities bearing FAA certification are available to perform work on U.S. flagged aircraft wherever they go. In many cases, the facilities that are performing work overseas are actually connected to our own by U.S. companies. So in a way we have been able to educate a lot over the past decade or so about the fact that so-called outsourcing or offshoring actually

ties into the very capable network of American businesses that are performing work on aircraft. And the fact of the matter is that those organizations that are performing work overseas, just like here in the United States, are meeting equivalent standards of safety that are overseen by the FAA often in partnership with its bilateral partners or other civil aviation authorities. That means that the individuals required to work there need to have the same kinds of technical knowledge and skill that we need here. And training and program resources that help grow that technician pool wherever they are located, whether they are coming from the military or civilian service or education, is going to be good for all those organizations, particularly by creating flows of personnel that can support needs for our aircraft, our U.S. flight aircraft wherever they go.

Ms. MURPHY. Thank you.

I yield back.

Chairman KNIGHT. Thank you.

Now I would like to recognize Ms. Clarke from the great State of New York.

Ms. CLARKE. Thank you very much, Mr. Chairman. And I thank our Ranking Member.

Dr. Witcher, I would like to just ask you a couple of questions because I am I guess a bit concerned about how we view sort of the pipeline to getting the 21st century workforce in aviation that we need and sort of build the momentum for growth in terms of aviation occupations being viable into the next century. I happen to come from New York City where we actually have an aviation high school. And I was wondering whether you are seeing similar types of high schools around the Nation that can provide that pipeline that we are looking for. And I also wanted to add that I would like to hear a bit more about how we make it accessible to minority and disadvantaged populations that have historically had a difficult time bridging the gap from education to employment. How can we better engage and prepare these communities to be pilots or aviation mechanics?

Mr. WITCHER. I thank you so much for that question. And it is a great question. The good news is right now the aviation industry is an exciting industry. I mean, we have got the coolest toys for sure. We have rockets that are coming back. First stages are coming back here. We have the UAS industry, the drone industry that has got a completely different demographic that usually we do not have a real valuable conversation in aviation. Now we are able to break into that demographic and have a better conversation about the future of aviation. So it is exciting. But you are right. We have got to start early. There is a lot of competition for the talent that we need in this aviation industry out there to go into other industries, like the tech industry, of course, which certainly needs the talent as well. But we have got to fight for that and ensure that these young folks in the high school programs, and there are many high school programs around the country, and my understanding is they are very successful. Understand that there are great opportunities coming in.

An interesting thing is in the pilot area, what we see today, and this is different than just a few years ago, because of what we are

talking about up here and the opportunity for jobs, not only will we have young high school graduates come to us and say we want to be a pilot and let's go, but also their parents come to us. And before, it was hard to convince their parents that we had a future. There were not a lot of jobs. The pay was not quite as good as it is today. It had a little slump. But today that is completely different. A lot of excitement out there. Our challenge is how do we get this excitement into a typically nonaviation demographic? Things like this new technology, unmanned systems, when I take that to school, I love to have that conversation because they look at that opportunity in aviation and it is not just, you know, the pilots that they have seen, the stereotypical pilot that they have seen or stereotypical maintainer. Anybody can get excited about this technology. There are no stereotypes around it. We are leveraging tools like that to get into that level of the education system to try to get folks excited about how it is coming forward.

We have work to do. We have got to be able to, especially as an aviation aerospace educator, to get into some of these communities that we historically have not gotten into. Things like online education or given this opportunity, to in there at a cost, that is that opens up this opportunity of aviation education to a completely different market, and we are excited about that. Great question. Thank you.

Ms. CLARKE. Absolutely. Because I think it is something that can be, you know, can be prompted in urban, as well as rural communities where young folks are looking for opportunities, but they are not accessible. I just think about unfortunately these young people who have been breaching security and jumping in and actually piloting aircraft. And they have learned some of their skill online. And unfortunately, it was criminal what they did, but it indicates to me that there are ways that we can do distance learning. There are ways that we can promote to nontraditional communities to be able to get that workforce of the 21st century. So I look forward to more of a conversation in this space because I think it is really important that we not throw our hands up and we not believe that we are limited in terms of where we can access the talent to be able to reinvigorate the industry.

I yield back, Mr. Chairman.

Chairman KNIGHT. Thank you very much.

I think this is a good part of the conversation, too. You know, we all go to schools and we all talk to young people and see what their dreams are these days. And the UAS kind of explosion over the last 10 years has really invigorated a lot of young people. We have a robotics team in my district that started about 12 years ago. I was there when it started and it was 100 percent boys. Today, it is 47 percent girls. So you can see that there is kind of a shift in maybe looking at a career that maybe 12 years ago the girls did not think that they could do that or they were not looking at that.

One of the things that Ms. Murphy brought up was military education. And I think that we have talked about this until we are blue in the face of how do we get people in the military that do something very well in the military that works in the civilian world, and how do we transfer them from the military life of not wearing camo to wearing jeans and getting paid? So we would love

to hear great ideas on that. We have tried to do that. I am sure that at the state level everybody has tried to do that. I know that Florida is very involved. California is involved. And New York. And all of the states have tried to do it at a little bit of a level, but I think the Federal Government has really got to be involved. That if you got somebody in there and they are working on helicopters and they want to transfer out when they ETS from the military, why would we not want them to work on helicopters? That is exactly what we want them to do. So those are always ideas that we are trying to kind of filter down and work on, but literally, the military has got to give us some pathway, too. They really do. So that is not a cut on anybody. It is just maybe a little bit more homework for us.

And then the last thing I would like to bring up because I think it is going to cross is aviation in this country, it is the absolute safest thing I do to get to work. I was telling my wife, my 3-hour drive to LAX is by far the most dangerous thing I do all day. And I only live 60 miles from LAX, so you can see what the traffic is in Southern California. Once I am on the airplane, I am safe. I am good to go. It is the safest mode of travel. We are very proud of what happens in America, and I think that Ms. Murphy said something in her opening statement, we do not want anything to affect the safety of travel, either at the GA locations or at something like LAX. We know that when we get in an airplane, we are in a very, very safest mode of travel and we are going to get to our destination. And that is a testimony to not only what you folks do, what the airlines do, and what the mechanics to keep the airplanes in the air do.

And then the last thing is cool toys. Boy, we have really got a hit on that. I just firmly believe that. The kids that are going into computers and things like that today, and I know that there is high pay in a lot of these areas, but literally, these are the cool toys. These are the coolest things you can possibly do is fly an airplane. Teach somebody to fly an airplane. It really is, not just because I grew up around it, but it just is. And how we motivate those kids to say this is an opportunity, and how do we get to kids that are in the inner city to do that and how do we break through the gender gap is difficult, too. But we have got to do that. And I think that we are starting to. And I think the UAS explosion, the drone explosion is starting to get people involved. You can go out and buy a cheap, cruddy drone for 60 bucks and fly it and see, you know, kind of characteristics of flight and things like that. And it gets them involved. And that is a good thing. That is a good thing.

So, okay, Ms. Murphy, how are we?

Ms. MURPHY. We are good.

Chairman KNIGHT. Okay. All right. Does anyone want to react to my statements or—that is very good. Thank you, Vivian. I was just kind of rambling, but I figured that everybody was nodding their head and I was going down the right road.

Go ahead, Mr. Levanto.

Mr. LEVANTO. If I may just briefly second you point, and particularly in getting individuals out of the military where we can take advantage of these noncertificated pathways where they have valuable specialized skills that may not meet the full criteria for

an A&P certificate, but we have so many ways to get them into our workforce. And the way this Committee can help with that, not just for the military but for all personnel looking to get employment in small aviation businesses, is by helping to stimulate resources, begin conversations, create connections and collaboration. And I do want to share that you can actually help us with that outside of your Committee work today if you support the FAA bill. It actually has a program that is supported by just about every organization that is in this room to pilot an AMT grant program that would facilitate local community engagement and collaboration to help with veteran transitions and getting personnel in all different types of backgrounds into technician careers. And I would like to implore you to support us in that effort.

Chairman KNIGHT. I think veteran transition is something that everyone agrees that that is a big part of how we make sure that our veterans are getting into work cuts down on the problems that we see from veterans. We are losing 21 veterans a day to suicide. All of those issues are the bigger problem here. But the solution is getting them into a job as fast as possible and getting them into transitioning into civilian life.

So I agree with that. And I think that, you know, when I was in the military, I was a track systems mechanic. That does not really transition over to a helicopter mechanic or an airplane mechanic, but it is a mechanical skill that I acquired in the military that probably, because I had some skills, you could transition into that or you could put into a training program. Boy, we talk about this and talk about this, and I think there are little incremental changes. But we have really got to have bigger changes. I know the TAPS program and things like that are good programs and they start to move our young people from ETS into work, but boy, we have really got to have a good connection to that. And so, we will look into that a lot closer.

Okay. I think we are set unless anyone else has anything to say. We are a free-flowing Committee in here. We do whatever the heck we want till the Chairman comes in and says do not do that.

Mr. LENSS. Mr. Chairman, I was just going to add on the cool toys something to be aware of is our regional airline industry, as well as even the major carriers now, are doing a significant outreach to middle schools, high schools, and bringing in some cases simulators out to the schools so the kids get that love of aviation bug instilled early. And so there is some active work being done within the industry, but again, I think that is a program we can take even further with continued industry collaboration with government and communities.

I would also point out that the need to reduce the cost of training, particularly flight training in getting at some of the nontraditional communities is critically important, and the need for more government assistance in the form of low-interest loans, loan forgiveness programs, those sorts of things are desperately needed as well to reach more kids.

Chairman KNIGHT. Yeah, it is a good point. I can tell you when I was working on my private pilot's license at 16 years old, I was funding it by mowing lawns. You could not do that today. So it is a great point. And it is a difficult point, too.

Ms. BARTUSH. Mr. Chairman, I wanted to add that we are a VA approved school, and about 30 percent of our flight training business is for veterans. But the funding that they receive is not enough. They are not funded for the private pilot certificate. They have to complete that on their own, so that is a barrier to entry of $15,000 to $20,000. And then from other the program setup only gives them $10,000 per academic year towards their flight training. And they are looking at anywhere from $75,000 to $100,000 in investment of their training. So we need to figure out a way to get them more funding because they have earned that funding.

Chairman KNIGHT. I absolutely agree.

Okay. Well, I think it is evident from the testimony we have heard today that small businesses are suffering from this labor shortage and bear a disproportionate burden of losses. Without highly skilled and qualified employees, small businesses operating flight schools, maintenance and repair shops, and a host of other essential services critical to the aviation sector will disappear. Without these small firms, there can be no aviation industry. Without a healthy aviation industry, the U.S. economy suffers.

I look forward to continuing this dialogue with our witnesses, learning all that we can do to combat this shortage. And thank you for your testimony today.

I ask unanimous consent that members have 5 legislative days to submit statements and supporting materials for the record.

Without objection, so ordered.

This hearing is now adjourned.

[Whereupon, at 11:01 a.m., the Subcommittee was adjourned.]

# APPENDIX

121 North Henry Street
Alexandria, VA 22314-2903
T: 703 739 9543 F: 703 739 9488
arsa@arsa.org www.arsa.org

**Campaigning for America's Aviation Workforce**

**Testimony of Brett Levanto**
**Vice President of Communications**
**Aeronautical Repair Station Association**

**United States House of Representatives Small Business Committee**
**Subcommittee on Contracting and Workforce**

**September 26, 2018**

Chairman Knight, Ranking Member Murphy and members of the subcommittee, thank you for inviting me to testify this morning. The Aeronautical Repair Station Association's (ARSA) members appreciate the subcommittee's willingness to examine the challenge of finding and retaining skilled technical workers in support of America's aviation system; they are encouraged that Congress is looking for ways to help and eager to get involved. The workforce difficulties of this small business-dominated industry have broader consequences for the U.S. economy, not to mention the safety of our nation's airspace.

Recruiting and retaining the next generation of aviation professionals is the most pressing strategic challenge facing the aviation maintenance community. Indeed, technical skills development is a long-term threat to the health of every industry dependent on design, construction and maintenance capabilities. For aviation businesses – large and small – the development, production, operation and maintenance of the world's safest transportation system depends on a skilled, dedicated and knowledgeable workforce that is personally invested for the long term.

***Industry Background***

ARSA members hold air agency, aircraft and individual certifications from U.S. and international aviation safety regulatory bodies. The core of the association's membership is independent repair stations, which hold approved maintenance organization certificates from the Federal Aviation Administration (FAA)[1] and other civil aviation authorities. The industry is inherently international: Many companies design, produce and perform maintenance on civil and military aviation articles for use in multiple countries. As you would expect, aviation businesses invest heavily in regulatory compliance and quality systems and must handle a constant stream of audits and oversight actions from regulators and customers in addition to their own internal control procedures.

Certificated repair stations have the authority to perform work on – and subsequently approve for return to service – civil aircraft, engines, propellers and components. Civilian approvals are so thorough and respected that Department of Defense (DoD) agencies routinely require that a company hold a certificate from the civil aviation authority in order to work on military systems.

Many facilities are specialized, utilizing small teams to efficiently perform a particular set of tasks. This specialization allows companies to get a better return on their investment in training, tools, facilities and other administrative requirements. Cost-effective and reliable maintenance services benefit aviation customers, both civilian and

[1] Known as "part 145 certificates" because they are administered under Title 14 of the Code of Federal Regulations (CFR) part 145 in the United States and similarly numbered regulations from other civil aviation authorities.

military. These efficiencies translate into cost savings and economic power while ensuring public safety and security in the United States and abroad.

Maintenance providers, manufacturers, air carriers, parts producers, educators and other service providers form a global, interconnected civil aviation industry employing more than 380,000 people and generating more than $77 billion in direct economic impact[2] – and that does not consider the military aviation support system, which represents another major driver of U.S. and world financial health. The United States continues to hold a strong position in the civil aviation market: Nearly 279,000 Americans go to work every day just in the maintenance industry and generate $47 billion in annual economic activity.[3]

To explore the workforce challenges facing the civil aviation maintenance industry, it is important to understand its structure. The general public might reasonably consider the aviation world to be the bastion of big business; the average passenger's entire travel or shipping experience usually involves interface with large organizations.

However, this is not an accurate representation of the business landscape for civil aviation maintenance, parts production and support services. Small businesses are the rule, rather than the exception. Of the 4,900 aviation maintenance firms worldwide, 81 percent are small and medium sized companies. At home in the United states, 85

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[2] Aeronautical Repair Station Association. "2018 Global Fleet & MRO Market Report." March 2018. 101. Executive summary and U.S. employment data available online via http://arsa.org/news-media/economic-data.
[3] *Id.* 107.

percent of the roughly 4,000 companies are small or medium size – that's 3,400 businesses employing 21 percent of the total maintenance workforce.[4]

***A Hopeful Market***

There are civil aviation maintenance facilities in every state; the seven represented by subcommittee members – California, Florida, Iowa, Kentucky, New York, Pennsylvania and South Carolina – are among the leaders. Companies in those seven states employ nearly 80,000 men and women who create more than $12 billion in direct economic activity annually.[5]

Not only does it contribute substantially both to the U.S. and global economy, the aviation maintenance industry is poised for growth. Projections are that the total international market for civil aircraft maintenance and parts production will surpass $114 billion by 2028.[6] To reap the benefits of that expansion, employers must recruit, retain and develop their next generation of technical professionals.

According to ARSA's own analysis, the average U.S. repair station employs 46 people. Considering this average is inflated by the few large players in the market, the typical personnel roster of an aviation maintenance provider is even smaller. While small, these businesses are not unsophisticated – they employ highly-trained workers and utilize advanced technical tools and processes. Many of these high-tech companies compete on the global stage by servicing an international customer base.

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[4] *Id.* 104.
[5] See Appendix A for complete U.S. state-by-state data.
[6] "2018 Global Fleet & MRO Market Assessment." *Supra.* 4.

As of the date of this testimony, the FAA reported 4,020 part-145 certificate holders in the United States,[7] of which 1,497 (more than one-third) held an approval from EASA authorizing them to performed work on European-registered aircraft and components.[8] Any U.S. part 145 certificate holder can perform work for Canadian customers under the U.S.-Canada bilateral aviation safety agreement and many hold a number of certificates from other global aviation authorities.

***A Gathering Storm***

For the American industry, particularly for its many small and medium size enterprises, taking advantage of expected growth and providing services demanded by the larger economy depends entirely on the ability to develop the human capital needed to keep pace with emerging markets.

Boeing's 2018 Technician Outlook projects that North American *airlines* will need 189,000 new technicians to keep pace with fleet growth over the next 20 years.[9] Expanded to encompass all work performed on civil aircraft – not just for scheduled passenger air service – the number is much, much larger. Additionally, considering the average FAA-certificated mechanic is 51 years old and 27 percent are older than 63,[10] looming retirements of the aging technical population leaves an even bigger hole to fill.

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[7] FAA Repair Station Directory. Available online via https://av-info.faa.gov.
[8] EASA list of U.S. approval holders. Available online via https://www.easa.europa.eu/easa-and-you/aircraft-products/continuing-airworthiness-organisations/foreign-part-145-organisations-in-us.
[9] Boeing. "Pilot & Technician Outlook 2018-2037." Available online at https://www.boeing.com/commercial/market/pilot-technician-outlook/2018-technician-outlook.
[10] Aviation Technician Education Council. "Pipeline Report." December 2017. Available online at http://www.atec-amt.org/uploads/1/0/7/5/10756256/atec-pipelinereport-20171211.pdf.

Work in aviation demands a high level of technical skill with a range of potential points of entry. The technicians demanded by maintenance facilities can be categorized according to the individual certification level required to perform the work:

- Mechanics individually certificated under 14 CFR part 65, subpart D. These individuals hold either airframe (A) or powerplant (P) ratings, or both (A&P), and are commonly referred to as "A&P mechanics."
- Repairmen endorsed by their part 121, 135 or 145 certificate-holding employer for certification under part 65, subpart E.
- Non-certificated technicians performing work for or under the supervision of a certificate-holding person, including repair stations and air carriers.

According to responses to an August 2017 survey administered by ARSA, the industry's current employment is almost evenly split between certificated *mechanics* and non-certificated technicians – together the two groups compose roughly 90 percent of employment – with the remaining portion invested in individuals holding *repairman* certificates under the endorsement of certificated employers.[11]

How an individual business balances its use of each group will depend on a variety of factors including expectations of the civil aviation authority, contract requirements and employer preferences. Each group plays important roles in the civil aviation maintenance environment and – as I will describe later – should be utilized in a way that progressively stimulates technician career growth and maximizes workplace skills.

[11] Aeronautical Repair Station Association. "Quick Question Answered: Technician Workforce by Certification." Aug. 31, 2018. Available online at http://arsa.org/qq-aug2017.

The general capabilities required to perform work in aviation can be transferred into any hands-on industry. ARSA's members and its colleagues at the Aviation Technician Education Council (ATEC)[12] report employees and students regularly seek opportunities in other sectors including automotive, heavy equipment, non-aviation manufacturing and even amusement parks. The demands of aviation and the flexibility of other, less-regulated industries increase the challenge to aerospace businesses in retaining experienced workers and attracting new entrants. According to ATEC, only 60 percent of students complete the oral, written and practical exams required to achieve FAA certification as a mechanic;[13] in many cases the remaining 40 percent find an easier transition into other employment.

In addition to the skills demanded of potential applicants – either in the form of specialized technical capabilities or FAA-imposed certification requirements – repair stations must invest in training. ARSA survey respondents indicated the average non-certificated technician needs 14 months of development to grow into a profitable, independent employee and certificated mechanics need nine months.[14] While those figures were moderated by several reported quick-turnarounds for each type of technician, multiple respondents indicated a full two years (24 months, the longest period that could be entered via the survey mechanism) were needed to produce a useful technician regardless of their certification. In addition to the time required to

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[12] ATEC represents aviation maintenance technician schools certificated by the FAA to educate potential part 65 mechanics.
[13] "Pipeline Report." *Supra.*
[14] Aeronautical Repair Station Association. "Quick Question Answered: Time to Onboard a New Technician." May 16, 2017. Available online at http://arsa.org/qq-april17.

complete the initial onboarding and on-the-job education required to make a technician productive, repair stations must then administer comprehensive training programs in order to remain compliant with FAA air agency certificate requirements as well as keep their personnel current on needed skills and capabilities.

Alarms regarding workforce development and personnel retention have been sounding for years, continually illustrating a stark duality between expanding markets and the challenge of finding qualified technical talent. Half of the respondents to ARSA's most-recent member survey reported increased profitability in the last two years and two-thirds expected revenues and markets to grow in the coming year. Employment demand was also strong: 98 percent expected to add to or maintain the current size of their workforce, which would require hiring for new positions, filling vacancies or both.[15]

However, eighty-two percent of respondents reported difficulty finding qualified technical workers (37 percent reported "a lot of difficulty"), with more than 1,000 technician vacancies across the responding companies. Project that number across ARSA's membership and we end up with more than 2,500 unfilled technical positions. Based on annual revenue data, ARSA members will forego between $333.5 million and $642.5 million in revenue this year because of unfulfilled and more likely unfulfillable technical workforce positions.[16]

ARSA does not represent every civil aviation maintenance provider, so the actual revenue loss associated with unfilled technical workforce positions is significantly

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[15] Aeronautical Repair Station Association. "ARSA Survey Shows Industry Poised for Growth, Facing Technician Shortage Headwind." April 24, 2018. Available online at http://arsa.org/survey2018.
[16] *Id.*

higher. In a 2017 analysis, the association projected that the civil aviation maintenance industry's vacancy rate costs U.S. businesses $1.95 billion in lost opportunity and foregone revenue each year.[17]

In its 2018 survey, ARSA allowed its members to illustrate the practical effect of the workforce gap. Eighty percent reported the shortage increases time to complete work for customers, 28 percent have not added new capabilities, 20 percent have turned down work and 11 percent have decided against expanding facilities. [18] Those results underscore how personnel issues ripple through the industry and impact growth in communities around the globe.

Given these challenges, workforce development has become the single most pressing issue facing the aerospace maintenance community.[19] This fact was personally illustrated for me during attendance at *Aviation Week's* April 2018 MRO Americas. The event is a premier North American convention for the maintenance, manufacturing and parts production sectors of the civil and military aviation community. This year, workforce and technician training issues were raised even in places where they were not the defined subject or focal point.

The best example came in a panel session on "Capacity and Pricing" moderated by Jim Clarke, vice president of planning and performance for ARSA-member HAECO Americas, and featuring a number of senior industry executives from around the world.

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[17] Aeronautical Repair Station Association. "Skills Gap Could Cost Repair Stations $1.95 Billion in Revenue, Survey Finds." May 12, 2017. Available online at http://arsa.org/survey2017.
[18] "ARSA Survey Shows..." *Supra.*
[19] *Id.*

The panelists focused almost entirely on people and how having the right personnel – rather than market factors, physical infrastructure or business matters – was the key to successful capacity and workload management in the aviation maintenance world. Clarke summarized the points of his colleagues: "Capacity is not showing in your hangar footprint, but in the number of people that you have and their capabilities and skills." His point struck home and is true beyond the hangar to every component shop or technical facility.

Despite the current crisis, the worst is yet to come. Some experts believe the aviation maintenance industry is not yet experiencing a true "shortage" of talent: The available supply of technicians will not officially be insufficient for demand until 2022; by 2027 the number of available technicians will fall nine percent short of what is required by industry.[20] With employers already struggling to grow the aviation workforce and true deficits supposedly still four years away, the aviation community is facing a gathering storm.

***A Concerted, Connected Campaign***

At a Department of Transportation/FAA-administered workforce event this September, an agency presenter noted how previous efforts and investments in workforce development failed to solve larger structural issues. The industry had seen no consistent results because there were many independent efforts rather than a concerted, connected campaign to improve the entire aviation community's access to

[20] "2018 Global Fleet & MRO Market Assessment." *Supra.* 109.

critically needed skilled professionals. Everyone inventing their own wheel, as he put it, couldn't produce a unified effect.

The industry is rife with small, limited examples of successful programs – from high school curricula designed to attract young students, to STEAM-related events like robotics competitions and other showcases, to marketing outreach and "industry days" where aviation employers open doors to the general public. What can be done to bring these many different efforts – everyone's independently-invented "wheel" – into a centrally-focused mission?

ARSA has been working with a broad coalition of interests to address the problem. While not all of these efforts are within the jurisdiction of the Small Business Committee, it is worth a brief review of the general areas of need in order to understand the situation and form viable solutions.

Internally, the maintenance industry needs to embrace its ability to attract talented individuals with various experience and skills and then establish pathways to technical, managerial and leadership roles. For too long, repair stations and other corporate certificate holders have focused heavily on individually-certificated personnel – those A&P mechanics I mentioned before – at the expense of growing deep benches of talent in other roles. We fail to fully utilize employer-endorsed repairman certificates and non-certificated technicians and thus never develop robust pathways for new entrants to become career professionals.

To meet technical demands for developing, producing and maintaining both old and new aircraft, training institutions need curricula that are responsive to the general

needs of the industry as well as the specific community-centered demands of a local aerospace market.

Mechanic education and certification is still in the dark ages; the aforementioned aviation maintenance technician schools have been laboring under the exact same curriculum standards mandated by the FAA for more than 50 years. Students are subjected to strict 1,900-hour requirements based upon wood, dope and fabric techniques required to maintain a basic general aviation aircraft – or the Wright Flyer. In order to offer education on an advanced fuel-control system or modern electrical components, an FAA-certificated technical school must seek exemptions from current regulations or require students and teachers to invest time beyond the approved curriculum.

By transitioning to competency-based standards rather than remaining stubbornly committed to antiquated seat-time requirements, the education industry will be able to instill basic knowledge of aviation systems and tailor specific skills to the demands of modern, high-technology aircraft, while still being able to target older aircraft designs and systems if required.

In addition to improving academic institution certification requirements, ARSA is pursuing transparency and open access to FAA training and improvement of public information resources related to aviation technical careers and opportunities. The association and its industry allies provided improvements to the government's management of employment data related to aviation maintenance and service

technicians – as the Bureau of Labor Statistics identifies this class of professionals – and federal projections of the "outlook" for prospective entrants into the labor market.

For its part, Congress has opened its eyes and is beginning to offer help. ARSA has been working for more than a year through the FAA reauthorization process to address the technician shortage. While not every association-proposed policy survived the countless rounds of negotiations it took to produce the current bill, when you vote to reauthorize the FAA you will be helping the government take significant but measured steps to invest in the aviation workforce.

In addition to a Government Accountability Office study of the technician workforce, which will provide more insight into what's happening in the market, ARSA led a coalition of more than 35 national and state aviation organizations, labor groups and companies to create a new grant program that would support efforts to train maintenance professionals, help veterans transition to civilian careers and recruit new technicians. These initiatives and others are together under the bill's workforce title (Title VI), which demonstrates the clear understanding of Congress that we have a shared responsibility to grow the next generation of aviation professionals. When you vote for the bill on the House floor, you will be doing just that.

What's important about the grant program[21] is not necessarily the financial resources it will allocate, but the collaboration it will incentivize. In order to be eligible, aviation schools and businesses would have to partner and collaborate with unions and

[21] Before inclusion in the FAA reauthorization process, bills "To establish an aviation maintenance workforce development pilot program" were introduced in the House and Senate. See H.R. 5701 and S. 2506.

governmental entities to request and receive grants. This industry-sector partnership has become the standard for skills education and technical development programs; the state and local-level specialization produced by such collaboration was a fundamental reform of the "Strengthening Career and Technicl Education for the 21st Century Act" (H.R. 2353), which was signed into law in July 2018 after a years-long effort to reauthorize federal investment in career technical education programs.[22]

On behalf of the small businesses behind the civil and military aerospace industry, this committee is in a unique place to help by leveraging collaboration and partnership. Small aviation businesses have limited size and reach, tight margins and heavy regulatory burdens; they need assistance developing relationships and resources in order to obtain and maintain a technical workforce capable of harnessing sustained economic growth. By providing points of connection through the Small Business Administration between technical education institutions, supportive industry groups and other stakeholders, Congress can provide venues for growth, lessons learned and career development between and among repair stations and other aviation businesses.

Thank you for addressing this important issue and allowing ARSA to present the aviation maintenance industry's perspective. We look forward to working with you and your colleagues in a bipartisan manner to pursue solutions that will help U.S. companies capitalize on the significant opportunities in this growing global economy.

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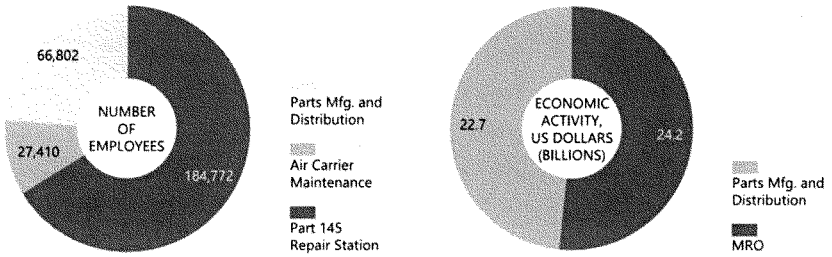
[22] Aeronautical Repair Station Association. "Congress Caps Years-Long Effort on Skills Education." July 31, 2018. Available online at http://arsa.org/technical-workforce-development.

# US EMPLOYMENT AND ECONOMIC IMPACT

The US civil aviation maintenance industry employs nearly 279,000 workers and generates $47 billion in economic activity. The MRO segment accounts for 76 percent of these employees with more than 212,000 workers. Companies that are certificated by the FAA under part 145 are the largest employers with just under 185,000 employees. The remaining 27,000 MRO workers are employed by air carriers involved in civil aviation. Parts manufacturing and distribution, accounts for the remaining 24 percent of employment with close to 67,000 employees. Despite employing three-quarters of workers, MRO accounts for 52 percent of the economic activity or $24.2 billion while the 24 percent working in parts manufacturing and distribution generate 48 percent or $22.7 billion.

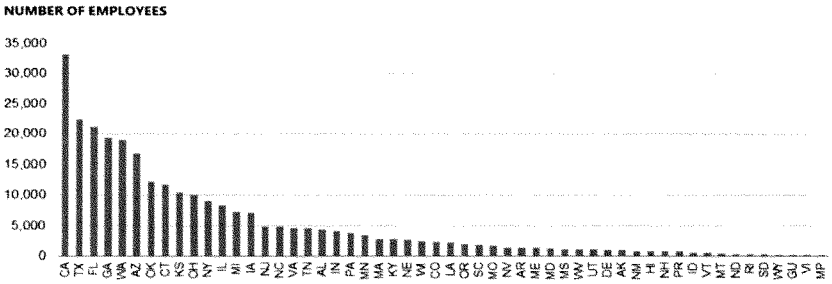
EXHIBIT 1: 2018 US CIVIL AVIATION EMPLOYMENT AND ECONOMIC IMPACT




Source: BLS, FAA, Oliver Wyman Analysis

At the state level, Oliver Wyman estimates that California, Texas, Washington, Florida and Georgia represent just over a combined 41 percent of the total US civil aviation maintenance employment with close to 115,000 employees; the top ten states represent 63 percent of total US employment.

EXHIBIT 2: 2018 US CIVIL AVIATION EMPLOYMENT AND ECONOMIC IMPACT




Source: BLS, FAA, Oliver Wyman Analysis

ARSA

EXHIBIT 3: 2018 US CIVIL AVIATION EMPLOYMENT AND ECONOMIC IMPACT

| | Aviation Maintenance Industry Employment | | | | Aviation Maintenance Industry Economic Activity | | |
|---|---|---|---|---|---|---|---|
| | Maintenance, Repair and Overhaul (MRO) | | | | | | |
| State | FAA Repair Station | Air Carrier | Parts Manufacturing/ Distribution | Total Employment | Maintenance, Repair and Overhaul (MRO) | Parts Manufacturing/ Distribution | Total Economic Activity |
| AK | 467 | 551 | 9 | 1,027 | $115,999 | $3,060 | $119,060 |
| AL | 4,271 | 5 | 27 | 4,303 | $487,243 | $9,181 | $496,424 |
| AR | 1,269 | 50 | 60 | 1,379 | $150,298 | $20,402 | $170,699 |
| AZ | 6,147 | 783 | 9,809 | 16,739 | $789,662 | $3,335,321 | $4,124,983 |
| CA | 24,944 | 2,793 | 5,439 | 33,176 | $3,160,583 | $1,849,405 | $5,009,988 |
| CO | 1,421 | 827 | 15 | 2,263 | $256,156 | $5,100 | $261,256 |
| CT | 4,710 | - | 6,997 | 11,707 | $536,696 | $2,379,166 | $2,915,863 |
| DE | 946 | - | 82 | 1,028 | $107,795 | $27,882 | $135,677 |
| FL | 17,878 | 2,199 | 967 | 21,044 | $2,287,740 | $328,806 | $2,616,545 |
| GA | 16,774 | 1,132 | 1,420 | 19,326 | $2,040,358 | $482,838 | $2,523,195 |
| GU | 17 | 34 | - | 51 | $5,811 | - | $5,811 |
| HI | 205 | 578 | 8 | 791 | $89,222 | $2,720 | $91,942 |
| IA | 2,715 | 4 | 4,399 | 7,118 | $309,825 | $1,495,777 | $1,805,602 |
| ID | 485 | 18 | 33 | 536 | $57,316 | $11,221 | $68,537 |
| IL | 3,871 | 3,002 | 1,427 | 8,300 | $783,167 | $485,218 | $1,268,385 |
| IN | 2,572 | 412 | 1,153 | 4,137 | $340,022 | $392,051 | $732,073 |
| KS | 5,408 | 142 | 4,883 | 10,433 | $632,413 | $1,660,350 | $2,292,763 |
| KY | 823 | 1,942 | 44 | 2,809 | $315,067 | $14,961 | $330,028 |
| LA | 1,837 | 139 | 185 | 2,161 | $225,162 | $62,905 | $288,067 |
| MA | 2,105 | 478 | 266 | 2,849 | $294,328 | $90,447 | $384,775 |
| MD | 430 | 181 | 587 | 1,198 | $69,622 | $199,596 | $269,218 |
| ME | 1,217 | - | 128 | 1,345 | $138,675 | $43,523 | $182,198 |
| MI | 4,208 | 474 | 2,506 | 7,188 | $533,506 | $852,107 | $1,385,613 |
| MN | 2,616 | 433 | 356 | 3,405 | $347,428 | $121,049 | $468,478 |
| MO | 1,446 | 253 | 22 | 1,721 | $193,598 | $7,481 | $201,079 |
| MP | 7 | - | - | 7 | $798 | - | $798 |
| MS | 1,010 | - | 138 | 1,148 | $115,088 | $46,924 | $162,011 |
| MT | 405 | - | 18 | 423 | $46,149 | $6,120 | $52,270 |
| NC | 3,655 | 832 | 381 | 4,868 | $511,286 | $129,550 | $640,836 |
| ND | 201 | - | 98 | 299 | $22,904 | $33,323 | $56,228 |
| NE | 1,404 | - | 1,284 | 2,688 | $159,983 | $436,594 | $596,578 |
| NH | 750 | - | 33 | 783 | $85,461 | $11,221 | $96,682 |
| NJ | 3,854 | 598 | 445 | 4,897 | $507,298 | $151,312 | $658,610 |
| NM | 743 | 6 | 47 | 796 | $85,347 | $15,981 | $101,327 |
| NV | 664 | 624 | 115 | 1,403 | $146,765 | $39,103 | $185,868 |
| NY | 5,176 | 1,206 | 2,716 | 9,098 | $727,218 | $923,512 | $1,650,730 |
| OH | 6,686 | 184 | 3,142 | 10,012 | $782,825 | $1,068,364 | $1,851,188 |
| OK | 11,455 | 188 | 518 | 12,161 | $1,326,700 | $176,134 | $1,502,834 |
| OR | 1,569 | 246 | 115 | 1,930 | $206,816 | $39,103 | $245,919 |
| PA | 2,706 | 978 | 113 | 3,797 | $419,785 | $38,423 | $458,208 |
| PR | 655 | 45 | - | 700 | $79,764 | - | $79,764 |
| RI | 249 | - | 44 | 293 | $28,373 | $14,961 | $43,334 |
| SC | 1,758 | 36 | 10 | 1,804 | $204,423 | $3,400 | $207,823 |
| SD | 67 | - | 168 | 235 | $7,635 | $57,124 | $64,759 |
| TN | 2,273 | 1,673 | 595 | 4,541 | $449,640 | $202,316 | $651,956 |
| TX | 15,909 | 2,524 | 3,871 | 22,304 | $2,100,409 | $1,316,243 | $3,416,652 |
| UT | 377 | 287 | 454 | 1,118 | $75,662 | $154,372 | $230,034 |
| VA | 1,562 | 737 | 2,313 | 4,612 | $261,967 | $786,482 | $1,048,449 |
| VI | 11 | - | - | 11 | $1,253 | - | $1,253 |
| VT | 186 | - | 294 | 480 | $21,194 | $99,968 | $121,162 |
| WA | 9,174 | 788 | 8,920 | 18,882 | $1,135,153 | $3,033,038 | $4,168,190 |
| WI | 2,342 | 28 | 93 | 2,463 | $270,057 | $31,622 | $301,680 |
| WV | 1,091 | - | 38 | 1,129 | $124,318 | $12,921 | $137,239 |
| WY | 51 | - | 17 | 68 | $5,811 | $5,780 | $11,592 |
| **Total** | **184,772** | **27,410** | **66,802** | **278,984** | **$24,177,774** | **$22,714,460** | **$46,892,234** |

Source: BLS, FAA, Oliver Wyman Analysis

# Testimony of Martin Lenss
## Airport Director, Eastern Iowa Airport
## Committee on Small Business
## Subcommittee on Contracting and Workforce
## U.S. House of Representatives
## September 26, 2018

Good morning, Chairman Knight, Ranking Member Murphy, and members of the subcommittee: thank you for inviting me today and for giving me the opportunity to testify on workforce shortages facing the aviation industry. It is an honor for me to be here to discuss an important issue affecting small communities and small businesses around the country.

I also want to thank you for adding an airport perspective to this hearing. While airports do not typically train, hire, or employ aircraft mechanics or pilots, we certainly depend on them. Each of these aviation professionals, and, frankly, the entire airline team, enable communities to be well connected to the world economy. Connectivity to the national air transportation system is essential to ensure local communities and small businesses remain vibrant.

Today, I will focus my remarks on pilot supply and will break it into 3 points:

1. The pilot shortage is very real, it is today, and growing rapidly;
2. Communities and the regional airline industry are the most at-risk; and
3. There are solutions.

First, the very real pilot shortage. Many airports have enjoyed growth in passenger volumes and current forecasts predict continued growth. But these numbers and forecasts obscure a seriously negative trend. Studies show passenger traffic is up 13 percent from 2005 to 2017. At the same time, however, there were nearly 1.6 million fewer flights. As a result, the passenger load factor has increased to nearly 85 percent.

The Eastern Iowa Airport is a perfect example of these conflicting trend lines. Our passenger numbers are up 5 percent. But, departures are down 7.5 percent and our local unemployment rate is below 4 percent. The aviation industry is inextricably tied to the health of the economy. Our national economy is very strong yet total departures are down....something more is clearly in play.

Despite the growing passenger levels we have been experiencing in Cedar Rapids/Iowa City, many other small communities around the country have been less fortunate. Between July 2013 and July 2018, 37 airports in the continental U.S. lost all commercial air service. In addition, 26 communities lost 75 percent of their air service.

By 2021, the national system is forecast to be short 5,000 pilots. Without the pilots, 500 aircraft will sit idle. By 2026, the projected pilot workforce shortage is expected to swell to 15,000 pilots. Those projections would result in the grounding of approximately 1,500 fewer aircraft, that are flying passengers today.[1]

These, and numerous other data points, tell us we have a real and growing pilot supply issue that threatens to leave more communities with fewer commercial airline options.

The most at-risk in facing this challenge are the regional airlines and the communities across the U.S. they serve.

There is little debate that the regional airlines are the primary source of new hire pilots for mainline carriers. Regionals provide the only source of air service to 63 percent of U.S. airports and they operate 41 percent of scheduled passenger departures. Much of this service occurs at our nation's small communities, placing small market air service most at risk.

As a result of fewer pilots and the transition to larger aircraft, communities like Cedar Rapids/Iowa City are experiencing a decline in total number of departures. On the surface, that sounds great. After all, everyone enjoys flying on a larger aircraft. However, if your small market cannot fill those larger planes your service will disappear. To emphasize this point, the average seating capacity within the regional airline industry is up 21 percent over the last 10 years.[2] In some respects, this is a perfect storm impacting communities across the nation.

Taking a closer look at those communities most at risk, I will use Iowa as a proxy. Today, 79-percent [3] of Iowa's air service is provided by regional airlines. Regionals, as noted previously, are the primary source of new pilots for mainline carriers. This means the vast majority of airlines serving Iowa will face the most acute shortage of pilots. In the coming years, the situation is poised to get much worse. According to the Regional Airline Association, by 2020 major airline hiring will equal the entire current regional airline pilot workforce.

More risk comes when a local community loses so much service the airport no longer enplanes 10,000[4] passengers per year. When airports dip below that threshold, they lose their Federal Aviation Administration entitlement funding. That's as much as $1 million annually[4] leaving these small markets. Airports of all sizes depend on these federal investments to build critical infrastructure, enhance safety, and maintain a strong air transportation system.

**Still not concerned?**

According to Iowa's DOT, aviation in Iowa has an annual economic impact of $18.4 billion. Commercial airports account for $1.3 billion. In a survey of the state's largest employers the top 3 issues when considering a relocation or expansion are workforce, taxes, and air service.[5] Without air service, a community's economic development efforts are fatally flawed. A community should not lose economic development opportunities simply because we no longer have a pilot to fly the route.

Air service contraction in smaller markets is occurring and, at the same time there is an "uptick" in corporate headquarters moving out. As an example, in 2017 Caterpillar (CAT) announced that after nearly a century in Peoria, IL, it would be moving its headquarters to Chicago (170 miles away)[6] to be closer to a more dependable transportation hub. Similar examples include, Chiquita leaving Cincinnati, OH for Charlotte; Archer Daniels Midland leaving Decatur, IL for Chicago; Albemarle Corp. leaving Baton Rouge, LA for Charlotte; Charter Communications leaves St. Louis, MO for New York City; and, Krystal leaving Chattanooga, TN for Atlanta.

**There are solutions**

There is no silver-bullet solution to get our nation out of this workforce crisis. We need continued and increased collaboration across industry stakeholders, government, and communities and the need is now. Potential ideas to discuss include: lowering the financial barriers to the profession, increasing the number of pathways to accrue the necessary hours and modernizing pilot training.

Iowa is not alone. As a country, the consequences of the global pilot shortage are daunting. Virtually every state contains small and rural airports that face the reduction or complete loss of their commercial air service in the coming years. Losing commercial air service has a profound impact on local communities and small businesses that rely on access to our national air transportation system. Unless we find ways to mitigate this crisis, the damage to our nation's communities, our industry and small businesses will be devastating.

Thank you

Sources:

1. Flightpath Economics, LLC

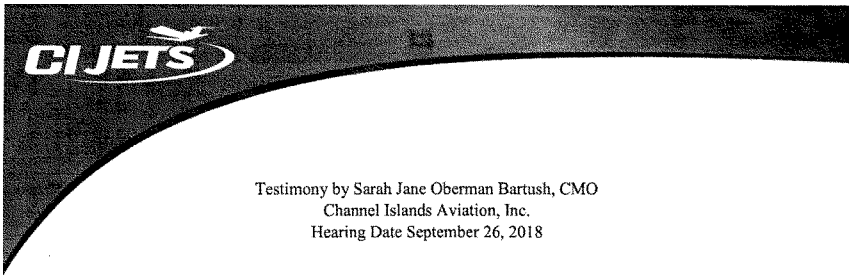
2. Regional Airline Association (RAA), Industry Update Presentation, 43rd Annual Convention

3. RAA, Iowa Air Service Trends, 2017

4. 49 U.S.C. §47114

5. https://iowadot.gov/aviation/aviation-in-iowa/aviations-impact-on-iowas-economy

6. http://www.chicagobusiness.com/article/20170210/ISSUE01/170219981/why-peoria-based-caterpillar-stays-in-illinois




Testimony by Sarah Jane Oberman Bartush, CMO
Channel Islands Aviation, Inc.
Hearing Date September 26, 2018

Chairman Knight, Ranking Member Murphy, and the other esteemed members of Congress here today, good morning. It is an honor to be here today. My name is Sarah Oberman Bartush and I'm from Camarillo, California. I'm second generation to my family's business, Channel Islands Aviation, which has been serving the general aviation industry since 1976. My parents Mark and Janie Oberman founded our business 42 years ago, and I, along with my brother Mike Oberman, were raised in aviation.

Our family owned business is unique, Channel Islands Aviation is a Part 141 Pilot School, Part 141 Repair Station and under our DBA CI Jets, a Part 135 charter operator. We have been deeply impacted by the ongoing workforce shortages.

I first want to share how this epidemic is creating a hardship in our flight school. Right now, we have one hundred and fifteen active students with a training staff consisting of only seven full time and three part-time flight instructors. We barely have enough instructors on staff to accommodate our existing student base but the other problem is that we have 13 customers waiting to start their training because we don't have enough instructors to meet their demand. We have lost 19 instructors to regional airlines in the past 3 years, 3 of which so far this year.

Another issue we are facing as a result of the pilot shortage in our flight school is the fact that becoming a flight instructor is no longer a necessary step in a professional pilot's career. Commercial pilots fresh out of school with as little as 200 hours of flight time are stepping into jobs flying skydivers, performing aerial mapping and in many cases they're hired as co-pilots with charter operators. Just last week I received an email from a charter operator based at Camarillo airport, where we are based, saying they have six pilot openings and that they'd like to

265 Durley Avenue Suite 200, Camarillo, CA 93010 | Phone: 855-749-1333 | Local: 805-322-8590 | Fax: 805-409-4988 | Email: info@cijets.com

hire fresh graduates from our flight school! Pilots are always looking to fly something bigger and faster, so when given the option of flying as a co-pilot in a jet or teaching at their local flight school upon graduation, the decision is obvious – to fly the jet of course!

The poaching of flight school flight instructors creates an obvious problem; eventually I may have no flight instructors to teach new pilots. If that happens Channel Islands Aviation, who has taught countless pilots to fly over 42 years, will have no choice but to close our flight school.

Flight instructors aren't the only talent we're lacking in running a successful flight school. Recently we have been challenged in hiring and retaining aircraft mechanics in our Part 145 Repair Station. This year there have been multiple instances where we've cancelled flight lessons as a result of not having the man power to work on our training fleet. This is a new problem for us and one that needs a solution. Not only have we been faced with challenge of maintaining our own fleet but we've been forced to turn away customers who have brought their aircraft to us for maintenance for years. In order for us to continue to be successful in creating pilots, we need more mechanics to service our planes.

The situation with CI Jets is just as dire. We currently operate four jets and employ seven full time pilots. As a boutique charter operator, we are deeply impacted by the hiring vacuum of the major airlines due to the pilot shortage. In the past, professional pilots have either chosen to fly corporate or have chosen to go to the airlines and once a pilot has made that commitment, he or she historically sticks to that path their entire career. Nowadays, the compensation packages and retirement benefits offered by the airlines are luring corporate pilots into making a career change to fly for the airlines.

In the past year, we have had two senior pilots, each making $200,000 per year flying a twenty million dollar airplane to exotic destinations all over the world, give us letters of resignation because they planned to fly for the major airlines. Each time we've had to hire to replace them, we've received fewer and fewer resumes from less qualified candidates, all demanding higher pay than the last. The pilot shortage is forcing charter operators to pay record salaries yet we have not been able to charge more for our services.

Pilot turnover significantly impacts our business as the hiring process itself is time consuming, it's costly to train new pilots (anywhere from $10,000 to $60,000 per training event) and the opportunity cost of having an aircraft grounded due to not having crew is detrimental to our business. In the past year alone we've been forced to hire four pilots due to others leaving for the major airlines.

There may never be a better time to become a commercial pilot and pursue a career in aviation. The forecasted demand for pilots is astounding. The pilot shortage has only just begun, and it is already creating great hardship on small businesses like mine. The airlines are huge companies and they have deep pockets. They are offering sign-on bonuses, lucrative salaries, and incredible benefits that my family's small business will never be able to compete with. If the industry turns all of its flight instructors into high paid pilots and flight schools across the nation will go out of business and there will be no one left to teach new pilots how to fly. If charter operators are unable to retain pilots, all of the businesses that rely on private jets as a means of transportation to conduct business will suffer and pilots will not be able to gain the experience and flight time that they need to safely work for the major carriers. Something must be done to bring light to this situation and to encourage the airlines to work with both the charter operators and flight schools rather than just constantly swooping up their talent. Thank you again for having me here today and bringing this issue the time that it disserves.

EMBRY-RIDDLE
Aeronautical University
WORLDWIDE
COLLEGE OF AERONAUTICS

Worldwide Campus
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
www.erau.edu

**Statement of Kenneth Witcher**
**Dean, College of Aeronautics**
**Embry-Riddle Aeronautical University**

**before the**
**House Committee on Small Business**
**"Troubled Skies: The Aviation Workforce Shortage's Impact on Small Businesses."**
**September 26, 2018**

Chairman Chabot, Ranking Member Velázquez, and members of the committee, thank you for the invitation to testify today examining how the aviation/aerospace workforce shortages impact small business. My name is Ken Witcher and I have the privilege of leading the College of Aeronautics for Embry-Riddle Aeronautical University, Worldwide Campus. I would also like to thank the Aerospace Industries Association (AIA) for their work in this area and assistance with coordinating this opportunity to speak on this critical topic for our industry.

Embry-Riddle Aeronautical University, the world's largest, fully accredited university specializing in aviation and aerospace, is a nonprofit, independent institution offering baccalaureate, master's and Ph.D. degree programs. Embry-Riddle educates students at residential campuses in Daytona Beach, Fla., and Prescott, Ariz., and through the Worldwide Campus with more than 150 locations in the United States, Europe, Asia and South America. The university is a major research center, seeking solutions to real world problems in partnership with the aerospace industry, other universities and government agencies.

**The big picture**

Cities within the United States with the capacity to accommodate increased air traffic demand are in a stronger position for economic growth than those that cannot accommodate air

traffic demand. According to a Boeing report released earlier this year, air travel has proven to be a resilient market, and robust growth is expected to continue in the future. From the industry's beginnings in the 1940's, "the number of passengers traveling annually grew from about 100 million in 1960 to just over 1 billion in 1987. It took 18 years to double to 2 billion passengers, and only 7 more years to grow to 3 billion." This growth is expected to continue with regions such as China, India, and Southeast Asia pushing this upward trajectory (Boeing, 2018).

In the 2018 Pilot & Technician Outlook, Boeing projects "790,000 new civil aviation pilots and 754,000 new maintenance technicians will be needed to fly and maintain the world fleet over the next 20 years" (Boeing, 2018). This demand for the workforce will be a primary result of fleet growth, retirements, and attrition. According to Boeing (2018), "as several hundred thousand pilots and technicians reach retirement age over the next decade, educational outreach and career pathway programs will be essential to inspiring and recruiting the next generation of personnel.

According to leaders within the National Business Aviation Association (NBAA), the business aviation community consists of companies of all sizes that rely on many different types of aircraft – from single-pilot airplanes, to turbine aircraft flying internationally, to helicopters surveying rush-hour traffic – and the fixed-base operations and many other services supporting flight operations at the nation's 5,000 public-use airports. The vast majority of businesses in this community – 97 percent – are small- to mid-size businesses and other entities including nonprofit organizations. Without a source of pilots, maintenance technicians, flight attendants, schedulers/dispatchers and trained support personnel the economic engine of business aviation will be significantly impacted. This will impact all businesses in America small, medium, and large. Furthermore, the NBAA emphasizes this is not an exclusive problem to the United States but rather a global issue.

**Pilot shortage**

Over the next 20 years, the Asia Pacific region will lead the global demand for pilots, with a requirement for 261,000 new pilots. North America will require 206,000, Europe 146,000, the Middle East 64,000, Latin America 57,000, Africa 29,000 and Russia/ Central Asia 27,000 (Boeing,

2018). It is important to understand the pilot shortage is not constant across all levels of air service and training. Pilots come from two primary sources, the military and civilian flight schools. At this point, the military training is stable although strained to meet their needs. Many civilian schools are at capacity with the greatest limiting factor being Certified Flight Instructors (CFIs). As the major airlines need additional pilots, they typically pull from the regional airlines who in turn pull from the CFI workforce.

**What does this mean to small business?**

The impact to small business is twofold. First, a shortage of pilots at the regional airlines level will most likely result in reduced service to smaller communities. Prior research results have concluded cities within the United States with the capacity to accommodate increased air traffic demand are in a stronger position for economic growth than those that cannot accommodate air traffic demand. Second, those small flight schools who are critical to filling the "pilot pipeline' may not have the Certified Flight Instructors (CFIs) required to conduct training. It is not uncommon for these small flight schools to have aircraft and student demand, but not the instructors to provide the training.

**Technician shortage**

The state of today's aviation maintenance career field is rapidly changing. As new generation airplanes become more prominent in the global fleet, advances in airplane technology are driving an ever increasing need for technicians skilled in avionics, composites, and digital troubleshooting. According to Boeing (2018), the need for maintenance personnel is largest in the Asia Pacific region, which will require 257,000 new technicians. Airlines in North America will require 189,000, Europe 132,000, the Middle East 66,000, Latin America 55,000, Africa 28,000, and Russia / Central Asia 27,000.

In December 2017, the Aviation Technician Education Council (ATEC) published their annual [technician] Pipeline Report. Reported in this study were employees entering the aviation maintenance technician industry for the first time made up only 2% of the workforce annually, while

30% of that population is at or near retirement age. The study also concluded "in the U.S., FAA-certified Aviation Maintenance Technician Schools (AMTS) produce about 60% of new mechanics, with the military and on-the-job training accounting for the rest" (ATEC, 2017). As of mid-November 2017, "the aggregate enrollment at all AMTS was about 17,800 students, while their capacity is nearly 34,300. AMTS respondents estimate that 20% of graduates pursue careers outside of aviation, and only 60% elect to take the FAA test for mechanic certification" (ATEC, 2017).

The following data are from the 207 Pipeline Report:

- The average age of an FAA mechanic is 51, with 27% of the mechanic population age 64 and above.
- AMTS are expanding programs in response to specific industry needs; of respondents, 53% of AMTS responding to the survey reported having technical programs outside the Airframe and Powerplant (A&P) certificate. The fastest-growing non-A&P programs over the last two years were avionics and unmanned aircraft systems.
- Forty-one percent of all individuals with an FAA mechanic certificate are employed by repair stations (50%), air carriers (45%), general aviation (4%) and AMTS (1%).
- Nearly 40% of all A&P students are enrolled at the 10 largest institutions. The AMTS community is therefore composed mostly of smaller institutions, with half of AMTS reporting fewer than 50 enrolled students (ATEC, 2017).

**What does this mean to small business?**

The aviation technician shortage could be just as disruptive as the pilot shortage for small business. Small repair shops, who need skilled labor, will find themselves unable to compete for the dwindling supply of experienced technicians due to increased wages offered by the larger Maintenance, Repair, and Overhaul (MRO) organizations. These smaller shops typically do not have the resources/capability to provide the on-the-job training necessary for workers just entering the industry. Additionally, many small to medium size aerospace manufacturing company's employee aviation technicians. If these manufactures are unable to recruit a skilled workforce, it could have a

ripple effect impacting the large aircraft manufacturing companies globally.

**For your consideration**

There are many organizations working hard each day to address these challenges mentioned above. One innovative solution I would like to offer for your consideration is the Department of Defense (DoD) Career Skillbridge. The DoD Personnel, Workforce Reports & Publications estimates approximately 250,000 service members will be transitioning from active duty to the civilian sector annually. Many of these transitioning military members have years of experience maintaining aircraft. Particularly relevant to this discussion are those transitioning service members with 3-5 years' experience needed by the small repair and service shops. The challenge for these transition service men and women lies in their ability to obtain an FAA Aircraft & Powerplant Certificate.

The DoD Career SkillBridge Program (DoDI 1322.29) promotes civilian job training for military service members who are transitioning out of the Service. With command approved, eligible service members are assigned to the training program as their official duty station. Training can take place 180 days prior to a service member's official separation date and must offer a high probability of employment. Training must be provided to the service member at little to no out-of-pocket cost. If "Permissive TDY" is approved: Service members from other military installations are authorized to attend training. It is my opinion that these types of programs offer a reasonable option to begin addressing the aviation technician shortage impact on small business.

**Reference**

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September 26, 2018,

The Honorable Steve Knight
Chairman
Subcommittee on Contracting and Workforce
Committee on Small Business
U.S. House of Representatives
1023 Longworth House Office Building
Washington, D.C. 20515

The Honorable Stephanie Murphy
Ranking Member
Subcommittee on Contracting and Workforce
Committee on Small Business
U.S. House of Representatives
1237 Longworth House Office Building
Washington, D.C. 20515

Dear Chairman Knight and Ranking Member Murphy:

The Aerospace Industries Association (AIA) appreciates that the House Small Business Subcommittee on Contracting and Workforce is focusing on workforce challenges facing the aerospace and defense industry. As the voice of the aerospace and defense industry, AIA represents companies ranging from the largest primes to the smallest suppliers across the civil aviation, space and defense sectors. We are grateful for the opportunity to submit comments for the record in the hearing, "Troubled Skies: The Aviation Workforce Shortage's Impact on Small Businesses." Attached to this letter is the executive summary of the annual Aviation Week Workforce Survey which AIA co-sponsors, highlighting some of the issues mentioned below.

**The time to build our industry's future workforce is now**

Commercial orders for aircraft remain strong; as the world's nations become more globalized and interconnected, emerging economies are increasing demand for air transport. Global defense spending also is growing, including long-term contracts both in domestic and foreign markets. And commercial space opportunities are growing by leaps and bounds. Since the launch of the global aviation industry in the early 20th century, we've been a driving force for economic growth and new technologies. The time to protect and invest in our workforce is now, so we can compete in the world of tomorrow.

**Our industry faces significant challenges – challenges that require a variety of approaches to solve**

Faced with growing demand for aerospace products and services, aerospace and other advanced manufacturers are eagerly seeking solutions to expand the pool of qualified workers. But the skills our workers need range from quantum physics to engine mechanics, so there's no one-size-fits-all solution to our workforce needs. Our industry is at a crossroads – we must maintain and develop a skilled workforce that can meet today's requirements, but also need to develop a skilled workforce for the 21st century to support the future demands that a strong aerospace industry will create.

To meet current demands, several of our member companies suggest that they will need thousands of new technicians. Boeing alone estimates they'll need 118,000 new technicians in North America to keep pace. Other forecasts say that aviation maintenance technicians will outstrip supply by 2022.[1] All of our member companies have reported difficulty in finding qualified technicians; more than half of the

[1] Oliver Wyman aviation maintenance and workforce study: https://www.oliverwyman.com/our-expertise/insights/2017/sep/oliver-wyman-transport-and-logistics-2017/operations/aviation-growth-is-outpacing-labor-capacity.html

responding companies still have unfilled positions. A recent Wall Street Journal article described the tight job market in the Midwest, maintaining that if every job seeker was hired, there would still be more than 180,000 open positions in that region.[2] If the technician shortage persists, it will undermine the efficiency of the U.S. aviation system and make it more difficult for U.S. companies to capitalize on opportunities in the global marketplace.

Congress has helped address this shorter-term issue through the FAA Reauthorization bill currently pending passage. We're specifically pleased by inclusion of the Aviation Workforce Bill (S. 2506 and HR 5701), which would create grant pilot programs administrated by the FAA to incentivize local level collaborations to find solutions to the aviation maintenance workforce skills gap. This program would be authorized at $5 million for five years starting in 2019, and provide grants to support a wide variety of workforce development activities, including apprenticeships, scholarships, military transitions and outreach to underrepresented populations and economically challenged areas. AIA supports this effort and similar initiatives.

For future demands, we need to envision a workforce that can seamlessly integrate itself with future technologies. This will require investment in our workforce to expand opportunities for technical development, reskill the current workforce to adapt to rapid technological change and support opportunities and diversity. Encouraging women to enter STEM fields is essential for any industry interested in successful innovation. Women make up 49 percent of the world population, and account for 47 percent of the U.S. workforce, but only fill 24 percent of U.S. STEM jobs.[3] The opportunities and challenges of the 21st century will outmatch any workforce that underutilizes half of the population. For these reasons, we applaud bills like H.R. 4254, which amends the National Science Foundation Authorization Act of 2002 to strengthen the aerospace workforce pipeline by promoting scholarships, internships and fellowship opportunities to women and underrepresented groups.

**In addition to STEM, we need to look at veteran resource pools**

An often-overlooked resource pool when discussing skills and workforce is our veterans' community. Veterans are proven leaders and some of our nation's finest citizens. Their experience in the military has cultivated a series of both soft and hard skills which are resources for our industry. Programs at FAA and DOD which transition veterans into new career opportunities by offering training and development programs are essential. Military personnel who hold occupational specialties as mechanics, pilots and technicians already have many of the skills and knowledge to transition immediately into the aviation workforce. Additionally, initiatives that encourage veterans to take advantage of the GI Bill to enter the aerospace industry are often overlooked. STEM education discussions normally center on K-12 education. But there's a case to be made for additional programs for veterans, since aerospace education is costly.

**Conclusion**

These points highlight the very real problems that our suppliers and smaller businesses have as they compete with prime contractors for workforce. They face the same challenges but often lack the resources that larger primes have to address them. The entire aerospace and defense supply chain ecosystem is very sensitive to issues with recruiting and retaining workforce – if suppliers and smaller

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[2] https://www.wsj.com/articles/american-jobs-outnumber-the-jobless-1528212776

[3] IEEE Spectrum http://spectrum.ieee.org/at-work/education/is-a-career-in-stem-for-me

companies struggle with these challenges, it will have an impact on larger companies. There is an immediate ripple effect on our industry which spreads to the overall U.S. economy.

We are an industry of explorers, innovators and entrepreneurs. As we actively pursue solutions to our workforce challenges, we will discover new opportunities to continue exploring and innovating. We look forward to working with you and your fellow lawmakers to promote a strong aerospace and defense workforce. Thank you for this opportunity to submit this statement for the record.

Sincerely,

Frank Slazer
Vice President, Space and Workforce
Aerospace Industries Association

www.avocet.aero

**AVOCET AVIATION SERVICES – "APPRENTICESHIP AND WORKFORCE OF TOMORROW" - CONGRESSIONAL HEARING STATEMENT - SEPTEMBER 26, 2018**

THIS STATEMENT HAS BEEN PREPARED AND IS BEING SUBMITTED BY AVOCET AVIATION SERVICES AT THE REQUEST OF U.S. CONGRESSWOMAN STEPHANIE MURPHY OF FLORIDA, AND ONE OF OUR ESTEEMED PARTNERS IN EDUCATION, EMBRY-RIDDLE AERONAUTICAL UNIVERSITY.

AVOCET AVIATION SERVICES IS A CENTRAL FLORIDA-BASED AIRCRAFT MAINTENANCE SERVICES PROVIDER SPECIALIZING IN MAINTENANCE AND AIRCRAFT MODIFICATION SERVICES. WE HAVE ENJOYED NEARLY 30 YEARS IN THE INDUSTRY SERVING REGIONAL, NATIONAL AND INTERNATIONAL CARRIERS.

AVOCET AVIATION SERVICES' MISSION IS TO PROVIDE EXCEPTIONAL AIRCRAFT MAINTENANCE SERVICES IN HIGH-DEMAND AND SPECIALIZED AREAS OF NEED TO OUR CUSTOMERS WITHIN THE COMMERCIAL AIRCRAFT INDUSTRY, SUCH AS ENGINE SERVICING, ENGINEERING MODIFICATIONS, CARGO MODIFICATIONS, AND SPECIALIZED AIRCRAFT MAINTENANCE.

AS A TRUSTED PARTNER, IT IS OUR JOB TO DELIVER CONSISTENT, COST-EFFECTIVE AND EFFICIENT SERVICE AT A HIGH STANDARD OF QUALITY.

IN ORDER TO DELIVER ON OUR SERVICE PROMISE, WE REQUIRE A QUALIFIED AND AVAILABLE LABOR POOL OF HIGHLY-TRAINED, SKILLED TECHNICIANS AND ENGINEERS.

- MORE -

UNFORTUNATELY, THE PIPELINE OF SKILLED TECHNICIANS AND ENGINEERS HAS DIMINISHED CONSIDERABLY WHICH IS WHY WE FULLY SUPPORT THE PRESIDENT'S EXECUTIVE ORDER TO SUBSTANTIALLY INCREASE U.S. APPRENTICESHIPS AND THE GOVERNMENT'S BUDGET FOR APPRENTICESHIP PROGRAMS AS PART OF ITS "APPRENTICESHIP AND WORKFORCE OF TOMORROW" PROGRAM.

IN THE CASE OF THE AVIATION INDUSTRY, THERE ARE VERY REAL AND VERY PRESSING BUSINESS AND OPERATIONAL CHALLENGES AT THE FOREFRONT DUE TO RISING SHORTAGES AND LABOR GAPS, WHICH A MORE AGGRESSIVE APPRENTICESHIP AND INTERNSHIP PROGRAM WOULD HELP TO ADDRESS:

- THE PREVIOUS GENERATION OF TECHNICIANS, SCIENTISTS, AND ENGINEERS HAS BEEN STEADILY AGING OUT
- PURSUIT OF TECHNICAL CAREERS HAVE BEEN ON THE DECLINE
- CURRENT EDUCATION PROVIDERS FOCUS ON THE FUNDAMENTALS, GIVING STUDENTS LITTLE TO NO COMMERCIAL AIRCRAFT PRACTICAL KNOWLEDGE OR HANDS-ON EXPERIENCE TO FACE REAL-WORLD WORKFORCE DEMANDS

MAINTENANCE REPAIR OPERATORS LIKE AVOCET REPRESENT A TRUE SOLUTION TO THE AVIATION INDUSTRY'S SKILLED LABOR GAP. WE ARE IN A PRIME POSITION TO GIVE STUDENTS, INTERNS AND APPRENTICES THE ABILITY TO TRAIN AND LEARN WITHIN A REAL-LIFE WORKING ENVIRONMENT THAT PROVIDES SKILL VERSATILITY, HANDS-ON LEARNING, MENTORSHIP BY HIGHLY EXPERIENCED PROFESSIONALS, AND A SOLID CAREER PATH OF ADVANCEMENT WITH MANAGEMENT POTENTIAL.

- MORE -

WITH THE NEED FOR SKILLED LABOR BEING SO GREAT, AND THE SHORTAGE BEING SO PERVASIVE, WE ARE NOW SEEING AN ADDED SET OF CHALLENGES:

- AGGRESSIVE ENCROACHMENT AND TALENT POACHING INDUSTRY-WIDE
- CONTRACTS FOR AIRCRAFT MAINTENANCE AND SERVICING GOING TO SOUTH AMERICAN AND ELSEWHERE WHERE LABOR COSTS ARE LESS

TO PROVIDE SOME CONTEXT ON THE GROWING DEMAND WITHIN THE INDUSTRY.

RECENTLY, AVOCET WAS AWARDED AND BEGAN WORK ON THE INDUSTRY'S FIRST AIRBUS A321 PASSENGER-TO-FREIGHTER CONVERSION SOLUTION INVOLVING THE DEVELOPMENT OF THE FIRST CARGO DOOR PROTOTYPE.

THIS IS SIGNFICANT, AS IT REPRESENTS THE CURRENT AND FUTURE NEEDS OF THE INDUSTRY RESULTING FROM THE RISE IN AGING FLEETS, WHICH HAS PROMPTED AN INCREASING DEMAND FOR CONVERSIONS AS THE MARKET SEEKS NEW WAYS TO PROTECT, PRESERVE AND EXTEND THE LIFE OF ITS CURRENT ASSETS IN EFFECTIVE AND PROFITABLE WAYS.

WHILE WE ARE HONORED TO WORK ON THIS IMPORTANT INDUSTRY-LEADING PROGRAM AND UTILIZE THE FULL BREADTH OF OUR 30+ YEARS OF EXPERIENCE IN MAINTENANCE AND MODIFICATION SERVICES.

IT IS CLEAR THAT AS THE CONVERSION MARKET ALONE CONTINUES TO GROW, THAT A HIGHLY-SKILLED PIPELINE OF TECHNICIANS AND ENGINEERS IS DESPERATELY NEEDED.

- MORE -

WITH THIS HISTORIC PROTOTYPE AND THE GOAL OF PRODUCING FUTURE HIGH QUALITY AND RELIABLE A321 FREIGHTERS, WELL-FUNDED INTERNSHIP AND APPRENTICESHIP PROGRAMS THAT HELP TO FUEL THE INCREASING TECHNICAL LABOR NEEDS OF THE INDUSTRY PROVIDE A VIABLE SOLUTION.

AND THIS IS JUST ONE SEGMENT OF THE INDUSTRY.

AVOCET IS DOING ITS PART THROUGH ITS "STAND UP FOR STEM" PROGRAM, WHICH IS AIMED AT PROMOTING CAREERS IN AVIATION MAINTENANCE AND IMPROVING WORKFORCE READINESS WITH THE GOAL TO ADDRESS AND IMPACT THE GROWING NEED FOR QUALIFIED LABOR IN THE AVIATION MAINTENANCE SECTOR.

THESE ARE PRECISELY THE TYPES OF PROGRAMS THAT WE NEED MORE OF, AND WHERE WE CAN UTILIZE THE GOVERNMENT'S SUPPORT TO ATTRACT AND TRAIN MORE STUDENTS AT A FASTER RATE.

AS PART OF ITS STAND UP FOR STEM PROGRAM, AVOCET HAS IMPLEMENTED THREE TRAIL-BLAZING PROGRAMS WORKING DIRECTLY WITH SCHOOLS AND THE EDUCATION COMMUNITY:

- THE DEVELOPMENT OF A THREE-YEAR APPRENTICESHIP PROGRAM IN PARTNERSHIP WITH THE FLORIDA DEPARTMENT OF LABOR
- AN 18-WEEK INTERNSHIP INITIATIVE WITH EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
- ACTIVE MEMBERSHIP ON THE SEMINOLE COUNTY PUBLIC SCHOOLS AVIATION PROGRAM ADVISORY COMMITTEE

- MORE -

IN ADDITION, OUR GOALS INCLUDE EXPANDING OUR HANGAR FACILITIES WITH AN ON-SITE STEM-FOCUSED SCHOOL, WORKSHOP AND TRAINING AREA; DIRECT OUTREACH TO STUDENTS THROUGH HOSTED FIELD TRIPS; AND ONSITE AND OFFSITE CAREER DAYS.

THE LABOR GAP IN THE MRO INDUSTRY IS A REALITY WHICH HAS IMPLICATIONS BEYOND THE IMMEDIATE INDUSTRY AND TO THE OVERALL GLOBAL ECONOMY. ANY GOVERNMENT ENTITY OR BUSINESS RELIANT ON AIR CARGO TRANSPORT IS IMPACTED, AS ARE THEIR CONSTITUENTS, CLIENTS AND CUSTOMERS.

THEREFORE, WE ALL SHARE IN THE RESPONSIBILITY TO GROW THE NUMBER OF QUALIFIED, HIGHLY-SKILLED WORKERS IN THE FIELD BY SUPPORTING THIS EXECUTIVE ORDER, ALONG WITH BUSINESSES LIKE AVOCET THAT ARE CREATING INTERNSHIP AND APPRENTICESHIP PROGRAMS THAT PROVIDE TRUE HANDS-ON, PRACTICAL, IN-THE-FIELD TRAINING AND SKILLS DEVELOPMENT.

IN TURN, WE ARE CREATING VALUABLE, HIGH-SKILL, LONG-TERM CAREER OPPORTUNITIES FOR AMERICANS, INCREASING OUR GLOBAL COMPETITIVENESS WITHIN THE AVIATION INDUSTRY, AND ELEVATING THE ROLE OF MECHANICS AND TECHNICIANS WHICH WILL HELP CONTINUE TO FUEL THE FUTURE PIPELINE.

ACCORDING TO THE OLIVER WYMAN 2017 ASSESSMENT AND 10-YEAR FLEET FORECAST, GLOBAL AIRLINES WILL ADD SOME 10,133 PLANES TO CURRENT FLEETS BY 2027 – A GROWTH OF 40 PERCENT TO 35,501. MEANWHILE, THE REPORT ALSO CITES A SHORTAGE OF AVIATION MECHANICS WITHIN THE NEXT DECADE,

- MORE -

WITH THE LABOR GAP REACHING A PEAK OF NINE PERCENT BY 2027. AN AGING-OUT OF THE CURRENT WORKFORCE AND A LACK OF NEW, QUALIFIED TECHNICIANS ENTERING AND STAYING IN THE FIELD ARE THE ROOT CAUSES OF THE SHORTAGE.

AVOCET REMAINS COMMITTED TO WORKING WITH THE PUBLIC AND PRIVATE SECTOR TO CREATE A STRONG AND DYNAMIC PIPELINE OF TALENTED PROFESSIONALS THAT MEET THE INDUSTRY'S CURRENT AND FUTURE NEEDS.

WE WELCOME AND STRONGLY ENCOURAGE THE PRESIDENT'S EXECUTIVE ORDER TO SUBSTANTIALLY INCREASE THE NUMBER OF U.S. APPRENTICESHIPS AND FUNDING BY THE GOVERNMENT OF APPRENTICESHIP PROGRAMS.

THIS IS MUSIC TO THE EARS OF EMPLOYERS LIKE AVOCET WHO PLAY A STRONG ROLE BY CREATING APPRENTICESHIP PROGRAMS DESIGNED AROUND TRUE, REAL-LIFE NEEDS. WE ALSO ENCOURAGE SUPPORT FOR COMMUNITIES LIKE SANFORD, FL AND LAKELAND, FLORIDA, THAT SEE THE INDUSTRY NEED FOR SKILLED TALENT, AND HAVE TURNED IT INTO AN ECONOMIC DEVELOPMENT OPPORTUNITY TO CREATE EFFECTIVE TECHNICAL TRAINING PROGRAMS FOR BOTH ADULTS AND YOUNG PEOPLE THAT BRING TOGETHER THE STRENGTHS OF BOTH EDUCATION AND BUSINESS, PROVIDING BOTH THE CURRICULUM AND THE LAB, ESSENTIALLY, AND THUS SERVING AS AN EXCELLENT MODEL FOR OTHERS.

WE ENTHUSIASTICALLY SUPPORT MORE FUNDING, LESS RED TAPE, AND MORE FLEXIBLE, WORKABLE GUIDELINES, TOGETHER WITH WELL-ESTABLISHED STANDARDS THAT ALLOW OUR INDUSTRY TO THRIVE.

- MORE -

THANK YOU FOR PROVIDING AVOCET AVIATION SERVICES THE OPPORTUNITY TO SUBMIT THIS STATEMENT AS PART OF YOUR HEARING TODAY ON THE "APPRENTICESHIP AND WORKFORCE OF TOMORROW" PROGRAM.

WE APPRECIATE HAVING THE CHANCE TO EXPRESS OUR FIRST-HAND INSIGHTS AND CHALLENGES, AS WELL AS TO BEING A PART OF THE SOLUTION TO ADVANCE THE INDUSTRY AND THE AMERICAN WORKFORCE.

- END -

Golden State Air Charter, LLC.
1550 Skyway Drive Suite 201
Bakersfield, CA 93308

TROUBLED SKIES
Public Hearing- September 26, 2018
2360 Rayburn House Office Building
Washington, DC 20515-0315
September 21, 2018

Chairman Knight, Ranking Member Murphy and the other esteemed members of Congress present at the *Troubled Skies* subcommittee hearing today, I want to thank you for addressing this significant issue as it applies to small business owners in the aviation community. The aviation community is historically a rapidly expanding and dynamic industry. This has usually brought benefits to small business owners and even the major airline operators. The changes have brought many challenges. The challenge that you are discussing today is timely and directly applies to me.

To begin with, please accept my apologies for my absence in today's hearing. It is due to the issues that you are discussing today that I am unable to attend. I was looking forward to attending and being a witness; however, Golden State Air Charter currently has more airplanes than pilots, and more demand than we are able to support. For these reasons It was required that I cancel my appearance today so that I could stay and fill a pilot and director of operations role instead.

I am Jay Mercer, Owner and Director of Operations for Golden State Air Charter. I have been a pilot for twenty-eight years with over twelve thousand hours. I have been a flight instructor since 1993 and my resume includes flight time as an Airline Transport Pilot and Check Pilot (DPE) for the FAA. I have domestic and international experience as a First Officer, Captain and Airline Check Airman. I have been a small business owner in the aviation community since 2004.

I do not have enough qualified pilots to run my operation and I do not have enough qualified mechanics to maintain and keep up with the pace that scheduled and unscheduled maintenance would require if I met all customer demand. Golden State Air Charter, as well as many other aviation small business owners, is turning down significant air charters and aircraft maintenance because of the global shortage of pilots and mechanics.

My biggest concern is always safety. But, As the airline pilot demand grows, pilots are progressing to Major Airlines at a faster pace than any other time in history and this progression is leaving the previous entry level pilot positions void of qualified personnel. In the private sector, after flight school completion, the airline progression is accelerated because of significant demand for pilots and mechanics. Many regional airlines are offering sign on and retention bonuses that are higher now than full salaries were just in the last decade. This is making it difficult for small businesses like mine to compete.

Small businesses are paying higher wages and better benefits for pilots who have much less experience. Pilot training is approximately $20,000 for initial flight training for one, already certificated, pilot to meet



Bakersfield Meadows Field Airport Tel. 661-393-5300
1740 Sunnyside Ct, Hangar E-1 Fax 661-393-3700
Bakersfield, CA 93308 www.goldenstateair.com

the air charter 135 requirements. In the past thirty months, we have spent in excess of $100,000 in required pilot training for pilots who were employed less than three to six months with Golden State Air Charter. Although their resume had enough flight time and experience, three of these were unable complete the flight check rides to fly our customers. Another pilot finished training and resigned before performing one revenue flight. He decided to finish training and move to a different domicile. This is devastating and unsustainable.

Additionally, pilots who apply to my company are often much less experienced and demand higher salaries. But, this lack of experience brings up concerns, if I would not let a pilot fly my family; I will not let them fly yours.

Qualified mechanics are also in demand. In April of this year, Golden State Aircraft Maintenance used a hiring agency and hired a newly released Air Force Mechanic. We paid a six-thousand-dollar "finder's fee" with no guarantees. Fifty-eight days later, this mechanic moved on to other employment. The calendar for Golden State Aircraft Maintenance is booked for the next ninety days. "Unfortunately, we are having difficulty keeping up with demand for scheduled maintenance. When unscheduled (broken or unplanned maintenance) comes up, this moves customers on the waiting list further down the calendar. The good news is, there are few maintenance alternatives, so most customers are not abandoning us, they are just frustrated we cannot get to their work in a timely manner. Once an airplane is in the shop, it is more difficult to get it out on time as well.

If they were available in the market, Golden State Aircraft Maintenance would hire two to three more mechanics today. These shortages are not limited to impacting me. The inability to meet the demand for charter and maintenance customers is having a significant impact on all small business aviation owners that I associate with. They too are often turning down work, delaying maintenance, and searching for qualified potential employees.

Sustainability is quickly becoming an issue. As many of you already know, liability is very high for an aviation business. With less experienced employees, liability cost are on the rise. Aviation small businesses are facing UNFRIENDLY SKIES on many fronts. Our Gross Revenue is decreasing, net revenue is decreasing, and the safety margin is closing. For the reasons explained above, I am looking to sell or close my company within the next few years. Several studies have already been published showing that we are only at the beginning of this workforce shortage.

Solution?

Unfortunately, I do not see an immediate resolution. Initial Aviation training cost is very high for student pilots and mechanics. Grants, incentives and new training programs are desperately needed.



Bakersfield Meadows Field Airport Tel. 661-393-5300
1740 Sunnyside Ct, Hangar E-1 Fax 661-393-3700
Bakersfield, CA 93308 www.goldenstateair.com

**House Subcommittee on Contracting and Workforce**

**House Small Business Committee**

**Legislative Hearing on**

**Troubled Skies: The Aviation Workforce Shortage's Impact on Small Businesses**

**September 26, 2018**

**Statement of Helicopter Association International**

**Submitted by:**

**Matthew S. Zuccaro**

**President and CEO**

Chairman Knight, Ranking Member Murphy, and Members of the Subcommittee, Helicopter Association International (HAI) thanks the subcommittee for holding a hearing on the important issue of the aviation workforce shortage and its impact on small businesses.

The U.S. civilian general aviation sector generates more than one million jobs and more than $200 billion for the nation's economy — and it is seeking pilots and mechanics. Today's flight and maintenance training programs prepare tomorrow's workforce to fly and maintain police and firefighting helicopters, air ambulances, charter and corporate aircraft, and airliners. It is vital to our nation's economy that we maintain the pipeline of new pilots and mechanics into the industry.

For 70 years, HAI has been the trade association for civil helicopter aviation. HAI's 4,100 members professionally operate approximately 5,500 helicopters, flying an estimated 3 million flight hours a year. Our member companies and individuals span the industry, from manned and unmanned operators, to pilots, mechanics, manufacturers, and suppliers of goods and services. Over three-quarters of our operator members run small businesses. Resolving the issue of the aviation workforce shortages impacting small businesses is critical for the success of our industry.

HAI recently released the results of a study forecasting the U.S. supply of rotorcraft pilots and mechanics over the next 18 years, confirming what many in our industry suspected. Unless there are some fundamental changes in policy, outreach, scholarships, and access to financing, the helicopter industry

faces large-scale deficits in the amount of available and qualified licensed and certificated pilots and mechanics.

The study projects a shortage of 7,469 helicopter pilots in the United States between 2018 and 2036. For maintenance technicians, the numbers are even more concerning. Our industry is projected to be short 40,613 certificated aviation mechanics in the United States between 2018 and 2036.

The study results, commissioned by HAI's charitable arm, Helicopter Foundation International (HFI), and conducted by the University of North Dakota (UND), also gathered information on how the workforce shortage is already changing operations. For example, more than 50 percent of surveyed operators said that the shortage of pilots and mechanics would definitely or probably interfere with their operation's ability to grow over the next five years.

The 2018 Boeing Pilot & Technician Outlook also corroborates the UND study with its forecast for a large demand of new personnel, projecting that between 2018-2037, there will be world demand for 790,000 new pilots and 754,000 new technicians.

Yet in the face of this shortage, data shows that the number of FAA private pilot certificates issued is significantly down. From 1980 to 2016, the FAA has issued 66% less certificates and the current average age of a pilot certificate holder is now 50 years old. Also alarming, from 1980 to 2016, the FAA has issued 50% less mechanics certificates.

This shortage is an industry-wide problem, and fixing it will require efforts from many sectors, including government, industry, military, finance, insurance, and education. On September 26 and 27 HAI is bringing together stakeholders from across the industry and hosting a Workforce Roundtable to address the shortage problem and discuss solutions. HAI would be pleased to share the Roundtable discussion summary with the Committee.

The career path inaccessibility is a vital component to the pipeline that needs industry attention. Safety is priority one for the industry, and pilots and mechanics entering the industry require quality training to adequately and safely operate. The financial barrier to obtain the required training can be too high for many, depleting the industry's available pilot and mechanical labor pool. Lessons learned from the regional airlines shows that despite compensation rising for first officers, overall recruiting success declined during the same period. Higher pay will not resolve the workforce shortage until sufficient pilots can afford and access the career path.

The industry is also not currently accessing the full diversity of America. Female pilots represent only 6% of the total pilot population and 2% of the mechanic population. Clearly the industry needs to do much more in attracting greater diversity.

HAI along with our Foundation, is undertaking and moving forward on a number of important initiatives to address the workforce shortage. These projects include:

- Provide funding to high schools and postsecondary schools to implement courses that offer rotorcraft-specific training to students, who can then graduate with Aviation Maintenance Technician (AMT) qualified credit
- Increase educational partnerships between high schools and postsecondary schools
- Increase helicopter curricula in post-secondary education
- Boost helicopter/STEM awareness in children K–12
- Make aviation education affordable and accessible
- Create a database of donated, surplus, retired, or grounded helicopter equipment that can be given to schools and used to train AMTs
- Identify and match industry mentors with students to guide and motivate them to complete their studies
- Working with stakeholders and partners to increase size and quantity of scholarships
- Developing partnerships between various operators to assist in defining the career pathway to take someone through the experience gap of 200 hours to 1000 hours
- Developing partnerships with Airframe and Powerplant (A&P) schools to establish pathways for their students into the helicopter industry

HAI applauds today's dialogue and discussion and commends the Committee for their leadership on addressing this critical workforce issue for small business. We appreciate the leadership's willingness to listen to our unique perspective in the aviation industry. HAI is committed to working with the Small Business Committee and all of Congress to ensure our nation effectively and proactively crafts policy, outreach, scholarships, and access to financing that will benefit the country's aviation small businesses and their critical role in the nation's economy.

818 Connecticut Avenue, NW, 900 Washington, DC 20006
P (202) 774-1535 (800) 808-6282
www.nata.aero

September 26, 2018

The Honorable Steve Knight
Chairman
Subcommittee on Contracting and Workforce
House Small Business Committee
2361 Rayburn House Office Building
Washington, DC 20515

The Honorable Stephanie Murphy
Ranking Member
Subcommittee on Contracting and Workforce
House Small Business Committee
2069 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Knight and Ranking Member Murphy:

As the Small Business Committee's Subcommittee on Contracting and Workforce receives testimony from small businesses on the pilot and mechanic shortages in the aviation industry, the National Air Transportation Association (NATA) writes to express our support for today's hearing, "Troubled Skies: The Aviation Workforce Shortage's Impact on Small Businesses." Aviation businesses are continuously seeking to hire skilled pilots and mechanics, however the gap between supply and demand is increasing and small aviation businesses are finding fewer opportunities to support the activity needed to maintain business. A study produced by Pricewaterhouse Coopers notes that the general aviation industry produces nearly 1.2 million jobs.[1] This shortage is putting a strain on the general aviation businesses that support them, most of whom are small businesses.

NATA represents the interests of the general aviation business community before Congress and federal, state and local government agencies. Our nearly 2,300 member companies provide a broad range of aeronautical services to the aviation community. Smaller companies account for the majority of NATA's membership and most NATA members have fewer than 40 employees and are designated as small businesses by the U.S. Small Business Administration.

**Pilot Shortage**

The debate over a pilot shortage has gained traction in recent years, and the general aviation community continues to feel the effects of a shortage of qualified pilots to meet demand. Boeing predicts that over 637,000 new pilots will need to join the workforce in the next twenty years, and as drones and other unmanned aerial vehicles enter the market, as well as the increasing

[1] PricewaterhouseCoopers. (2015, February). Contribution of General Aviation to the U.S. Economy in 2013. Retrieved from http://nata.aero/data/files/gia/2015-general-aviation-contribution-to-us-economy.pdf

rate of pilots who plan to retire over the next few years, the number of pilots needed to meet demand will continue to rise.[2]

Decades ago, students who wanted to be pilots in an industry where there were few jobs available were willing to do whatever it took to be a pilot. Today, pilots-in-training who enter the workforce have more opportunities presented to them and can pick and choose the job that offers the best pay and long-term career path. Undoubtedly, most pilots are attracted to the life of an airline pilot, where the long-term economics and big business benefits appear more palatable. The general aviation community continues to find ways to attract pilots to the industry – from NATA's Young Aviation Business Professionals events to support of industry programs and grant opportunities – to broaden the horizons of the next generation of aviation professionals who seek a small business-oriented lifestyle.

**Maintenance Shortage**

Currently, the aviation industry is experiencing a persistent aviation technical worker shortage that threatens to undermine the efficiency of aviation operations, manufacturing, and maintenance. A Boeing analysis suggests that 118,000 new aviation maintenance technicians will be needed in North America over the next two decades,[3] and the consulting firm Oliver Wyman forecasts that demand for aviation maintenance technicians will outstrip supply by 2022.[4] A mass retirement of maintenance technicians is looming, and without an adequate number of qualified replacements, airplanes will not be able to fly and small businesses around the country will lose money and opportunities.

Becoming an aviation mechanic requires dedication, money, and time. As new airplanes enter the market, the need for skilled aviation mechanics who understand the new technologies will be more important than ever. Supporting those who wish to pursue a career in mechanics and showing younger generations that becoming a mechanic is more than someone who just fixes broken airplanes is important to bringing new talent into the industry.

**Finding a Solution**

The path to becoming a pilot or mechanic is time-consuming, expensive and requires financial and motivational support from outside sources to help those interested in pursuing these career paths move forward. In recent years, the general aviation community – from aviation businesses, manufacturers, general aviation pilots to business aviation – has come together to educate the next generation of professionals on the long-term economics and viability of choosing a job in the aviation industry outside of the major airlines. For example, NATA is

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[2] Boeing. (2017, July 24). Boeing Global Services Forecasts 1.2 Million Pilots and Technicians Needed by 2036. Retrieved from http://boeing.mediaroom.com/2017-07-24-Boeing-Global-Services-Forecasts-1-2-Million-Pilots-and-Technicians-Needed-by-2036

[3] Boeing. (2018). Pilot and Technician Outlook 2018-2037. Retrieved from http://www.boeing.com/commercial/market/pilot-technician-outlook/

[4] Prentice, Brian and Costanza, Derek. Oliver Wyman. (2017). Aviation Growth is Outpacing Labor Capacity. Retrieved from https://www.oliverwyman.com/our-expertise/insights/2017/sep/oliver-wyman-transport-and-logistics-2017/operations/aviation-growth-is-outpacing-labor-capacity.html

currently working with the Civil Air Patrol (CAP) to explore options to provide CAP Cadets education and experiences within the GA Industry. Possible programs include adapting existing NATA Safety 1st training for use within the CAP Cadet program and creating an educational track that would allow cadets to visit NATA member companies to explore career options within the many lines of business in GA.

However, much more needs to be done, and fortunately Congress has taken notice of the widening gap within the industry. A bipartisan group of Representatives and Senators have introduced numerous pieces of legislation to address the shortages by updating outdated training programs and establishing pilot programs to support the next generation of aviation professionals.

Again, we appreciate the work that went into this hearing that we believe will result in tangible benefits to bringing this important issue to light. We thank the Subcommittee for its consideration of our views and stand ready to provide more information that will bring a better understanding of how the pilot and aviation mechanic shortages affect small aviation businesses around the country.

Sincerely,

Gary Dempsey
President
National Air Transportation Association

NBAA

**STATEMENT FOR THE RECORD**

**SUBMITTED TO THE**

**COMMITTEE ON SMALL BUSINESS SUBCOMMITTEE ON CONTRACTING AND WORKFORCE**

**On**

**Hearing:**
**"Troubled Skies: The Aviation Workforce Shortage's Impact on Small Businesses"**

**September 26, 2018**

National Business Aviation Association
1200 G Street NW, Suite 1100
Washington, DC 20005

For further information contact:

Scott O'Brien
Senior Director, Government Affairs
(202) 783-9451
sobrien@nbaa.org

Chairman Knight, Ranking Member Murphy and members of the Subcommittee on Contracting and Workforce, thank you for holding this important hearing to address the critical workforce shortage facing our nation's aviation industry. On behalf of the National Business Aviation Association's (NBAA's) 11,000-member companies, we are pleased to provide this statement for the record.

NBAA's members, many of which are small businesses, rely on business aircraft to meet some portion of their transportation challenges. Small businesses operate the majority of business aircraft and use them to access communities that aren't served by the commercial airlines. While the airlines serve only around 500 airports, business aviation can reach 5,000.

Through programs such as a national mentoring network to match industry experts with mentees pursuing industry careers, NBAA is partnering with our members to create aviation career pathways. At NBAA's Business Aviation Convention and Exhibition, more than 1,000 students attend a *Careers in Business Aviation Day* to introduce them to the industry. Finally, NBAA Charities offers nearly $100,000 annually in cash scholarships to assist students with the financial burden of attending an aviation program. The association also provides significant monetary awards to those who already work in aviation and are pursing training programs to advance their careers.

With the increasingly competitive labor market for aircraft pilots and maintenance technicians, small businesses involved in the aviation industry are facing significant challenges in recruiting and retaining employees. Boeing recently found that over the next 20 years, there will be a worldwide requirement for 790,000 new pilots, with 96,000 needed for business aviation.[1]

As commercial airlines have experienced strong passenger growth and profitability, their demand for pilots has increased, along with the pay and benefits provided to pilots. Many small businesses simply cannot offer the pay and benefits of a major airline, which makes recruiting and retaining pilots even more challenging. The military is also facing a similar challenge, with the Navy and Air Force predicting significant pilot shortages by the 2020s.

In a recent survey of NBAA members, most respondents indicated that they are experiencing difficulties in retaining pilots and that there are fewer replacement candidates available. More than 60% of operators surveyed experienced pilot turnover since 2015, with 43% of pilot departures from business aviation going to the commercial airlines.

Recently, Senators Inhofe and Duckworth introduced the *Securing and Revitalizing Aviation (SARA) Act of 2018,* which would provide grants to support the education of the aviation workforce. The bill would encourage the development of aviation curricula at high schools to encourage young people to enter the industry with a focus on pilot careers. NBAA strongly supports passage of the SARA Act.

Representatives Graves, Lipinski, Mullin and Lawrence also introduced H.R. 5701 which would provide grants to support programs that teach technical skills used in aviation maintenance. In addition, the legislation would help establish scholarships, apprenticeships and support outreach to promote careers in aviation. NBAA also strongly supports H.R. 5701.

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[1] "Pilot & Technician Outlook 2018-2037," Boeing, https://www.boeing.com/commercial/market/pilot-technician-outlook/

Provisions like those described above are also contained in H.R. 302, the recently introduced five-year FAA reauthorization bill. That legislation also includes various studies to identify existing aviation workforce development programs and quantify the workforce challenge, and programs to encourage women to consider aviation careers. NBAA supports swift passage of a long-term FAA reauthorization bill as introduced in H.R. 302.

Once a student elects to pursue a career as a pilot, the significant cost of flight training can be a major impediment. According to the Government Accountability Office, flight training costs at major collegiate aviation programs can range from $51,000-$81,000 in addition to annual tuition.[2] With the maximum federal financial aid available to students well below the cost of flight training, this is a significant challenge. Not all students have the family financial resources or ability to take out private loans to cover flight training, which puts the career out of reach for many.

In addition to collegiate aviation training programs, there are also flight schools and training programs, many of which are small businesses, that provide a career pathway for pilots. However, since these programs often do not fall under the federal financial aid guidelines, subsidized student loans are not available. This is an area where the Subcommittee might want to consider additional research or hearings to identify solutions to student financing challenges at the many flight schools that are small businesses.

One of the innovative programs currently underway to attract new entrants to the pilot workforce is the *Forces to Flyers* program being led by the Department of Transportation. In addition to studying pilot workforce issues, the program provides flight training to veterans interested in aviation careers. Of interest to the Subcommittee, the program could provide an opportunity for small business flight schools to participate in training our veterans for pilot careers. Currently, four flight schools have been selected to participate in the three-year research initiative.

With many of NBAA's members being small businesses, we look forward to working with the Subcommittee to address aviation workforce challenges. Just recently, thought leaders in our industry participated in a workforce summit that will help inform our dialogue with the Subcommittee going forward. Thank you again for holding this important hearing.

[2] "Collegiate Aviation Schools: Stakeholders' Views on Challenges for Initial Pilot Training Programs," United States Government Accountability Office, https://www.gao.gov/assets/700/691748.pdf, (May 2018)

September 25, 2018

The Honorable Steve Knight
Chairman
House Small Business Committee
Subcommittee on Contracting and Workforce
U.S. House of Representatives
Washington, DC 20515

The Honorable Stephanie Murphy
Ranking Member
House Small Business Committee
Subcommittee on Contracting and Workforce
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Knight and Ranking Member Murphy,

The Regional Airline Association (RAA) would like to express strong support for the September 26th hearing titled, "Troubled Skies: The Aviation Workforce Shortage's Impact on Small Businesses." The RAA serves as a unified voice of advocacy and support for North American regional airlines aimed at promoting a safe, reliable, and healthy regional airline industry. RAA member airlines employ 59,000 individuals, operate 42 percent of the flights, and provide the only source of scheduled, passenger air service approximately two-thirds of the nation's airports.

As the career entry point for most commercial airline pilots and the primary source of pilots for the major carriers, the shortage is a dire problem for our industry. Failure to act will threaten the economic well-being of countless communities across the United States especially those that receive service exclusively from regional airlines. Hundreds of U.S. communities have already experienced significant air service reductions, and some have lost air service entirely. These losses are occurring while demand for air travel is growing and despite a period of economic expansion in the United States, when communities would ordinarily experience higher frequencies and more service options. While service losses will affect every corner of the country, small and rural communities who are overwhelmingly serviced by regional airlines have been hardest hit and will remain the most vulnerable as the shortage worsens. According to a study by Inter*VISTAS* for the Regional Air Service Alliance, the smallest airports (non-hub and small hub airports in the 48 contiguous states) drive well over $121 billion in economic activity and support more than 1.1 million jobs.

The shortage is being driven by a federally -mandated, retirement age of 65 years for Part 121 pilots and a growing demand for air travel. By 2026, about 27,000 pilots will reach the mandatory retirement age, and the University of North Dakota predicts a cumulative shortfall of pilots at major airlines alone will near 15,000 pilots.[1] To put that shortfall in perspective, regional airlines employ approximately 20,000 pilots. Additionally, Boeing 2018 Pilot Outlook[2] predicts that North America will need 206,000 pilots over the next 20 years, or slightly more than 10,000 new pilots each year on average, to keep pace with demand for air reservice and retirements. According to the FAA's airmen statistics[3], only 4,449 original airmen Airline Transport Certificates (ATP), or the certificate required to serve as a Part 121 airline pilot,

[1] *See* University of North Dakota Pilot Supply Forecast 2016
[2] *See* Boeing 2018 Pilot Outlook, https://www.boeing.com/commercial/market/pilot-technician-outlook/2018-pilot-outlook/
[3] *See* U.S. Civil Airmen Statistics, https://www.faa.gov/data_research/aviation_data_statistics/civil_airmen_statistics/

were issued for 2017. Overall, interest in piloting has been shrinking: between 1990 -2017, the FAA has issued 52% fewer total pilot certificates with all certificate types declining. The U.S. is fundamentally not producing enough pilots to meet the needs of our commercial and business sectors.

It is essential for the federal government to partner with industry and other aviation stakeholders to combat the pilot shortage and its economic repercussions on small business. A robust aviation industry that supports global connectivity is essential for our country's competitiveness and must be preserved and expanded. We look forward to working with the members of the House Small Business Committee to grow the aviation workforce. Please don't hesitate to contact Drew Jacoby Lemos, Director of Government Affairs if you have any questions.

Sincerely,

Faye Malarkey Black

Faye Malarkey Black, President
Regional Airline Association