

**The Need for Coordinated Aviation Curriculum Study in North Central Texas
North Central Texas Council of Governments
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In response to a widely recognized need for additional aviation workforce both nationally and regionally, an Aviation Curriculum Development Study is being initiated by the North Central Texas Council of Governments (NCTCOG). North Central Texas enjoys a prominence in the aviation industry that requires a well-trained work force to sustain its competitiveness. Based on this industry, there is a recognized need to train additional aviation professionals. However, the region and the state lack a public university with a comprehensive four-year college program for students who would like to pursue an aviation career. This is documented by the 2003 Texas Transportation Institute (TTI) *Aviation in Higher Education: The Development of a Comprehensive Aviation Management and Commercial Pilot Program in Texas* and NCTCOG's 2007 *New Technology and Industry Trends Report: First Edition*.

The goal of the Aviation Curriculum Development Study is to coordinate with regional industry and academic partners to form a complete and thorough aviation program in North Central Texas that will seek to produce a pipeline of aviation workforce for a variety of regional industry employers. This program will address the needs at the university, community college, trade school, high school, and junior high school levels, creating a robust and coordinated regional program.

Existing Aviation Need and Background

The 16-county North Central Texas region is home to approximately 400 landing facilities, including two commercial service airports, 11 federally designated reliever airports, and 41 other public use airports managed primarily by local governments. These airports and related industries generate \$23 billion for the region's economy each year, with more than \$5 billion in salaries alone.¹ The related industries include major air carriers such as American Airlines and Southwest Airlines, as well as air cargo hubs for FedEx and UPS, large and small aircraft and aircraft parts manufacturers, and defense contractors such as Lockheed Martin and Vought Aircraft Industries. Additionally, 7.9% of all U.S. pilots are currently located in Texas. The state is also home to 9.5% of registered aircraft maintenance workers and 8.2% of air traffic controllers² in the United States.

Between 1997 and 2007, the number of licensed commercial and air transport pilots in the U.S. increased by 8.1%. However, during the same period, the number of student, sport, and private pilots in the U.S. decreased by 6.2% and the number of registered aircraft mechanics and repairmen in the U.S. decreased by 10.1%. This trend indicates that the pipeline for supplying new talent to the aviation industry is dwindling. Further indication of this trend is that between 2000 and 2006, the average age of all pilots rose from 43.7 to 45.6.³ Subsequently the Federal Aviation Administration (FAA) changed the

mandatory retirement age from 60 years old to 65 years old in an effort to offer existing pilots a place in the work force further into the future.

As the major air carriers continue to expand and attract additional personnel, they are drawing from the regional air carriers and other aviation resources. Some regional carriers have had 100% pilot turnover in the last year and flight schools are beginning to suffer a “brain drain” as experienced flight instructors leave to fill the gaps. The experience requirements for entry-level pilot positions at many regional carriers have dropped from 1,500 hours total time down to 500 hours and in some cases lower.

Over the next 12 years, it is expected that the major air carriers will need to hire more than 50,000 pilots due to retirements and industry growth.⁴ The primary source for these pilots will be the regional airline sector, but with only 20,000 pilots currently in the regional airlines, the question is “From where will the additional pilots come?”⁵

Another complicating factor is that historically, the military has provided occupational training and skilled labor for the aviation industry as its personnel leave the service and find jobs in the civilian work force. However, the current practice finds military personnel being replaced in many cases by contractors, which in turn, has also reduced the skilled labor pool of mechanics, air traffic controllers, and pilots for civilian jobs. The military is also taking extraordinary efforts to retain personnel in critical occupational fields, providing substantial pay increases, bonuses, and quality-of-life improvements, further reducing the number of aviation professionals entering the civilian work force.

According to the 2003 Texas Transportation Institute report, Texas had approximately 370 students in some type of aviation program, none of which was a comprehensive four-year program, while Oklahoma had 684 students, 445 of whom were in programs that included a flight component. A large number of the aviation students attending school in Oklahoma are residents of North Texas. Similarly, many aviation students from Texas also gravitate toward a nationally recognized program such as Embry-Riddle Aeronautical University (ERAU) with campuses in Florida and Arizona. Currently, Texas is in the top five states of origin for first-time students at each of the two main ERAU campuses.⁶ Like most private institutions, tuition costs at ERAU are very high (\$13,210 per semester not including flight costs) and many students graduate with significant debt from student loans. Another example is Baylor University, a Texas private institution which offers a four-year aviation science degree and charges \$12,660 per semester (exclusive of flight fees).⁷

Contrast these high tuition costs to the current in-state tuition rates which are far less and the case becomes evident that Texas is not providing its aviation students with an opportunity for an affordable aviation education in their home state. To be fair, while the non-flight academic program can be sustained under a normal tuition schedule, flight operations, simulators, maintenance facilities and other

costs associated with operating a flight program require a significant investment in capital (aircraft and simulators), manpower (instructors and maintenance personnel) and facilities (airport-based flight training center, aircraft parking, and maintenance hangars). The cost of these facilities must be maintained through flight fees charged to the student.

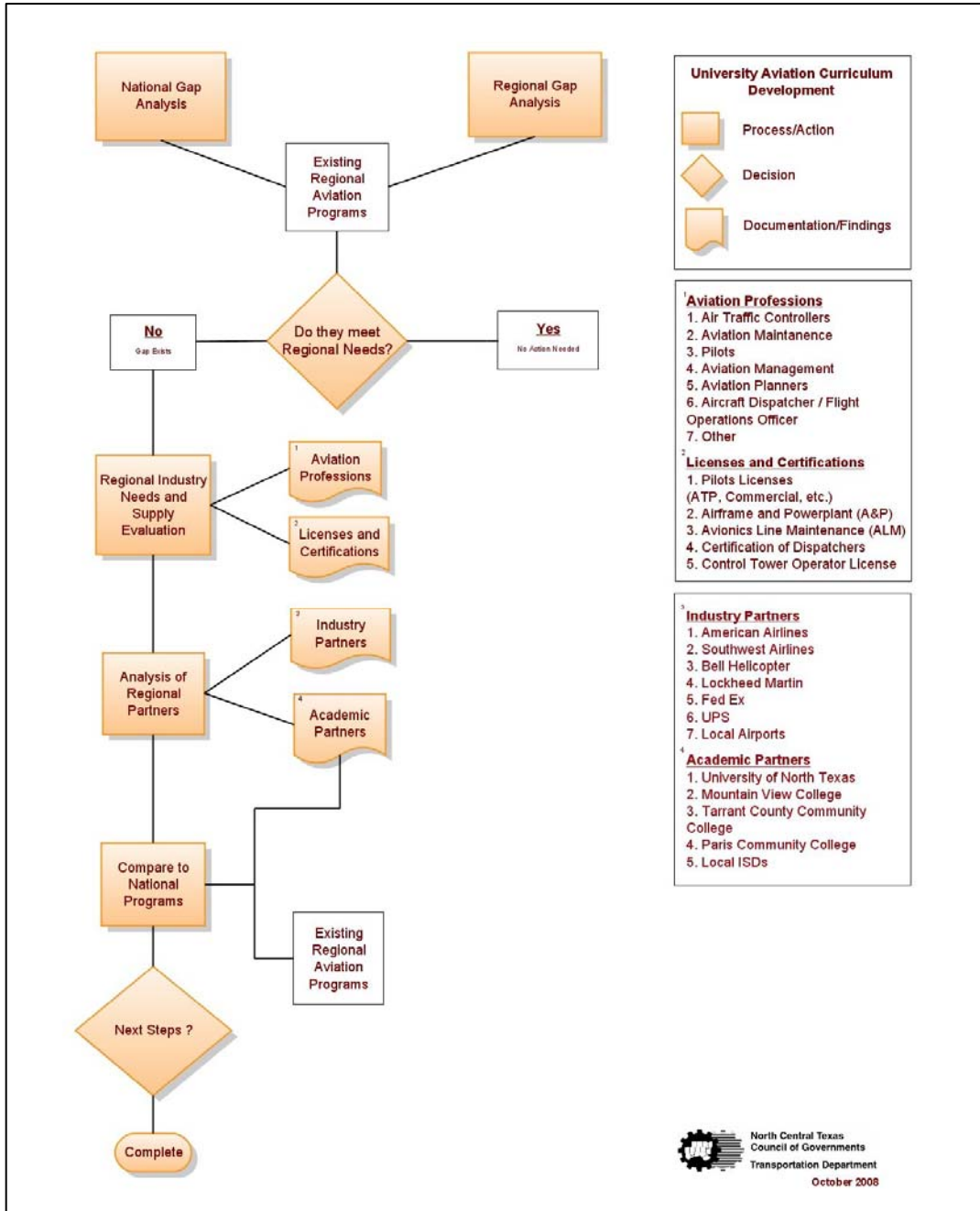
It is apparent that with the abundance of aviation employers and opportunities in North Central Texas, it is natural to supply them with the workforce they need from within our own region. It is vital for this study to provide the existing academic institutions in the region with strong recommendations and tools to provide a home-grown workforce and to ensure that the regional aviation industry continues to be vital and successful.

NCTCOG Initiative

NCTCOG has procured the funding necessary to develop a coordinated and comprehensive regional aviation curriculum. Total funding for the project is \$125,000, with \$100,000 in Regional Transportation Council (RTC) Local Funds and \$25,000 in Local Match Funds. This study will be overseen by a Project Review Committee, which will be comprised of select partners from the Air Transportation Technical Advisory Committee (ATTAC), local academic institutions, and local industry representatives.

The scope of work for this study will include a review of the national and regional gap analyses begun by TTI (2003) and NCTCOG (2007). Following this review, a Regional Industry Needs and Supply Evaluation will be conducted to compare existing academic programs to existing and future industry needs in the region. This analysis will include consideration of a wide spectrum of professions such as: pilots, air traffic controllers, mechanics, airport managers, dispatchers, and others. The scope also outlines the development of the aviation curriculum to include an implementation plan, degree options, internship opportunities, and professional certifications and licenses. The study will also include a public outreach plan to address the creation of a Speakers' Bureau and necessary future marketing and outreach to gather and sustain the student population to the program.

The flow chart on the next page offers a graphical depiction of how the study will be conducted.



University Aviation Curriculum Development

-  Process/Action
-  Decision
-  Documentation/Findings

- ¹ **Aviation Professions**
1. Air Traffic Controllers
 2. Aviation Maintenance
 3. Pilots
 4. Aviation Management
 5. Aviation Planners
 6. Aircraft Dispatcher / Flight Operations Officer
 7. Other

- ² **Licenses and Certifications**
1. Pilots Licenses (ATP, Commercial, etc.)
 2. Airframe and Powerplant (A&P)
 3. Avionics Line Maintenance (ALM)
 4. Certification of Dispatchers
 5. Control Tower Operator License

- ³ **Industry Partners**
1. American Airlines
 2. Southwest Airlines
 3. Bell Helicopter
 4. Lockheed Martin
 5. Fed Ex
 6. UPS
 7. Local Airports

- ⁴ **Academic Partners**
1. University of North Texas
 2. Mountain View College
 3. Tarrant County Community College
 4. Paris Community College
 5. Local ISDs

**Proposed Timeline
Aviation Curriculum Study**

1	Fall 2008	Projected Submitted into UPWP/Funding Secured
2	Fall 2008	Scope of Work Developed
3	December 2008 / January 2009	Stakeholder Workshops Held
4	Spring 2009	Request for Proposals Issued
5	Mid-2009	Consultant Selected/Study Kickoff
7	Mid-2010	Final Report and Curriculum Developed

Conclusion

The challenge for establishing a four-year collegiate aviation program in Texas is not recruiting faculty or providing classrooms. With the current abundance of aviation industry professionals in North Central Texas, finding qualified instructors should not be a major issue in the near term. Classroom space, at least in the short term can be accommodated through existing facilities. The funding of the start-up costs for initiating an aviation management program will reside primarily in flight operations. While it is a practice for many colleges to provide flight operations in-house, many institutions are considering outsourcing flight training to a qualified contractor. In following the lead of the military's practice, the benefit of outsourcing flight operations would be to relieve the institution from the constant pressure of maintaining a current aircraft fleet, recruiting and retaining experienced flight instructors, and satisfying the federal and state regulatory requirements.

Currently, community colleges in the region offer associate level programs for aircraft maintenance and professional pilot training along with offering other programs such as airport management and aircraft dispatch. Enhancing this existing pipeline with a seamless transition from primary and secondary schools through a community college program and into a comprehensive four-year aviation program will ensure that students in North Texas have gained a robust set of necessary skills that they will employ in a successful aviation career. Establishment of this program will benefit the airlines and aviation-related businesses and will enhance North Central Texas's leadership position in the global aviation industry.

In summary, this study will support the growth of the region not only from an industry perspective but also from an academic foundation. Increasing the diversity of our higher educational institutions while feeding a vital aviation industry will support long term regional development and in turn provide students with the opportunity work in an exciting career in North Central Texas.

¹ North Texas Commission, September 2002

² Federal Aviation Administration Airmen Registration Database, September 2007

³ Federal Aviation Administration Airmen Registration Database, September 2007

⁴ Louis Smith, former Northwest pilot and current president of www.FLTops.com

⁵ Kit Darby, president AIR, Inc.

⁶ <http://www.erau.edu/er/newsmedia/factsandfigures.html>

⁷ <http://www.baylor.edu/cashiers/index.php?id=44611>