

FAA Air Transportation Centers of Excellence

FAA COE Overview

Government/Academic/Industry
Strategic Partnerships

COE – Commercial Space Transportation
ATM3

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FAA Centers of Excellence

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Federal Aviation
Administration



COE Program Overview

- Legislation
- Funding Combinations
- COE Benefits
- FAA COEs
- University Members and Co-Sponsors
- Role of Gov't and other Sponsors
- Oversight & Streamlined Administration
- Oversight Teams & Control



Legislation



Omnibus Budget Reconciliation Act of 1990 Public Law 101-508

**Title IX – Aviation Safety
and Capacity Expansion Act**

“The Administrator may make grants to one or more colleges or universities to establish and operate several regional centers of air transportation excellence, whose locations shall be geographically equitable. The responsibilities of each regional center shall include, but not be limited to, the conduct of research concerning airspace and airport planning and design, the air transportation environment, aviation safety and security, the supply of trained air transportation personnel including pilots and mechanics, and other aviation issues pertinent to developing and maintaining a safe and efficient air transportation system....each center may make contracts with nonprofit research organizations and other appropriate persons....”

Legislation (Selection Criteria)

“(d) Selection Criteria: The Administrator shall select recipients of grants under this section on the basis of the following criteria:

(1) the extent to which the needs of the State in which the applicant is located are representative of the needs of the region for improved air transportation services and facilities.

(2) the demonstrated research and extension resources available to the applicant to carry out this section.

(3) the ability of the applicant to provide leadership in making national and regional contributions to the solution of both long-range and immediate air transportation problems.

(4) the extent to which the applicant has an established air transportation program.

(5) the demonstrated ability of the applicant to disseminate results of air transportation research and educational programs through a statewide or regionwide continuing education program.

(6) the projects the applicant proposes to carry out under the grant.”

Legislation (Geographic Equity)

Airliner Cabin Environment- Intermodal Research

Auburn Un.- Admin Lead
 Kansas State Un.
 Harvard Un.
 Purdue Un.
 Boise State Un.
 Un. of Med & Dentistry of NJ

Noise and Emissions Mitigation

MIT (Lead)
 Boston Un.
 Georgia Tech
 Harvard Un.
 Penn State
 Purdue Un.
 Stanford
 Un. of Illinois
 Un. of Missouri-Rolla
 Un. of Pennsylvania
 Un. of North Carolina - Chapel Hill

Operations Research (1996-Present)

UC-B, MIT, UMD, VPI, Geo. Mason

General Aviation

Embry Riddle Aeronautical Un. (Lead)
 Un. of Alaska
 Un. of North Dakota
 Wichita State

General Aviation - 2012

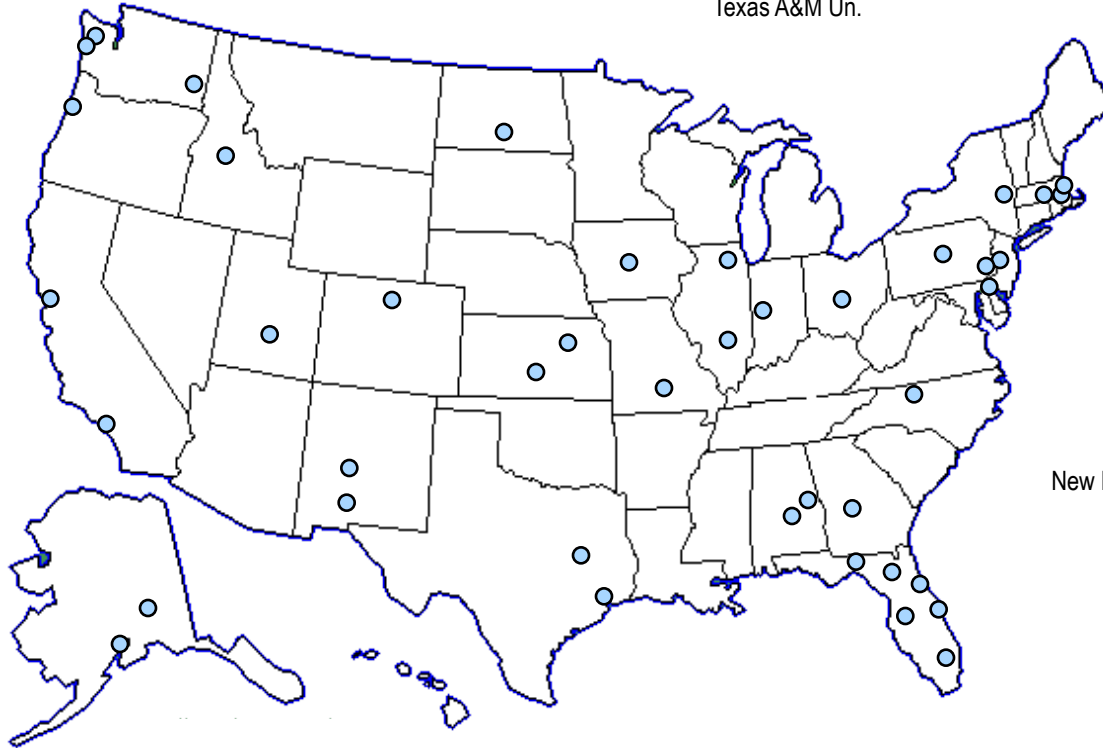
Purdue Un. (Lead)
 The Ohio State Un.
 Iowa State Un.
 Georgia Institute of Technology
 Florida Institute of Technology
 Texas A&M Un.

Advanced Materials

Un. of Washington (Co-Lead)
 Wichita State Un. (Co-Lead)
 Edmonds Community College
 Florida Internal Un.
 Northwestern Un.
 Purdue Un.
 Oregon State Un.
 Tuskegee Un.
 Un. of California at LA
 Un. of Delaware
 Un. of Utah
 Washington State Un.

Commercial Space Transportation

New Mexico State Un.
 Stanford Un.
 Florida Institute of Technology
 New Mexico Inst. of Mining & Technology
 Florida State Un.
 Un. of Florida
 Un. of Central Florida
 Un. of Colorado at Boulder
 Un. of Texas Medical Branch



Airworthiness Assurance (1997-2007)

31 Equal University Partners

Airport Technology (1995-2013)

Un. of Illinois, RPI



Funding Combinations



- **COE Grants** for Public Purpose - require matching funds to establish, operate and conduct research. **Mandated by Congress** (PL. 101-508).
- **Cost-share Contracts** for FAA Purpose - awarded following competitive establishment. Authorized by the **White House Reinvention Lab**
- Centers receive funding from any public or private source.
- **Each core university receives direct grant awards from FAA.**
- As set forth in PL. 101-508: *Centers may contract with others as appropriate*

Center of Excellence Benefits

- **Promote** academic, government & industry scientific networks prepared to enhance the safety, security & efficiency of the national airspace system
- **Augment** government resources (\$:\$) and leverage funds through flexible and responsive public/private partnerships
- **Expand** the U.S. math & science pipeline, support STEM goals, and facilitate aerospace recruitment opportunities
- **Provide** a formal strategy & trusted structure to coordinate a national research agenda and related education, and training
- **Advance** U.S. technology and expertise while satisfying Congressional mandate



The nation must immediately reverse the decline in and promote the growth of a scientifically and technologically trained U.S. aerospace workforce.

FAA COEs (Historical Overview)

| Year | Center of Excellence (Topic Areas) | Sponsor | LOE |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------|-------------------|
| 2013 – 2023 | Alternative Jet Fuels & Environment | AEE / HQ | \$ |
| 2012 – 2022 | General Aviation - 2012 (PEGASAS) (*) | ANG / TC | \$ 1 M |
| 2010 – 2015 | Commercial Space Transportation (CST) | AST / HQ | \$ 10 M |
| 2004 – present | Research in the Intermodal Transport Environment (ACER/RITE) | AAM / HQ | \$ 45 M |
| 2004 – 2015 | Joint COE Advanced Materials (JAMS) | ANG / TC | \$ 47 M |
| 2003 – 2014 | Aircraft Noise and Emissions Mitigation (PARTNER) * | AEE / HQ | \$ 100 M |
| 2001 – 2014 | General Aviation (CGAR) * | ANG / TC | \$ 39 M |
| 1997 – 2007 | Airworthiness Assurance (AACE) * | AAR/ANG / TC | \$ 135 M |
| 1996 – (2007) | Operations Research (NEXTOR – National Resource) * | ARA / HQ | \$ 47 M |
| 1995 – 2013 | Airport Technology (CEAT – National Resource) | AAR/AIP / TC | \$ 42 M |
| 1992 - 1996 | Computational Modeling of Aircraft Structures | AAR / TC | \$ 10 M |
| NOTE: Includes Grants & Matching Contributions; Interagency Agreements, and * Contracts | | | ~ \$ 485 M |



University Members and Co-Sponsors (1 of 3)



Andrew Leonard, UND
COE for General Aviation

2010 DOT FAA COE
Student of the Year

John Porcari
Deputy Sec. of Transportation
Chelsea He, MIT
COE for Noise & Emissions

2011 DOT FAA COE
Student of the Year



Auburn University
Boise State University
Boston University
Edmonds Community College
Embry-Riddle Aeronautical University
Florida Institute of Technology
Florida International University
Florida State University
Georgia Institute of Technology
Harvard University
Iowa State University
Kansas State University
Massachusetts Institute of Technology
New Mexico Inst. of Mining & Tech
New Mexico State University
Northwestern University
Ohio State University
Oregon State University
Pennsylvania State University
Purdue University
Rensselaer Polytechnic Institute
Stanford University
Texas A&M

University Members and Co-Sponsors (2 of 3)



Phillip Donovan, UIUC
COE for Airport Technology

2009 DOT FAA COE
Student of the Year

Gregory D. Winfree
Deputy Administrator, RITA

Bradley Cheetham, Un. of Colorado at Boulder
COE for Commercial Space Transportation
2012 DOT FAA COE
Student of the Year



- The Ohio State University
- Tuskegee University
- University of Alaska at Anchorage
- University of Alaska at Fairbanks
- University of California at Los Angeles
- University of Central Florida
- University of Colorado at Boulder
- University of Dayton
- University of Delaware
- University of Florida
- University of Hawaii
- University of Illinois at Urbana Champaign
- Un. of Medicine & Dentistry of NJ
- University of Missouri at Rolla
- University of North Dakota
- University of Oregon
- University of North Carolina at Chapel Hill
- University of Pennsylvania
- University of Texas Medical Branch
- University of Tennessee
- University of Utah
- University of Washington
- Washington State University
- Wichita State University

University Members and Co-Sponsors (3 of 3)

Advanced Transportation R&E
 Laboratory (ATREL)
 Aero Shell
 AeroClave
 Aerodyne Research Inc.
 Air Force Research Laboratory
 Air Tran Airways
 Air Transport Association of America
 (ATA)
 Airborne Express
 Airbus Industries
 Aircraft Owners & Pilots Association
 (AOPA)
 Airline Pilots Association (APA)
 Airports Council International –
 North America
 Alaska Airmen's Association
 Alaska Airways
 Alaska Science and Technology
 Alcoa Technical Center
 AlliedSignal
 Allison Engine Company
 Aloha Airlines
 American Airlines
 American Eagle Airlines, Inc.
 American Institute of Aeronautics
 and Astronautics (AIAA)
 ARINC Dayton
 Battelle

Bell Helicopter TEXTRON
 BF Goodrich R&D Center
 Boeing Company
 Bombardier Aerospace-Learjet
 Brookhaven National Lab
 California DOT
 Cape Air
 Cessna Aircraft
 Chicago O'Hare International
 Airport
 Cirrus Aviation
 Comair, Inc.
 Continental Airlines
 Delta Airlines
 Donaldson Company, Inc.
 Draper Laboratory
 Elite Air Center
 Executive Jet Aviation
 Experimental Aircraft Assoc.
 (EAA)
 FedEx Corporation
 General Electric Company
 General Aviation Mfg. Assn.
 (GAMA)
 Goodrich
 Gulfstream Aerospace
 Corporation
 Harris Corporation
 Honeywell
 Illinois Department of Aeronautics

Indiana Department of
 Transportation
 International Centre for Indoor
 Environment & Energy, Technical
 University of Denmark
 JENTEK Sensors, Inc.
 Livermore Software Technology
 Corp.
 Lockheed Martin Aeronautics Co.
 Los Angeles World Airports
 Lufthansa
 Maryland Aviation Administration
 Massachusetts Port Authority
 McDonnell Douglas Aerospace
 Metron Aviation, Inc.
 Metropolitan Washington Airport
 Authority
 NASA
 National Business Aviation Assn.
 (NBAA)
 NMS Bio-Defense
 Northrop Grumman Corporation
 Northwest Airlines
 Northwest Composites
 O'Hare Modernization Program
 (OMP)
 O'Hare Noise Compatibility
 Commission
 Ohio Department of Development
 Ohio Department of Transportation
 Pratt & Whitney

Professional Flight Attendants
 Association
 Raytheon Aircraft Company
 Regional Airport Authority of
 Louisville and Jefferson County
 Rockwell International
 Rolls Royce
 SAE International
 San Francisco Inter. Airport/
 Community Roundtable
 Sandia National Laboratories
 Seagull Technology
 Sikorsky Aircraft
 Southern Air Transport
 Southern California Association of
 Governments
 Southwest Research Institute
 Spitfire Aviation Partners
 SRI International
 Illinois Dept. of Transportation
 STERIS Corporation
 Sun Microsystems
 Transport Canada
 United Airlines
 United Parcel Service
 US Airways
 US DOT Volpe National Trans.
 Systems Center
 US EPA
 Virginia Department of
 Transportation
 Wyle Laboratories



Role of Gov't and Sponsors

- **Federal Government:**

Commits funds for research, education, tech transfer and related activities **over a period of 5 - 10 years.**

- **Universities, Other Public and Private Entities:**

- Serve on COE Advisory Boards and related committees
- **Provide matching contributions** in accordance with OMB guidance, cash or in-kind such as:

- **Labor**
- **Materials**
- **Lab space**
- **Host meetings**
- **etc.**

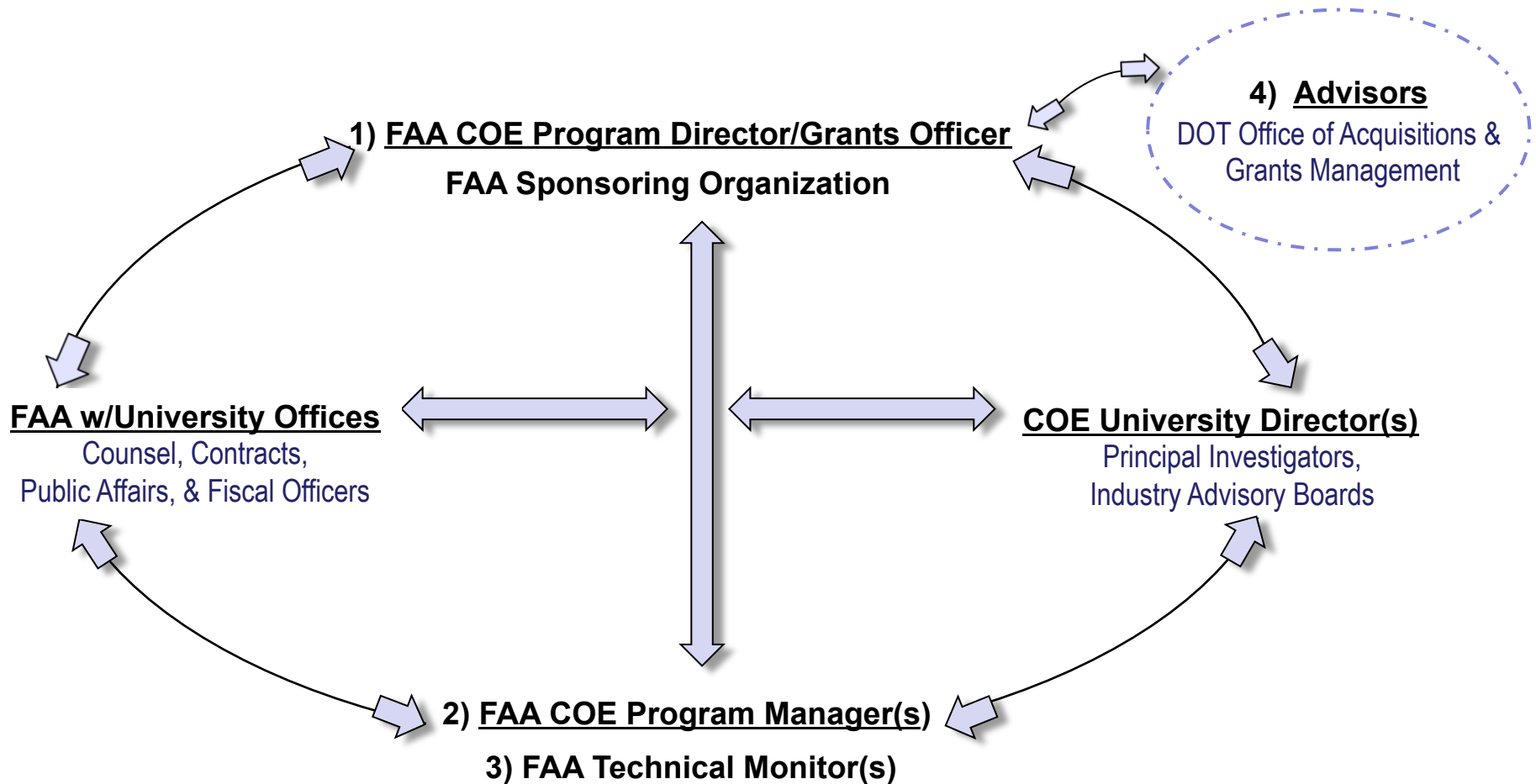


Oversight & Streamlined Administration

- The FAA sponsoring organization assigns a COE Program Manager to each Center. **The funding source assigns a Task Monitor to each task.**
- **The Gov't funds COE projects on an on-going basis** following proposal submission and technical evaluations conducted by the funding organization.
- **Following competitive process/AOA selection, projects are funded:**
 - For public purpose – via grants, or
 - For FAA purpose to obtain deliverables – via IDIQ contract.
- **Members meet quarterly during first year, semi-annually thereafter.** Universities and industry affiliates host meetings to enhance partnership opportunities and seek matching contributions.
- **FAA reassesses COE management, projects, and progress within each Phase; requests official audit of matching funds.**



Oversight Teams & Control



Discussion and Questions



FAA Air Transportation Centers of Excellence



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