



U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

June 28, 2017

The Honorable John Thune
Chairman, Committee on Commerce,
Science, and Transportation
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

As directed in the FAA Modernization and Reform Act of 2012 (P.L. 112-95), Section 907, I am pleased to provide you with a report on the Federal Aviation Administration Centers of Excellence program for Fiscal Year 2016.

We have sent identical letters to Chairman Smith, Senator Nelson, and Congresswoman Johnson.

If I can be of further assistance, please contact me or Kate Howard, Acting Assistant Administrator for Government and Industry Affairs, at (202) 267-3277.

Sincerely,

Michael P. Huerta
Administrator

Enclosure



U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

June 28, 2017

The Honorable Bill Nelson
Ranking Member, Committee on Commerce,
Science, and Transportation
United States Senate
Washington, DC 20510

Dear Senator Nelson:

As directed in the FAA Modernization and Reform Act of 2012 (P.L. 112-95), Section 907, I am pleased to provide you with a report on the Federal Aviation Administration Centers of Excellence program for Fiscal Year 2016.

We have sent identical letters to Chairmen Thune and Smith and Congresswoman Johnson.

If I can be of further assistance, please contact me or Kate Howard, Acting Assistant Administrator for Government and Industry Affairs, at (202) 267-3277.

Sincerely,

Michael P. Huerta
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800 Independence Ave., S.W.
Washington, D.C. 20591

June 28, 2017

The Honorable Lamar S. Smith
Chairman, Committee on Science,
Space, and Technology
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

As directed in the FAA Modernization and Reform Act of 2012 (P.L. 112-95), Section 907, I am pleased to provide you with a report on the Federal Aviation Administration Centers of Excellence program for Fiscal Year 2016.

We have sent identical letters to Chairman Thune, Senator Nelson, and Congresswoman Johnson.

If I can be of further assistance, please contact me or Kate Howard, Acting Assistant Administrator for Government and Industry Affairs, at (202) 267-3277.

Sincerely,

Michael P. Huerta
Administrator

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U.S. Department
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**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

June 28, 2017

The Honorable Eddie Bernice Johnson
Ranking Member, Committee on Science, Space, and
Technology
House of Representatives
Washington, DC 20515

Dear Congresswoman Johnson:

As directed in the FAA Modernization and Reform Act of 2012 (P.L. 112-95), Section 907, I am pleased to provide you with a report on the Federal Aviation Administration Centers of Excellence program for Fiscal Year 2016.

We have sent identical letters to Chairmen Thune and Smith and Senator Nelson.

If I can be of further assistance, please contact me or Kate Howard, Acting Assistant Administrator for Government and Industry Affairs, at (202) 267-3277.

Sincerely,

Michael P. Huerta
Administrator

Enclosure

**FAA Air Transportation Centers
of Excellence Congressional
Report**

FY 2016

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Congressional Report – FY 2016 Narrative

FAA Air Transportation Centers of Excellence Program Fiscal Year (FY) 2016 Overview

The FAA recognizes the critical need to develop the nation's technology base while educating the next generation of aviation professionals. Following a rigorous open dialogue and competitive process, the FAA Administrator selects a university team to serve as a Center of Excellence (COE) in individual mission-critical topics. The COEs are established through cooperative agreements with the nation's premier universities, and their members and affiliates, who conduct focused research and development and related activities over a period of 10 years.

In compliance with Public Law 101-508, the FAA has entered into cooperative agreements with competitively selected COEs established with academic institutions and their industry affiliates throughout the United States. The COE members have assisted in mission-critical research and technology areas that have focused on the following topics:

- technical training and human performance
- unmanned aircraft systems
- alternative jet fuels and environment
- general aviation safety, accessibility and sustainability
- commercial space transportation
- advanced materials
- airliner cabin environment and intermodal transportation research
- aircraft noise and aviation emissions mitigation
- general aviation research
- airworthiness assurance
- operations research
- airport technology
- computational modeling of aircraft structures

The COE program facilitates collaboration and coordination between government, academia, and industry to advance aviation technologies and expand FAA research capabilities through congressionally required matching contributions. In accordance with Public Law 101-508 the COE members match FAA grant awards to establish, operate, and conduct research, dollar-for-dollar, with contributions from non-federal sources, and may also provide additional contributions through cost-share contracts. Over the life of the program, the COE universities with their non-federal affiliates have provided more than \$300 million in matching contributions to augment FAA research efforts.

Through these long-term cost-sharing activities, the government and university-industry teams leverage resources to advance the technological future of the nation's aviation industry while educating and training the next generation of aviation scientists and professionals.

Four of the centers, Computational Modeling of Aircraft Structures, Aviation Operations Research (NEXTOR), Airworthiness Assurance (AACE), Airport Technology Research (CEAT), and Airliner Cabin Environment and Research in the Intermodal Transport Environment (ACERite) have satisfied their requirements. Currently, the COEs for Operations Research and Airport Technology serve as self-sufficient resources for the aviation community. ACERite has been successfully evaluated and therefore, positioned to serve the aviation community as well.

During FY 2016, the FAA COE Program Management Office (PMO) awarded \$28,397,118 in support of 160 FAA projects, negotiated and executed 16 COE cooperative agreements, issued 225 funded grant awards, executed 66 other COE actions, and generated more than \$29 million in matching contributions from industry and other non-federal sources.

Additionally, the FAA COE PMO conducted and completed a competition to establish the COE for Technical Training and Human Performance (TTHP) and finalized significant pre-award activities and the award of 65 grants in preparation for the establishment of the new COE in September 2016. The pre-award competitive process culminated in the submission of proposals representing universities throughout the U.S. and their industry and other affiliates. The COE PMO invited subject-matter-experts from various federal organizations to participate in the conduct of a technical evaluation of the submissions. Management and fiscal officers were additionally invited to conduct a review of the best qualified proposals from a non-technical perspective. The process enabled the FAA Administrator to select the new COE TTHP team in FY 2016, on schedule as planned. The COE PMO negotiated and entered into 16 new cooperative agreements with the COE core universities which are being led by the University of Oklahoma and Embry-Riddle Aeronautical University.

The FAA commits to base funding in support of research and related COE activities over a period of 10 years and allows for an additional two-year period to assure orderly close out of all activities. Thereafter, the FAA intends for each public-private partnership to meet COE requirements and become a self-sufficient national aviation resource. Recognized for their developed expertise, COE members are expected to generate funding and be able to compete for and conduct research activities for the aviation community as needed. By becoming self-sufficient, the COE university members may also continue to support the FAA. However, after 10 years, the agency no longer commits to annual base funding levels and the COE universities may conduct research that is fully funded by the agency as well as other entities.

In addition to establishing the COE for UAS and completing the competitive process to establish a new COE for TTHP, in fiscal year 2016, the FAA supported six active public-private partnerships throughout the U.S. with academic institutions and their industry and other affiliates. Narratives follow for each of the following:

- COE for Technical Training and Human Performance
- COE for Unmanned Aircraft Systems

- COE for Alternative Jet Fuels and Environment
- COE for General Aviation Safety, Accessibility and Sustainability
- COE for Commercial Space Transportation
- Joint COE for Advanced Materials

This report contains an Attachment with Appendices (A through F) that list the grants awarded to the current university members of each COE. Matching contributions subject to 'establishing, operating and conducting research' as required are reflected in the Attachments in accordance with P.L. 101-508.

For more information, see: <http://www.faa.gov/go/coe>

Attachments:

- Appendix A - COE for Technical Training and Human Performance
- Appendix B - COE for Unmanned Aircraft Systems
- Appendix C - COE for Alternative Jet Fuels and Environment
- Appendix D - COE for General Aviation Safety, Accessibility and Sustainability
- Appendix E - COE for Commercial Space Transportation
- Appendix F - Joint COE for Advanced Materials

COE for Technical Training and Human Performance (TTHP)

On August 12, 2016, FAA Administrator, Michael Huerta, announced the selection of the COE for TTHP. The research efforts of this COE focus on the following topic areas: Curriculum Architecture, Content Management and Delivery, Simulation and Part Task Training, Human Factors Research, Analytics, and Safety.

Under the leadership of the University of Oklahoma and Embry-Riddle Aeronautical University, the following universities serve as core members of the team: Auburn University, Drexel University, Inter-American University, Ohio State University, Oklahoma State University, Purdue University, Tennessee State University, Tulsa State Community College, University of Akron, University of Nebraska-Omaha, University North Dakota, University of Wisconsin – Madison, Western Michigan University, and Wichita State University.

The FAA Program Management Office entered into 16 cooperative agreements with the COE TTHP core universities, executed 65 awards granting \$5 million to the core members in September of FY 2016 to support Phase I of the research partnership. Based on the competitive process used to select the COE team, the FAA is also planning to execute a cost-share contract to procure deliverables for the sole benefit of the government.

COE for Unmanned Aircraft Systems (UAS)

On May 8, 2015, FAA Administrator Michael Huerta announced the selection of the COE for UAS (ASSURE). The research efforts of this COE focus on the following topic areas: Air Traffic Control Interoperability, Airport Ground Operations, Control and Communication, Detect and Avoid (DAA), Human Factors, Low Altitude Operations Safety, Noise Reduction, Spectrum Management, UAS Crew Training and Certification Including Pilots, UAS Traffic Management, UAS Wake Separation Standards for UAS Integration into the NAS.

Under the leadership of Mississippi State University, the following universities serve on this COE core team: Drexel University, Embry-Riddle Aeronautical University, Kansas State University, Montana State University, New Mexico State University, North Carolina State University, Ohio State University, Oregon State University, University of Alabama-Huntsville, University of Alaska-Fairbanks, University of California-Davis, University of Kansas, University of North Dakota, Wichita State University. Associate members include: Auburn University, Concordia, Indiana State University, Louisiana Tech University, Southampton and Tuskegee University.

The FAA is also planning to fund this COE through a cost-share contract for tasks to be completed for the sole benefit of the government. In FY 2016, the FAA funded 25 grant projects, and awarded \$3,474,932 to eight (8) of the 15 COE members in Phase I of this research partnership. The COE currently reflects a \$16.4 million level-of-effort as members are matching grant awards dollar-for-dollar from non-federal sources in keeping with congressional requirements.

For additional information, see: <http://www.assureuas.org>

COE for Alternative Jet Fuels and Environment (AJFE)

On September 13, 2013, U.S. Secretary of Transportation Anthony Foxx announced the selection of the COE for Alternative Jet Fuels and Environment (ASCENT). The R&D efforts of this COE address the following major topic areas related to alternative jet fuels: feedstock development, processing and conversion research, regional supply and refining infrastructure, environmental benefits analysis, aircraft component deterioration and wear assessment, and fuel performance testing. Areas relating to environmental issues are: aircraft noise and impacts, aviation emissions and impacts, aircraft technology assessment, environmentally and energy efficient gate-to-gate aircraft operations, and aviation modeling and analysis.

Under the leadership of Washington State University and the Massachusetts Institute of Technology serving as Co-Lead, the following universities also serve on this team: Boston University, Georgia Tech Research Corporation, Missouri University of Science and Technology, Oregon State University, Pennsylvania State University, Purdue University, Stanford University, University of Dayton, University of Hawaii, University of Illinois, University of North Carolina, University of Pennsylvania, University of Tennessee, and University of Washington.

The FAA supported 51 projects and awarded \$9,393,601 to 14 member universities in FY 2016. The COE members generated \$10 million in matching contributions from non-federal sources. The FAA is planning to fund this COE through a cost-share contract for tasks to be completed for the sole benefit of the government.

For additional information, see: <http://ascent.aero/>

COE for General Aviation Safety, Accessibility and Sustainability (GA)

On September 27, 2012, U.S. Secretary of Transportation Ray LaHood announced the selection of the new COE for General Aviation - The Partnership to Enhance General Aviation Safety, Accessibility and Sustainability (PEGASAS). Fully operational in 2013, this COE has focused on the following GA topic areas: flight safety; communication, navigation and surveillance; human factors; weather; airport technology; propulsion and structures; continued airworthiness; and system safety management.

Under the leadership of Purdue University, the following universities serve as core members of the team: Florida Institute of Technology, Georgia Institute of Technology, Iowa State University, The Ohio State University and Texas A&M University.

The FAA supported 24 projects, awarded \$3,697,891 through the grant vehicle to the six (6) member universities in FY 2016. The FAA also has a cost-share contract in place with the COE GA team to assure tasks may be completed for the sole benefit of the government when needed.

For additional information, see: <https://www.pegasas.aero/>

COE for Commercial Space Transportation (CST)

On August 18, 2010, U.S. Secretary of Transportation Ray LaHood announced the selection of the COE for Commercial Space Transportation. The R&D efforts of the COE address four major areas: space launch traffic management and launch operations; launch vehicles, operations, technologies and payloads; human spaceflight; and industry viability, including commercial, policy, international, legal, and regulatory viability.

Under the leadership of University of Texas Medical Branch – Galveston, the following universities serve as core members of the team: New Mexico State University, New Mexico Institute of Mining and Technology, Florida Institute of Technology, Florida State University, Stanford University, University of Central Florida, University of Colorado and University of Florida.

The FAA supported 13 COE projects awarding \$1,191,548 through matching grants with seven (7) member universities. Since its inception, the FAA has awarded \$8.6 million in grants. Through the first five years of operation (FY 2010-FY 2015), the COE core universities, with their affiliates, have provided twice the required matching contributions, exceeding their 1:1 matching requirement each year. The COE reflects a \$1 million annual level-of-effort. The COE CST members are currently in a Phase II five-year cooperative agreement through FY 2020. In preparation for self-sufficiency, the FAA is planning to fund this COE through a cost-share contract for tasks to be completed and deliverables to be provided for the sole benefit of the government.

For additional information, see: <http://www.coe-cst.org/>

Joint COE for Advanced Materials (JAMS)

In 2003, FAA Administrator Marion Blakey selected the Joint COE for Advanced Materials (JAMS) with the University of Washington and Wichita State University as the Lead members. This COE conducts R&D on material standardization and shared databases, bonded joints, structural substantiation, damage tolerance and durability, maintenance practices, advanced material forms and processes, cabin safety, life management of materials, and nanotechnology for composite structures.

Member universities include: Edmonds Community College, Florida International University, Northwestern University, Oregon State University, Purdue University, and University of California at Los Angeles, University of Delaware, University of Utah, Tuskegee University and the Washington State University.

In FY 2016, the FAA awarded \$5,639,146 to support related research and the COE members and affiliates generated matching contributions of more than \$5.7 million.

For additional information, see: <http://www.jams-coe.org/>

Attachment I - FY 2016

Appendix - FAA COEs Funded in FY 2016:

- A.** Technical Training and Human Performance (COE TTHP)
- B.** Unmanned Aircraft Systems (COE UAS)
- C.** Alternative Jet Fuels and Environment (COE AJFE)
- D.** General Aviation – Safety, Accessibility and Sustainability (COE
GA /PEGASAS)
- E.** Commercial Space Transportation (COE CST)
- F.** Advanced Materials (COE JAMS)

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Technical Training and Human Performance (TTHP)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
16-C-TTHP-AU-001	COE TTHP Start Up	Auburn University	\$88,000.00		Auburn University	\$88,000.00	\$88,000.00
16-C-TTHP-AU-002	Exploring Use of Gamification for Training (#13)	Auburn University	\$298,000.00		Auburn University	\$298,000.00	\$298,000.00
16-C-TTHP-DU-001	COE TTHP Start Up	Drexel University	\$82,000.00		Drexel University	\$82,000.00	\$82,000.00
16-C-TTHP-DU-002	International Integration and Harmonization (#18)	Drexel University	\$40,000.00		Drexel University	\$40,000.00	\$40,000.00
16-C-TTHP-DU-003	Analysis of Technical Operations Job Tasks (#17)	Drexel University	\$70,000.00		Drexel University	\$70,000.00	\$70,000.00
16-C-TTHP-ERAU-001	COE TTHP Start Up	Embry-Riddle Aeronautical University	\$95,000.00		Embry-Riddle Aeronautical University	\$95,000.00	\$95,000.00
16-C-TTHP-ERAU-002	Standardization of Training for Training Administrators (#2)	Embry-Riddle Aeronautical University	\$78,000.00		Embry-Riddle Aeronautical University	\$78,000.00	\$78,000.00
16-C-TTHP-ERAU-003	Development of a Learning Taxonomy and Implementation Strategies (#9)	Embry-Riddle Aeronautical University	\$60,000.00		Embry-Riddle Aeronautical University	\$60,000.00	\$60,000.00
16-C-TTHP-ERAU-004	Virtual Training Delivery (#7)	Embry-Riddle Aeronautical University	\$84,500.00		Embry-Riddle Aeronautical University	\$84,500.00	\$84,500.00
16-C-TTHP-ERAU-005	Optimize Simulation (#12)	Embry-Riddle Aeronautical University	\$98,500.00		Embry-Riddle Aeronautical University	\$98,500.00	\$98,500.00
16-C-TTHP-ERAU-006	Enhanced AT-CPC Training (#6)	Embry-Riddle Aeronautical University	\$99,000.00		Embry-Riddle Aeronautical University	\$99,000.00	\$99,000.00
16-C-TTHP-ERAU-007	COE TTHP Strategic Framework	Embry-Riddle Aeronautical University	\$90,000.00		Embry-Riddle Aeronautical University	\$90,000.00	\$90,000.00

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FAA Centers of Excellence (COE)
Technical Training and Human Performance (TTHP)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
16-C-TTHP-ERAU-008	Research Alternative ISD Model (#10)	Embry-Riddle Aeronautical University	\$99,500.00		Embry-Riddle Aeronautical University	\$99,500.00	\$99,500.00
16-C-TTHP-ERAU-009	HF and Scenario Based Training w/Advanced Weather	Embry-Riddle Aeronautical University	\$63,000.00		Embry-Riddle Aeronautical University	\$63,000.00	\$63,000.00
16-C-TTHP-ERAU-010	Modular Curriculum	Embry-Riddle Aeronautical University	\$34,650.00		Embry-Riddle Aeronautical University	\$34,650.00	\$34,650.00
16-C-TTHP-ERAU-011	Student Outreach	Embry-Riddle Aeronautical University	\$80,000.00		NA	NA	0
16-C-TTHP-ERAU-012	COE Meeting Support	Embry-Riddle Aeronautical University	\$79,000.00		Embry-Riddle Aeronautical University	\$79,000.00	\$79,000.00
16-C-TTHP-ERAU-013	COE Program Management	Embry-Riddle Aeronautical University	\$99,202.00		Embry-Riddle Aeronautical University	\$99,202.00	\$99,202.00
16-C-TTHP-IAU-001	COE TTHP Start Up	Inter American University of Puerto Rico	\$92,000.00		Inter American University of Puerto Rico	\$92,000.00	\$92,000.00
16-C-TTHP-IAU-002	Field Training Standardization	Inter American University of Puerto Rico	\$20,000.00		Inter American University of Puerto Rico	\$20,000.00	\$20,000.00
16-C-TTHP-OK-001	COE TTHP Start Up	University of Oklahoma	\$95,000.00		University of Oklahoma	\$95,000.00	\$95,000.00
16-C-TTHP-OK-002	Field Training Standardization (#1)	University of Oklahoma	\$47,000.00		University of Oklahoma	\$47,000.00	\$47,000.00
16-C-TTHP-OK-003	Course Development (#8)	University of Oklahoma	\$76,800.00		University of Oklahoma	\$76,800.00	\$76,800.00

Technical Training and Human Performance (TTHP)

Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Technical Training and Human Performance (TTHP)
Grant Awards

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
16-C-TTHP-OK-004	Universal Design for Learning and Multi-Modal Training (#14)	University of Oklahoma	\$186,000.00		University of Oklahoma	\$186,000.00	\$186,000.00
16-C-TTHP-OK-005	Applied Game Theory to Enhance ATC Training (#15)	University of Oklahoma	\$119,500.00		University of Oklahoma	\$119,500.00	\$119,500.00
16-C-TTHP-OK-006	Learner Data Management (#16)	University of Oklahoma	\$146,500.00		University of Oklahoma	\$146,500.00	\$146,500.00
16-C-TTHP-OK-007	COE TTHP Strategic Framework	University of Oklahoma	\$70,000.00		University of Oklahoma	\$70,000.00	\$70,000.00
16-C-TTHP-OK-008	Characterization and Application of Air Traffic Controllers Visual Search Patterns and Control Strategies for Efficient and Effective Training	University of Oklahoma	\$75,000.00		University of Oklahoma	\$75,000.00	\$75,000.00
16-C-TTHP-OK-009	Analysis of a Technical Training Course for Specific Part Task Training Implementation	University of Oklahoma	\$77,400.00		University of Oklahoma	\$77,400.00	\$77,400.00
16-C-TTHP-OK-010	Student Outreach	University of Oklahoma	\$79,000.00		NA	NA	\$0
16-C-TTHP-OK-011	COE Meeting Support	University of Oklahoma	\$80,000.00		University of Oklahoma	\$80,000.00	\$80,000.00
16-C-TTHP-OK-012	COE Program Management	University of Oklahoma	\$99,202.00		University of Oklahoma	\$99,202.00	\$99,202.00
16-C-TTHP-OKSU-001	COE TTHP Start Up	Oklahoma State University	\$85,000.00		Oklahoma State University	\$85,000.00	\$85,000.00
16-C-TTHP-OKSU-002	Course Development (#8)	Oklahoma State University	\$8,500.00		Oklahoma State University	\$8,500.00	\$8,500.00
16-C-TTHP-OSU-001	COE TTHP Start Up	The Ohio State University	\$81,000.00		The Ohio State University	\$81,000.00	\$81,000.00

Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Technical Training and Human Performance (TTHP)
Grant Awards

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
16-C-TTHP-OSU-002	Development of a Learning Taxonomy and Implementation Strategies (#9)	The Ohio State University	\$40,000.00		The Ohio State University	\$40,000.00	\$40,000.00
16-C-TTHP-OSU-003	International Integration and Harmonization (#18)	The Ohio State University	\$40,000.00		The Ohio State University	\$40,000.00	\$40,000.00
16-C-TTHP-PU-001	COE TTHP Start Up	Purdue University	\$78,000.00		Purdue University	\$78,000.00	\$78,000.00
16-C-TTHP-PU-002	Analysis of Technical Operations Job Tasks (#17)	Purdue University	\$30,000.00		Purdue University	\$30,000.00	\$30,000.00
16-C-TTHP-TCC-001	COE TTHP Start Up	Tulsa Community College	\$84,000.00		Tulsa Community College	\$84,000.00	\$84,000.00
16-C-TTHP-TCC-002	Field Training Standardization (#1)	Tulsa Community College	\$5,700.00		Tulsa Community College	\$5,700.00	\$5,700.00
16-C-TTHP-TSU-001	COE TTHP Start Up	Tennessee State University	\$84,000.00		Tennessee State University	\$84,000.00	\$84,000.00
16-C-TTHP-TSU-002	Analysis of a Technical Training Course for Specific Part Task Training Implementation...	Tennessee State University	\$20,700.00		Tennessee State University	\$20,700.00	\$20,700.00
16-C-TTHP-UA-001	COE TTHP Start Up	University of Akron	\$84,000.00		University of Akron	\$84,000.00	\$84,000.00
16-C-TTHP-UA-002	Curriculum Architecture Gap Analysis (#5)	University of Akron	\$34,500.00		University of Akron	\$34,500.00	\$34,500.00
16-C-TTHP-UA-003	Customer Satisfaction Process Recommendation (#23)	University of Akron	\$45,000.00		University of Akron	\$45,000.00	\$45,000.00
16-C-TTHP-UA-004	Technical Training Knowledge Architecture (#19)	University of Akron	\$45,000.00		University of Akron	\$45,000.00	\$45,000.00
16-C-TTHP-UA-005	Training of Pilots and Air Traffic Controllers in Weather-related Decision Making Using Probabilistic Hazard Information Displays	University of Akron	\$90,000.00		University of Akron	\$90,000.00	\$90,000.00

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Technical Training and Human Performance (TTHP)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award Amount	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
16-C-TTHP-UND-001	COE TTHP Start Up	University of North Dakota	\$95,000.00		University of North Dakota	\$95,000.00	\$95,000.00
16-C-TTHP-UND-002	Enhanced AT-CPC Training (#6)	University of North Dakota	\$42,000.00		University of North Dakota	\$42,000.00	\$42,000.00
16-C-TTHP-UNO-001	COE TTHP Start Up	University of Nebraska at Omaha	\$85,000.00		University of Nebraska at Omaha	\$85,000.00	\$85,000.00
16-C-TTHP-UNO-002	Applied Game Theory to Enhance ATC Training (#15)	University of Nebraska at Omaha	\$22,000.00		University of Nebraska at Omaha	\$22,000.00	\$22,000.00
16-C-TTHP-UNO-003	COE TTHP Strategic Framework	University of Nebraska at Omaha	\$20,000.00		University of Nebraska at Omaha	\$20,000.00	\$20,000.00
16-C-TTHP-UWM-001	COE TTHP Start Up	University of Wisconsin, Madison	\$34,000.00		University of Wisconsin, Madison	\$34,000.00	\$34,000.00
16-C-TTHP-UWM-002	HF and Scenario Based Training w/Advanced Weather	University of Wisconsin, Madison	\$27,000.00		University of Wisconsin, Madison	\$27,000.00	\$27,000.00
16-C-TTHP-WISU-001	COE TTHP Start Up	Wichita State University	\$83,000.00		Wichita State University	\$83,000.00	\$83,000.00
16-C-TTHP-WISU-002	Applied Game Theory to Enhance ATC Training (#15)	Wichita State University	\$11,500.00		Wichita State University	\$11,500.00	\$11,500.00
16-C-TTHP-WISU-003	Administration and Contract Support	Wichita State University	\$120,000.00		Wichita State University	\$120,000.00	\$120,000.00
16-C-TTHP-WISU-004	Administration and Contract Support	Wichita State University	\$135,000.00		Wichita State University	\$135,000.00	\$135,000.00
16-C-TTHP-WISU-005	Administration and Contract Support	Wichita State University	\$145,000.00		Wichita State University	\$145,000.00	\$145,000.00

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Technical Training and Human Performance (TTHP)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
16-C-TTHP-WISU-006	Administration and Contract Support	Wichita State University	\$130,996.00		Wichita State University	\$130,996.00	\$130,996.00
16-C-TTHP-WISU-007	Administration and Contract Support	Wichita State University	\$145,000.00		Wichita State University	\$145,000.00	\$145,000.00
16-C-TTHP-WMU-001	COE TTHP Start Up	Western Michigan University	\$83,000.00		Western Michigan University	\$83,000.00	\$83,000.00
16-C-TTHP-WMU-002	Modular Curriculum	Western Michigan University	\$64,350.00		Western Michigan University	\$64,350.00	\$64,350.00
Total			\$5,000,000.00			Total	\$5,000,000.00

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Unmanned Aircraft Systems (UAS)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
15-C-UAS-DU-001	A7-UAS human Factors Considerations	Drexel University	\$360,000		Drexel University	\$360,000	\$360,000
15-C-UAS-DU-002	A10 - Human Factors Consideration of UAS Procedures & Control Stations	Drexel University	\$210,000		Drexel University	\$210,000	\$210,000
15-C-UAS-ERAU-006	A10 - Human Factors Consideration of UAS Procedures & Control Stations	Embry-Riddle Aeronautical University	\$122,679	\$15,609	Embry-Riddle Aeronautical University Sinclair Community College	\$107,070 \$15,609	\$122,679
15-C-UAS-KSU-004	A10 - Human Factors Consideration of UAS Procedures & Control Stations	Kansas State University	\$124,874		Kansas State University	\$124,874	\$124,874
15-C-UAS-MSU-007	A8-UAS Noise Certification	Mississippi State University	\$50,000	\$10,000	Mississippi State University NUAIR Alliance Inc.	\$40,000 \$10,000	\$50,000
15-C-UAS-MSU-009	ASSURE Program Management	Mississippi State University	\$482,979		Mississippi State University	\$482,979	\$482,979
15-C-UAS-MSU-010	ASSURE Program Management	Mississippi State University	\$738,068		Mississippi State University	\$738,068	\$738,068
15-C-UAS-MSU-011	PM 4: UAS Science & Research Panel Support Lead University: MSU	Mississippi State University	\$89,000		Mississippi State University	\$89,000	\$89,000
15-C-UAS-MSU-017	A10 - Human Factors Consideration of UAS Procedures & Control Stations	Mississippi State University	\$100,000		Mississippi State University	\$100,000	\$100,000
15-C-UAS-NMSU-003	A7-UAS human Factors Considerations	New Mexico State University	\$135,000		New Mexico State University	\$135,000	\$135,000
15-C-UAS-NMSU-005	Minority Outreach – UAS as a STEM Minority Outreach	The Ohio State University	\$150,000	\$75,000	NA Tuskegee University	\$0 \$75,000	NA
15-C-UAS-OSU-003	A7-UAS human Factors Considerations	The Ohio State University	\$120,000		The Ohio State University	\$120,000	\$120,000
15-C-UAS-OSU-005	A9 - Secure Command and Control Link with Interference Mitigation	The Ohio State University	\$250,000		The Ohio State University	\$250,000	\$250,000

Congressional Report-Fiscal Year 2016 FAA Centers of Excellence (COE) Unmanned Aircraft Systems (UAS) Grant Awards							
Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
15-C-UAS-OSU-006	A10 - Human Factors Consideration of UAS Procedures & Control Stations	The Ohio State University	\$99,425		The Ohio State University	\$99,425	\$99,425
15-C-UAS-UAH-003	A11: Low Altitude Operations Safety	University of Alabama in Huntsville	\$151,733	\$14,934	Sinclair Community College	\$14,934	
					The University of Alabama in Huntsville	\$81,579	\$151,733
15-C-UAS-UND-003	A7-UAS human Factors Considerations	University of North Dakota	\$135,000		University of North Dakota	\$135,000	\$135,000
15-C-UAS-UND-006	A10 - Human Factors Consideration of UAS Procedures & Control Stations	University of North Dakota	\$156,174		University of North Dakota	\$156,174	\$156,174
Total			\$3,474,932	\$185,697		Total	\$3,474,932

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Alternative Jet Fuels and Environment (AJF&E)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
13-C-AJFE-BU-006	Cardiovascular Disease and Aircraft Noise Exposure	Boston University	\$200,000		Boston University	\$200,000	\$200,000
13-C-AJFE-BU-007	Community Measurement of Aviation Emission Contribution of Ambient Air Quality	Boston University	\$200,000		Boston University	\$200,000	\$200,000
13-C-AJFE-BU-010	Comparing Aviation Health Impacts with other Source Sectors	Boston University	\$46,142		Boston University	\$46,142	\$46,142
13-C-AJFE-GIT-019	Parametric Uncertainty Assessment for AEDT 2b	Georgia Tech Research Corporation	\$175,000		Georgia Tech Research Corporation	\$175,000	\$175,000
13-C-AJFE-GIT-020	Takeoff/Climb Analysis to Support AEDT APM Development	Georgia Tech Research Corporation	\$250,000		Georgia Tech Research Corporation	\$250,000	\$250,000
13-C-AJFE-GIT-021	Noise Power Distance Re-Evaluation	Georgia Tech Research Corporation	\$150,000		Georgia Tech Research Corporation	\$150,000	\$150,000
13-C-AJFE-GIT-022	Aircraft Technology Modeling and Assessment	Georgia Tech Research Corporation	\$235,000		Georgia Tech Research Corporation	\$235,000	\$235,000
13-C-AJFE-GIT-023	Sensitivity Analysis of Acoustical Model for Mach Cut-off Flight	Georgia Tech Research Corporation	\$70,000		Georgia Tech Research Corporation	\$70,000	\$70,000
13-C-AJFE-GIT-024	Rapid Fleet-Wide Environmental Assessment Capability	Georgia Tech Research Corporation	\$50,000		Georgia Tech Research Corporation	\$50,000	\$50,000
13-C-AJFE-GIT-026	CLEEN II System Level Assessment	Georgia Tech Research Corporation	\$150,000		Georgia Tech Research Corporation	\$150,000	\$150,000
13-C-AJFE-GIT-027	Advanced Combustion (Area #3) – Year 3	Georgia Tech Research Corporation	\$300,000		Georgia Tech Research Corporation	\$300,000	\$300,000
13-C-AJFE-GIT-028	Combustion Model Development and Evaluation	Georgia Tech Research Corporation	\$55,000		Georgia Tech Research Corporation	\$50,000	\$55,000
				\$5,000	University of Connecticut	\$5,000	

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Alternative Jet Fuels and Environment (AJFE&E)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
13-C-AJFE-MIT-021	Surface Analysis to Support AEDT APM Development	Massachusetts Institute of Technology	\$75,000		Massachusetts Institute of Technology	\$75,000	\$75,000
13-C-AJFE-MIT-022	Analytical Approach for Quantifying Noise from Advanced Operational Procedures	Massachusetts Institute of Technology	\$250,000		Massachusetts Institute of Technology	\$250,000	\$250,000
13-C-AJFE-MIT-023	Development of Rapid Fleet-Wide Environmental Assessment capability using response Surface Modeling Approach (Phase III)	Massachusetts Institute of Technology	\$250,000		Massachusetts Institute of Technology	\$250,000	\$250,000
13-C-AJFE-MIT-024	Improving Climate Policy Analysis Tools	Massachusetts Institute of Technology	\$150,000		Massachusetts Institute of Technology	\$150,000	\$150,000
13-C-AJFE-MIT-025	Development of NAS Wide and Global Rapid Aviation Air Quality	Massachusetts Institute of Technology	\$250,000		Massachusetts Institute of Technology	\$250,000	\$250,000
13-C-AJFE-MIT-026	Nephthalene Removal Assessment	Massachusetts Institute of Technology	\$200,000		Massachusetts Institute of Technology	\$200,000	\$200,000
13-C-AJFE-MIT-027	Analysis to Support the Development of an Engine nvPM Emissions Standard	Massachusetts Institute of Technology	\$150,000		Massachusetts Institute of Technology	\$150,000	\$150,000
13-C-AJFE-MIT-028	Alternative Jet Fuels Supply Chain Analysis	Massachusetts Institute of Technology	\$450,000		Massachusetts Institute of Technology	\$450,000	\$450,000
13-C-AJFE-MIT-029	MIT-Co lead Program Management: ASCENT Alternative Jet Fuels and Environment COE	Massachusetts Institute of Technology	\$80,000		Massachusetts Institute of Technology	\$80,000	\$80,000
13-C-AJFE-MST-008	Examination of Engine to Engine PM Emissions Variability using an ARP Reference Sampling and Measurement System	Missouri Institute of Science and Technology	\$579,234		Missouri Institute of Science and Technology	\$579,234	\$579,234
13-C-AJFE-OSU-004	Turbulent Flame Speed of Conventional and Alternative Jet Fuels Project	Oregon State University	\$80,000		Oregon State University	\$80,000	\$80,000

Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Alternative Jet Fuels and Environment (AJF&E)
Grant Awards

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
13-C-AJFE-PSU-019	PM Emission Database Compilation, Analysis and Predictive Assessment	Pennsylvania State University	\$75,000		Pennsylvania State University	\$75,000	\$75,000
13-C-AJFE-PSU-020	Acoustical Model of Mach Cut-off	Pennsylvania State University	\$170,000		Pennsylvania State University	\$170,000	\$170,000
13-C-AJFE-PSU-021	Identification of Noise Acceptance Onset for Noise Certification Standards of Supersonic Airplane	Pennsylvania State University	\$50,000		Pennsylvania State University	\$50,000	\$50,000
13-C-AJFE-PSU-022	Rotorcraft Noise Abatement Procedures Development	Pennsylvania State University	\$150,000		Pennsylvania State University	\$150,000	\$150,000
13-C-AJFE-PSU-023	Quantifying Uncertainties in Predicting Aircraft Noise in Real-world Situations	Pennsylvania State University	\$128,426		Pennsylvania State University	\$128,426	\$128,426
13-C-AJFE-PSU-025	FAA Aviation Sustainability Center (ASCENT) Supersonics Community Impact-Project 41	Pennsylvania State University	\$110,000		Pennsylvania State University	\$110,000	\$110,000
13-C-AJFE-PSU-027	Outreach Project for Center of Excellence for Aviation Sustainability Center (ASCENT)	Pennsylvania State University	\$75,000		Pennsylvania State University	\$75,000	\$75,000
13-C-AJFE-PSU-028	Alternative Jet Fuel Supply Chain Analysis-Mid Atlantic	Pennsylvania State University	\$200,000		Pennsylvania State University	\$200,000	\$200,000
13-C-AJFE-PU-013	Aircraft Technology Modeling and Assessment	Purdue University	\$50,000		Purdue University	\$50,000	\$50,000
13-C-AJFE-PU-014	Quantifying Uncertainties in Predicting Aircraft Noise in Real-world Situations	Purdue University	\$90,000		Purdue University	\$90,000	\$90,000
13-C-AJFE-PU-015	Techno-economic and Lifecycle Analysis of Alternative Aviation Biofuels Supply Chains.	Purdue University	\$373,750		Purdue University	\$373,750	\$373,750
13-C-AJFE-PU-016	National Jet Fuels Combustion Program: Area #5 Atomization Tests and Models	Purdue University	\$250,000		Purdue University	\$250,000	\$250,000
13-C-AJFE-SU-014	Aircraft Technology and Modeling Assessment	Stanford University	\$25,000		Stanford University	\$25,000	\$25,000

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Alternative Jet Fuels and Environment (AJF&E)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award Amount	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
13-C-AJFE-SU-015	Shock Tube and Flow Reactor Studies of the Kinetics of Jet-Fuels	Stanford University	\$210,000		Stanford University	\$210,000	\$210,000
13-C-AJFE-SU-016	Continuation of Development of Spray Models for the Description of Multicomponent Jet-Fuels Effects Ascent -29B	Stanford University	\$110,000		Stanford University	\$110,000	\$110,000
13-C-AJFE-UD-010	National Jet Fuels Combustion Program – Area #7	University of Dayton	\$249,330		University of Dayton	\$249,330	\$249,330
13-C-AJFE-UD-011	Alternative Fuels Test Database Library	University of Dayton	\$19,794		University of Dayton	\$19,794	\$19,794
13-C-AJFE-UD-012	Alternative Jet Fuels Test and Evaluation	University of Dayton	\$693,928		University of Dayton	\$693,928	\$693,928
13-C-AJFE-UD-013	National Jet Fuels Combustion Program – Area #7 (Year 2)	University of Dayton	\$386,035		University of Dayton	\$386,035	\$386,035
13-C-AJFE-UH-007	Alternative Jet Fuel Supply Chain Analysis-Tropical Region Analysis	University of Hawaii	\$100,000		University of Hawaii	\$100,000	\$100,000
13-C-AJFE-UI-015	Alternative Fuels Test Database Library	University of Illinois	\$100,000		University of Illinois	\$100,000	\$100,000
13-C-AJFE-UI-016	Advanced Combustion (Area #3) Continuation – (Year 3)	University of Illinois	\$200,000		University of Illinois	\$200,000	\$200,000
13-C-AJFE-UI-017	Evaluation of FAA Climate Tools	University of Illinois	\$75,000		University of Illinois	\$75,000	\$75,000
13-C-AJFE-UPENN-004	Pilot Study on Aircraft Noise and Sleep Disturbance	University of Pennsylvania	\$266,001		University of Pennsylvania	\$266,001	\$266,001
13-C-AJFE-UTENN-005	Techno-Market Analysis of US Biorefinery Supply Chains from Feedstock to Alternative Jet Fuels	University of Tennessee	\$100,000		University of Tennessee	\$100,000	\$100,000
13-C-AJFE-UW-005	Acoustical Model for Mach Cut-off Flight	University of Washington	\$15,000		University of Washington	\$15,000	\$15,000

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Alternative Jet Fuels and Environment (AJF&E)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
13-C-AJFE-WaSU-008	Methods for the Fast Quantifications of Oxygenated Compounds in Alternative Jet Fuels	Washington State University	\$50,963		Washington State University	\$50,963	\$50,963
13-C-AJFE-WaSU-009	Administer Program Office for Center of Excellence for Alternative Jet Fuels and Environment	Washington State University	\$399,999		Washington State University	\$399,999	\$399,999
13-C-AJFE-WaSU-010	Alternative Jet Fuel Supply Chain Analysis	Washington State University	\$274,999		Washington State University	\$274,999	\$274,999
Totals			\$9,393,601	\$5,000		Total	\$9,393,601

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
General Aviation (GA)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
12-C-GA-FIT-009	Project 18 - LED Based Runway Closure Lighting	Florida Institute of Technology	\$62,323		Florida Institute of Technology	\$62,323	\$62,323
12-C-GA-FIT-010	Project 19 - Center of Excellence Student Outreach	Florida Institute of Technology	\$39,035		NA	NA	\$0
12-C-GA-FIT-011	Project 20 - General Aviation Runway Incursions	Florida Institute of Technology	\$171,000	\$80,000	Florida Institute of Technology Hampton University	\$91,001 \$80,000	\$171,001
12-C-GA-FIT-013	Project 22 - Airport Safety Database & Analysis	Florida Institute of Technology	\$58,000		Florida Institute of Technology	\$58,000	\$58,000
12-C-GA-FIT-014	Project 2 - Rotorcraft ASIAs	Florida Institute of Technology	\$15,000		Florida Institute of Technology	\$15,000	\$15,000
12-C-GA-FIT-015	Project 23 - Runway Safety Human Factors	Florida Institute of Technology	\$40,629		Florida Institute of Technology	\$40,629	\$40,629
12-C-GA-GIT-009	Project 5 - National General Aviation flight information Database (NGAFID)	Georgia Tech Research Corporation	\$20,000		Georgia Tech Research Corporation	\$20,000	\$20,000
12-C-GA-GIT-010	Project 2 - Rotorcraft ASIAs	Georgia Tech Research Corporation	\$89,256		Georgia Tech Research Corporation	\$89,256	\$89,256
12-C-GA-GIT-011	Project 5 - National General Aviation flight information Database (NGAFID)	Georgia Tech Research Corporation	\$150,889		Georgia Tech Research Corporation	\$150,889	\$150,889
12-C-GA-GIT-012	Project 24 - Pilot Performance Considerations for Sensor Technologies	Georgia Tech Research Corporation	\$194,997		Georgia Tech Research Corporation	\$195,487	\$195,487
12-C-GA-GIT-013	Project 19 - Center of Excellence Student Outreach	Georgia Tech Research Corporation	\$62,857		NA	NA	\$0
12-C-GA-ISU-009	Project 19 - Center of Excellence Student Outreach	Iowa State University	\$24,890		NA	NA	\$0

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
General Aviation (GA)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
12-C-GA-ISU-010	Project 1 - Heated Airport Pavements - Task 1-F, Task 1-G, Task 1-H	Iowa State University	\$399,999		Iowa State University	\$400,004	\$400,004
12-C-GA-ISU-011	Project 22 - Airport Safety Database & Analysis	Iowa State University	\$46,000		Iowa State University	\$53,488	\$53,488
12-C-GA-ISU-012	Project 24 - Pilot Performance Considerations for Sensor Technologies	Iowa State University	\$145,239		Iowa State University	\$145,386	\$53,488
12-C-GA-OSU-020	Project 18 - LED Based Runway Closure Lighting	The Ohio State University	\$47,516		The Ohio State University	\$47,516	\$47,516
12-C-GA-OSU-021	Project 5 - National General Aviation flight information Database (NGAFID)	The Ohio State University	\$110,004		The Ohio State University	\$110,004	\$110,004
12-C-GA-OSU-022	Project 19 - Center of Excellence Student Outreach	The Ohio State University	\$79,542	\$22,500	The Ohio State University Up, Up, and Away, Inc.	NA NA	\$0
12-C-GA-OSU-026	Project 5 - National General Aviation flight information Database (NGAFID)	The Ohio State University	\$89,080		The Ohio State University	\$89,256	\$89,256
12-C-GA-OSU-027	Project 4 - Weather Technology in the Cockpit Program	The Ohio State University	\$46,333		The Ohio State University	\$47,000	\$47,000
12-C-GA-OSU-028	Project 22 - Airport Safety Database & Analysis	The Ohio State University	\$46,000		The Ohio State University	\$46,000	\$46,000
12-C-GA-OSU-029	Project 19 - Center of Excellence Student Outreach	The Ohio State University	\$38,918		The Ohio State University	NA	\$0
12-C-GA-OSU-031	Project 21 - Problem Solving/Decision Making and Procedures for Unexpected Events	The Ohio State University	\$288,400	\$20,000	The Ohio State University Frasca Simulations	\$168,402 \$20,000	\$288,402
12-C-GA-PU-034	Project 18 - LED Based Runway Closure Lighting	Purdue University	\$63,534	\$100,000	Flight Safety International	\$100,000	\$63,535
12-C-GA-PU-035	Project 5 - National General Aviation flight information Database (NGAFID)	Purdue University	\$83,802		Purdue University	\$83,801	\$83,801

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
General Aviation (GA)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
12-C-GA-PU-036	Project 11 - Modeling and Specification of LED Based Runway Lighting Systems	Purdue University	\$179,710		Purdue University	\$155,060	\$180,060
12-C-GA-PU-037	Project 19 - Center of Excellence Student Outreach	Purdue University	\$40,930		in kind match, various industry affiliates	\$25,000	
12-C-GA-PU-038	Project 20 - General Aviation Runway Incursions	Purdue University	\$28,716		NA	NA	\$0
12-C-GA-PU-039	Project 14 - Midpoint Runway Marking project	Purdue University	\$8,184		Purdue University	\$28,848	\$28,848
12-C-GA-PU-040	Project 2 - Rotorcraft ASIAs	Purdue University	\$40,530		Frasca International	\$20,949	\$20,949
12-C-GA-PU-041	Management of PEGASAS (Partnership to Enhance General Aviation Safety, Accessibility, and Sustainability)	Purdue University	\$170,689		Purdue University	\$40,530	\$40,530
12-C-GA-PU-043	Project 4 - Weather Technology in the Cockpit Program	Purdue University	\$434,953	\$316,000	Purdue University	\$161,719	\$171,319
12-C-GA-PU-044	Project 5 - National General Aviation Flight Information Database	Purdue University	\$89,095		Graph Story, Inc	\$9,600	
12-C-GA-PU-046	Project 10 - LED Taxiway Lighting System Testing and Monitoring	Purdue University	\$39,301		Purdue University	\$118,953	\$434,953
12-C-GA-PU-047	Project 24 - Pilot Performance Considerations for Sensor Technologies	Purdue University	\$188,354		Western Michigan University	\$316,000	
12-C-GA-TEES-010	Project 19 - Center of Excellence Student Outreach	Purdue University	\$11,373		Purdue University	\$89,095	\$89,095
12-C-GA-TEES-013	Project 4 - Weather Technology in the Cockpit Program	Purdue University	\$52,814		Purdue University	\$39,968	\$39,968
		Texas A&M Engineering Experiment Station			Purdue University	\$188,380	\$188,380
		Texas A&M Engineering Experiment Station			Texas A&M Engineering Experiment Station	NA	\$0
		Texas A&M Engineering Experiment Station			Texas A&M Engineering Experiment Station	\$52,814	\$52,814
		Total	\$3,697,892	\$538,500		Total	\$3,331,995

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Commercial Space Transportation (CST)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award Amount	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
15-C-CST-FIT-001	Task 333: FIT Onboard Context-Sensitive Informational System	Florida Institute of Technology	\$75,000		Florida Institute of Technology	\$75,000	\$75,000
15-C-CST-FSU-004	Task 325: Optical Measurements of Rocket Nozzle Thrust and Noise	Florida State University	\$58,435		Florida State University	\$58,435	\$58,435
15-C-CST-NMT-003	Task 323: Structural Health Monitoring Framework	New Mexico Institute of Mining and Technology	\$50,000		New Mexico Institute of Mining and Technology	\$50,000	\$50,000
15-C-CST-NMT-004	Task 329: NMT - Tracking and Monitoring Suborbital Commercial Space Vehicles	New Mexico Institute of Mining and Technology	\$25,000		New Mexico Institute of Mining and Technology	\$25,000	\$25,000
15-C-CST-NMT-005	Task 299: Nitrous Oxide Composite Tank Testing	New Mexico Institute of Mining and Technology	\$105,000		New Mexico Institute of Mining and Technology	\$105,000	\$105,000
15-C-CST-NMT-006	Task 303: NMT - COE CST Program Office Support	New Mexico Institute of Mining and Technology	\$50,000	\$50,000	Orion America Technologies, LLC	\$50,000	\$50,000
15-C-CST-NMT-009	Task 323: NMT Structural Health Monitoring Framework	Stanford University	\$40,000		New Mexico Institute of Mining and Technology	\$40,000	\$40,000
15-C-CST-SU-002	Task 186: SU Space Environment Modeling Prediction	Stanford University	\$42,530		Stanford University	\$42,530	\$42,530
15-C-CST-SU-003	Task 331: Advanced 4D Special Use Airspace Research	Stanford University	\$50,000		Stanford University	\$50,000	\$50,000
15-C-CST-SU-004	Task 331: Advanced 4D Special Use Airspace Research	Stanford University	\$10,000		Stanford University	\$10,000	\$10,000
15-C-CST-SU-007	Task 331: Advanced 4D Special Use Airspace Research	Stanford University	\$106,343		Stanford University	\$106,343	\$106,343

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Commercial Space Transportation (CST)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award Amount	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
15-C-CST-SU-007	Task 331: Advanced 4D Special Use Airspace Research	Stanford University	\$106,343		Stanford University	\$106,343	\$106,343
15-C-CST-UC-004	Task 187: Space Situational Awareness Improvements to Enable Safe Commercial Space Operations and Traffic Management	Regents of the University of Colorado	\$50,000		Regents of the University of Colorado	\$50,000	\$50,000
15-C-CST-UC-005	Task 320: CU Commercial Spaceflight Risk Assessment and Communication	Regents of the University of Colorado	\$42,193		Regents of the University of Colorado	\$42,193	\$42,193
15-C-CST-UC-006	Task 193: Role of the COE CST in Encouragement, Facilitate and Promote	Regents of the University of Colorado	\$13,000		Regents of the University of Colorado	\$13,000	\$13,000
15-C-CST-UC-007	Task 186: CU Mitigate Threats through Space Environment Modeling and Prediction	Regents of the University of Colorado	\$63,500		Regents of the University of Colorado	\$63,500	\$63,500
15-C-CST-UCF-003	Task 311: UCF LED based Low Cost Gas Sensor for Crew and Vehicle Safety	University of Central Florida	\$3,650		University of Central Florida	\$3,650	\$3,650
15-C-CST-UCF-005	Task 311: LED-based Low Cost Gas Sensor for Crew and Vehicle Safety	University of Central Florida	\$98,603		University of Central Florida	\$98,603	\$98,603
15-C-CST-UTMB-005	Task 330: UTMB Administrative Support.	University of Texas Medical Branch at Galveston	\$133,841	\$115,801	University of Texas Medical Branch at Galveston Orion America Technologies, LLC	\$18,040 \$115,801	\$133,841
15-C-CST-UTMB-006	Task 330: UTMB Administrative Support	University of Texas Medical Branch at Galveston	\$26,531	\$26,531	Orion America Technologies, LLC	\$26,531	\$26,531
15-C-CST-UTMB-007	Task 330: UTMB Administrative Support	University of Texas Medical Branch at Galveston	\$2,918		University of Texas Medical Branch at Galveston	\$2,918	\$2,918
15-C-CST-UTMB-008	Task 308: UTMB Suborbital SFP Anxiety Assessment	University of Texas Medical Branch at Galveston	\$49,170		University of Texas Medical Branch at Galveston	\$49,170	\$49,170
15-C-CST-UTMB-009	Task 309: UTMB Suborbital Pilot Assessment	University of Texas Medical Branch at Galveston	\$71,500		University of Texas Medical Branch at Galveston	\$71,500	\$71,500

Commercial Space Transportation (CST)

Congressional Report-Fiscal Year 2016 FAA Centers of Excellence (COE) Commercial Space Transportation (CST) Grant Awards						
Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)
15-C-CST-UTMB-010	Task 310: UTMB: Increasing Cabin Survivability in Commercial Spacecraft.	University of Texas Medical Branch at Galveston	\$24,334		University of Texas Medical Branch at Galveston	\$24,334
		Totals	\$1,191,548	\$192,332		Total
						\$1,191,548

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Advanced Materials (JAMS)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
12-C-AM-FIU-007	Effect of Surface Contamination on Composite Bond Integrity and Durability.	Florida International University	\$75,000		Florida International University	\$75,000	\$75,000
12-C-AM-OSU-007	Failure of Notched Laminates Under Out-of-plane Bending	Oregon State University	\$75,000		Oregon State University	\$75,000	\$75,000
12-C-AM-UCSD-009	Impact Damage Formation on Composite Aircraft Structures	University of California, San Diego	\$150,000		University of California, San Diego	\$150,000	\$150,000
12-C-AM-UU-012	Development of a Building Block Approach for Crashworthiness Testing of Composites	University of Utah	\$75,000		University of Utah	\$75,000	\$75,000
12-C-AM-UU-013	Durability of Adhesively Bonded Joints for Aircraft Structures	University of Utah	\$75,000		University of Utah	\$75,000	\$75,000
12-C-AM-UU-014	Development and Evaluation of Fracture Mechanics Test Methods for Sandwich Composites	University of Utah	\$75,000		University of Utah	\$75,000	\$75,000
12-C-AM-UW-029	Effects of Moisture Diffusion in Sandwich Composites	University of Washington	\$79,183		University of Washington	\$79,183	\$79,183
12-C-AM-UW-030	Administration of the JAMS-AMTAS FAA Center of Excellence	University of Washington	\$75,000		University of Washington	\$75,000	\$75,000
12-C-AM-UW-028	Delamination/Disbond Arrest Features in Aircraft Composite Structure	University of Washington	\$30,000		University of Washington	\$30,000	\$30,000
12-C-AM-WISU-046	Composite Maintenance Safety Awareness	Wichita State University	\$40,000		Wichita State University	\$40,000	\$40,000
12-C-AM-WISU-048	Wind Tunnel testing Services - Swept Wing	Wichita State University	\$35,840		Wichita State University	\$35,840	\$35,840
12-C-AM-WISU-049	Wind Tunnel testing Services - Swept Wing	Wichita State University	\$71,680		Wichita State University	\$71,680	\$71,680
12-C-AM-WISU-050	Dynamic Response of Composite Structures Subjected to Blast Loading-Phase III	Wichita State University	\$37,887		Wichita State University	\$37,887	\$37,887

Joint Advanced Materials (JAMS)

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Advanced Materials (JAMS)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
12-C-AM-WISU-048	Wind Tunnel testing Services - Swept Wing	Wichita State University	\$35,840		Wichita State University	\$35,840	\$35,840
12-C-AM-WISU-049	Wind Tunnel testing Services - Swept Wing	Wichita State University	\$71,680		Wichita State University	\$71,680	\$71,680
12-C-AM-WISU-050	Dynamic Response of Composite Structures Subjected to Blast Loading-Phase III	Wichita State University	\$37,887		Wichita State University	\$37,887	\$37,887
12-C-AM-WISU-051	CACRC Bonded Repair Round Robin and Process Parameter Evaluation	Wichita State University	\$100,000		Wichita State University	\$100,000	\$100,000
12-C-AM-WISU-052	FAA Research Requirement on Lightning Strike Composites Structure	Wichita State University	\$125,193		Wichita State University	\$125,193	\$125,193
12-C-AM-WISU-053	Composites Materials Handbook	Wichita State University	\$125,000		Wichita State University	\$125,000	\$125,000
12-C-AM-WISU-054	Adhesive Qualification Guidance for Aircraft Design and Certification	Wichita State University	\$750,000		Wichita State University	\$750,000	\$750,000
12-C-AM-WISU-055	FAA, CSET, CMT, CMfgT and Adhesive Online Courses - Modifications and Implementation.	Wichita State University	\$200,000		Wichita State University	\$200,000	\$200,000
12-C-AM-WISU-056	Certification by Analysis- Structural Crashworthiness	Wichita State University	\$330,250		Wichita State University	\$330,250	\$330,250
12-C-AM-WISU-057	Airframe Crashworthiness Testing and Simulation	Wichita State University	\$535,000		Wichita State University	\$535,000	\$535,000
12-C-AM-WISU-058	Polymer-Based Additive Manufacturing Guidance for Aircraft Design and Certification.	Wichita State University	\$400,000		Wichita State University	\$400,000	\$400,000

**Congressional Report-Fiscal Year 2016
FAA Centers of Excellence (COE)
Advanced Materials (JAMS)
Grant Awards**

Grant Number	Research Projects	Center of Excellence Award Recipients	FAA Grant Award	Total Sub-Award Amount	Non-Federal Organizations Providing Match (Source of Matching Contribution)	Amount/Value of Contribution (FY 16)	Total Matching Amount
12-C-AM-WISU-059	Advanced Fiber Reinforced Polymer Composite Materials Guidance for Aircraft Design Certification Process and Control	Wichita State University	\$600,000		Wichita State University	\$600,000	\$600,000
12-C-AM-WISU-060	Composite Repair Materials Guidance for Aircraft Maintainability and Safety Assurance	Wichita State University	\$500,000		Wichita State University	\$500,000	\$500,000
12-C-AM-WISU-061	Ceramic Matrix Composite Materials Guidance for Aircraft Design and Certification	Wichita State University	\$350,000		Wichita State University	\$350,000	\$350,000
12-C-AM-WISU-062	Inspection and Reardown of Aged In-Service Bonded Repairs	Wichita State University	\$60,000		Wichita State University	\$60,000	\$60,000
12-C-AM-WISU-063	Environmental Factor Influence on Composite Design and Certification	Wichita State University	\$150,000		Wichita State University	\$150,000	\$150,000
12-C-AM-WISU-065	Development and Safety Management of Composite Certification Guidance	Wichita State University	\$182,000		Wichita State University	\$182,000	\$182,000
12-C-AM-WISU-066	Damage Tolerance Testing and Analysis Protocols for Full-Scale Composite Airframe Structures under Repeated Loading	Wichita State University	\$100,000		Wichita State University	\$100,000	\$100,000
12-C-AM-WISU-067	Administration of the Center of Excellence for Composites and Advanced Materials (CECAM)	Wichita State University	\$75,000		Wichita State University	\$75,000	\$75,000
12-C-AM-WISU-068	Dynamic Response of Composite Structures Subjected to Blast Loading-Phase III	Wichita State University	\$87,113		Wichita State University	\$87,113	\$87,113
12-C-AM-WISU-006	Durability of Bonded Aerospace Structure	Washington State University	\$75,000		Washington State University	\$75,000	\$75,000
		Total	\$5,639,146			Total	\$5,639,146