CITY OF
FORT LAUDERDALE

All-America City

Memorandum

Memorandum No: 22-138

Date: November 23, 2022

To: Honorable Mayor and Commissioner

From: Greg Chavarria, City Manager

Re: Feasibility Study Report for Aviation and Aerospace Training Program

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The City Commission identified the Airport Workforce Training Facility as a priority among its 2022 objectives, representing a continuation of the 2021 priority. The Airport Workforce Training Facility is a three-phase initiative: Phase I - Planning (feasibility study), Phase II - Project Planning (post feasibility study) and Phase III - Implementation Planning (execution strategy).

Phase 1 - Findings

Following a competitive bid process, the City selected Broward College's Center for Applied Research (CFAR) to conduct the Phase I Feasibility Study in October of 2022. The study involved a quantitative analysis of labor statistics coupled with qualitative input from a wide range of industry leaders at the local, state, and national levels.

The data showed a significant shortage of aviation technicians, which employers have identified as a major barrier to the growth of the aviation maintenance, repair, and overhaul industry in Broward County. Findings also suggested that addressing the training gap would help establish an employment base for the industry, increase the median income for the region, and bolster the economy. Several training models have been identified as viable options in consideration of funding opportunities, partner resources and interest from educational and industry stakeholders.

Next Steps

Staff is using findings from the feasibility study to direct Phase II planning. Phase II will focus on developing a proof of concept that will deliver educational training to a targeted cohort of students and generate valuable insights for scalability toward the vision of Fort Lauderdale as an aviation and aerospace training hub. The intent is to partner with a nonprofit curriculum provider with a proven track record in aviation education and workforce development.

Attachment: Feasibility Study for Fort Lauderdale Aviation and Aerospace Training Program

c: Anthony G. Fajardo, Assistant City Manager
Susan Grant, Assistant City Manager
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David R. Soloman, City Clerk
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Department Directors
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INSTITUTIONAL RESEARCH
BROWARD COLLEGE

FEASIBILITY STUDY FOR FORT LAUDERDALE AVIATION AND AEROSPACE TRAINING PROGRAM

October 18th, 2022.

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Executive Summary

The Feasibility Study for Fort Lauderdale Aviation and Aerospace Training Program was commissioned by the City of Fort Lauderdale to evaluate the aviation and aerospace training needs in the region and assess the feasibility of establishing a program in the City to address the workforce demands. Following a competitive bid process, the City selected Broward College's Center for Applied Research (CFAR) to conduct the study. The study involved a rigorous quantitative analysis of labor statistics coupled with qualitative input from a wide range of industry leaders at the local, state, and national levels. The data showed a significant shortage of aviation technicians, which employers have identified as a major barrier to the growth of the aviation maintenance, repair, and overhaul (MRO) industry in Broward County. Findings suggest that addressing the training gap would help establish an employment base for the industry, increase the median income for the region and bolster the economy. Several training models have been identified as viable in consideration of funding opportunities, partner resources and interest from educational and industry stakeholders. As a result of the study, a working group comprised of educational providers and industry leaders to support the City with next phase planning will be established. The working group will provide input and expertise needed to finalize the educational framework, confirm partnership commitments, design an operational model to sustain programming, and develop a proposal for funding considerations. A final analysis of the economic impact of the model proposed in terms of job creation and overall economic development benefits for the region will be conducted.

Background

In the summer of 2019, the City of Fort Lauderdale formed a working group of education and industry partners to develop a shared vision for the Fort Lauderdale Aviation and Aerospace Training Program and to champion expanded programming locally. The study builds on the City's longstanding advocacy for aviation training and recent success supporting the launch of Atlantic Technical College's new Avionics Systems Technician program in January 2020. Anchor institutions in the planning process included Broward County Public Schools, Atlantic Technical College, Broward College, and the Greater Fort Lauderdale Alliance. Many aviation and aerospace businesses have consulted on the long-term vision and/or supported the avionics program, including Space Florida, Jet Blue, Spirit Airlines, Banyan Air Service, Duncan Avionics, Florida Jet, Jet Harbor, SheltAir, Lynx Aviation and JM Family Enterprises. The initial planning

phase culminated with an Education Framework designed to offer multiple learning pathways in aviation and aerospace with the avionics program being the first to “take flight” toward that vision.

In 2021, the City of Fort Lauderdale sought to assess the feasibility of establishing an Aviation and Aerospace Training Program to create a talent pipeline in high-demand careers in aviation, aerospace, and related technology industries. Following a competitive bid process, the City selected Broward College’s Center for Applied Research (CFAR) to conduct the study in March 2021 and the contract was executed in May 2021. The team that led the study was Russell McCaffery, Érica P. Amorim, and Sean Gallagan. The team is made up of education, aviation, and research experts (Appendix A). Mr. McCaffery is the Dean of the Industry, Manufacturing, Construction, and Transportation Pathway at Broward College and has years of external aviation experience. Dr. Amorim is the Chief Data Officer for Broward College and has substantial research and data mining experience. Dr. Gallagan has overseen numerous aviation programs in multiple Florida Counties and provides consulting services to private and public companies on aviation workforce issues across the country.

Purpose of Feasibility Study

The feasibility study was conducted to assess and evaluate the aviation and aerospace training needs in the region and the feasibility of establishing a training program in the City of Fort Lauderdale to address the workforce demands. Adopting a phased approach, Broward College’s CFAR team performed a comprehensive feasibility study on establishing the Fort Lauderdale Aviation and Aerospace Training Program by gathering data and conducting an in-depth analysis of the viability and economic impact. The study was accomplished in three phases.

Phase 1 consisted of a comprehensive quantitative analysis of labor market trends and an inventory of training offerings in the region. Based on findings from Phase 1, the remainder of the study focused on understanding the training needs and opportunities within the MRO sector. In Phase 2, qualitative data was gathered from a wide range of industry experts both nationally and locally, to create a more nuanced understanding of the skills gap, immediate hiring needs, and emerging trends from leading experts. Phase 3 involved an analysis of different program models and feasibility factors for the City of Fort Lauderdale to consider for future planning.

Methodology

The research study employed a mixed-methods research design that combines both quantitative and qualitative methods to provide a broader and more comprehensive picture of the labor market

and emerging trends. This design also provided a deeper understanding of the needs of the employers and gave insight to the need and design of the training program to address the regional demand.

The quantitative component included a comprehensive analysis of labor statistics supply and demand in the aviation and aerospace sector for Broward County and for the City of Fort Lauderdale. The analysis also took into consideration factors such as median wage, the educational level required, professional experience required, among others. The CFAR team reviewed information from numerous sources including from the US Census American Community Survey, Lightcast (formally EMSI/Burning Glass), Bureau of Labor Statistics, and Bureau of Economic Analysis, among others. This component also employed a desk review that created an inventory of aviation and aerospace educational programs and conducted gap analysis of the training needs for the sector. Surveys focus groups, interviews and site visits were conducted in the qualitative component of the study. Local and state conference and industry meetings notes and minutes were also reviewed as part of the qualitative analysis. Triangulation was used to cross-validate the findings and assure the validity of the study.

Data Collection Tools

As previously mentioned, the study utilized three main data collection tools for its qualitative components: surveys, semi-structured interviews and focus groups. Results from the quantitative analysis of secondary data sources and training gaps were used to inform the survey design and interview protocol. The survey was designed to gather input from local aviation employers on their current and future technician needs and the types of training and certifications they required. Questions related to the types of training and related certifications focused on aviation maintenance, supply chain and logistics, avionics, safety, quality, and customer service. The survey consisted of a total of 87 questions (Appendix K). The survey was also designed taking into consideration the type of stakeholder group (i.e., aviation employers, aviation industry companies, and educational institutions) surveyed (Appendix B).

Virtual focus groups were conducted to provide an open forum for all interested parties to share their needs, provide their insights, validate the needs assessment main findings, and share their informed opinions on the future of aviation maintenance in South Florida. Interviews were conducted with members from all three stakeholder groups (Appendix B). Interviews with employers and industry companies were designed to gather information about their demand for technical, the skills gaps, and their current and future needs. Interviews with educational

institutions were designed to collect information on current training offerings and to explore opportunities to expand programming in response to industry needs

Study Participants

Study participants were recruited from the leaders and members of fourteen (14) economic development agencies representing over 400 employer companies, and 123 aviation industry companies that employ over 11,000 employees and ten (10) educational institutions. The study team sent the survey via email to 120 individuals from the stakeholder groups. Four virtual focus group meetings were announced (Appendix O) and promoted by the City of Fort Lauderdale, Greater Fort Lauderdale Alliance, Greater Miami Aviation Association, and South Florida Aviation Maintenance Association and over 100 direct invitations were sent to industry leaders in Florida. In-depth semi-structured interviews were conducted with 30 C-suite and senior leaders for this study; four focus groups sessions were facilitated, and twelve (12) individuals/organizations completed the survey (survey participation rate of 12%). Although the sample size may appear to be small, the input was extremely focused on the local area and provided a more nuanced understanding. Table 1 summarizes the study participants by group.

Table 1. Study Participants Group Representation

Industry Group Representation	Aviation Company Representation	Educational Institution Representation
1. Greater Ft Lauderdale Alliance 2. Beacon Council 3. Greater Miami Aviation Association 4. South Florida Aviation Maintenance Council 5. South Florida Business Aviation Association 6. South Florida Manufactures Association 7. Career South Broward 8. Space Coast EDC 9. South Florida Defense Alliance + 5 other industry groups	1. Spirit Airlines 2. Tropic Ocean Airways 3. National Jet 4. HEICO Corporation 5. GA Telesis 6. Banyan Air Service 7. Duncan Aviation 8. GAMA Aviation 9. Florida Jet Center + 114 other aviation companies	1. Broward College 2. Broward County Public Schools 3. Broward County Technical Colleges 4. Lynn University 5. Everglades University 6. Aviation Institution of Maintenance 7. Florida Memorial University 8. Flying Classroom 9. Museum of Discovery and Science 10. Embry-Riddle Aeronautical University

Phase 1 – Needs Assessment and Program Inventory

Aviation Landscape in Broward County and City of Fort Lauderdale

Importance of the Sector

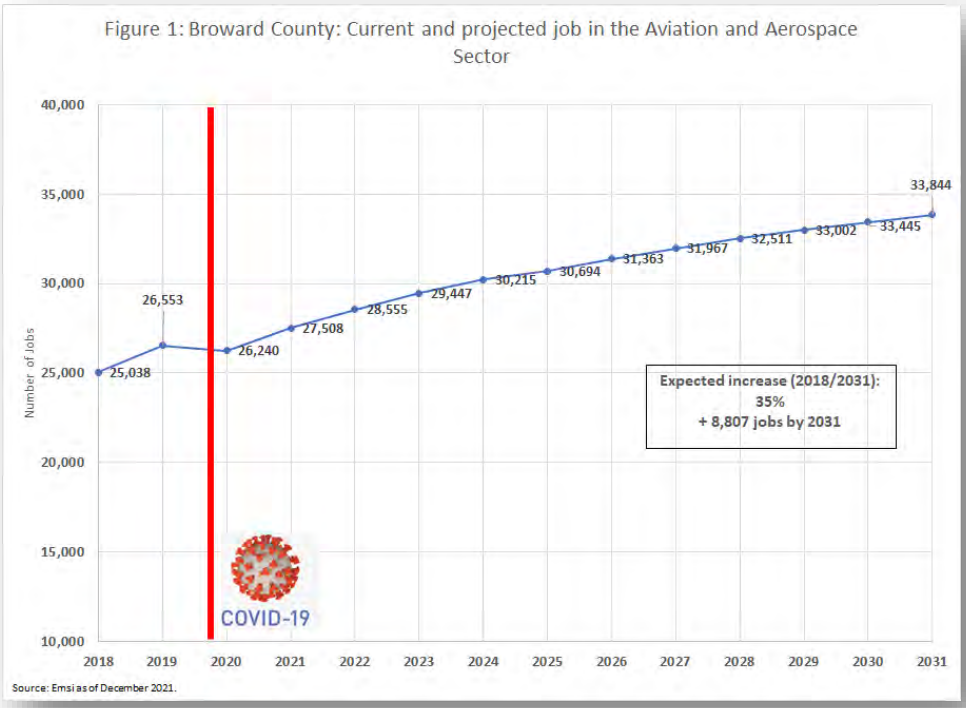
The State of Florida is ranked 1st for aerospace manufacturing attractiveness and ranked 2nd in the nation for the number of aviation, aerospace, and space establishments[1]. Florida is the air traffic hub of the Americas, a major hub for flight training and MRO and a leading location for manufacturing aircrafts and aircraft components. According to the Greater Fort Lauderdale Alliance, the aviation industry in Broward County is a multi-billion sector, including airlines, general aviation, airports, airframes and engine manufacturers, component parts suppliers, and allied industries.

In Broward County, the City of Fort Lauderdale has a major role in aviation with two major airports located within the City limits: Fort Lauderdale Executive Airport (FXE), owned and operated by the City, and Fort Lauderdale-Hollywood International Airport (FLL), owned and operated by Broward County. According to the Official Aviation Guide (OAG), which is a leading global travel data provider, FLL airport was identified as the North America's fastest growing airport[2]. Despite the impact of the COVID-19 pandemic on the aviation industry in 2020, FLL ranked 6th in total passenger traffic recovery and 4th in international traffic recovery amongst all U.S. airports.[3] Prior to the COVID-19 pandemic, FLL generated $37.5 billion in economic activity annually and nearly 18,000 direct, local jobs. FXE, had a total economic impact of $2,091,276,00, with 12,708 employees[4].

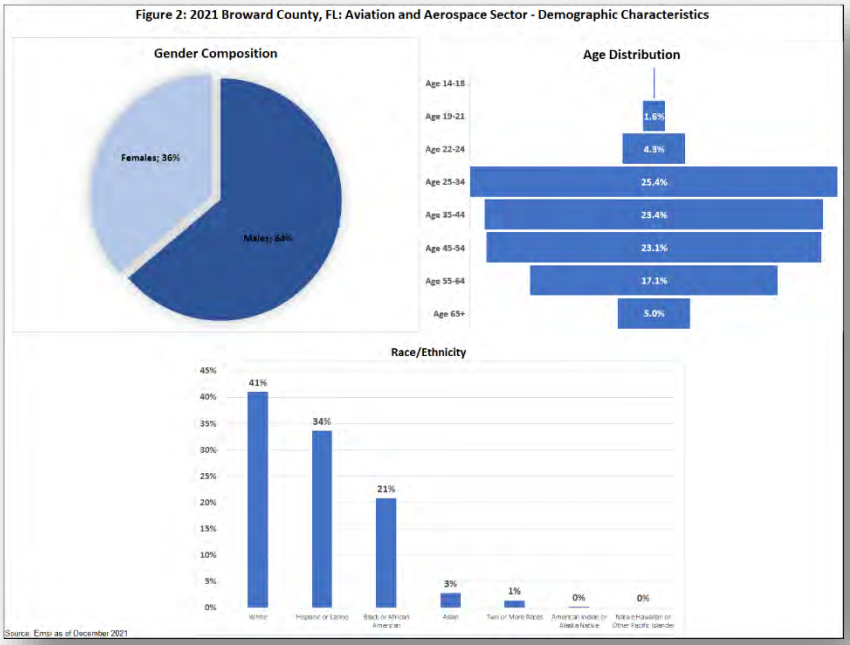
[1] Greater Fort Lauderdale Alliance. Available at: https://www.gflalliance.org/information-center/aviation-aerospace/
[2] Career Source Broward. Available at: https://careersourcebroward.com/aviation-aerospace
[3] Source: https://www.broward.org/Airport/Business/about/Pages/default2.aspx
[4] Fort Lauderdale Executive Airport. Available at: https://www.flyfxe.com/about/general-information

Current and Projected Job Landscape

The number of jobs in the aviation and aerospace industry in Broward County is expected to increase by 35% in the next decade, from 2018 to 2031, adding 8,807 new jobs by 2031. The number of additional jobs in the industry represents close to 20% of the expected county-wide growth in jobs within the same timeframe. According to Lightcast (2022), the aviation sector is projected to fully recover and surpass the numbers of jobs pre-pandemic (Figure 1).



With respect to employment demographics, 64% of the professionals in the sector are male; 41% are white; 34% are Hispanic or Latinx.; and close to 50% are between ages 25-44. Additionally, 22% of the jobs in the sector were occupied by individuals 55 years of age and over (Figure 2) which indicates that the industry is expected to experience many vacancies due to retirements.



According to Lightcast, the top occupations, based on the number of jobs in Broward County in 2021, are as follow:

1) Flight attendant
2) First-Line Supervisors of Mechanics, Installers, and Repairers
3) First-Line Supervisors of Transportation and Material Moving Workers
4) Aircraft Mechanics and Service Technicians
5) Airline Pilots, Co-pilots, and Flight Engineers
6) Cargo and Freight Agents

Table 2 provides an overview of the top 15 occupations, average hourly earnings, and number of jobs in Broward County. In 2021, the average hourly earnings for all the aviation and aerospace occupations were $24 (Lightcast, Q1 2022 Data Set as of March 2022). Close to 70% of the jobs required a high school diploma or equivalent, and less than five years of professional experience. And 90% of the jobs in the aviation and aerospace sector in Broward County were classified as “opportunity employment.” According to the Federal Reserve Bank of Atlanta, opportunity employment are those jobs which are accessible to workers without a bachelor's degree, and which pay more than the national annual median wage of $39,811[5].

[5] More information about Opportunity jobs available at https://www.atlantafed.org/cweo/data-tools/opportunity-occupations-monitor.

Table 2. Broward County, FL: 2021 Aviation and Aerospace Sector occupations, earnings, typical entry level of education and work experience required

Occupation	2021 Jobs	Avg. Hourly Earnings	Median Annual Earnings	Typical Entry Level Education	Work Experience Required
First-Line Supervisors of Mechanics, Installers, and Repairers	2,677	$ 30.50	$ 60,351	High school diploma	< 5 years
First-Line Supervisors of Transportation and Material Moving Workers	2,674	$ 28.32	$ 54,436	High school diploma	< 5 years
Flight Attendants	2,660	$ 24.71	$ 53,378	High school diploma	< 5 years
Reservation and Transportation Ticket Agents and Travel Clerks	1,707	$ 18.75	$ 32,239	High school diploma	None
Aircraft Mechanics and Service Technicians	1,680	$ 31.77	$ 66,368	Postsecondary nondegree award	None
Airline Pilots, Copilots, and Flight Engineers	1,261	$104.91	$191,463	Bachelor's degree	< 5 years
Cargo and Freight Agents	1,087	$ 22.01	$ 42,921	High school diploma	None
Transportation, Storage, and Distribution Managers	847	$ 49.48	$ 94,374	High school diploma	5 years+
Commercial Pilots	682	$ 51.07	$ 85,431	High school diploma	None
Baggage Porters and Bellhops	261	$ 11.23	$ 20,955	High school diploma	None
Avionics Technicians	239	$ 24.46	$ 47,323	Associate degree	None
Transportation Inspectors	207	$ 46.80	$ 99,442	High school diploma	None
Aircraft Cargo Handling Supervisors	165	$ 31.00	$ 68,659	High school diploma	< 5 years
Air Traffic Controllers	153	$ 61.11	$135,322	Associate degree	None
Airfield Operations Specialists	151	$ 22.25	$ 43,470	High school diploma	None

Source: Lightcast Q1 2022 Data Set as of March 2022

Job Demand

According to Lightcast, 74,530 total jobs were posted for Broward County for the entire sector of aviation and aerospace from January 2021 to January 2022, of which 15,444 were

unique, as seen in Table 3. In addition to the number of jobs posting, another signal of demand is “posting intensity”, which is a ratio of total job postings to unique jobs postings. The higher the

Table 3. Broward County, FL Current and Active Job Openings from January 2021 to January 2022

Occupation	Unique Postings
Total	**15,444**
Customer Service Representatives	11,453
First-Line Supervisors of Mechanics, Installers, and Repairers	1,343
Transportation, Storage, and Distribution Managers	770
First-Line Supervisors of Transportation and Material Moving Workers	574
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	207
Cargo and Freight Agents	197
Aircraft Mechanics and Service Technicians	188
Baggage Porters and Bellhops	186
Reservation and Transportation Ticket Agents and Travel Clerks	175
Electro-Mechanical and Mechatronics Technologists and Technicians	102
Transportation Inspectors	53
Avionics Technicians	44
Airline Pilots, Copilots, and Flight Engineers	28
Air Traffic Controllers	28
Commercial Pilots	25
Flight Attendants	20
Airfield Operations Specialists	19
Aircraft Cargo Handling Supervisors	13
Passenger Attendants	13
Aerospace Engineering and Operations Technologists and Technicians	6

Source: Lightcast Q1 2022 Data Set as of March 2022

posting intensity ratio, the more effort employers are putting toward hiring. The posting intensity for aviation jobs is 5-to-1, meaning that for every unique job, there are five job postings, indicating a large effort toward hiring for the current openings in the county. Most of the openings were full time positions and required less than three years of professional experience (90% of the unique postings), and 46% of the job postings (7,098) were in the City of Fort Lauderdale.

Inventory of Aviation & Aerospace Educational Programs

An inventory of education programs was conducted as part of the study to assess the adequacy of supply of career preparation programs in the aviation and aerospace industry within the region. The analysis included a review of programs operated by public and private providers, spanning from elementary through high school, technical colleges, state colleges and public and private universities. The inventory was organized by school type as follows: 1) private training programs, 2) secondary school programs, 3) technical training programs, 4) postsecondary degree programs. The South Florida region currently has 192 FAA-certified programs at private training schools, 3 technical or state colleges and 11 universities.

Private Training Programs

Florida has 126 FAA-certified flight schools (15% of all flights schools in the US). Twenty-eight of those are in South Florida and six are located at FXE in the City of Fort Lauderdale (Appendix E). These flight schools tend to be privately owned businesses, although some may have an affiliation agreement with a post-secondary educational institution. The cost for a student to become an Airline Transport Pilot (ATP) is high, close to $100,000, due to the cost of flight hours required, the rental cost for aircraft, and flight instructor cost. Federal financial aid or scholarships are often not available at most flight training programs or only covers a portion of the needed amount, forcing students to seek substantial loans to pay for their flight training. For students eligible for Pell grants, which only cover the classroom portion of the training and not the flight hours, the maximum amount any student can receive is $6,895[6] and is based on financial need.

As of 2022, Florida has 51 FAA-certificated flight simulator training programs, representing 37% of all flight simulator training programs in the United States. Eleven of these flight simulator training schools are in South Florida, one of which is located at FXE (Appendix F). All these training facilities are for professional pilots needing to complete required FAA training or to earn a type rating. The flight simulator training costs vary by aircraft, ranging from $400 to $500 per hour. While no financial aid is available for this type of training, most airlines cover the training cost for pilots in their employment.

Secondary School Programs

Aviation training programs at the secondary school level are often part of magnet schools or dual-enrollment programs. Magnet schools are public schools with a particular theme or academic

[6] The maximum Pell Grant award for the 2022–23 award year is $6,895. More information available at: https://fsapartners.ed.gov/

focus to attract a diverse body of students. Many magnet schools offer students specialized programs and create innovative learning approaches in a diverse environment. Some schools are schools where all students are in a specific magnet program while other schools have a specific magnet program in addition to the traditional school or a school within a school approach. Broward County Public Schools is the only district to offer a specific aviation magnet program in the region at Miramar High School. Although the school does not provide students with a postsecondary degree or credential, the school does offer students an opportunity to earn industry-recognized certifications. Students in the magnet program usually continue to a training program or technical or state college, as the magnet program serves a recruitment pipeline for these programs.

Dual enrollment programs are partnerships between school districts and colleges whereby middle and high school students can complete college courses and earn college credit. Courses are sometimes held at the school and sometimes at the college. In Broward County, there are currently two aviation dual enrollment programs – one in aviation maintenance in partnership with Broward College and another in general aviation studies with Embry-Riddle Aeronautical University. Currently 3 schools partner with the Broward College program and 22 schools partner with the Embry-Riddle program. The Broward College program is designed as a three-year program where students will earn 36 college credits and two college credit certificates as well as all the training necessary to earn one of the FAA Aviation Maintenance licenses in a combination of lecture and laboratory courses. Students attend the program at the Broward College South Campus. The Embry-Riddle program is designed to provide aviation training in several areas and students can earn anywhere from 3 to 12 college credits transferrable to Embry-Riddle Aeronautical University. Courses are conducted at the local middle and high schools.

Technical Training Programs (Non-Degree)

Non-degree and continuing education technical programs are typically offered by technical and state colleges in Florida. In the region, aviation training programs of this type are offered at three regionally accredited technical and state colleges - Atlantic Technical College and Broward College, both in Broward County, and George T. Baker Aviation Technical College located in Miami-Dade County (Appendix H). The programs offered include aviation maintenance (7) and avionics (3). These programs often prepare students for an opportunity to earn an industry certification such as FAA Airframe Certificate (License), FAA Powerplant Certificate, and the Avionics NCATT AET. Industry certifications have been increasingly desirable with students and employers as they indicate that the student has been assessed for skills and knowledge by a third-party evaluator, i.e., the FAA. All the technical programs in Miami-Dade and Broward that

issue certificates of completion also allow students to transfer credits toward advanced degrees through credit for prior learning or articulation agreements with colleges and universities.

College and University Training Programs

The tri-county region has 11 colleges and universities that offer aviation programs (Appendix I). These range from offering one program to as many as 29 programs each. College and university training programs are typically non-technical and upon successfully completing a series of courses, the student will earn a degree. In total, the 11 colleges and universities represented in this study offer 11 associates degree programs, 20 bachelor's degree programs with 2 available minor programs, 13 master's degree programs, and 2 doctorate degree programs.

Based on this assessment of the training programs and schools, the largest area of talent shortage, based on demand and supply, is in aviation maintenance.

Table 4. Summary Analysis of the Supply and Demand for the Top Occupations in South Florida

Occupation	Average Annual Openings (2021)*	Number of Completers (2021)	Difference
Flight Attendants	1,338	573	(765)
Aircraft Mechanics and Service Technicians	650	166	(484)
Commercial Pilots	372	95	(277)
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	405	188	(217)
Baggage Porters and Bellhops	152	0	(152)
Passenger Attendants	125	0	(125)
Aircraft Service Attendants	108	0	(108)
Avionics Technicians	78	22	(56)
Reservation and Transportation Ticket Agents and Travel Clerks	624	573	(51)
Airline Pilots, Copilots, and Flight Engineers	707	668	(39)
Aerospace Engineering and Operations Technologists and Technicians	38	207	169
Air Traffic Controllers	92	447	355
Aircraft Cargo Handling Supervisors	89	447	358
Airfield Operations Specialists	65	573	508
Aviation Inspectors	66	1,087	1,021

Source: Lightcast, 2021.
Note: * A combination of both new jobs and replacement jobs constitutes total openings. The annual openings figure is derived by dividing total openings by the number of years in the user's selected timeframe.

Table 4 displays a summary analysis of the supply and demand for the top occupations in South Florida. Due to these findings, the remaining will focus on the analysis of the aviation maintenance industry.

Why focus on Aviation Maintenance?

As previously discussed, the study focused on evaluating the training needs for all jobs within the industry and looked at the opportunity to establish training programs to address those needs based on the number of available jobs compared to the number of completers of training programs. While labor market studies show the largest gap for flight attendants, there is no opportunity for a training program to be developed as airlines provide their own distinct training. The same is true for positions such as passenger attendants and aircraft service attendants – training consists of on-the-job training provided by the airlines. Commercial and airline pilots are in high demand, however, there are already dozens of flight schools in the area to meet the demand, and existing schools can expand access to more students by merely finding or providing financial support as the high cost of training (averaging over $100,000) often serves as a barrier for program enrollment and completion. Aviation maintenance, on the other hand, has a significant gap in available workers, and requires technical training before candidates can be considered for employment. Lightcast (2022) shows a gap of 701 workers classified in the *Aircraft Mechanics and Service Technicians* and the *Aircraft Structure, Surfaces, Rigging, and Systems Assemblers* job categories. Therefore, it is clear that aviation maintenance training programs should form the foundation of future opportunities. Simply put, there is not enough training capacity to meet employer demands, and the City can play a vital role in closing the gap. Further, the cost of training for aviation maintenance technicians is usually reasonable – in the range of $6,000 to $13,000 - and the time to completion is relatively fast, ranging anywhere from 6 to 22 months. Upon completion of a program, and obtaining appropriate industry-recognized certifications, completers can secure a job in the industry with average annual earnings of $61,520.

Overview of the Local Aviation Maintenance Industry

The service and maintenance of aircraft and its components is a major part of the aviation and aerospace industry in South Florida contributing to the $14 billion economic impact of Fort Lauderdale/Hollywood International (FLL) Airport, and the $31 billion economic impact of Miami International Airport as well as all other area airports and non-airport aviation maintenance businesses. The State of Florida currently has 603 FAA-certified Repair Stations that are authorized by the FAA to provide service to aircraft and components (Appendix J). Over half, or

392, of these repair stations are in South Florida. Within 30 miles of Fort Lauderdale Executive (FXE) Airport, there are 144 Repair Stations with 37 being at or very near FXE. These South Florida Repair Stations employ 12,227 employees averaging 31 employees each.

The Repair Stations in South Florida are very diverse in the types of services that they provide. Table 5 below highlights the types of services provided and the number of Repair Stations that perform those services. The study team found seven primary services offered and performed at the Repair Stations, including repair of aviation accessory, airframe, instrument, powerplant, radio, as well as non-destruction testing, and other specialized services. Most of the Repair Stations provide more than one type of service to the aviation industry. It is worth noting that the services listed below are not limited to the aviation industry but are all related and also needed for the aerospace industry, thus, a potential synergy between the aviation and aerospace industries currently exists.

Table 5. Number of Repair Stations by Service Performed

Type of Repair Service	Number of Repair Stations
Accessory Repair	245
Airframe Repair	165
Instrument Repair	105
Powerplant Repair	114
Radio Repair	105
Non-Destructive Testing	76
Specialized Services	78

Phase 2 – Validation of Industry Needs

Phase 2 of the study focused on validating the data collected through online sources and government and private databases in Phase 1. This phase used a qualitative approach and gathered data through an online survey, interviews and focus groups with industry leaders, and focus group meetings with industry and education representatives in an iterative process. Common themes from the focus groups informed the development of survey and interview questions. Additional meetings with the City of Fort Lauderdale Education Advisory Board (EAB), FXE tenant focus groups and interviews as well as feedback from the City Commission allowed for the exchange of ideas, solicitation of additional questions, generation of new considerations, and input to inform this final report and recommendations for next steps.

Overall, findings validated the need for more aviation mechanics who have the certifications and skills needed to meet current demand and support industry growth. Five recurring themes were identified through the discussion about current training needs: 1) an increase in line service technicians, 2) an increase in maintenance helpers, 3) an increase in aircraft-specific technicians, 4) the need for specialty aviation skills, and 5) the need for more soft skills training. In addition to industry's current training needs, the interviews also captured training needs which are projected to be needed in the future, building upon current aviation maintenance training. These needs included electric propulsion, additive manufacturing, technology modernization, Vertical Takeoff and Landing aircraft (VTOL), and Advanced Air Mobility (AAM) which includes Uncrewed Aerial Systems (UAS) and Uncrewed Aerial Vehicles (UAV).

Participants also highlighted the rapid advances in aviation and aviation manufacturing and the need for training programs to address these advancements but confirmed that the foundational knowledge which A&P technicians learn in an aviation maintenance training program is vital as it will continue to be the pre-requisite knowledge upon which future knowledge and skills will be built. The A&P is the de facto standard for a federally certificated skilled technician. This technician has completed coursework in 40 different subjects that allow him/her to work in numerous aviation and aerospace industries and is highly sought after even by non-aviation industries.

A recent report from the U.S. Government Accountability Office (GAO) (GAO-22-105020 published May 2022) identified the development of training for technicians as an issue for the implementation of Advanced Air Mobility (AMM). The interviews also highlighted several challenges for the local industry which include a skill/worker shortage, lack of aviation career

interest, cost of living and housing, relocation cost, and the competition for skilled workers between general aviation and commercial aviation. Additionally, exploratory conversations were also taken regarding potential synergies with e-sports and gaming.

Survey results indicated an immediate need for trained aviation maintenance technicians, which include (in the order of need) FAA-certified Airframe and Powerplant (A&P) technicians, non-certified airframe and powerplant technicians, and specialized aviation technicians (avionics, advanced materials, electrical and propulsion systems, etc.).

Currently in Broward County there is only one FAA AMTS at Broward College, and only two avionics programs for the 144 aviation maintenance companies in Broward County.

FAA-certified Airframe and Powerplant technicians are highly sought after by the local aviation industry and beyond. In the local market, the entry level wage for recently certified A&P technicians is in the mid $20s/hr. and can double within 10 years. A skilled workforce is needed not only for companies to meet current demand but also is necessary to allow them to expand their operations. Companies considering relocating to Florida need a well-trained workforce and a large pool of FAA-certified mechanics may be the determining factor in locating their operations to South Florida. During the interview of a company that specializes in site identification for aviation companies, it was noted that one of the criteria for many companies is the current and future availability of trained technicians.

Current local training capacity is not adequate to meet current training needs and will not meet future needs unless changes occur. Either an expansion of the current FAA AMTS or an additional AMTS needs to be established. The expansion needs to take into consideration the need for additional physical space for classrooms as well as training labs for not only the A&P program, but also for specialty training, and upskill training. These facilities could potentially also be used as training locations for other aviation training needs for local, national, and international clients.

FAA Airframe and Powerplant Technician Background

This study has determined that there is significant need for skilled workers who possess the FAA Airframe and Powerplant license, or partial training which is included in those training programs. Such workers are highly sought after, and well paid. A FAA Airframe and Powerplant certified technician is the only federally certificated person to sign-off on all repair work performed on US-registered aircraft and aircraft components. These individuals have been trained on over 40 aviation technical skills which allows them to work on all aircraft systems, structures, and engines. One challenge for the industry is that FAA Airframe and Powerplant certified technician are

commonly recruited to other industries including power distribution, construction, manufacturing, automotive, marine, heavy machine, etc. (Wildes, 2022)[7]. Common company types that hire FAA Airframe and Powerplant certified technician include amusement parks, elevator repair, racing, ship construction, oil well platforms, wind farms, etc.

Spectrum of Aviation Maintenance Technician Jobs in the Industry

There are numerous high skill and high wage career opportunities in aviation maintenance, all of which are in demand. The career opportunities fall into three basic categories – non-certificated aviation mechanics, FAA-certified mechanics, and specialized mechanics.

Non-Certificated Aviation Mechanic

Non-certified aviation mechanics are individuals who have limited training and do not have a FAA Airframe or Powerplant certification. They may be apprentices, helpers, or assistants to an FAA-Certified Technician. They can be found performing many of the same functions as a FAA-Certified Technician, however, they are not able to validate their own work as required by the FAA. They also tend to perform menial tasks, such as parts cleaning, parts removal, and the like. They may have had little to no training but have simple mechanical inclination. Programs to develop these mechanics are generally found in high schools and adult continuing education programs. Some of these programs can articulate to college credit if there is an articulation agreement in place. These training programs can be in existing spaces within in high schools, adult centers, or community centers. A non-certified aviation mechanic can take the logical next step and attend an FAA Part 147 Aviation Maintenance Technician School to earn the FAA Airframe and Powerplant certifications, thereby, gaining a higher wage and expanding employment opportunities.

FAA Certified Technician

Becoming a certified FAA Airframe and Powerplant (A&P) is generally considered the pinnacle of aviation maintenance training. These individuals have completed hands-on training on over 1,100 standards in the repair of aircraft structures and engines and have had to endure numerous examinations including written exams, oral exams, and practical exams administered by the FAA. The A&P is the only technician that is authorized to validate aviation repairs. The facility requirements for programs requiring this training are extensive. It is common for dual enrollment

[7] Wildes, M. (2022, August 5). The aviation mechanic shortage is worse than you might think. *Flying*. https://www.flyingmag.com/the-aviation-mechanic-shortage-is-worse-than-you-might-think/

and adult models to co-exist at the training facility. There are multiple degree pathways that exist for a person who has completed a training program and/or have their FAA A&P certifications.

Specialized Mechanic

Mechanics with specialized training are critical in the aviation industry. These specialized training skills are typically beyond simple mechanical skills and outside the scope of training provided in current FAA Airframe and Powerplant training programs. As the mechanic becomes more specialized, their jobs become more focused. These individuals may, or may not, possess an A&P certificate. Areas of specialization include avionics, advanced material repair, electric propulsion, systems integration, etc. These training programs typically fall into standalone programs or scaffolded training programs. For example, an electronics program could articulate into an avionics program. Many of these programs can articulate into college credits if there is an articulation agreement in place. These training programs can be in existing spaces in high schools, adult centers, technician schools, or community centers.

Impact of Aviation Maintenance Shortage

The aviation maintenance shortage exists today and is projected to grow. it is having a negative impact on the aviation industry in South Florida as well as on the City of Fort Lauderdale through lost opportunity.

High Wage Opportunities for City Residents is Lost

As highlighted in the phase 1 of this study, there are significant high wage positions available to those residents that have basic aviation skills training. The table below display expected starting salaries based on years of experience for FAA certified A&P.

Table 6. FAA certified A&P expected salaries by years of experience

Years of Experience	Average Salary
No experience	$25/hour
1-3 years	$30/hour
5-10 years	$50/hour

Source: Lightcast, 2021.

Aviation Companies in City are Missing Opportunities

Aviation businesses in Fort Lauderdale are lacking the skilled workforce that they need. They are unable to expand their operations due to that lack of workforce. Many have available space for

more work, but without the workforce, the space sits idle. Companies also reported that they have turned down contracts due to not being able to acquire the needed workforce to do the work. For example, a repair station at FXE interviewed has open ramp space available for aircraft but due to lack of technicians, the company is unable to enter new contracts to work on additional aircraft even though space for the aircraft is available.

City of Fort Lauderdale is Missing Opportunities for Company Relocations

Many companies consider the available workforce when they are looking to startup or relocate their company. As indicated in this report, there is an acute shortage of skilled aviation technicians. Additionally, the number of aviation technician training programs and the number of students graduating from these programs has significantly limited the number of new additions to the workforce.

Other High Skill Industries Continue to Suffer

FAA Airframe and Powerplant (A&P) Technicians are known for their high skill training and other industries have noticed. As many industries are experiencing significant shortages of skilled labor, they are looking outside their industry – and more specifically to aviation – as a source of skilled technicians. Companies that need technicians skilled in electrical, hydraulics, pneumatics, troubleshooting, and composites recruit FAA A&P technicians, because they have the skill set to excel in their industry. There is an opportunity for industry cross-training through a training program or center created in the City of Fort Lauderdale.

Phase 3 – Potential Aviation Workforce Training Models

The third phase of the study was designed to explore the feasibility of expanding training programs by reviewing other training models

There are various training models that are being used across the country for training individuals for careers in aviation. The models may serve high school students, adults, or both depending on type of model. Some are stand-alone sites while others are located within another institution.

Magnet School

Aviation magnet schools offer a wide selection of aviation training for those students who have expressed an interest in aviation. Several communities have full aviation magnet schools such as Sterling Aviation High School in Houston Texas, which has both a pilot and maintenance program and is available to high school students district wide. The school recently (Jan 4., 2022) opened at a new location at a cost of $67.5 million. These schools have an exclusive aviation focus. The second model is an aviation magnet program within a traditional high school. There are many examples of aviation magnet programs located within a traditional high school. A nearby example is Miramar High School that has amongst its offerings of magnet programs, a general interest aviation program.

Career and Technical Education (CTE) Charter School

A charter school that is focused on CTE is a new development in the Charter School Movement. As part of the Florida's Workforce Initiative, *Get There*, Governor Ron DeSantis announced $10 million in funding for CTE charter schools in Florida. The funds were awarded to five state colleges (Northwest Florida State College, Tallahassee Community College, Santa Fe College, St. Petersburg College, and Miami-Dade College) to allow high school students to earn credentials and college credit while in high school.

Private Technical School

Private technical schools are trade schools that provide graduates with a certificate of completion and whose course work may lead to industry certifications. There are several aviation themed technical schools that are tailored to aviation maintenance such as Aviation Institute of Maintenance and Pittsburg Institute of Aeronautics. These schools typically offer programs similar to those which may be found at a Technical College (see below) but may shorten the length of time required to obtain the training. The cost is also more expensive than its public

program alternative with the cost of a FAA Airframe and Powerplant program costing ~$34k vs ~$10k tuition at a public school.

Public Technical School

Public technical schools are typically state funded trade schools that provide graduates with a certificate of completion and whose course work may lead to industry certifications. Many public technical schools offer numerous workforce training programs. However, there are instances where a public technical school will be focused on a single industry. A local example would be George T. Baker Aviation Technical College in Miami-Dade County, part of Miami-Dade County Public Schools. Baker Aviation provides dual enrollment opportunities to all public high schools in the County as well as a day and evening program for adults.

Opportunities to Address the Shortage of Skilled Workers.

There are numerous opportunities for the City of Fort Lauderdale to advocate for meaningful aviation training programs which would greatly reduce the shortage of skilled workers in the City as well as lift up City residents with high-skill / high-wage career opportunities. The following opportunities should be considered as part of an overall strategy to reduce the shortage of skilled workers in the City. These opportunities are presented here in order of ease of implementation, with those opportunities which are low- to no-cost presented first, and the most complex of the options presented last. Many of these options can be pursued in tandem and the selection of one does not preclude the selection of others.

Aviation Career Awareness

Career Awareness opportunities are numerous and necessary. City staff at FXE have been very active in hosting events to expose young people to the airport environment and help them imagine what a career in aviation might look like. Additionally, opportunities exist for afterschool programing, in-school enrichment, and additional events at FXE as well as aviation companies in the area. Awareness campaigns can begin in elementary school and continue through high school as well as adult education programs. Programs of this nature already exist, for example, Barrington Irving's "Flying Classroom" which is in hundreds of classrooms across the country.

Short Term/Non-Certificate Training

Short term training programs are an excellent opportunity to train for very specific skills that are in high demand. The majority of these do not lead to an industry certification, although some do. Most do not require special facilities, and therefore can be offered in high schools, community

centers, and at company sites. These can quickly lead to entry-level, well-paying skilled positions throughout the aviation industry. Examples would include training on topics such as Sheetmetal fabrication, composite materials, and painting.

Dual Enrollment/HS Technical Training

Dual enrollment programs are currently available between Broward County Public Schools and various colleges and universities. Broward College currently has a program whereby students from several high schools attend the Broward College Aviation Maintenance Program. In addition to dual enrollment programs, there are other technician training options available to implement at high schools including “Choose Aerospace” where high school seniors complete aviation maintenance course work that prepares them to enter a AMTS or entry level position at an aviation maintenance facility. Additional programs offered by the National Coalition of Certification Centers (NC3) which offers numerous programs that fit in a high school technical program and the knowledge and skills learned are useful in aviation maintenance.

Satellite Aviation Maintenance Technician School

Another opportunity could be the expansion of the existing aviation maintenance training program operating at Broward College to a location within the City of Fort Lauderdale. This option would leverage the existing FAA-approved program and mitigate or eliminate the costly start-up expenses of starting a new program. The college already has equipment, curriculum, and qualified faculty, making expansion a relatively easy proposition.

Aviation Technical Training Center

The boldest of these opportunities would be an Aviation Technical Training Center which may include not only an FAA-approved Part 147 Aviation Maintenance Training School (AMTS), but could also offer additional aviation training programs, short term training programs, certification programs, dual enrollment programs, opportunities for multiple educational institutions to co-locate, and provide complete articulation paths from pre-high school through graduate school. Additionally, other industries with similar training needs could utilize the Center for their training purposes. This opportunity provides the greatest opportunity to the City to influence and impact the future of the aviation industry in the City, County, and Region. Additionally, this opportunity encompasses all the previously listed opportunities. Because of the tremendous need for skilled aviation workers, and to support our growing aviation community, this opportunity is one that is highly recommended by this study, recognizing and acknowledging that it is also the most costly and time-consuming to realize. A center such as this would cement Fort Lauderdale’s position

as a leader in aviation training and employment within the country and would build upon the long and storied history of aviation in South Florida.

Potential Roles for the City of Fort Lauderdale

The City of Fort Lauderdale has taken important first steps in recognizing the needs of the aviation industry in South Florida and committing to participating in the industry's future development. As this study indicates, there is a tremendous need for aviation technical training in South Florida, particularly in aviation maintenance. The City of Fort Lauderdale has numerous opportunities to continue its leadership role in the County and the region.

Advocate for aviation education and commerce

The City of Fort Lauderdale has already committed funds for a second phase of this project to focus on implementation planning. The City can continue promoting aviation education and commerce by working with FXE, Broward County Public Schools, Broward College, and the Greater Fort Lauderdale Alliance on promoting events and opportunities within the City that positively impact aviation education, workforce development, and commerce.

Continue cultivating partnerships

The City of Fort Lauderdale can continue its long-standing efforts in cultivating partnerships with local aviation companies, industry groups, and educational providers, bringing them together for the common goal of increasing aviation training opportunities for the residents of the City of Fort Lauderdale. These efforts will continue to provide a solid talent pipeline for aviation companies based in the City and the region.

Launch marketing, exposure, and recognition campaign

During this study, it was commonly observed that many companies and organizations did not fully know the aviation resources offered in or near the City of Fort Lauderdale. A strategic marketing plan needs to be developed and executed, which celebrates the rich history of aviation in the City and announces the City's commitment to supporting and cultivating the aviation industry. The potential impact of such a campaign would be to create new partners, bring in new companies, create new jobs, and improve the economic impact on the City.

Assist in the identification and securing of funding

Nearly all initiatives will require a certain level of funding. This may be several thousand dollars for marketing to several million dollars for a full-scale technical training center.

Table 7. Estimated Program Cost		
Opportunity	**Unit**	**Cost Range**
Aviation Career and Opportunity Awareness	Per Marketing Campaign / Program	$0 - $100K
Dual Enrollment	Per Course	$10K to $100K
High School/ Adult/ Alt Ed Program to develop initial technical skills	Per Course	$25K to $500K
Short Term Training Programs	Per program	$50K to 750K
Satellite Part 147	Per location	$250k to $2M
New Aviation Technical Training Center	Per location(s)	$10M to $20M

The City will need to work with its many partners to identify and secure funding through government appropriations, public-private partnerships (P3), grants, philanthropic donations, industry direct and in-kind funding, or through direct funding. This important coordinating role for the City will likely be a major factor in determining the scope and scale of any initiative(s).

Identify and secure resources and property

Similarly, it will be critical to identify and secure the non-financial resources that will be needed to develop the City of Fort Lauderdale as a training hub. The development of a full-scale aviation technical training center will require property, facilities, infrastructure, equipment, curriculum, staff, etc.

Provide direct assistance to programs (personnel, funds, location, facilities)

There are many stages during which the City of Fort Lauderdale may need to provide direct assistance. This may include provided personnel to manage projects, seed funds for programs and efforts, location for buildouts, as well potential facilities that may already exist. Such assistance will need to be thoughtful and well-planned.

Feasibility Analysis

A feasibility analysis has been conducted to determine considerations which must be addressed to establish and operate an aviation training center. The analysis included review of various funding sources, exploration of potential locations, capital expenses, equipment/supplies, and potential partnerships.

Funding

Funding required for an aviation training center includes both the capital and start-up costs as well as ongoing operational costs. A plan to secure sufficient funding for a building and the costs

associated with procuring furniture, fixtures, and equipment must be developed and a model for on-going operational costs must be determined. Every exemplar researched for this project included many, if not all, of the possible funding sources listed below, and similarly, any local project will most certainly require a coalition of funding sources.

Tuition Revenue

Schools and programs can receive revenue via student tuition. This tuition does not necessarily have to be directly from the student but may be paid by other sources such as federal Pell grant, state agencies, workforce funding, scholarships, and other student tuition financing opportunities. Tuition revenue could be applied to ongoing operational costs.

Direct Funding

The City of Fort Lauderdale may need to provide direct funding to cover the initial cost of programs, personnel, consultants, and other necessary startup costs. Additionally, the City may be able to co-share costs with other entities as needed. This would require significant budget commitment from the City and its availability is uncertain as it would need to be considered among many other budget priorities.

State Government Appropriations and Grants

There are numerous examples of the State of Florida providing funding for educational programs that would include facilities, infrastructure, equipment, and design cost, such as the Governor's Job Growth Grant Fund, the Workforce Innovation and Opportunity Act, The Florida Department of Education Pathways to Career Opportunities Grant, and the Perkins V Entrepreneurship Education and Training Grant. Efforts would need to be made to determine the best path to request such appropriations and these efforts would require significant coordination among local leaders and leadership at various

A CASE STUDY IN FUNDING

Raisbeck Aviation High School in the Seattle, WA area, opened a new location in 2013 on the grounds of the Museum of Flight adjacent to Boeing Field. The construction and relocation from an older facility cost $60M, which came from a variety of sources. Among the partners in this venture, the WA State Legislature allocated $3.9M, the Port of Seattle contributed $10M, the local school district budgeted $14M and federal grants totaled just over $500,000. An additional $32M in donations from corporations, individuals, and foundations made the project possible.

state-level organizations, such as those within the Department of Education. Government appropriations would almost certainly be required as part of the start-up phase.

Public Private Partnership (P3)

Public-Private Partnerships are not new ways of obtaining necessary funding, however, all parties must be aligned and have a clear understanding of what is to be accomplished. This may require reaching out to current private entities that may already have an interest in the project or may require the City to issue an RFP. It is unlikely that only one private entity would provide sufficient capital and more likely that a consortium of employers with common interest could be formed to financially support the project in both the start-up as well as the operational phases.

Federal Grants

There are many Federal Grants that may be available to support the development of an aviation training hub in the City of Fort Lauderdale. The U.S. Economic Development Administration recently released the "American Rescue Plan Good Jobs Challenge[8]" making $500 million available to strengthen regional workforce training systems and sector partnerships. The FAA recently issued the "Aviation Workforce Grant[9]" to invest in the future aviation workforce. Other relevant grant programs exist through the U.S. Department of Transportation, NASA, the U.S. Department of Labor, the U.S. Department of Education, the National Science Foundation, and others.

Philanthropic Donations

There are numerous donors who have generously supported aviation education projects across the State and country. However, acquiring significant donations from donors will require significant determination to convince them of supporting a substantial aviation educational initiative. Large philanthropic donors who have supported education programs in the past include:

1. Emil Buehler Perpetual Trust
2. Thomas W. Haas Foundation
3. Hall-Halliburton Foundation
4. Northrop Rice Foundation

[8] https://eda.gov/arpa/good-jobs-challenge/
[9] https://www.faa.gov/about/office_org/headquarters_offices/ang/grants/awd

As with other sources of funding, it is unlikely that one major donor would be able or willing to provide all of the necessary resources, and more likely that several donors would contribute to both the start-up and operational phases.

Industry Support

The local aviation industry has traditionally been supportive of aviation educational programs in South Florida. American Airlines and FedEx both donated complete commercial jets to schools, CTS and GA Telesis have donated engines and components, and the list of other companies and donations is significant. During this study, conversations with the local aviation industry indicated that in-kind donations of equipment is very likely. Cultivating financial contributions to the project will be a longer-term endeavor.

Location

Location depends, in part, upon the size and scope of the training program. The City of Fort Lauderdale Commission has expressed an interest in making land available to support the project. Land adjacent to an airport would be an ideal location and the amount of land should be sufficient to accommodate a 3-story, 75,000 square foot facility. Other locations may be co-located with other schools or community centers in the City; however, this may greatly reduce the training opportunities available due to lack of space, infrastructure, and required resources.

Equipment and Materials

Aviation technical programs typically have a substantial amount of equipment required. A typical aviation maintenance training school may have several aircraft, engines, engine run stands, shop equipment, test equipment, simulators, paint booths, welding stations, etc. The cost of these can be significant and can easily reach $1 million for a small program. Some of these costs may be offset by donations of equipment by aviation companies in the area. In addition to the equipment, a recurring supply of materials such as fuel, rivets, sheet metal, lubrication, hardware, batteries, overhaul kits, among others will be required

Potential Partnerships

Partnerships will be critical for the creation of an aviation training center. No one single entity will be able to perform all the tasks required for the aviation training center to be a success. The following are potential partners and stakeholders. It would be expected that more partners will be identified as the aviation training center becomes more developed, including those partners that

would identify future training needs and aerospace. Some of these partnerships have already been identified, and others are being contemplated.

City of Fort Lauderdale would be a key contributor to the development of the aviation training center. They would be a connector, convener, and facilitator of collaboration and project design. At the recent commission meeting where the highlights of this study were presented, the commission indicated that they were interested in such a center in Fort Lauderdale and indicated that land may be available for the location of the center. As the initiator of this study, the City is already a strong partner.

Broward College is a strong potential partner. Being the sole public college in Broward County and having a robust aviation program dating back to 1966, their expertise in aviation training, as well as degree and dual enrollment opportunities, makes the College a natural partner in any educational program in the City. In addition, the College President has already expressed his interest in a partnership.

Broward County Public Schools provides high-quality K-12 education in Broward County. They have been involved in numerous discussions regarding the additional development of aviation training programs in the City and would be considered a key partner in the development of any aviation training program in the City. The Superintendent of Schools has already expressed her interest in identifying ways the school district could be a significant partner.

The Greater Fort Lauderdale Alliance is the county's economic development organization. The Alliance focuses on creating, attracting, expanding and retaining high-wage jobs and capital investment in high value targeted industries, developing more vibrant communities, and improving the quality of life for our area's citizens. The Alliance has long listed *Aviation and Aerospace* as a Target Industry for the county, and they have been very active in recruiting new aviation businesses to the region. They would be a key partner for aviation business development, may play a role in creating potential public-private partnerships (P3), and could assist with marketing of the opportunities within the City.

The Fort Lauderdale Chamber of Commerce would be a valuable partner for their ability to make business connections and would be strong State and Federal advocates.

Other regional educational institutions could be identified as partners in the advancement of aviation education in the City. Such institutions include Nova Southeastern University, Florida Atlantic University, Florida International University, University of Florida, and others. These

institutions would bring both additional technical and academic opportunities to the City as well as address some of the higher-level educational needs. These schools would also be able to cultivate corporate and continuing education training.

Aviation industry partners, many of whom were interviewed as part of this study, are willing to partner in the development of additional aviation training programs. They would be able to ensure that curriculum aligns with industry needs, provide internships, hire graduates, and potentially provide resources and funding for a training center.

Community-based organizations would be able to provide opportunities for additional aviation training programs at their sites across the City and would be able to target those individuals who have difficulty with traditional educational models.

There are several donors who may want to partner in the development of a training center. Not only may they be a source of funds but may also be able to provide additional resources and expertise to the training center.

Federal and State government would likely be partners in the training center. The FAA would be involved in any aviation program that requires FAA certification and the State of Florida is focused on increasing workforce education training and providing substantial funding opportunities.

There are numerous other non-aviation entities that may be potential partners. These groups could provide ancillary or complementary training such as eSports, gaming, cyber security, etc.

Next Steps

As the study has highlighted, there is significant demand for more aviation maintenance technicians and therefore significant demand for more aviation training in Fort Lauderdale. The City Commission should consider the following potential next steps.

Establish Commission Direction

The City Commission needs to continue its role in the promotion and development of an aviation technical training center and lend its support to such an initiative. The City of Fort Lauderdale has already expressed an interest in exploring the opportunity of making land available for the project as well as committed funds for a second phase of the consulting project to focus on implementation planning.

Formally Launch Steering Committee

If the City Commission supports the establishment of an aviation technical training center, a steering committee will need to be created. The committee will need to be made up of multiple stakeholders including education, industry, government, and community and will be primarily responsible for overall project design.

Solidify Partners

The Steering Committee will need to work through all the stakeholders and solidify the major partners for the development of an aviation technical training center. These partners need to commit to the successful development, implementation, and operation of the training center.

Finalize Program Design and Budget

The Steering Committee will need to determine the specific program design and determine the budget required to move forward. This is a critical piece as it will be needed to submit applications for funding.

Pursue Funding Opportunities

Upon completion of the program design and budget development, funding will need to be identified and secured. As noted earlier in the study, there are serval sources of funding and each needs to be pursued.

Contract Implementation

There may be the need to execute multiple contracts as part of the process. These may include consultants to complete various specific studies, grant writing, design, engineering, etc. All of these will be predicated on having an initial funding source until substantial funding sources are identified and secured.

Conclusions

The challenges that the aviation maintenance industry is facing are not only serious, but numerous. This study has shown that there is a significant shortage of trained skilled technicians, lost opportunities for companies to conduct business, and challenges in attracting new companies to the area. These all lead to a potential loss of revenue for the City as well as loss of potential high-wage career opportunities for the residents of the City.

To solve these challenges, this study recommends the creation of an aviation technical education center. The creation of this center will reduce the shortage of highly skilled technicians for the aviation industry, provide more opportunities for local companies to grow, and attract more companies to the area. Additionally, the residents of the City will have multiple opportunities to find a high wage careers in their City.

Appendices

Appendix A – Broward College's Center for Applied Research (CFAR) Team

RUSSELL N. MCCAFFERY
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EXECUTIVE LEADER

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- Team Building & Leadership
- Vendor/Supplier Relations
- Service Excellence
- Strategic Planning
- Change Management
- Quality Controls
- Project & Program Management
- Policy & Procedure Development
- Training & Mentoring

PROFESSIONAL EXPERIENCE

BROWARD COLLEGE – Pembroke Pines, FL 2013–Present
Dean, Industry, Manufacturing, Construction and Transportation Programs
Provide overall leadership and strategic direction for Broward College's Supply Chain Management program, the Emil Buehler Aviation Institute, the Automotive Training Center, the Marine Center of Excellence, as well as the college's Engineering Technology and Building Construction programs. Developed and managed a $24.5M grant – the largest in Broward College history - to develop supply chain management industry certifications. Manage an overall personnel and operating budget of $3.4M and nearly $9M in assets. Ensure overall management to include initiatives in curriculum planning, program development and implementation, program review, continuous quality improvement, and program accreditation and certification. Ensure that all programs are in compliance with relevant state and federal regulations and policies. Initiate and maintain cooperative relationships and key partnerships with transportation-related businesses, agencies, organizations and institutions. Member of the Port Everglades Action Team and The Greater Fort Lauderdale Alliance Governor's Council.

MCCAFFERY GLOBAL – Scotch Plains, NJ 2011–Present
CEO & Managing Director
Launch and lead all aspects of business operations. Establish and cultivate relationships with client and partner executives as well as key business stakeholders. Evaluate vital issues to identify solution strategies. Prepare and implement formal policy statements on aviation security. Facilitate client compliance with TSA security screening regulations. Direct government affairs to mitigate proposed adverse actions. Provide expert witness testimony as well as airport and aviation executive coaching services.

- Supported airport, airline security strategy initiatives, by earning regulatory submission approvals.
- Conducted comprehensive maritime security evaluations and developed and delivered tailored training programs at ports throughout Latin America as part of a contract with the Organization of American States.

TRANSPORTATION SECURITY ADMINISTRATION (TSA) – Newark, NJ & Warwick, RI 2002–2011
Deputy Federal Security Director (2007–2011)
Led 1,400-person team in TSA security operations spanning New Jersey, including Newark Airport (EWR), passenger and freight rail terminals, seaports, and highways. Crafted and executed strategies to improve compliance and to strengthen security. Oversaw security reviews and training exercises. Planned and managed combined annual operating and personnel budget of $57M.

- Transformed operation by developing core SOPs and fostered threat detection capabilities of all associates.
- Deployed automated systems and processes that improved internal management controls, capturing compliance improvement to 95% within 1 year.
- Streamlined operations and administrative functions to generate $2M in annual savings.
- Developed emergency and incident management protocols and infrastructure capabilities.
- Created TSA Transportation Worker Identification Credentialing Program, Bomb Appraisal Officer Program, Behavior Detection Officer Program, and TSA Explosive Detection K9 Program within the State of New Jersey.

RUSSELL N. MCCAFFERY
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Assistant Federal Security Director—Regulatory Inspections (2003–2007)
Directed 30-person team of Transportation Security Inspectors in conducting inspections to ensure compliance with TSA regulations at 6 airport locations with 32 passenger airlines and cargo haulers across the Northeast. Identified regulatory compliance gaps and recommended enforcement solutions. Served as Principal Advisor to Federal Security Director and as Local Classified Documents Custodian. Analyzed data and prepared/presented reports and investigation findings. Provided technical expertise to airlines and airport operations.

- Honored with TSA Leadership Award and Congressional Citation from RI Congressman James R. Langevin.
- Revamped EWR security program, creating formal documentation that bolstered airport security awareness and stature at highly sensitive international hub, reducing security-related violations by 25%.
- Reversed historic employee morale issues to resolve sensitive cases and attain 0% attrition rate.
- Instituted focus on inspection excellence that eliminated inspection activity backlog in just 6 months.
- Defined inspection program objectives as well as training and staffing level requirements that earned 80% acceptance for adoption by national program office.
- Provided expert testimony as part of legal action to resolve regional airline non-compliance that resulted in 6-month security requirement compliance improvement from 35% to 85%.

Customer Support & Quality Improvement Manager (2002–2003)
Oversaw planning and implementation of airport security programs at 5 airport locations across New England. Recruited and trained passenger and baggage screeners and conducted airport security reviews. Interfaced with airport/airline executives, strategic vendors, as well as federal, state, and local officials. Developed customer support and security improvement plans. Prepared and presented executive-level reports.

- Coordinated efforts between multiple contractors to expedite hiring, scheduling, and training of new security screeners for start-up operations at all 5 airports.
- Overhauled passenger screening checkpoint design and physical layout, increasing screening capacity 50% and reducing peak travel screening queues from 60 minutes to just 20 minutes.
- Devised baggage screening and validation procedures to reduce security risk and liability exposure.
- Alleviated thousands of dollars of passenger claims by creating customer inquiry/response framework.

FEDERAL AVIATION ADMINISTRATION (FAA) – San Francisco, CA 2001–2002

Civil Aviation Security Inspector, Special Agent
Coordinated enforcement of FAA regulations, policies, and security directives. Performed comprehensive inspections of airport facilities and air carrier operations to uncover compliance gaps. Prepared detailed reports complete with recommended penalties and remediation requirements.

- Oversaw integration of security policy enhancements post-9/11 to strengthen passenger and cargo security screening procedures.

UNITED AIRLINES – Various Locations 1993–2001

Customer Satisfaction Director/Program Manager, Airport Operations Supervisor & Operating Manager
Recruited to lead ground support and customer service operations team for United Airlines at SJC and for United Express/WestAir at LAX. Resolved vital employee conduct, customer satisfaction, baggage management, and on-time departure issues. Promoted to direct team of 1,200+ in airport operations at SFO, implementing manpower controls and process improvements to facilitate on-time departure of 250+ daily flights. Led project planning and execution for customer satisfaction programs, deploying flight identification displays at all major hubs, installing SFO gate displays, and developing robust performance metrics.

- Streamlined customer service processes to reduce CSR headcount requirements for each shift.
- Recognized with Leadership Excellence Award for Airport Service Planning and Best-of-the-Best Visionary Leadership Award in 2001.

RUSSELL N. MCCAFFERY

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EDUCATION AND CREDENTIALS

Master of Aeronautical Science (2011) ~ Embry-Riddle Aeronautical University
Bachelor of Applied Science in Aviation (1998) ~ San Jose State University

Training: University of Virginia Darden School of Business Leadership for Extraordinary Performance Program
WMDC Senior Executive Assessment Program ~ Ground Security Coordinator Training
Homeland Security Exercise & Evaluation Program Development ~ Conflict Resolution
Incident Command System (ICS) ~ WMD Response ~ Cargo Security ~ Counter-Terrorism

Affiliations: Council of Supply Chain Management Professionals (CSCMP) Academic Strategies Committee, Port Everglades Association (PEA), American Association of Airport Executives (AAAE), American Society for Industrial Security (ASIS), Transportation Research Board (TRB) Aviation Security and Emergency Management Committee.

Publications: McCaffery, R., Backus, L., & Maxwell, N. (2020). Embedding industry certifications into community college programs. *New Directions for Community Colleges, 189*, 53-66. https://doi.org/10.1002/cc.20397

Opportunity America Working Group. (2020). *Opportunity American Working Group report: The indispensable institution: Reimagining community college.* Opportunity America. https://opportunityamericaonline.org/indispensable/

Sean Gallagan, Ph.D.

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Hallandale Beach, Florida 33009 USA
C: 954-556-0144
sean@gallagan.com
http://www.linkedin.com/in/DrSeanGallagan

OBJECTIVE

Although a career educator, I have always had a passion for aviation, technology, and education - specifically workforce development and career and technical (CTE). I have had numerous opportunities to assist with the development of businesses, consult, and mentor others - all done successfully and profitably for those involved. With my leadership, management, education, and technology expertise, I continue to grow my portfolio of successful ventures as well as help others. I have spoken at conference locally and internationally on workforce issues and trends. My success has always been driven by my agile abilities to create win-win solutions, quickly assess and solve problems, communicate effectively, and have a genuine care for all stake holders. I am open to assist in program development and evaluation, workforce solutions, research and development, business development and management, as well as JV and M&A opportunities.

EXPERIENCE

Associate Dean

Broward College, Pembroke Pines, FL — Jan '16 – Oct '19

TRANSPORTATION PROGRAMS

As Associate Dean, oversees numerous transportation programs at Broward College, include aviation, marine, automotive, and industrial technology. As a highly motivated and results driven professional with over 18 years of progressive leadership and management experience, responsibilities include, budget , recruiting, retention, completion and graduation. Skilled in numerous academic and business fields including education, technology, aviation (Part 141 and Part 147), career and technical education with expertise in organizational, time and project management, goal setting, relationship building, data driven decision making, handling complex task, and program/course development – all to achieve student success.

Principal

Miami-Dade County Public Schools, Miami, FL — Jun '05 – Sept '15

CENTRAL REGION OFFICE

Performed administrative duties at the Central Region Office. The office is responsible for the oversight of all 113 elementary, middle, and senior high schools within its boundaries. In an era of accountability structures that measure student progress, the Central Region Office is a motivating entity that fosters the very best of its school teams to achieve excellence in the work that is accomplished.

ITECH @ THOMAS A. EDISON EDUCATIONAL CENTER

Opened Miami-Dade County Public Schools only high tech, district-wide advanced technology magnet high school. Responsible for all day to day operations, short, mid, and long term planning, curriculum development, advertising and recruitment, professional development, data driven decision making, partnership and contract development, manage million dollar+ budget, and the implementation of three high school STEM magnet academies: Enterprise Resource Planning (ERP), Geospatial Information Systems (GIS), and Advanced Technology & Software Solutions (iCode).

GEORGE T. BAKER AVIATION TECHNICAL COLLEGE
Grew Baker Aviation to one of the largest public FAA Part 147 schools in the Southeast United States offering electronics, avionics, airframe and powerplant programs. High school students attend on a career dual enrollment basis from over 30 high schools within the county. Increased adult enrollment to ~1,200 students. Responsible for all aspects of secondary and post secondary education and management, including: scheduling, facilities, HRM, contracts, budgeting, course and program development, advertising and recruitment, professional development, accreditation, and FAA responsibilities. Developed numerous partnerships that results in donations in excess of 6 million dollars. Aircraft donations included a Boeing 737, Boeing 727, and MD-80 as well as numerous light aircraft. Provided leadership on numerous local and state aviation advisory boards. Increased enrollment, completion, certification, retention, and career placement rates regularly.

Adjunct Professor
Barry University, Miami, FL — Jan '11 - Dec '14

EDUCATION

Doctor of Philosophy (Leadership and Education)
Barry University, Miami, FL — Dec '10

Master of Science (Computer Science in Education)
Nova Southeastern University, Ft. Lauderdale, FL — Nov '95

Bachelor of Science (Secondary Education)
Florida International University, Miami, FL — Jun '89

INDUSTRY GROUPS & EDUCATIONAL COMMITTEES

Aviation Technician Education Council (ATEC), Board Member and Regulatory Committee Co-chair

Greater Miami Aviation Association (GMAA), Vice President

South Florida Aviation Maintenance Council (SFAMC), Vice President

Business Aircraft Records Foundation, Board Member

Beacon Council, Aviation Committee, Aviation Education Sub-committee member

Greater Fort Lauderdale Alliance, GREAT Aviation Sub-committee member

Broward College, Aviation Programs, Advisory Board Member

Florida Memorial University, Aviation Programs, Advisory Board Member

Atlantic Technical College, Avionics Program, Advisory Board Member

Aviation Institute of Maintenance, Castleberry, Advisory Board Member

Member of various other groups and committees

Érica Pereira Amorim, PhD

(954) 790-0028 amorim.erica@gmail.com

PhD: EDUCATIONAL POLICY, PLANNING & EVALUATION

Florida State University; 2016

PROFESSIONAL PROFILE

Broad spectrum of professional experience spanning Latin America, Africa and Asia/Pacific regions. Deep expertise in design, implementation and policy evaluation. Extensive research and analytical skills to include quantitative and qualitative research methods as well as the design and evaluation of more effective, evidence-based programs/action and educational policies. Passionate about producing new evidence and assisting in the implementation of evidence-based programs targeted towards the world's most vulnerable populations and ultimately changing people's lives.

Led Early Grade Reading Assessment (EGRA) implementation in Timor-Leste: Global initiative to help countries measure children's' ability to read in the early grades of primary education (Sponsored by World Bank).

Engaged in an Early Grade Reading Assessment (EGRA) in Tuvalu: Project in Indonesia and Ethiopia to support and strengthen quality and leadership of educational institutions (Under a grant from UNICEF - Pacific and part of a 5-year, USAID-funded project).

Led implementation of Stalling Classroom Observation. Project to study the impact of teacher incentive reforms across hundreds of schools in multiple states in Brazil (Sponsored by World Bank as part of the "impact evaluation").

Serve as the Director of Research and Business Intelligence at Greater Fort Lauderdale Alliance. Current position which provides strategic and tactical direction to the Alliance by collecting, analyzing, evaluating and generating new evidence to improve decision- making and business practices.

PROFESSIONAL EXPERIENCE

Broward College; *Fort Lauderdale, FL* **July 2020 – Present**

Broward College provides affordable college education with nationally recognized, award-winning degree options and programs. The college serves over 70,000 students.

District Director of Research and Data Science

- Support and enhance Broward's college's Institutional Research, Advanced Analytics and Data Science capacity and capabilities.
- Develops, communicate and disseminate college -wide self-service business intelligence, self-service reporting, and self-service analytics.
- identifies, prioritizes and delivers results-oriented practitioner research, digital / analytical solutions that add value and bring differentiation benefits to Broward College and aligned the College's overall student success agenda.
- Provides thought leadership in research methods, technologies and direction to academic programs, administrative and support units.
- Assists the Chief Data Officer in designing and implementation of mixed method research, policy analyses and impact evaluations using advanced experimental and quasi-experimental research designs, predictive modeling, and advanced analytical methodologies.

Greater Fort Lauderdale Alliance; *Fort Lauderdale, FL* **July 2019 – July 2020**

The Alliance is the primary economic development organization for Broward County, and focus on creating, attracting, expanding and retaining high-wage jobs and capital investment in high value targeted industries, developing more vibrant communities, and improving the quality of life for our area's citizens.

Director of Research

- Responsible for the development and implementation of mixed method research and business intelligence to identify high-quality business economic and social development opportunities, expansion initiatives, partnerships and campaigns.
- Support and influence the decision-making process through data collection, high level qualitative and quantitative analysis, large-scale survey design and statistical analysis.
- Collaborate with the marketing and communications team to provide regular updates to key leaders, and local, national and international businesses.
- Support the development and implementation of the growth strategic agenda by driving collective understanding of economic, industry and competitor trends.
- Perform economic and social impact analysis on projects completed by the Alliance.
- Manage the Alliance's sites/buildings and GIS database working with the local commercial real estate industry and GIS Planning.
- Develop partnerships with Federal and state government agencies, local and regional stakeholders, chambers of commerce, NGOs, universities and research institutes.

Charter Schools USA; *Fort Lauderdale, FL* **April 2016 – July 2019**

CSUSA is an Education Management Organization operating over 80 high-performing schools which service over 60,000 students across 7 states.

Senior Manager of Performance Analysis *(October 2016 –July 2019)*
Manager of Performance Analysis *(April 2016 – October 2016)*

- Provided strategic and tactical direction to CSUSA by collecting, analyzing and interpreting data to improve decision-making and business practices.
- Collaborated with a team of analysts to develop and test hypotheses, and conduct research and root cause analyses to prove CSUSA's effectiveness; develop school profiles based on demographic, academic performance, survey results and enrollment information
- Designed surveys related to parent satisfaction, school curriculum, learning environment, staff professionalism, workforce engagement, staff loyalty, leadership, community involvement, communication, and safety.
- Designed predictive performance models: developed the dynamic enrollment forecasting models, calculated school level enrollment targets; school grade projections formulas to support strategic planning process.
- Research design & evaluation
- Data transformation & statistical analysis
- Oversaw enterprise-wide reporting & user training (designed to flag areas needing focus & accompanied by an analytical briefing)
- Oversaw accuracy of quality assurance tools and new products.

GEO Group, INC; *Boca Raton, FL* **January 2015 - April 2016**

The GEO Group is a global corrections institute and leader in evidence-based rehabilitation: Diversified services platform provides unique capabilities for the delivery of educational and vocational programs.

Research Manager

- Developed specific strategies for research design, data collection and data analysis
- Performed evaluation studies to measure effectiveness of GEO's specific interventions and/or facilities.
- Implemented necessary data transformations and underlying functions to support the creation and maintenance of performance indicators; data mining, data collection, and data manipulation using sophisticated statistical techniques, production of graphs and tables and draft report preparation and support jurisdictions to improve their evaluation methodology.

Florida State University; *Tallahassee, FL* **January 2012 - December 2015**

Florida State University is an American public space-grant and sea-grant research university. FSU, designated a preeminent university in the state of Florida, is one of the most respected research institutions in the country.

Managing Editor for Comparative Education Review Journal (August 2014 – December 2015)

- Registered and organized all manuscripts assigned to the coeditor's office, their transmission to reviewers, the analysis of reviewers' assessment and subsequent correspondence with authors.
- Assisted the CER coeditor in reaching editorial judgments concerning submitted manuscripts and keeping appropriate records

Graduate Research Assistant - Learning System Institute (January 2012 - August 2014)

- Supported the development and implementation of research projects in the Center for International Studies in Educational Research and Development, including: PRIORITAS-Indonesia and Ethiopia-READ, USAID-funded 5-year projects under partnerships with RTI – both projects aim to support and strengthen the quality and leadership of teacher education institutions in those countries; and serving as data analyst for the Early Grade Literacy Program in Tuvalu, under a grant from UNICEF-Pacific.

The World Bank; *Brasília, Brazil* **January 2008 to December 2011**

The World Bank is an international financial institution that provides loans and grants to emerging market countries to reduce poverty and social and economic inequalities.

Education Research Analyst for Human Development Sector (Brazil Country Management Unit)

- Contributed to the design and supervision of numerous educational projects, in different states of Brazil, and at different levels of government levels (municipal, state, and federal).
- Designed projects and implemented institutional arrangements; participated in the design of policy actions and results frameworks.
- Responsible for high level analytics, report and policy notes
- Survey designed and implementation and delivered training in connection with health, social protection, poverty and inequality analysis and other Human Development issues.
- Deeply involved in impact evaluation studies such the evaluation of new teacher (pay for performance) incentive programs in several states in Brazil.
- Implemented the Early Grade Reading Assessment initiative in Timor Leste as well as provided cross support in the EGRA implementation in other countries such as Angola.

Instituto de Estudos do Trabalho e Sociedade; *Rio de Janeiro, Brazil* **November 2002 - December 2007**
The IETS researches, proposes and promotes studies, solutions and discussions on challenges and fair & sustainable development strategies for the Rio de Janeiro and Brazil.

Researcher

- Performed data analysis, wrote reports and policy notes, designed questionnaires, and conducted surveys
- Delivered training in connection with health, social protection, poverty and inequality analysis and other human development issues.

Instituto de Pesquisas Econômicas Aplicada; *Rio de Janeiro, Brazil* **December 2000 - October 2002**
The IPEA produces and disseminates information and advice to the Brazilian Government to improve decision-making related to essential public policies

Research Assistant - Ricardo Paes de Barros at Institute of Applied Economic Research (IPEA)

- Collaborated with a team that produced several studies related to poverty, educational policies (Brazil, Nicaragua, Panamá, Honduras and Guatemala), and reduction of inequality

DISSERTATION

Escolas do Amanhã: Building Islands of Educational Excellence in the favelas of Rio de Janeiro. Interested in exploring the extent to which educational policies that target low-income students are contributing to reducing the achievement gap between poor and non-poor children. To investigate this topic, I used a specific initiative implemented in the city of Rio de Janeiro, called *Escolas do Amanhã* (Tomorrow's Schools). Adopting a quasi - experimental research design, more specifically Propensity Score Matching, my dissertation aimed to measure the effect of *Escolas do Amanhã* program on students learning outcomes and dropout rates.

ADDITIONAL EDUCATION

Master's in Social Science
Pontificia Universidade Catolica do Rio de Janeiro (PUC-Rio)
Brazil, 2007

Bachelor in Nutrition
Universidade Federal do Rio de Janeiro
Brazil, 2003

COMPUTER & LANGUAGE SKILLS

Computer: SPSS, STATA, Mplus, Intermediate SQL, Tableau Basic and NVivo.
Language: Portuguese (Native), English and Spanish (Fluent)
Country Experience: United States, Brazil, Argentina, Bolivia, Nicaragua, Panama, Timor-Leste, Tuvalu, Ethiopia and Angola.

PUBLICATIONS: BOOKS & BOOK CHAPTERS

Bruns, B.; Evans, D., Luque, J.; Amorim, E.; Brakarz, D; Cruz, T.; Dos Santos, M. and Harrington, L. (2011). *Achieving the world class education in Brazil: The next agenda*. Washington, DC: The World Bank.

Parandekar, S; Assis, I.; Amorim, E (2008). *Desempenho dos alunos na Prova Brasil: Diversos Caminhos para o sucesso educacional nas redes municipais de ensino*. Brazil: Ministry of Education, 213p.

Amorim, E.; Fontes, A.; Amrein, C.; Azevedo, L. and Cossio, Mauricio (2006). *Desigualdades socioeducacionais no Brasil* 2002-2005. In: Teles, J. e Franco,C. Educação na diversidade*: Como indicar as diferenças?* Brasília: Coleção Educação para Todos, Série Avaliação n.8, Secretaria de Educação Continuada, Alfabetização e Diversidade (SECAD/MEC).

OTHER PAPERS AND PRESENTATIONS

Amorim, E., Saunders, Z. and Thomas, Y.(2018). *The Success Guide: Data, Information & Knowledge for insightful planning.* CSUSA Department of Strategy Report.

Amorim, E. and Saunders, Z. (2017). *Collaborating to Promote Student Success in School and in Life*. CSUSA evaluation project.

Richeson, S.,Thurston, J., Pearl, N., Amorim, E., Kijanczuk, K., Smykla J. (2016). *Creating Healing With Changes in Thinking. Corrections Today*, May/June.

Pearl, N., Amorim, E., Kijanczuck, K. (2016). *What do we mean by Risk?*. *GEO World* (1st Quarter), p.22.

Pearl, N., Amorim, E., Kijanczuck, K. (2015). *Knowing our Program Works: How DRC's Use the Correctional Program Checklist. GEO World* (4th Quarter), p.22.

Amorim, E., Kijanczuck, K. (2015). *Building Lasting Relationships.* GEOWorld (4th Quarter), p.17.

Ramos-Mattousi, F., Amorim, E. (2014). *Using EGRA to assess reading skills of youth and adults enrolled in Literacy Programs in three post-conflict countries in Africa.* Toronto, Canada: Comparative & International Education Society (CIES), March 10-15, 2014.

Amorim, E. (2014). *Escolas do Amanhã: Building islands of educational excellence in the favelas of Rio de Janeiro?* Toronto, Canada: Comparative & International Education Society (CIES), Educational Policy & Reform Dissertation Mentoring Workshop), March 10-15, 2014.

Ramos-Mattousi, F., Amorim, E. and Sollai, S (2013). *Internationalizing Brazil Education System: the c a s e of PDPI.* Tallahassee, Florida: 2013 CIES Southeast Regional Conference

Amorim, E. and Schwartzman, S (2013). *Educação Técnica e Vocacional nos Estados Unidos.* Rede de Pesquisa Formação e Mercado de Trabalho, IPEA / Associação Brasileira de Desenvolvimento Industrial.Available at: chive.org/details/EducaoTcnicaEVocacionalNosEstadosUnidos

Amorim, E. (2013). *Understanding International Students experience in an American Graduate school.* Cedarville, Ohio: 25th Annual Ethnographic & Qualitative Research Conference (EQRC), June 7- 8.

Appendix B – Invited Study Participants by Stakeholder Groups

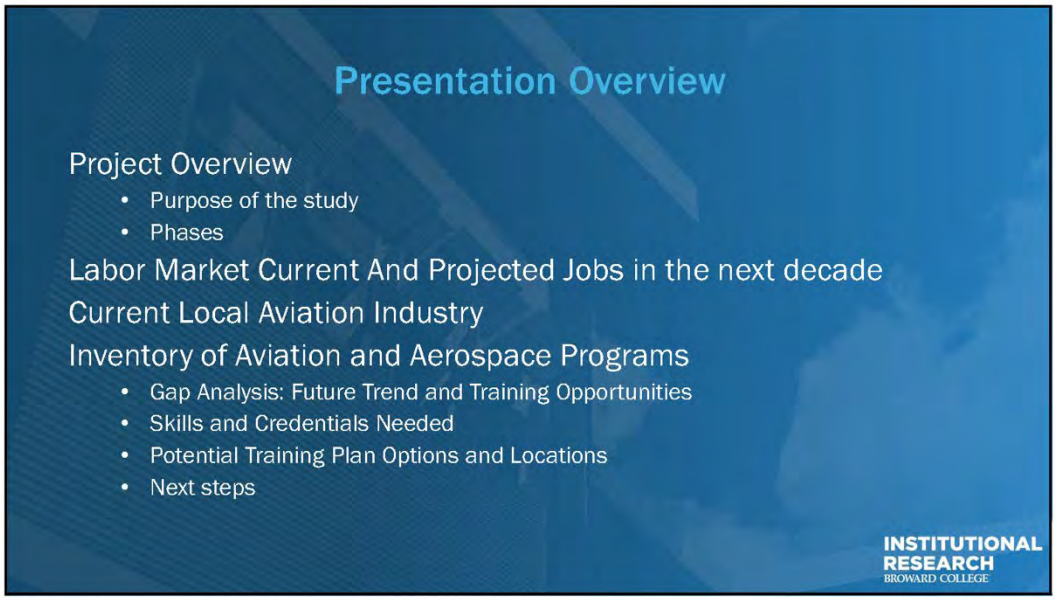
Aviation Companies		
Aviation Inflatables, Inc	EvoLux Transportation, LLC	Pioneer Aero Supply
A-OK Jets, Inc	Executive Skyfleet, Inc	PlaneXhaust Corp.
Atlas Travel 1	FBR Aviation Inc	Power Avioincs & Accessories
Aviation Concepts	FEAM	Premier Aircraft Service
ACR Electronics, Inc	Flagship Aerospace	Premier Aircraft Service, Inc
Aircraft Technology, Inc	Florida Jet Center	Presidential Aviation
Aero Precision Repair & Overhaul, Inc	Florida Jet Service	Puma Aero Marine
AAR	GA Telesis	Quiet Technologies, LLC
ASI AERO Aeronautical Support International	GA Telesis Composite Repair Group, LLC	R W Raddatz, Inc
Amecka Aviation, Inc	Gama Aviation	Ramjet Aviation, Inc
Airmark Components, Inc	G-Force Aircraft Maintenance, Inc	Regional Airline Support Group
AP&M	H.I.G. Capital	Resion
Air Partner	Heico	Reva, Inc
A.I.R.S.	Hop-a-Jet	Schroth Safety Products
Aries Aviation, Corp	Hybrid Aero, LLC	SEAL Aviation
Aviation Multinational, LLC	ICP Aircraft Parts, LLC	Sheltair
Aviation Rotables	IMX Aerospace	Signature Aviation, plc
Aviatrix, LLC	Interior Marketing, Inc	Sintavia
Banyan	International Aircraft Associates	SmartJets, LLC
Baker Hill Industries, Inc	JC Aviation Services, Inc	South Florida Jet Center, Inc
Bell Textron Miami, Inc	Jet Center	Southern Jet, Inc
Bf Aerospace	Jet Harbor, Inc	Southern Spares Services, LLC
Blakckrock Aviation Services, LLC	jetAVIVA	Spirit Airlines
BlueBlood Socks	JWH Services, LLC	Starflight Aviation, Ltd
Boca Aircraft Maintenance	Kellstrom Aerospace	Taking Aviation Forward
Boeing Distribution, Inc	LCI	Talon Air Partners, LLC
Bombardier	Learjet, Inc	Three If By Air, Inc
Bureau Veritas	LEKI Aviation	Thrust Tech Accessories, Inc
Carolina Aircraft Corp	Logos Aviation Inc	Titanio Services Corp
CDB Aviation	Longhorn Gator LLC	Toledo Jet Center, LLC
CIP-Cloud Investment Partners	Merjen Aviation Solutions, Inc	ToleJets
Complete Turbine Services, LLC	Miami Air International	Toucan Air
CTE Engines	National Jet	Tropic Ocean Airways
Dal Aviation, LLC	Next Level Aviation	Turbine Controls, Inc
DaVinci Inflight Training Institute	Noble Eagle Engineering	Turbine Management Solutions
Discovery Jets	Noble Jet	Velocity Aerospace
DMJ Properties, LLC	P.T.C. Pilot Training Center North Miami	
Duncan Aviation, Inc	PDM Aviation, LLC	
East Coast Jet Center	Perfect Landing, LLC	
Embraer Executive Jet Services, LLC		
EnTrust Global		

		Vision Aero, Inc WACO Aircraft, Corp WEB Aeronautical, Inc Wimboat XOJET Aviation Zephyrus Aviation Capital

Industry Groups	**Educational Institutions**
South Florida Defense Alliance	Atlantic Technical College
Career Technical Education Foundation	Aviation Institution of Maintenance
Aviation Technician Education Council	Broward College
Beacon Council	Broward County Public Schools
Career Source Broward	Broward County Technical Colleges
South Florida Aviation Maintenance Council	Embry-Riddle Aeronautical University
Career Source South Florida	Everglades University
Space Coast EDC	Florida International University
FXE Airport	Florida Memorial University
Greater Fort Lauderdale Alliance	Flying Classroom
Career Source Palm Beach	Lynn University
South Florida Business Aviation Association	Miami-Dade College
Greater Miami Aviation Association	Museum of Discovery
South Florida Manufactures Association	Nova Southeastern University

Appendix C – Initial Findings Presentation

1



2

Study Overview

The Center for Applied Research is performing a comprehensive feasibility study on establishing Fort Lauderdale Aviation and Aerospace Training Hub, by gathering data and conducting in-depth analysis of viability and economic impact.

VISION:

In coordination with existing and new partners, the City of Fort Lauderdale, will become an aviation and aerospace training hub.

INSTITUTIONAL RESEARCH
BROWARD COLLEGE

3

Phased Approach

Phase 1

NEEDS ASSESSMENT

- Labor market supply and demand
- COVID-19 impact
- Inventory of educational
- Training Gap analysis
- Opportunities with Elementary and Middle school grades for early career exposure
- Training Plan

Phase 2

DESIGN

- Develop shared vision for the city's training hub
- Comprehensive mapping of resources and equipment
- Explore synergies
- Coordinated partnerships

Phase 3

FEASIBILITY

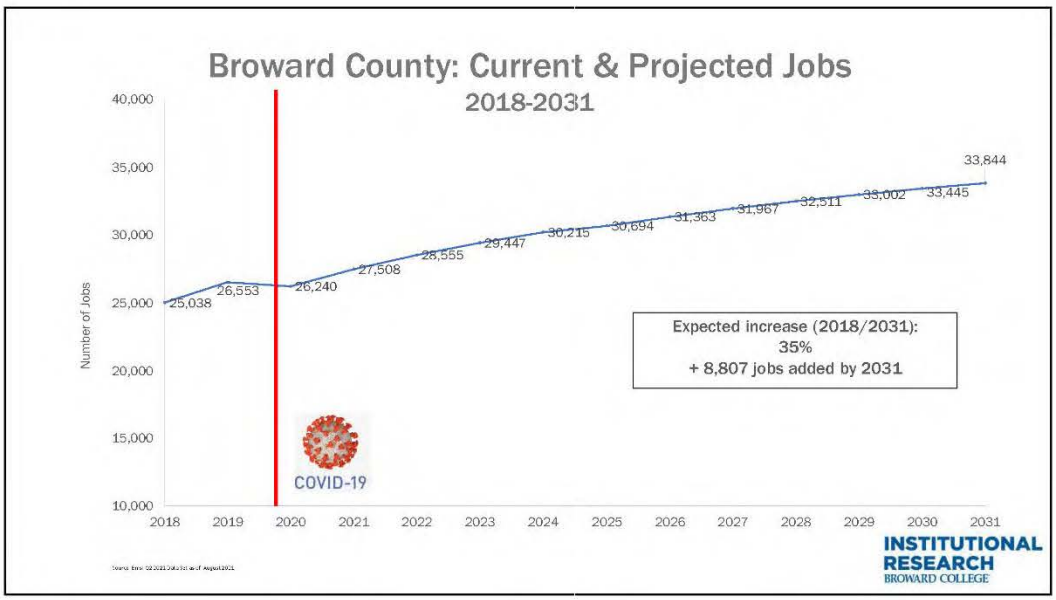
- Training Options
- SWOT Analysis
- Costs estimates
- implementation outline
- Locations
- 5-year projection scenarios

INSTITUTIONAL RESEARCH
BROWARD COLLEGE

4

LABOR MARKET
CURRENT & PROJECTED JOBS

5



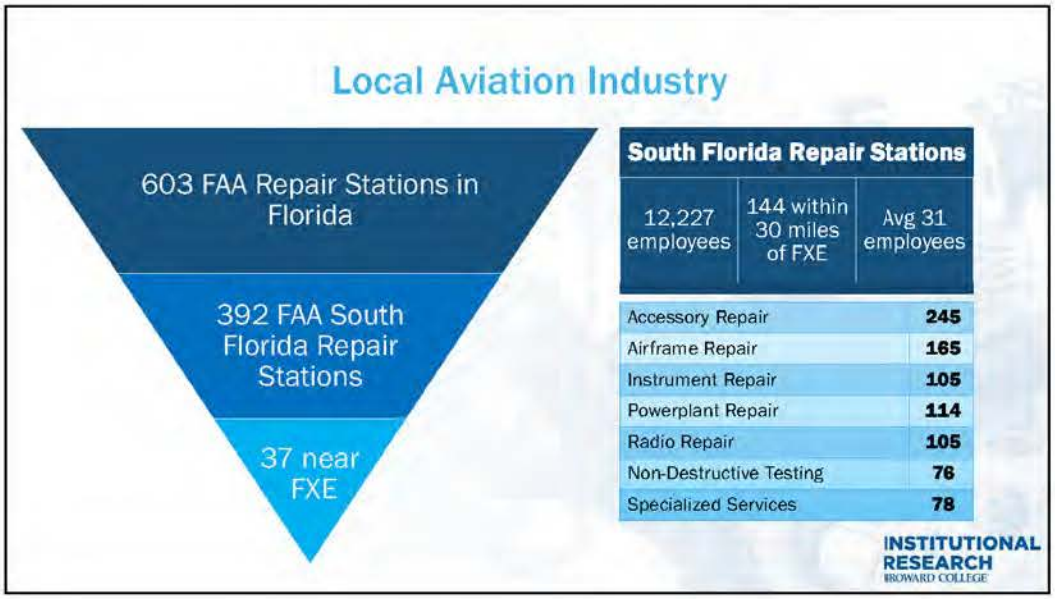
6


Broward County: 2021 Top Occupations
68% of the jobs available today required HS or Equivalent
20% required Associate Degree
Average Hourly Earnings: $34
01 Flight Attendant*
Average Hourly earnings: $24.7
Median Annual Earning: $53,290
Entry level Education: HS or equivalent
Work Experience required: < 5 years
02 First Line Supervisors of Mechanics, Installers and Repairs
Average Hourly earnings: $30.5
Median Annual Earning: $60,414
Entry level Education: HS or equivalent
Work Experience required: < 5 years
03 Reservation and Transportation Ticket Agents and Travel Clerks*
Average Hourly earnings: $18.9
Median Annual Earning: $32,514
Entry level Education: HS or equivalent
Work Experience required: None
04 Aircraft Mechanics and Service Technicians*
Average Hourly earnings: $31.7
Median Annual Earning: $66,271
Entry level Education: Postsecondary nondegree
Work Experience required: None
05 Airline Pilots, Co-pilots and Flight Engineers*
Average Hourly earnings: $104.3
Median Annual Earning: $190,800
Entry level Education: Bachelor's Degree
Work Experience required: < 5 years
06 Cargo and Freight Agents
Average Hourly earnings: $22.01
Median Annual Earning: $42,934
Entry level Education: HS or equivalent
Work Experience required: None
INSTITUTIONAL RESEARCH
BROWARD COLLEGE

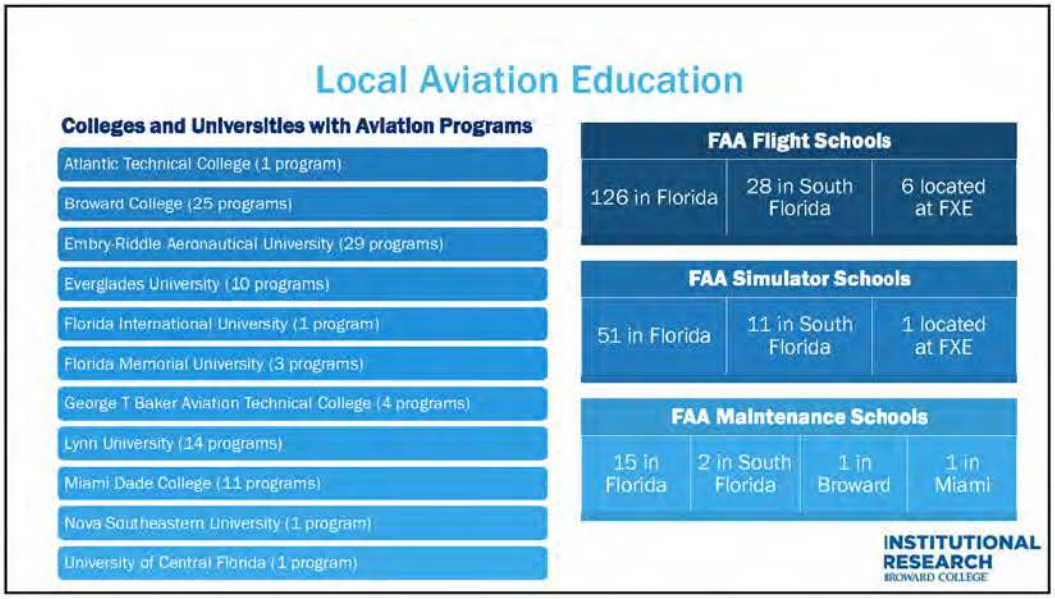
7


LOCAL AVIATION INDUSTRY
AND EDUCATION

8


Local Aviation Industry
603 FAA Repair Stations in Florida
392 FAA South Florida Repair Stations
37 near FXE
South Florida Repair Stations
12,227 employees
144 within 30 miles of FXE
Avg 31 employees
Accessory Repair 245
Airframe Repair 165
Instrument Repair 105
Powerplant Repair 114
Radio Repair 105
Non-Destructive Testing 76
Specialized Services 78
INSTITUTIONAL RESEARCH
BROWARD COLLEGE

9


Local Aviation Education
Colleges and Universities with Aviation Programs
Atlantic Technical College (1 program)
Broward College (25 programs)
Embry-Riddle Aeronautical University (29 programs)
Everglades University (10 programs)
Florida International University (1 program)
Florida Memorial University (3 programs)
George T Baker Aviation Technical College (4 programs)
Lynn University (14 programs)
Miami Dade College (11 programs)
Nova Southeastern University (1 program)
University of Central Florida (1 program)
FAA Flight Schools
126 in Florida
28 in South Florida
6 located at FXE
FAA Simulator Schools
51 in Florida
11 in South Florida
1 located at FXE
FAA Maintenance Schools
15 in Florida
2 in South Florida
1 in Broward
1 in Miami
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Colleges & Universities Aviation Program Types

Degree Programs

Associate	11
Bachelor's	20
Master's	13
Doctorate	2
Minor	2

Non-Degree Programs

APPRENTICESHIP

- Technical – Maintenance 1

CERTIFICATES

- Technical – Maintenance 7
- Technical – Avionics 3
- Technical – Other 10
- Graduate 9

CONTINUING EDUCATION

- Drone 3
- Pilot 15
- Technical – Avionics 1

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Preliminary Interview Findings (ongoing)

CURRENT TRAINING NEEDS

FUTURE TRENDS

CHALLENGES

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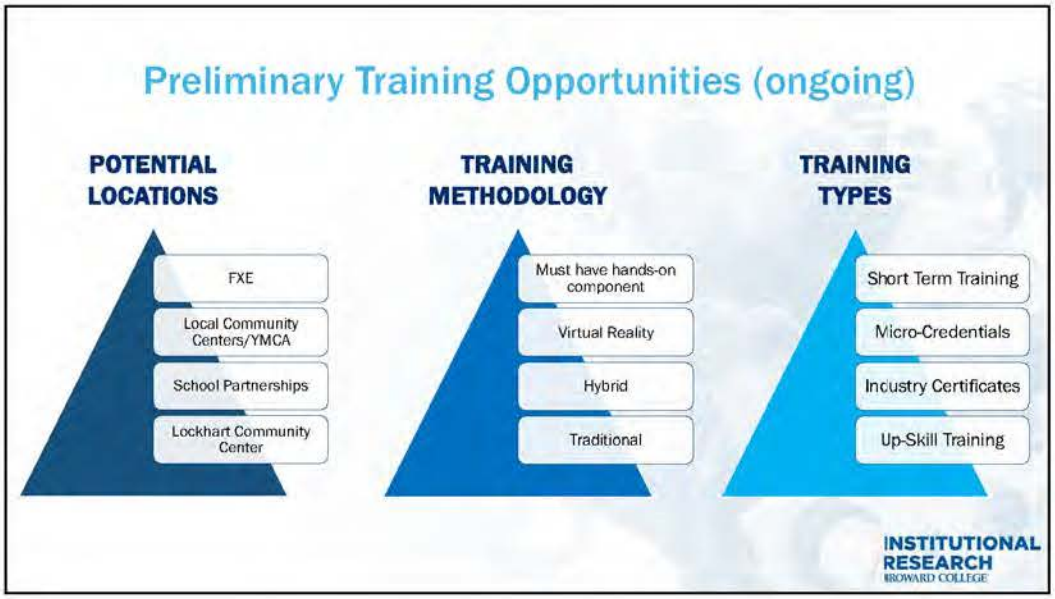
Preliminary Training Opportunities (ongoing)
POTENTIAL LOCATIONS
FXE
Local Community Centers/YMCA
School Partnerships
Lockhart Community Center
TRAINING METHODOLOGY
Must have hands-on component
Virtual Reality
Hybrid
Traditional
TRAINING TYPES
Short Term Training
Micro-Credentials
Industry Certificates
Up-Skill Training
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Next Steps
Identify skills
• Meet current training needs in market
• Meet future training needs in market
• Determine credential / evaluation requirements
Identify Partners
• Current training providers with adequate resources
• Current training providers interested in partnering
• Develop new providers
Identify Methodology
• Virtual Reality with hands-on component
• Online with hands-on component
• Apprenticeship
Identify Location
• Proximity to employers
• Proximity to students
• Adequate resources
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THANK YOU!
Questions?
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Appendix D – Final Findings Presentation

1

2

Study Participants

THE STUDY IS WELL-INFORMED BY THE INDUSTRY

INDUSTRY GROUPS	AVIATION COMPANIES	EDUCATIONAL INSTITUTIONS
Greater Ft Lauderdale Alliance	Spirit Airlines	Broward College
Beacon Council	Tropic Ocean Airways	Broward County Public Schools
Greater Miami Aviation Association	National Jet	Broward County Technical Colleges
South Florida Aviation Maintenance Council	Heico	Lynn University
South Florida Business Aviation Association	GA Telesis	Everglades University
South Florida Manufactures Association	Banyan Air Service	Aviation Institution of Maintenance
Career South Broward	Duncan Aviation	Florida Memorial University
Space Coast EDC	GAMA Aviation	Flying Classroom
South Florida Defense Alliance	Florida Jet Center	Museum of Discovery
+ 5 other industry groups	**+ 114** other aviation companies	Embry Riddle Aeronautical University

3

Aviation Landscape in Broward & Fort Lauderdale

CURRENT JOB LANDSCAPE

- Broward County has over 27,000 jobs in the sector.
  - Close to 70% of the jobs required HS degree or equivalent
  - 90% are opportunity jobs
  - Average hourly earnings $24

JOB DEMAND

- In Broward county, there are currently 15,444 openings in the sector.
  - 46% of the openings are in the City of Fort Lauderdale
- 85 % are full time positions and require 0-3 years of professional experience.

Current Training Needs

- Line service
- Maintenance helper
- Specialty
- Aircraft specific
- Soft skills

Future Trends

- Electric propulsion
- VTOL
- UAS/UAV/AAM
- Tech modernization
- Additive manufacturing

Challenges

- Cost of living
- Relocation cost
- GA vs Commercial
- Skill/worker shortage
- Aviation interest

IMPORTANCE OF THE SECTOR

- Expected to increase by 35% in the next decade, adding 8,807 new jobs.
  - 20% of the total job projected for the county in the same time frame.
- City of Fort Lauderdale already has a major role in aviation and has 2 major airports:
  - FXE, owned and operated by the City, had total economic impact of $2,091,276,00.
  - Fort Lauderdale-Hollywood International Airport – Prior to COVID-19 pandemic, the airport generated $37.5 billion in economic activity annually and nearly 18,000 direct, local jobs.

4

Why Focus on Aviation Maintenance?

MANY JOBS IN THE INDUSTRY EITHER DON'T REQUIRE TRAINING, TRAINING IS CONDUCTED BY THE COMPANY, OR SUFFICIENT TRAINING CAPACITY ALREADY EXISTS

- Flight Attendants + 1,792
  - Training internally by airline
  - $24.36 Avg Hourly Wage
- Airline Pilot +727
  - 28 Flight Schools in South Florida
  - $103.23 Avg Hourly Wage
- Aircraft Mechanic +521
  - **Only 2 Schools in Broward**
  - $31.32 Avg Hourly Wage

JOB POSTINGS

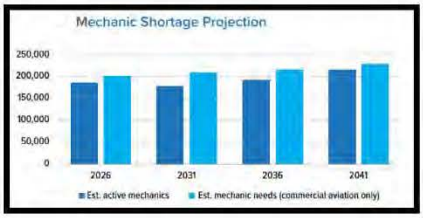
- 217 current opening for at least one aircraft mechanic.
- Broward seeing 20.6% job growth for aircraft mechanics.

5

Aviation Maintenance Training Needs

AVIATION TECHNICIAN

LINE SERVICE | MAINTENANCE HELPER | SPECIALTY | AIRCRAFT SPECIFIC



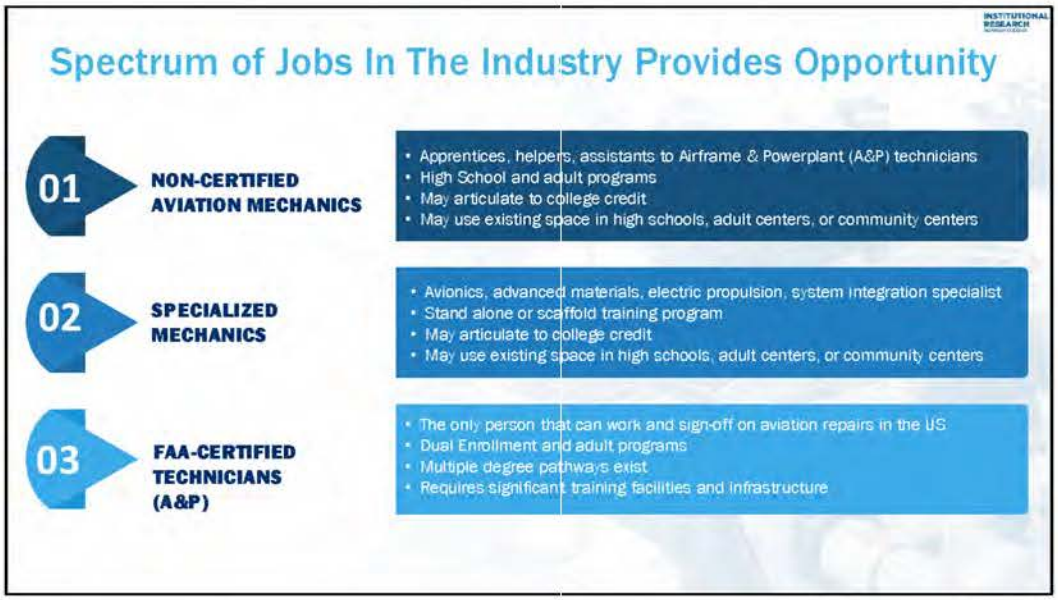
- Aviation maintenance employers are experiencing significant workforce shortage in skilled labor.
- Aviation maintenance employers are unable to grow with workforce shortages.
- Opportunity for residents to gain training in high-skill and high-wage careers.
- Potential for new companies to relocate to Fort Lauderdale.
- Preemptively prepare for future workforce needs.

AIRCRAFT MECHANICS ARE IN SHORT SUPPLY

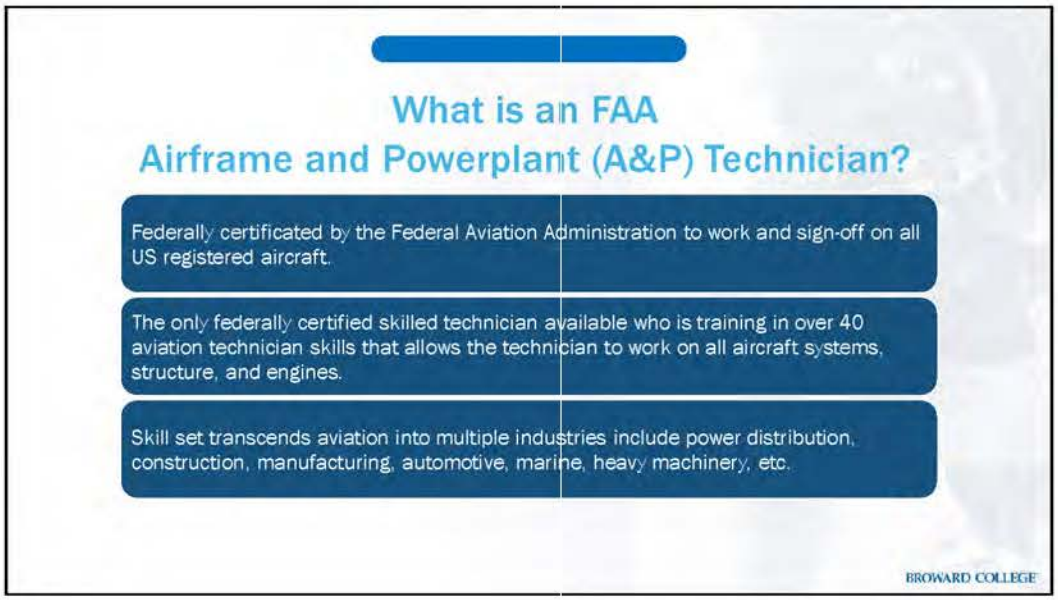
- In 2020, the FAA issued **30 percent fewer** new mechanic certificates than in 2019.
- The average FAA mechanic is **53, 11 years older** than the average U.S. worker.
- Boeing reports the need for **626,000 additional aviation maintenance technicians, worldwide, in the next 20 years.**

12,227
Employees
Across South Florida Repair Stations

6


Spectrum of Jobs In The Industry Provides Opportunity
01
NON-CERTIFIED AVIATION MECHANICS
• Apprentices, helpers, assistants to Airframe & Powerplant (A&P) technicians
• High School and adult programs
• May articulate to college credit
• May use existing space in high schools, adult centers, or community centers
02
SPECIALIZED MECHANICS
• Avionics, advanced materials, electric propulsion, system integration specialist
• Stand alone or scaffold training program
• May articulate to college credit
• May use existing space in high schools, adult centers, or community centers
03
FAA-CERTIFIED TECHNICIANS (A&P)
• The only person that can work and sign-off on aviation repairs in the US
• Dual Enrollment and adult programs
• Multiple degree pathways exist
• Requires significant training facilities and infrastructure

7


What is an FAA
Airframe and Powerplant (A&P) Technician?
Federally certificated by the Federal Aviation Administration to work and sign-off on all US registered aircraft.
The only federally certified skilled technician available who is training in over 40 aviation technician skills that allows the technician to work on all aircraft systems, structure, and engines.
Skill set transcends aviation into multiple industries include power distribution, construction, manufacturing, automotive, marine, heavy machinery, etc.
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Current A&P Technical Training in Broward is Not Meeting Demand

- Only 1 FAA approved school in Broward (Broward College)
  - Average 84 graduates per year
  - 18- to 22-month program full-time
  - HS Dual Enrollment available – multiple degree pathways
  - 60 credits / 2,000 hours of instruction
- Requires significant resources to expand including land, infrastructure, facilities, equipment, and materials

Preparing to Meet Future Skill Requirements

Aviation technology is advancing at a rapid pace. The "future" technician must be able tc not only work on legacy aircraft but become skilled in "new" technologies. **No programs in South Florida are ready to meet these needs.**

Future Skills	Required Training
Electric Propulsion	Initial FAA A&P
Endurance Batteries	Avionics
Vertical Takeoff	Specialty Training
Biofuels	General Familiarization
Unmanned Aircraft	Recurrent

9

Impact of Shortage

FAA CERTIFIED A&P TECHNICIANS ARE IN HIGH DEMAND

- 0 years work experience $~25/hr
- 1-3 work years experience $~30/hr
- 5-10 years work experience ~$50/hr
- Wages are increasing due to lack on workforce and increase in cost of living

RESULT OF LACK OF A&P TECHNICIANS

- Companies have not been able to expand, unable to take new work
- Companies have available facilities and ramp, but must remain vacant due to insufficient workforce

TRAINED WORKFORCE SPURS COMPANY RELOCATION

- Determining factor for many companies looking to relocate
- Lack of available A&P technicians has increased the competition and cost for new hires

NON AVIATION DEMAND FOR FAA CERTIFIED A&P TECHNICIANS IS STRONG

- Skillset of A&P technicians is in demand by numerous industries – manufacturing, electric, hydraulic, etc.
- NASCAR, Disney, NASA, SpaceX

10

Simple and Bold Opportunities Exist

PROGRAM	DESCRIPTION	IMPACT
Aviation Career Awareness	Expand afterschool programming, in-school enrichment, FXE events. Targeted marketing for both students and industry on career opportunities in aviation.	Career Exposure
Short Term/Non-Certificate Training	Short term training programs in schools, community and corporate settings for specialized skill development and to promote job readiness.	Skill Training/Stackable
Dual Enrollment/ Technical	Expand dual enrollment for high school students and adult technical education, leading to industry certificates and entry level jobs.	Industry Certificates
Satellite Part 147-Aviation Maintenance	FAA authorized aviation maintenance training program requiring work on actual aircraft and engines and leads to a FAA Airframe and Powerplant certification.	FAA Certificates-Maintenance
Aviation Technical Training Center	Aviation training facility offering a range of industry certificates, including but not exclusive to maintenance. Can be a stand-alone facility or part of a hub.	Range of Industry Certificates & Skill Training

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Envisioning An Aviation Technical Training Center

A 2-3 acre, 3-story aviation-specific training center could accomplish a number of objectives:

- Serve as a primary training facility for all aviation maintenance jobs
- Act as a facility which spurs excitement in young people in aviation as a career field
- Be a hub of research for the implementation of future aviation maintenance technologies and serve as the intersection of other disciplines which impact aviation (Virtual- and Augmented-Reality, for example)

Raisbeck Aviation High School, WA

Sterling Aviation High School, TX

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Potential Roles for the City of Fort Lauderdale
Advocate for aviation education and commerce
Develop partnerships
Launch marketing, exposure, and recognition campaign
Identify and secure of funding
Identify and secure resources and property
Provide direct assistance to programs (personnel, funds, location, facilities)

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Potential Funding Opportunities
01
Direct Funding
02
Government Appropriation
• Florida Department of Economic Opportunity
• American Rescue Plan Good Jobs Challenge
03
Public-Private Partnership
04
Grants and Philanthropic Donations
• Aviation Workforce Development Grants
• Emil Buehler Perpetual Trust (CFAA / BC)
• Ray Foundation (CFAA)
05
Industry Support
• American Airlines / FedEx (Commercial Jets Donated)

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INSTITUTIONAL RESEARCH
Next Steps
1
Establish Commission Direction
2
Formally Launch Steering Committee
3
Solidify Partners
4
Finalize Program Design and Budget
5
Pursue Funding Opportunities
6
Contract Implementation

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THANK YOU!
Questions?
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Appendix E – FAA Flight Schools

FAA Part 141 Flight Schools in South Florida (SO-19)

Data from latest FAA Aviation Data and Statistics Reports

- 28 FAA Certified Flight Schools (126 total in Florida)
  - 6 located at FXE (Fort Lauderdale Executive Airport)
  - 6 located at HWO (North Perry Airport)
  - 3 located at LNA (Palm Beach County Park Airport)
  - 1 located at PMP (Pompano Beach Airpark)
  - 1 located at F45 (North Palm Beach County General Aviation Airport)
  - 1 located at MIA (Miami International Airport)
  - 4 located at OPF (Opa-locka Executive Airport)
  - 5 located at TMB (Kendall-Tamiami Executive Airport)
  - 1 located at X51 (Miami Homestead General Aviation Airport)
- Aircraft
  - Total 203
  - Low 0
  - High 34
  - Avg 7.25
- Flight Instructors
  - Total 244
  - Low 1
  - High 37
  - Avg 8.7

Appendix F – FAA Flight Simulator Schools

FAA Part 142 Flight Simulator Schools in South Florida (SO-19)

Data from latest FAA Aviation Data and Statistics Reports

- 11 FAA Certified Flight Simulator Schools (51 total in Florida)
  - 1 located at FXE (Fort Lauderdale Executive Airport)
  - 2 located at FLL (Fort Lauderdale–Hollywood International Airport)
  - 8 located at MIA (Miami International Airport)
- Flight Instructors
  - Total 257
  - Low 3
  - High 90
  - Avg 23.4

Appendix G – FAA Aviation Maintenance Technician Schools

FAA Part 147 Aviation Maintenance Technician Schools in South Florida (SO-19)

Data from latest FAA Aviation Data and Statistics Reports

- 2 FAA-Certified Aviation Maintenance Technician Schools (15 total in Florida)
    - 1 located in Miami-Dade County
        i. George T. Baker Aviation Technical College
        ii. Max authorized enrollment: 1242
        iii. 29 certified instructors (last reported)
        iv. 893 students enrolled (last reported)
        v. Related Airport: MIA (Miami International Airport)
    - 1 located in Broward County
        i. Broward College – South Campus
        ii. Max Authorized enrollment: 225
        iii. 13 certified instructors (last reported)
        iv. 150 students enrolled (last reported)
        v. Related Airport: HWO (North Perry Airport)

Appendix H – Technician Training Programs (Non-Degree and Continuing Education)

South Florida schools with non-degree, certificate, aviation programs

Aviation Maintenance Programs

- 3 Regionally Accredited Colleges
    - Atlantic Technical College
    - Broward College
    - George T. Baker Aviation Technical College
- Program Types
    - Certificates
        i. Technical – FAA General
            1. Broward College
            2. George T. Baker Aviation Technical College
        ii. Technical – FAA Airframe
            1. Broward College
            2. George T. Baker Aviation Technical College
        iii. Technical – FAA Powerplant
            1. Broward College
            2. George T. Baker Aviation Technical College
        iv. Technical - Avionics
            1. Atlantic Technical College
            2. Broward College
            3. George T. Baker Aviation Technical College

Appendix I – College and University Training Programs

South Florida Schools, Colleges and Universities Aviation Programs

- 11 Major Colleges and Universities
  - Atlantic Technical College (1 program)
  - Broward College (25 programs)
  - Embry-Riddle Aeronautical University (29 programs)
  - Everglades University (10 programs)
  - Florida International University (1 program)
  - Florida Memorial University (3 programs)
  - George T Baker Aviation Technical College (4 programs)
  - Lynn University (14 programs)
  - Miami Dade College (11 programs)
  - Nova Southeastern University (1 program)
  - University of Central Florida (1 program)
- Program Types
  - Apprenticeship 1
  - Certificates
    - i. Technical - Maintenance 7
    - ii. Technical - Avionics 3
    - iii. Technical – Other 10
    - iv. Graduate 9
  - Associates 11
  - Bachelors 20
  - Masters 13
  - Doctorate 2
  - Minor 2
  - Continuing Education
    - i. Drone 3
    - ii. Pilot 15
    - iii. Technical - Avionics 1

South Florida Schools (registered with the State of Florida DOE, non-K-12, non-aviation)

- Programs (duplicated)
  - Palm Beach 419
  - Broward 779
  - Miami-Dade 1,225
- Programs (un-duplicated by CIP)
  - Palm Beach 42
  - Broward 136
  - Miami-Dade 247
- Locations
  - Palm Beach 83
  - Broward 138
  - Miami-Dade 208

Appendix J – FAA Certified Repair Stations

FAA Part 145 Repair Stations in South Florida (SO-19)

Data from latest FAA Aviation Data and Statistics Reports

- 392 FAA Certified Repair Stations in South Florida (603 total in Florida)
  - 321 Associated with local airport
    i. 37 at FXE (Fort Lauderdale Executive Airport)
    ii. 27 at FLL (Fort Lauderdale–Hollywood International Airport)
    iii. 11 at HWO (North Perry)
    iv. 164 at MIA (Miami International Airport)
- Employees
  - Total 12,227
  - Low 0
  - High 1,012
  - Avg 31.3
- Distance from FXE (Fort Lauderdale Executive Airport)
  - 0-3 Miles 31
  - 3-5 Miles 9
  - 5-10 Miles 9
  - 10-20 Miles 40
  - 20-30 Miles 55
  - 30+ Miles 248
- Type
  - Accessory Repair 245
  - Airframe Repair 165
  - Instrument Repair 105
  - Powerplant Repair 114
  - Propeller Repair 4
  - Radio Repair 105
  - Non-Destructive Testing 76
  - Specialized Services 78
  - Rotor Blades Repair 1

Appendix K – Online Survey Instrument

Fort Lauderdale Aviation Industry Training Needs Assessment

The City of Fort Lauderdale is conducting a study on the need for and feasibility of establishing additional aviation technical training to complement the current training opportunities that already exist in Broward. As part of this study, we are inviting you to provide input into the types of training to be considered.

* Required

General company information

1. Company Name *

2. City *

3. Your name *

4. Contact email *

5. How many technicians do you current have? *

6. How many technicians are you needing to hire in the next 12 months? *

7. How many technician openings do you have at this moment? *

Industry Certifications

There are many industry certifications that are available to for individuals in the aviation industry to obtain. All can require the individual to master various standards and objects as well as perform to a certain level. If an individual came to you with one of the following certificates or passed exams would you consider hiring? Any that you require now? Any that you would like your current employees to acquire?

8. FCC GROL – Element 1, 3, and 8

- ☐ Would hire if they had it now
- ☐ Require it now for employment
- ☐ Need current employees to earn this certification

9. OSHA - Occupational Safety and Health Standards for General Industry

- ☐ Would hire if they had it now
- ☐ Require it now for employment
- ☐ Need current employees to earn this certification

10. FAA - General Written Exam

- ☐ Would hire if they had it now
- ☐ Require it now for employment
- ☐ Need current employees to earn this certification

11. FAA - Airframe Written Exam

- ☐ Would hire if they had it now
- ☐ Require it now for employment
- ☐ Need current employees to earn this certification

12. FAA - Powerplant Written Exam

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

13. FAA - Airframe Certificate

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

14. FAA - Powerplant Certificate

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

15. FAA - Airframe and Powerplant Certificate

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

16. CSCMP SCPro Fundamentals: Supply Chain Management Principles

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

17. CSCMP SCPro Fundamentals: Customer Service Operations

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

18. CSCMP SCPro Fundamentals: Transportation Operations

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

19. CSCMP SCPro Fundamentals: Warehousing Operations

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

20. CSCMP SCPro Fundamentals: Demand Planning

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

21. CSCMP SCPro Fundamentals: Inventory Management

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

22. CSCMP SCPro Fundamentals: Manufacturing and Service Operations

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

23. CSCMP SCPro Fundamentals: Supply Management and Procurement

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

24. NC3 - Structural Sheetmetal Assembly

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

25. NC3 - Hand Tool Safety

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

26. NC3 - Electrical Safety

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

27. NC3 - Precision Electrical Termination (PETC)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

28. NC3 - Precision Measuring Instruments (PMI)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

29. NC3 - Torq Fundamentals

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

30. NC3 - Multimeter

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

31. NC3 - Advanced Measuring Instruments (AMI)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

32. NC3 - Tools @ Height; Drop Prevention

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

33. NCATT Aircraft Electronics Technician (AET)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

34. NCATT AET Add-on - Autonomous Navigation Systems (ANS)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

35. NCATT AET Add-on - Dependent Navigation Systems (DNS)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

36. NCATT AET Add-on - Radio Communication Systems (RCS)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

37. NCATT AET Add-on - Onboard Communications and Safety Systems (OCS)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

38. NCATT - Aerospace/Aircraft Assembly (AAA)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

39. NCATT - Business Aviation Cabin Crew (BACC)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

40. NCATT - Foreign Object Elimination (FOE)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

41. NCATT - Unmanned Aircraft System Maintenance (UAS)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

42. ETA - Associate Certified Electronics Technician (CETa)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

43. ETA - Basic Systems Technician (BST)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

44. ETA - Student Electronics Technician (SET)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

45. ETA - Certified Service Manager (CSM)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

46. ETA - Customer Service Specialist (CSS)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

47. ETA - Avionics (AVN)

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

48. SpaceTEC Composites certification

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

49. SpaceTEC Certified Aerospace Technician

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

50. 180Skills - Composites Manufacturing & Repair Technician

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

51. 180Skills - Quality Assurance Technician

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

52. 180Skills - Safety Technician

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

53. 180Skills - Aerospace Electrical Assembly Technician

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

54. 180Skills - Aerospace Quality Technician

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

55. 180Skills - Aerospace Structures Technician

- [ ] Would hire if they had it now
- [ ] Require it now for employment
- [ ] Need current employees to earn this certification

56. Other specific certification?

57. Other specific certification?

58. Other specific certification?

59. Other specific certification?

Basic Skill Training

Not all skills require a certification or have a related certification. Would you consider hiring an individual who had completed any of the following training courses? Any that you may want for your current workers to complete?

60. FAA A&P General Subject - Fundamentals of Electricity and Electronics

- ☐ Would hire if they had successfully completed
- ☐ Need current employees to complete
- ☐ If combo'ed with another course(s) (put in answer below)

61. FAA A&P General Subject - Aircraft Drawings

- ☐ Would hire if they had successfully completed
- ☐ Need current employees to complete
- ☐ If combo'ed with another course(s) (put in answer below)

62. FAA A&P General Subject - Weight and Balance

- ☐ Would hire if they had successfully completed
- ☐ Need current employees to complete
- ☐ If combo'ed with another course(s) (put in answer below)

63. FAA A&P General Subject - Fluid Lines and Fittings

- ☐ Would hire if they had successfully completed
- ☐ Need current employees to complete
- ☐ If combo'ed with another course(s) (put in answer below)

64. FAA A&P General Subject - Aircraft Materials, Hardware, and Processes

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

65. FAA A&P General Subject - Ground Operations and Servicing

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

66. FAA A&P General Subject - Cleaning and Corrosion Control

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

67. FAA A&P General Subject - Mathematics

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

68. FAA A&P General Subject - Regulations, Maintenance Forms, Records, and Publications

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

69. FAA A&P General Subject - Regulations, Maintenance Forms, Records, and Publications

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

70. FAA A&P General Subject - Physics for Aviation

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

71. FAA A&P General Subject - Inspection Concepts and Techniques

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

72. FAA A&P General Subject - Human Factors

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

73. FAA A&P General Program

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

74. FAA Airframe Program

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

75. FAA Powerplant Program

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

76. Basic Hand Tool Use and Safety

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

77. Principles of Troubleshooting

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

78. Aircraft Record Keeping

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

79. Aviation Vocabulary

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

80. Maintenance Records Familiarization

- [ ] Would hire if they had successfully completed
- [ ] Need current employees to complete
- [ ] If combo'ed with another course(s) (put in answer below)

81. What courses above need to be combined?

82. Other specific training?

83. Other specific training?

84. Other specific training?

85. Other specific training?

Thank you for your input

Your input is critical and we would like to continue you in this important conversation.

86. Any final comments?

87. Would you or a designee like to be on the steering committee for this project?

This content is neither created nor endorsed by Microsoft. The data you submit will be sent to the form owner.

Microsoft Forms

Appendix L – Online Survey Results

Forms(https://www.office.com/launch/forms?auth=1&from=FormsDomain)

Fort Lauderdale Aviation Industry Training Needs Assessment

12	11:33	Active
Responses	Average time to complete	Status

1. Company Name

12
Responses

Latest Responses
"Fort Lauderdale Executive Jet Center"
"VSE Aviation "
"GA Telesis"

2. City

12
Responses

Latest Responses
"Fort Lauderdale"
"Miramar, FL "
"Fort Lauderdale"

3. Your name

12
Responses

Latest Responses
"Taylor Rodman"
"Veronica Owens "
"Pastor Lopez"

4. Contact email

12
Responses

Latest Responses
"taylor@fxejetcenter.com, lyndastruck@aol.com"
"vowens@vsecorp.com"
"plopez@gatelesis.com"

5. How many technicians do you current have?

12
Responses

Latest Responses
"12"
"70"
"35"

6. How many technicians are you needing to hire in the next 12 months?

12
Responses

Latest Responses
"TBD"
"It could vary based on turnover"
"10"

7. How many technician openings do you have at this moment?

12
Responses

Latest Responses
"0"
"4"
"5"

8. FCC GROL – Element 1, 3, and 8

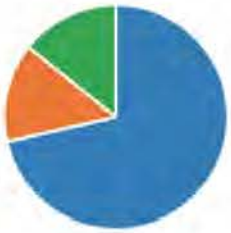
- Would hire if they had it now 0
- Require it now for employment 0
- Need current employees to ea... 1

9. OSHA - Occupational Safety and Health Standards for General Industry

- Would hire if they had it now 3
- Require it now for employment 1
- Need current employees to ea... 2

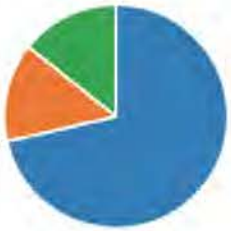
10. FAA - General Written Exam

Would hire if they had it now	5
Require it now for employment	1
Need current employees to ea...	1



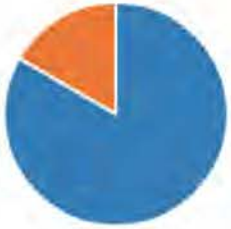
11. FAA - Airframe Written Exam

Would hire if they had it now	5
Require it now for employment	1
Need current employees to ea...	1



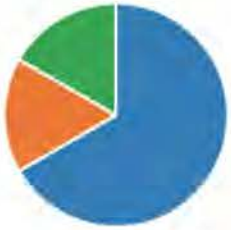
12. FAA - Powerplant Written Exam

Would hire if they had it now	5
Require it now for employment	1
Need current employees to ea...	0



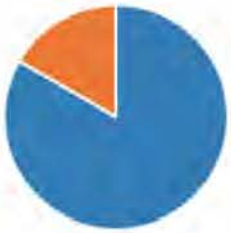
13. FAA - Aiframe Certificate

Would hire if they had it now	4
Require it now for employment	1
Need current employees to ea...	1



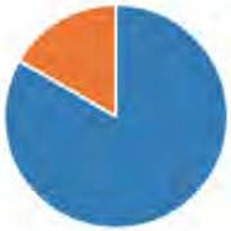
14. FAA - Powerplant Certificate

Would hire if they had it now	5
Require it now for employment	1
Need current employees to ea...	0



15. FAA - Airframe and Powerplant Certificate

Would hire if they had it now	5
Require it now for employment	1
Need current employees to ea...	0

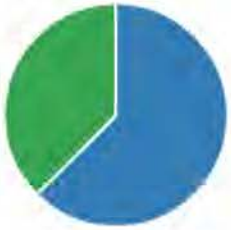


16. CSCMP SCPro Fundamentals: Supply Chain Management Principles

Would hire if they had it now	3
Require it now for employment	0
Need current employees to ea...	3

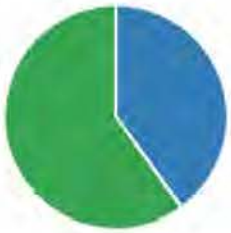
17. CSCMP SCPro Fundamentals: Customer Service Operations

Would hire if they had it now	5
Require it now for employment	0
Need current employees to ea...	3



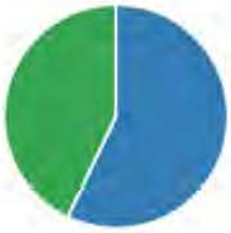
18. CSCMP SCPro Fundamentals: Transportation Operations

Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	3



19. CSCMP SCPro Fundamentals: Warehousing Operations

Would hire if they had it now	4
Require it now for employment	0
Need current employees to ea...	3

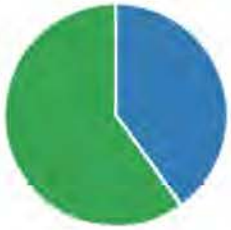


20. CSCMP SCPro Fundamentals: Demand Planning

Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	3

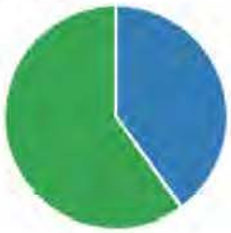
21. CSCMP SCPro Fundamentals: Inventory Management

Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	3



22. CSCMP SCPro Fundamentals: Manufacturing and Service Operations

Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	3



23. CSCMP SCPro Fundamentals: Supply Management and Procurement

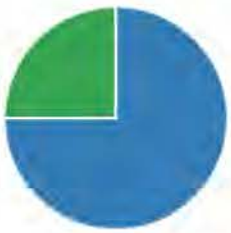
Would hire if they had it now	3
Require it now for employment	0
Need current employees to ea...	3

24. NC3 - Structural Sheetmetal Assembly

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2

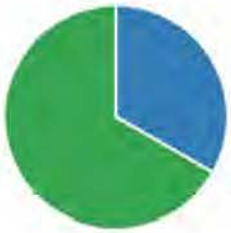
25. NC3 - Hand Tool Safety

Would hire if they had it now	3
Require it now for employment	0
Need current employees to ea...	1



26. NC3 - Electrical Safety

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2



27. NC3 - Precision Electrical Termination (PETC)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

28. NC3 - Precision Measuring Instruments (PMI)

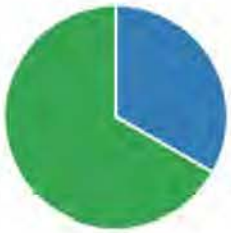
Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	2

29. NC3 - Torq Fundamentals

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	3

30. NC3 - Multimeter

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2



31. NC3 - Advanced Measuring Instruments (AMI)

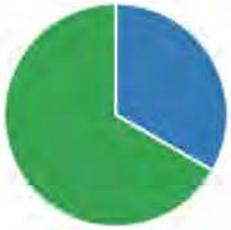
Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	2

32. NC3 - Tools @ Height; Drop Prevention

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	1

33. NCATT Aircraft Electronics Technician (AET)

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2



34. NCATT AET Add-on - Autonomous Navigation Systems (ANS)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

35. NCATT AET Add-on - Dependent Navigation Systems (DNS)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

36. NCATT AET Add-on - Radio Communication Systems (RCS)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

37. NCATT AET Add-on - Onboard Communications and Safety Systems (OCS)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

38. NCATT - Aerospace/Aircraft Assembly (AAA)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

39. NCATT - Business Aviation Cabin Crew (BACC)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

40. NCATT - Foreign Object Elimination (FOE)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

41. NCATT - Unmanned Aircraft System Maintenance (UAS)

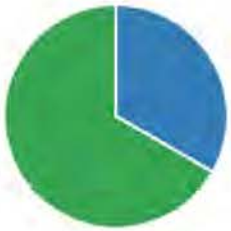
Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

42. ETA - Associate Certified Electronics Technician (CETa)

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

43. ETA - Basic Systems Technician (BST)

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2

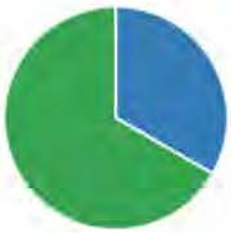


44. ETA - Student Electronics Technician (SET)

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2

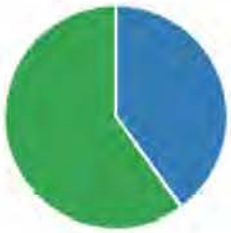
45. ETA - Certified Service Manager (CSM)

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2



46. ETA - Customer Service Specialist (CSS)

Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	3

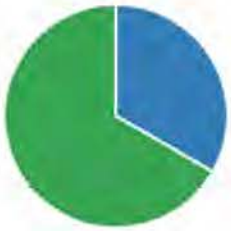


47. ETA - Avionics (AVN)

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	1

48. SpaceTEC Composites certification

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2

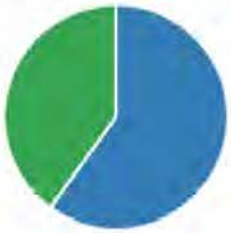


49. SpaceTEC Certified Aerospace Technician

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

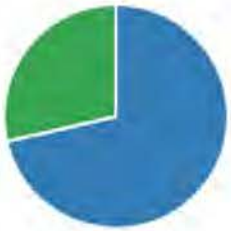
50. 180Skills - Composites Manufacturing & Repair Technician

Would hire if they had it now	3
Require it now for employment	0
Need current employees to ea...	2



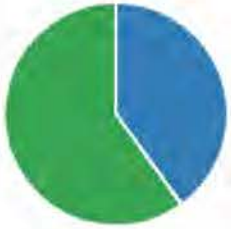
51. 180Skills - Quality Assurance Technician

Would hire if they had it now	5
Require it now for employment	0
Need current employees to ea...	2



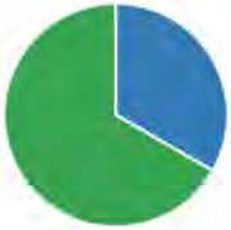
52. 180Skills - Safety Technician

Would hire if they had it now	2
Require it now for employment	0
Need current employees to ea...	3



53. 180Skills - Aerospace Electrical Assembly Technician

Would hire if they had it now	1
Require it now for employment	0
Need current employees to ea...	2



54. 180Skills - Aerospace Quality Technician

Would hire if they had it now	3
Require it now for employment	0
Need current employees to ea...	3

55. 180Skills - Aerospace Structures Technician

Would hire if they had it now	0
Require it now for employment	0
Need current employees to ea...	2

56. Other specific certification?

1
Responses

Latest Responses

57. Other specific certification?

1
Responses

Latest Responses

58. Other specific certification?

1
Responses

Latest Responses

59. Other specific certification?

1
Responses

Latest Responses

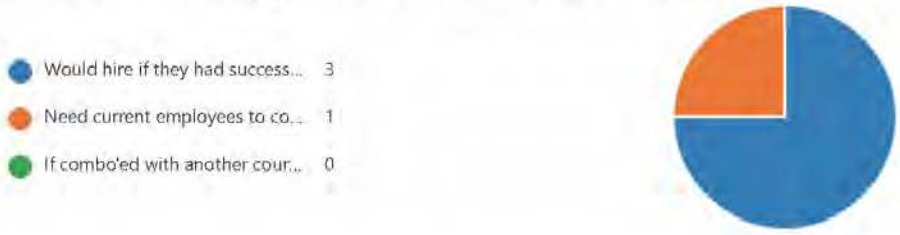
60. FAA A&P General Subject - Fundamentals of Electricity and Electronics

61. FAA A&P General Subject - Aircraft Drawings

62. FAA A&P General Subject - Weight and Balance

63. FAA A&P General Subject - Fluid Lines and Fittings

64. FAA A&P General Subject - Aircraft Materials, Hardware, and Processes

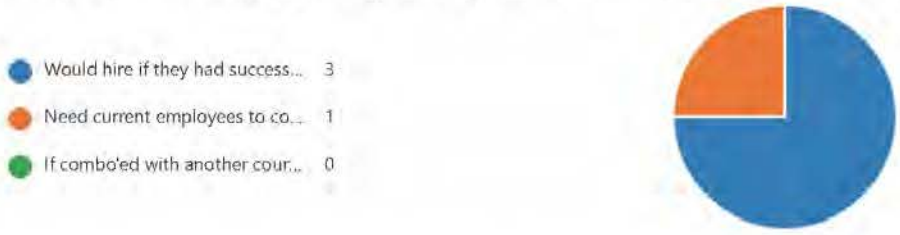


65. FAA A&P General Subject - Ground Operations and Servicing

66. FAA A&P General Subject - Cleaning and Corrosion Control

67. FAA A&P General Subject - Mathematics

68. FAA A&P General Subject - Regulations, Maintenance Forms, Records, and Publications



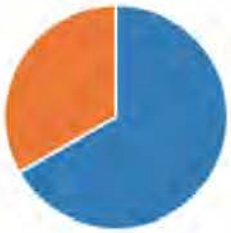
69. FAA A&P General Subject - Regulations, Maintenance Forms, Records, and Publications

70. FAA A&P General Subject - Physics for Aviation

71. FAA A&P General Subject - Inspection Concepts and Techniques

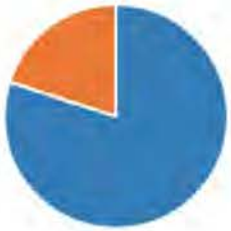
72. FAA A&P General Subject - Human Factors

- Would hire if they had success... 2
- Need current employees to co... 1
- If combo'ed with another cour... 0



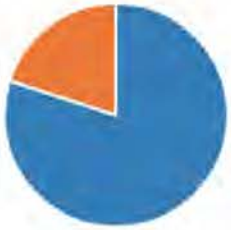
73. FAA A&P General Program

- Would hire if they had success... 4
- Need current employees to co... 1
- If combo'ed with another cour... 0



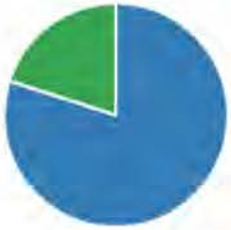
74. FAA Airframe Program

- Would hire if they had success... 4
- Need current employees to co... 1
- If combo'ed with another cour... 0



75. FAA Powerplant Program

- Would hire if they had success... 4
- Need current employees to co... 0
- If combo'ed with another cour... 1



76. Basic Hand Tool Use and Safety

- Would hire if they had success... 2
- Need current employees to co... 2
- If combo'ed with another cour... 0

77. Principles of Troubleshooting

- Would hire if they had success... 1
- Need current employees to co... 1
- If combo'ed with another cour... 0

78. Aircraft Record Keeping

- Would hire if they had success... 1
- Need current employees to co... 1
- If combo'ed with another cour... 0

79. Aviation Vocabulary

- Would hire if they had success... 0
- Need current employees to co... 1
- If combo'ed with another cour... 0

80. Maintenance Records Familiarization

81. What courses above need to be combined?

0
Responses

Latest Responses

82. Other specific training?

1
Responses

Latest Responses

83. Other specific training?

2
Responses

Latest Responses

84. Other specific training?

0
Responses

Latest Responses

85. Other specific training?

0
Responses

Latest Responses

86. Any final comments?

6

Responses

Latest Responses

87. Would you or a designee like to be on the steering committee for this project?

3

Responses

Latest Responses

Appendix M – Aviation Company semi-structured Interview questions

Company Name:

Company Type:

Contact Name:

Date:

Permission to use name/details in study:

Purpose:

The City of Fort Lauderdale has contracted with the Broward College Center for Applied Research to conduct a study on the need for and feasibility of establishing an *Aviation and Aerospace Training Program*. Thanks for agreeing to participate in the study by sharing your knowledge of the industry and associated training needs.

Note that aviation industry includes related industries as well, i.e. manufacturing, technology, aerospace, etc....

Industry at large:

What aviation industry segment does your company represent?

What does your company do?

How many total employees do you currently have?

Do you see what your company now does changing over the next 5/10 years? If so, how?

What do you see as a the next "big thing" in your industry segment?

New workers:

Is there currently a shortage of workers that you need?

What type of difficulties did you have prior to Covid hiring new employees?

What types of difficulties do you have now hiring new employees?

What skills are new hires expected/wanted to have?

What salary range are new employees paid?

Has the salary range increased/decreased since covid?

If shortage, are salaries increasing to attract new employees?

What is the challenges for hiring out of area employees?

Training:

Do your new employees come to you ready to work or require additional training? If additional training is required, what type of training?

Do you have to send employees out of area for training? If so, what for and where?

Do local schools provide an adequately trained workforce for you?

What local training programs do you look for graduates out of?

What is missing in local training that you need?

Do your training requirements need degrees, certificates, or just specific short-term training?

Can the training be done online, virtual reality, brick and mortar, or combo?

What future training needs do you foresee?

Have you considered apprenticeship programs? Why/why not?

Is lack of training preventing your company from growing?

Have you considered Private/Public Partnerships (P3) for training?

Do you feel, in addition to the current educational offerings, additional training opportunities need to be provided?

Suggestions of who else would be good for this interview?

Ok to quote you for this study?

Appendix N – Aviation Industry semi-structured Interview Tool

Organization:

Name:

Position:

Date:

Permission to use name granted:

Purpose:

The City of Fort Lauderdale has consulted with the Broward College Center for Applied Research to conduct a study on the need for and feasibility of establishing an *Aviation and Aerospace Training Program*. Thanks for agreeing to participate in the study by sharing your knowledge of the industry and associated training needs.

Note that aviation industry includes related industries as well, i.e. manufacturing, technology, aerospace, etc....

Industry At Large:

Currently, what do you feel are the three major aviation industries currently in South Florida?

What do you see as an emergent aviation industry?

Do you foresee any new aviation industries coming to South Florida?

Have you heard of any aviation companies that were considering South Florida but chose not to move to South Florida? Do you know why?

What aviation industry would be the perfect fit for South Florida?

What are the benefits (advantages/what attracts) – if any - for the Aviation industry in South Florida?

What is missing in South Florida for aviation companies to relocate here?

What obstacles are there to aviation companies relocating to South Florida?

Would public private partnerships be of interest to companies that may be interested in starting or moving to South Florida?

Employment:

How has Covid impacted aviation employment?

What aviation occupations where in demand prior to Covid but are now not in demand?

What new aviation occupations are in demand post Covid?

Do you see wages increasing in aviation for the hard to fill positions? Emerging aviation fields?

Training:

Is there a need for aviation training in South Florida?

What types of aviation training are you aware of in South Florida?

What training in South Florida is sufficient?

What training in South Florida is not sufficient?

What type of training is typically not done in South Florida?

What type of training are aviation companies seeking from schools in the area?

What training is required for emerging aviation industries?

What training that could be provided that would attract new aviation companies to South Florida?

Should colleges and institutes focus on degrees, certificates, or short term specialized training? Or a combination? What type/kind of training would you organization/field benefit most?

Should training be done in traditional brick and mortar, online, virtual reality, hybrid, or something different?

What companies would you recommend speaking with regarding future training needs?

Appendix O – Focus Group Meeting Announcement

CITY OF FORT LAUDERDALE

Aviation Industry Leader:

The City of Fort Lauderdale is conducting a study to determine unmet training needs for aviation companies in the local area. Your input is extremely valuable to determine the types of training needed for entry level positions as well as up-skill training for current employees.

We will be hosting 4 focus group meetings for the purpose of gaining additional input into this important topic.

The dates and times (EST) are as follows:

Dec 7 noon
Dec 9 noon
Dec 14 11AM
Dec 16 1PM

Each will last no more than 1 hour.

The Focus Group Zoom link is: https://us02web.zoom.us/j/3153352948
Meeting ID: 315 335 2948

Please share with others that may be interested in this topic.

I hope that you or someone on your staff will be able to attend and provide input.

If you have any questions, feel free to contact the lead researcher, Dr. Sean Gallagan at Sean@AviationWorkforceSolutions.com