

# Aviation Education Initiative: Development and Implementation

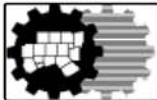
## Stakeholder Meeting

September 15, 2009



Michael Mallonee  
Transportation Planner

North Central Texas Council of Governments



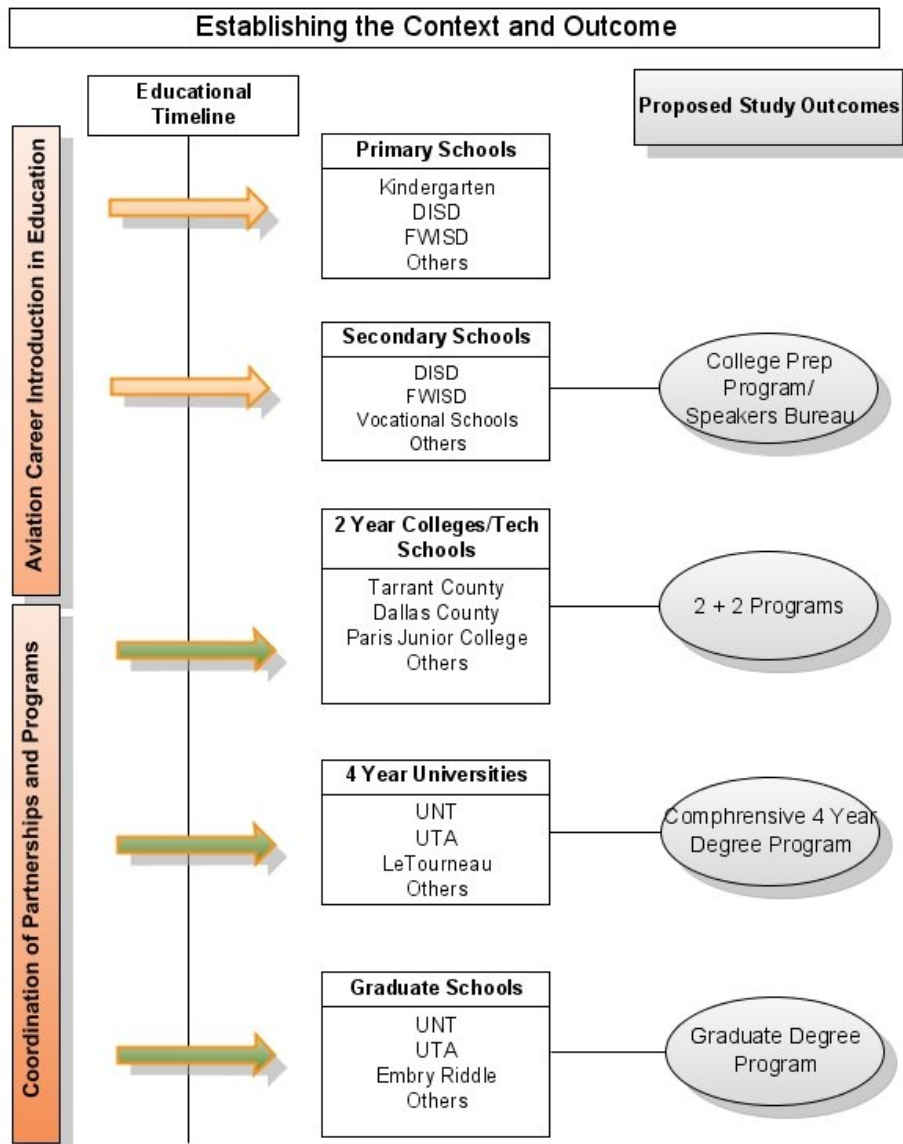
# Study Context

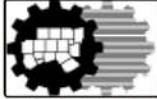


ACE Academy Event June 2009



Photo Courtesy SIU – Aviation Career Day





## Scope of Work Elements

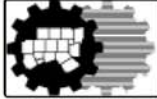
**Task 1.0 Project Management**

**Task 2.0 Review Existing National and Regional Gap Analyses**

**Task 3.0 Evaluate National and Regional Industry Needs and  
Produce a Supply/Refine Gap Analysis**

**Task 4.0 Recommend Expanded, Coordinated, and  
Comprehensive Regional Aviation Curriculum**

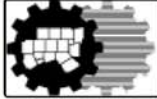
**Task 5.0 Develop a Public Outreach Plan**



## Timeline

Project Submitted into UPWP/Funding Secured *	Fall 2008
Scope of Work Developed	Fall 2008
White Paper Update to Focus on Curriculum	November 2008
Academic Stakeholder Workshop	December 15, 2008
Industry Partners Workshop	January 21, 2009
Project Review Committee Identified	March 2009
Request for Proposals Issued	March 2009
Consultant Selected	April 2009
Notice to Proceed	May 2009
Final Report	December 2009

\* Total funding for the project  
is \$125,000



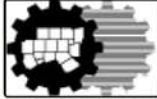
# Input Needed

## Current Products

- 3.1 Aviation Employment Data
- 3.2 Library of Aviation Employers
- 3.3 Library of Aviation Academic Programs
- 3.4 Needs/Supply Matrix
- 3.5 Gap Analysis
- 3.6 Stakeholder Events, including Focus Group Findings

## Upcoming Products

- 4.0 Recommended Regional Aviation Curriculum
- 5.0 Public Outreach Plan

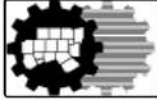


# Aviation Education Initiative: Development and Implementation

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## Upcoming Events

- Aviation Summit 2009  
Frontiers of Flight Museum  
Thursday, October 1  
9 a.m. to 2 p.m.  
RSVP Required



Source: Frontiers of Flight Museum

[www.nctcog.org/aviationsummit](http://www.nctcog.org/aviationsummit)

- Stakeholder Meeting  
Thursday, December 3  
1 p.m. – 3 p.m.  
NCTCOG - Meeting #3



# North Texas Aviation Education Initiative: Development and Implementation

**Study Update**

**A Presentation to Stakeholders**

**September 15, 2009**

# Presentation Outline

Work Completed - Task 3.0 Evaluate National and Regional Industry Needs and Produce a Gap Analysis

- 3.1 Aviation Employment Data
- 3.2 Library of Aviation Employers
- 3.3 Library of Aviation Academic Programs
- 3.4 Needs/Supply Matrix
- 3.5 Gap Analysis



# Presentation Outline

## Update on Focus Group Findings

### **Focus Group One**

FAA / ACE Camp

June 11, 2009

### **Focus Group Two**

Tarrant County College, Northwest Campus

June 23, 2009

### **Focus Group Three**

Mountain View Community College

July 13, 2009



# Presentation Outline

## Upcoming Products – Task 4.0 Recommend Expanded, Coordinated, and Comprehensive Regional Aviation Curriculum

- 4.1 Education Curricula
- 4.2 Program Coordination
- 4.3 Strategic Business Plan



# Presentation Outline

## Upcoming Products - Task 5.0 Develop Public Outreach Plan

- 5.1 Outreach and Resource Recommendations
- 5.2 Aviation Career Paths
- 5.3 Speakers Bureau
- 5.4 Primary and Secondary School Recommendations
- 5.5 Military Outreach



# Task 3.1

## Aviation Employment Data

- Employment Characteristics
- NAICS Codes Relevant to Aviation Employment
- Aviation Employers and Workforce
- Aviation Employment Data



# Employment Characteristics

## Texas Aviation Employment Characteristics

	Employers	Employment	Total Wages	Avg/ Week	Avg/ Annual
Total TX Aviation	1,376	136,602	9,280,441,650	1,190	61,869
Total TX Employment	569,541	10,231,906	457,310,432,773	860	44,695

## North Central Texas Regional Aviation Employment Characteristics

	Employers	Employment	Total Wages	Avg/ Week	Avg/ Annual
Total Regional Aviation	482	72,018	5,486,947,342	1,341	69,747
Total Regional Employment	148,221	2,882,016	143,026,185,616	954	49,627



Source: Bureau of Labor Statistics

# Employment Characteristics

## Regional, Texas, and U.S. Aviation Employment Growth, 2004-2007

Regional Aviation Employment Growth					
2004	2005	2006	2007	Employees	Net Change
40,339	40,300	41,067	72,018	1,223	n/m
Texas Aviation Employment Growth					
2004	2005	2006	2007	Employees	Net Change
133,015	133,299	135,693	136,602	3,587	2.7%
US Aviation Employment Growth					
2004	2005	2006	2007	Employees	Net Change
1,084,305	1,090,414	1,089,451	1,116,917	32,612	3.0%
Notes: n/m - not meaningful					



Source: Bureau of Labor Statistics

# NAICS Codes Relevant to Aviation Employment

## Relevant NAICS Codes

- 336 Transportation Equipment Manufacturing
- 481 Air Transportation
- 488 Support Activities for Transportation
- 488111 Air Traffic Control
- 488119 Other Airport Operations



# Career Paths

- Public sector aviation employment tends to provide entry level positions targeted for technical knowledge and an identifiable path for advancement.
- Private sector employment is more diverse and subject to unpredictable business decisions of individual businesses.
- Management level staff understand the “business” by starting at the bottom and working upwards into increasing levels of responsibilities.



# Task 3.2

## Library of Aviation Employers



# Top Ten Occupations, NAICS 3364: Aerospace Product and Parts Manufacturing

1. Aerospace Engineers
2. Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
3. Inspectors, Testers, Sorters, Samplers, and Weighers
4. Aircraft Mechanics and Service Technicians
5. First-Line Supervisors/Managers of Production and Operating Workers
6. Team Assemblers
7. Engineering Managers
8. Machinists
9. Fiberglass Laminators and Fabricators
10. Mechanical Engineers



# Top Ten Occupations, NAICS 4811: Scheduled Air Transportation

1. Reservation and Transportation Ticket Agents and Travel Clerks
2. Flight Attendants
3. Airline Pilots, Copilots, and Flight Engineers
4. Truck Drivers, Light or Delivery Services
5. Laborers and Freight, Stock, and Material Movers, Hand
6. Aircraft Mechanics and Service Technicians
7. Weighers, Measurers, Checkers, and Samplers, Recordkeeping
8. Cargo and Freight Agents
9. First-Line Supervisors/Managers of Office and Administrative Support Workers
10. Customer Service Representatives



# Top Ten Occupations, NAICS 4812: Nonscheduled Air Transportation

1. Aircraft Mechanics and Service Technicians
2. Commercial Pilots
3. Reservation and Transportation Ticket Agents and Travel Clerks
4. General and Operations Managers
5. Dispatchers, Except Police, Fire, and Ambulance
6. Janitors and Cleaners, Except Maids and Housekeeping Cleaners
7. Airline Pilots, Copilots, and Flight Engineers
8. Office Clerks, General
9. Laborers and Freight, Stock, and Material Movers, Hand
10. Police, Fire, and Ambulance Dispatchers



Source: Texas Workforce Commission

## Top Ten Occupations, NAICS 4881: Support Activities for Air Transport

1. Aircraft Mechanics and Service Technicians
2. Service Station Attendants
3. Laborers and Freight, Stock, and Material Movers, Hand
4. Janitors and Cleaners, Except Maids and Housekeeping Cleaners
5. Reservation and Transportation Ticket Agents and Travel Clerks
6. Air Transportation Workers, All Others
7. Maintenance and Repair Workers, General
8. General and Operations Managers
9. Cleaners of Vehicles and Equipment
10. Avionics Technicians



Source: Texas Workforce Commission

Aviation programs are encouraged to meet the standards of the Aviation Accreditation Board International (AABI).

Graduates should demonstrate knowledge of mathematics, science, and applied science with an ability to:

- Analyze and interpret data
- Function on a diverse team



- There are approximately 1,030 aviation employers in the region.
- Employers are divided by total number of employees:

1,000+

500-999

100-499

50-99

20-49

10-19

5-9

< 5



## 3.3 Academic Programs

- University Aviation Association (UAA)
  - 54 U.S. members
- Aviation Accreditation Board International (AABI)
  - 27 institutions recognized



## State School Baccalaureate Aviation Programs

(closest to Texas)

- Oklahoma State University
- University of Oklahoma
- Southeastern Oklahoma State University
- University of Louisiana, Monroe

## Regional Aviation Programs

- Dallas County Community College
- Tarrant County College
- Paris Junior College
- University of North Texas
- Embry-Riddle Aeronautical University, Fort Worth Campus



# 3.4 Needs/Supply Matrix State

**Exhibit 3: Aviation Education Needs/Supply Matrix – Texas**

SOC/Title	Employment Levels		Change	Need = Growth + Replacement (annual)	Recent Graduates Academic Year 2005	Future Outlook of Academic Supply
	2006	2016				
17-3021 Aerospace Engineering and Operations Technicians	691	818	127	18	n/a	n/a
39-6031 Flight Attendants	10,550	13,050	2,500	435	n/a	n/a
49-2091 Avionics Technicians	2,350	2,800	450	70	296	Sufficient
49-3011 Aircraft Mechanics and Service Technicians	17,150	21,250	4,100	580	457	Deficit
51-2011 Aircraft Structure, Surfaces, Rigging, and Systems assemblers	3,454	4,064	610	129	457	Sufficient
53-2011 Airline Pilots, Copilots, and Flight Engineers	7,800	9,900	2,100	440	83	Deficit
53-2012 Commercial Pilots	2,350	3,050	700	140	83	Deficit
53-2022 Airfield Operations Specialists	400	550	150	20	5	Deficit

Source: Texas Workforce Commission. Note: Employment Data for 17-3021 and 51-2011 are for 2004/2014. n/a => No academic programs available/No determination made.



# 3.4 Needs/Supply Matrix Regional

**Exhibit 4: Aviation Education Needs/Supply Matrix – North Central Texas**

SOC/Title	Employment Levels		Change	Need = Growth + Replacement (annual)	Recent Graduates Academic Year 2005	Future Outlook of Academic Supply
	2006	2016				
17-3021 Aerospace Engineering and Operations Technicians	426	508	82	10	n/a	n/a
39-6031 Flight Attendants	5,650	6,500	850	185	n/a	n/a
49-2091 Avionics Technicians	1,350	1,600	250	40	3	Deficit
49-3011 Aircraft Mechanics and Service Technicians	7,800	9,650	1,850	270	89	Deficit
51-2011 Aircraft Structure, Surfaces, Rigging, and Systems assemblers	2,496	2,972	476	92	89	Sufficient
53-2011 Airline Pilots, Copilots, and Flight Engineers	4,050	4,800	750	190	32	Deficit
53-2012 Commercial Pilots	650	800	150	30	32	Sufficient
53-2022 Airfield Operations Specialists	150	200	50	0	5	Sufficient

Source: Texas Workforce Commission. Note: Employment Data for 17-3021 and 51-2011 are for 2004/2014. n/a => No academic programs available/No determination made.



## 3.5 Gap Analysis

In Texas, there is sufficient supply of avionics technicians and aircraft structure, surfaces, rigging, and systems assemblers.

Four categories are deficient:

- Aircraft mechanics and service technicians
- Airline pilots, co-pilots, and flight engineers
- Commercial pilots
- Airfield operations specialists



## 3.5 Gap Analysis

In North Texas, there is sufficient supply for aircraft structure, surfaces, rigging, systems assemblers, commercial pilots, and airfield operations specialists.

Three categories are deficient:

- Avionics technicians
- Aircraft mechanics and service technicians
- Airline pilots, co-pilots, and flight engineers



## 3.5 Gap Analysis

### Gaps at the Regional Level

- Lack of a four-year aviation degree program
  - No option for students to become professional pilots as part of their degree plan
  - Limited opportunities for some skilled/technical workers to receive management and upper class learning in the two-year programs



## 3.5 Gap Analysis

### Gaps at the Regional Level (continued)

- Need for additional aircraft mechanics and service technicians
- Need for avionics technicians in the region, despite the adequate supply statewide



# Focus Group Findings

- Aviation education opportunities in North Central Texas are limited.
- High school students are generally unaware of careers in aviation, unless a family member introduces them.
- Most young adults are not aware of the variety of aviation jobs available in the region.



# Focus Group Findings

- The internet provides the portal through which individuals learn about aviation jobs and education programs.
- Training schools and colleges must be affordable -- out-of-state tuition is too expensive.
- Mature adults are gravitating to aviation education programs because the field offers good pay and job security.
- Training that is tied directly to jobs is important. (i.e. Paris Junior College and L-3 in Greenville)



# Focus Group Recommendations

- School counselors should be informed about education and employment opportunities in the aviation sector.
- Employers in aviation fields should have a greater presence at college career “fairs”.
- Mentoring programs should be established.



# Focus Group Recommendations

- A web-based central repository of information should be established that serves both students and employers with information about the pipeline from aviation education programs to employment.
- Academic programs should be advertised to all ages as well as persons being discharged from the military.



# Upcoming Products and Deliverables

## Task 4.0 Recommend Expanded, Coordinated, and Comprehensive Regional Aviation Curriculum

- 4.1 Education Curricula
- 4.2 Program Coordination
- 4.3 Strategic Business Plan



## 4.1, 4.2, 4.3 Research Conclusions, Basis for Education Curriculum, Program Coordination, and Strategic System Plan.

- The aviation industry is a diverse and growing field with needs ranging from technical and trade level skills to executive level managerial/professional knowledge workers.



## 4.1, 4.2, 4.3 Research Conclusions, Basis for Education Curriculum, Program Coordination, and Strategic System Plan.

- Aviation employment requirements drive the supply/demand cycle of qualified entry-level personnel. Significant shortfalls exist in the ability of the region's workforce to meet the industry's needs.



## 4.2 Program Coordination

- Create an integrated aviation education program serving the region and building on the strengths of existing programs.
- Structure the education program to meet the needs of the students: accessible, affordable, and results-oriented.



## 4.3 Strategic Business Plan

- Establish a four-year baccalaureate program that offers multiple degree plans and also provides for a flight component.
- Keep the aviation industry engaged to assure on-going partnerships and support through mentor programs, internships, and scholarship opportunities.



## 4.3 Strategic Business Plan

- Create a repository of information related to aviation education.
- Establish clear pipelines that
  - Make young people aware of career opportunities
  - Assure program graduates can be assimilated into well-paying, rewarding jobs



# Upcoming Products and Deliverables

## Task 5.0 Develop Public Outreach Plan

- 5.1 Outreach and Resource Recommendations
- 5.2 Aviation Career Paths
- 5.3 Speaker's Bureau
- 5.4 Primary and Secondary School Recommendations
- 5.5 Military Outreach



# Upcoming Products and Deliverables

## 5.1 Outreach and Resource Recommendations

- Listing of recommended outreach techniques and resources with defined focus areas for academia and industry.
- Marketing opportunities and resources to be implemented by partners in the region.



# Upcoming Products and Deliverables

## 5.2 Aviation Career Paths

- Data and information identifying career paths used to shepherd students into appropriate programs.
- Easy to navigate career paths and opportunities so that students may have clear methods of obtaining career goals.
- Enable information-sharing through web-based system.



# Upcoming Products and Deliverables

## 5.3 Speakers Bureau

- Listing of topical speakers from a cross-section of aviation professions.
- Available for outreach at local academic institutions.



# Upcoming Products and Deliverables

## 5.4 Primary and Secondary School Recommendations

- Public involvement and outreach programs at the primary and secondary school levels.
- Suggestions for interactive “after school” programs, guidance counselor outreach, and dual credit high school courses.



# Upcoming Products and Deliverables

## 5.5 Military Outreach

- How to communicate in the military sector, including National Guard, Reserves, and Active Duty personnel to encourage aviation careers upon leaving.
- Review of the criteria for a “military friendly” university.



# Discussion

Input on tasks completed

Suggestions for tasks that lie ahead

Other

