U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

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

August 9, 2018

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 2017.

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

If I can be of further assistance, please contact me or Chris C. Brown, Assistant Administrator for Government and Industry Affairs, at 202-267-3277.

Sincerely,

Daniel K. Elwell
Acting Administrator

Enclosure

U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

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

August 9, 2018

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 2017.

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

If I can be of further assistance, please contact me or Chris C. Brown, Assistant Administrator for Government and Industry Affairs, at 202-267-3277.

Sincerely,

Daniel K. Elwell
Acting Administrator

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U.S. Department
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**Federal Aviation
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Office of the Administrator

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

August 9, 2018

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 2017.

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

If I can be of further assistance, please contact me or Chris C. Brown, Assistant Administrator for Government and Industry Affairs, at 202-267-3277.

Sincerely,

Daniel K. Elwell
Acting Administrator

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U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

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

August 9, 2018

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 2017.

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

If I can be of further assistance, please contact me or Chris C. Brown, Assistant Administrator for Government and Industry Affairs, at 202-267-3277.

Sincerely,

Daniel K. Elwell
Acting Administrator

Enclosure

Federal Aviation Administration Air Transportation Centers of Excellence

Congressional Report

Fiscal Year 2017

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Congressional Report – Fiscal Year 2017 Narrative

Federal Aviation Administration
Air Transportation Centers of Excellence Program
Fiscal Year (FY) 2017 Overview

The Federal Aviation Administration (FAA) recognizes the critical need to develop the nation's technology base while educating the next generation of aviation professionals. Congress mandated the establishment of FAA Air Transportation Centers of Excellence in Omnibus Budget Reconciliation Act of 1990 Public Law (P.L.) 101-508, Title IX – Aviation Safety and Capacity Expansion Act. Subsequently, H.R. 658-130, Section 907 (b) amends Section 44513 by adding that the FAA Administrator shall transmit annually to specified Congressional committees a report that lists (1) the research projects that have been initiated by each center in the preceding year, (2) the amount of funding for each project and the funding source, (3) the institutions participating in each research project, and (3) the level of cost-sharing for each research project.

P.L. 101-508 provided selection criteria, which the FAA Administrator with the Secretary of Transportation have used to select 13 COEs in mission critical topic areas over the past two decades. 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, conduct focused research and development and related activities over a period of 10 years. The COE Program mission is to enhance FAA's access to university research capabilities through research grants and promote the growth of a scientifically and technologically trained workforce.

In compliance with P.L. 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 P.L. 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. Since the inception of the COE Program and the first grant award in 1993, the Program has included 92 COE core universities. With their non-federal affiliates, COE partners have provided more than $300 million in matching contributions to augment FAA research efforts within 13 COEs. Several universities have served on multiple COE teams.

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.

Throughout Fiscal Year (FY) 2017, the FAA awarded over $24.6 million in grants to support 119 projects to 62 universities within six of the active COEs throughout the United States. The FAA COE Program Office executed 224 grant awards and other actions, and generated more than $30 million in matching contributions from industry and other nonfederal sources.

The FAA COE PMO joined with the FAA's Air Traffic Organization to establish the new COE for Technical Training and Human Performance (TTHP) resulting in the execution of 66 grants to support projects. Following a rigorous competition conducted throughout 2016, the COE TTHP was operational in January 2017. The 16 COE core universities are led by the University of Oklahoma and Embry-Riddle Aeronautical University serving as the Technical Co-Leads, and Wichita State University serves as the Administrative Lead.

The FAA Sponsoring Office commits to an annual minimum 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. The annual minimum funding is determined based on the Sponsoring Office's budget and the forecasted amount of research required in the critical area. FAA awards additional funding based on the current requirements for selected research areas and the needs of various sponsors. The FAA made the determination that COE funding would be made available for 10 years in order for the COE to position itself to generate matching contributions and ultimately establish itself as a national resources that would serve the aviation community and nation after completion of initial requirements. As a self-sufficient national aviation resource, it is expected that the COE will be able to exist without an annual commitment or full reliance on the FAA. 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 well as the FAA, as needed.

Three centers have satisfied their COE requirements and FAA considers them as self-sufficient national resources. These are the National Center of Excellence for Aviation Operations Research, Center of Excellence for Airport Technology Research, and Airliner Cabin Environment and Research in the Intermodal Transport Environment.

During FY 2017, the FAA supported six active public-private partnerships throughout the United States with academic institutions and their industry and other affiliates. Narratives follow for each of the following:

- COE for Technical Trainingand 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 Attachments with Appendices (A through F) that list the awards executed during FY 2017 to the current university members of each COE. Matching contributions subject to 'establishing, operating and conducting research' as required are included 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)

The FAA Administrator selected the COE for Technical Training and Human Performance (TTHP) team with concurrence of the Secretary of Transportation in August 2016. The mission of the COE is to establish and manage a consortium between government, academia, and industry to evaluate and create solutions for the enhancement of the training and operational performance of all air transportation personnel. With a focus on improving training and performance of those who operate the National Airspace System, the Center is comprised of 16 core universities, 9 affiliates, and 40 industry partners.

The Center focuses research efforts predominantly on topics of critical interest that seek solutions in the following areas: curriculum architecture; content management and delivery; simulation and part task training; human factors; analytics; and safety. With 22 research projects (totaling 66 grants) initiated in year 1 of the Center, research includes modular curriculum design, virtual training delivery, simulation, applied game theory, visual search patterns, and learner data management, among many others aimed at understanding best practices, applying lessons learned, and advancing the state of technical training. In year 2 of operation, the Center has already expanded the number of research efforts, sponsoring organizations, and industry partners. The results of the research will inform future technical training for professions across the FAA. Under the leadership of the University of Oklahoma, Embry-Riddle Aeronautical University and Wichita State 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, and Western Michigan University.

This newly established TTHP COE became operational in January 2017. Initial base funding of $5 million supported 66 TTHP projects. In FY 2017, the COE received 21 additional grant awards totaling slightly more than $1.5 million to support additional TTHP projects requested by sponsors throughout the FAA. Based on the competitive process used to select the COE team, the FAA is also planning to execute an Indefinite Delivery Indefinite Quantity (IDIQ) contract to procure deliverables for the sole benefit of the government. Contract awards will not show on future reports as providing one-to-one match as cost share for work performed for FAA benefit (vs. public purpose) is negotiable.

For additional information, see: http://www.coetthp.org

COE for Unmanned Aircraft Systems (UAS)

The FAA Administrator established the COE for Unmanned Aircraft Systems (UAS) in FY 2015. The COE for UAS focuses research efforts on the following topic areas: Air Traffic Control Interoperability, Airport Ground Operations, Control and Communication, Detect and Avoid, Human Factors, Low Altitude Operations Safety, Noise Reduction, Spectrum Management, UAS Crew Training and Certification Including Pilots, UAS Traffic Management and 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.

As of FY 2017, the COE UAS reflects a $25 million level-of-effort as members are matching grant awards dollar-for-dollar from non-federal sources in keeping with statutory requirements. During FY 2017, the FAA awarded grants to 11 of the 15 COE core members in the second year of this 10-year research partnership in support of projects totaling approximately $3.9 million. Based on the competitive process used to select the COE team, the FAA is also planning to execute an Indefinite Delivery Indefinite Quantity (IDIQ) contract to procure deliverables for the sole benefit of the government. Contract tasks funded will not show on future reports as providing one-to-one match, as cost share for work performed for FAA benefit (vs. public purpose) is negotiable.

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

COE for Alternative Jet Fuels and Environment (AJFE)

The FAA Administrator established the COE for Alternative Jet Fuels and Environment (AJFE) in September 2013. The research and development 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.

COE AJFE research projects align with the Department of Transportation strategic goals on Infrastructure (Goal 2), Innovation (Goal 3), and Accountability (Goal 4). The work of COE AJFE to aid the FAA in overcoming the environmental and energy challenges facing aviation will allow the nation's air transportation system to grow thereby ensuring the continued mobility and economic growth that accompanies the air transport sector. Innovation is required in developing the technological and operational measures to reduce aviation's impacts on the environment, which will also improve the efficiency of the airspace system and promote growth of the sector to new entrants such as supersonic aircraft, unmanned vehicles, and commercial space. Updated policies and regulatory framework that better reflects improved understanding of environmental and energy impacts, and the innovations in aircraft and engine technologies are necessary to improve the efficiency, effectiveness and accountability of the airspace system to our aviation users and stakeholders.

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.

In FY 2017, seven member universities received grant funding in support of 31 research projects totaling $9.8 million. The COE members generated $10 million in matching contributions from non-federal sources.

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

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

The FAA Administrator established the COE for General Aviation Safety, Accessibility and Sustainability in 2013. This COE performs projects that support the FAA's needs across diverse areas of general aviation (GA). COE GA efforts have supported improving *airport safety* by investigating airport pavement, LED lighting, pavement markings, rumble strips, and other topics with applications to small GA airports. COE GA has also supported GA *flight safety* with projects that include examining how to use recorded flight data, for fixed-wing and rotorcraft, to improve aviation safety.

Additional efforts have examined how pilots make use of information in the cockpit such as angle of attack indicators, weather information and advanced sensor displays. These efforts include aspects that span flight testing, algorithm development, and human factors. Results from COE GA projects have informed the FAA on providing guidance, including input used by the FAA to develop or update Advisory Circulars, to contribute to the enhancement of not only GA safety but to aviation safety generally, as many COE GA projects that focus on GA also apply to commercial operations.

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.

Six core member universities of this COE received just under $3.3 million to support 16 research projects in FY 2017 and generated one-for-one match on all grant awards that require matching contributions. Per statutory requirements, awards to *establish, operate, and conduct research* are subject to one-to-one match. FAA supported three grants for experiential activities to support workforce development that are not subject to the legislative mandate to match funds.

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

COE for Commercial Space Transportation (CST)

The FAA Administrator established the Commercial Space Transportation (CST) in FY 2010. The research and development efforts of the COE for CST 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.

Research goals in these four areas include: improved management of safety of public and property; improved management of external risks to launch and reentry vehicles; safe, equitable, and effective sharing of the national air space by air and space transportation operators, with minimal disruption caused by commercial space traffic (outbound and inbound); improved spaceport interoperability and development of necessary spaceport industry infrastructure resources; improved vehicle safety and risk analyses and management, including knowledge of all safety-critical components and systems of the space vehicles and their operations; improved manufacturability, assembly, and operational efficiencies of space transportation vehicles, systems, and subsystems; improved management of avoidable risks of human spaceflight; continuous improvement of the operational safety of human-carrying vehicles (during both launch and reentry) and spaceports; improved methodologies for evaluating public and property, such as performance based requirements; encourage the growth of evolving space industry sectors through relevant economic, legal, legislative, regulatory, and market analyses & modeling; support effective policy decision-making in the accomplishment of the dual regulatory and promotional missions of FAA Office of Commercial Space Transportation; and provide a better understanding of the relationship of governmental policy, innovation adoption, and industry growth.

The following universities serve as COE CST core members: 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 Boulder, University of Florida, and the University of Texas Medical Branch Galveston. During FY 2017, the COE added Baylor College of Medicine as a core member.

COE CST research is critical to ensure the safety of the public as the number of commercial space launches need to be safely integrated into the national air space while also minimizing the impact to the aviation industry, the traveling public, and the emerging commercial space industry.

Since FY 2010, the FAA has awarded $9.9 million in grants to the COE CST. During FY 2017, the 11 core member universities received approximately $1.3 million for 17 research projects. Through the first five years of operation (FY 2010 - FY 2015), the COE core universities, with their industry affiliates, have exceeded their one-for-one matching requirement each year. The COE CST members are currently in Phase II of a five-year cooperative agreement that extends through FY 2020. Members are preparing for this COE to become self-sufficient.

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

Joint COE for Advanced Materials (JAMS)

The FAA Administrator established the Joint COE for Advanced Materials in 2004. In compliance with Congressional direction, the COE will continue to operate through 2021. This COE conducts research and development on the following topics to endure the safe use of composite materials in aircraft products: damage tolerance of composites, composite maintenance practices, crashworthiness of composites, environmental effects of composites, structural integrity of adhesively bonded structure, continued operational safety and certification efficiency for emerging composite technologies, and composite additive manufacturing.

Recent increase in the use of composite materials in commercial and civil aircraft require a proactive approach to maintain safe operations in the National Aviation System. Approaching a century of experience with metals in aircraft, there have been many lessons learned about the behavior of these materials. Without the benefit of that history for composites, this COE has been conducting research that addresses this gap and adds to the knowledge base of composite materials. The research output is used by the FAA to develop regulations, policy and guidance material which guide FAA employees and the aircraft industry towards the highest levels of safety. Additionally, as a major research output, the joint COE supports publication of the Composite Materials Handbook-17 (CMH-17), the authoritative worldwide focal point for technical information on composite materials and structures. As an industry-wide global standard, it provides information and guidance necessary to design and fabricate end items from composite materials. Through publication of the COE research output, the handbook aims to standardize testing and engineering data development methodologies for current and emerging composite materials.

Under the joint leadership of the University of Washington and Wichita State University, the following universities serve as core members: 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 2017, the FAA funded 13 projects awarding nearly $4.9 million to support related research. The COE members and affiliates generated matching contributions to satisfy their requirements.

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

Attachment I - FY 2017

Appendix - FAA COEs Funded in FY 2017:

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)

E. Commercial Space Transportation (COE CST)

F. Advanced Materials (COE JAMS)

Congressional Report-Fiscal Year 2017
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 17)	Total Matching Amount
16-C-TTHP-AU-003	Employee Footprint: 21st Century Approach Towards Employee Development	Auburn University	$26,952.00		Auburn University	$18,111.00	$26,952.00
				$8,841.00	Key Bridge Technologies	$8,841.00	
16-C-TTHP-DU-004	Air traffic and tech ops ITA workbooks database	Drexel University	$50,000.00	NA	Drexel University	$50,000.00	$50,000.00
16-C-TTHP-ERAU-017	ATC scenario training technology	Embry- Riddle Aeronautical University	$350,000.00	NA	Embry- Riddle Aeronautical University	$350,000.00	$350,000.00
16-C-TTHP-ERAU-018	COE TTHP travel support program management	Embry- Riddle Aeronautical University	$28,000.00	NA	Embry- Riddle Aeronautical University	$28,000.00	$28,000.00
16-C-TTHP-ERAU-019	COE TTHP program support	Embry- Riddle Aeronautical University	$96,000.00	NA	Embry- Riddle Aeronautical University	$96,000.00	$96,000.00
16-C-TTHP-ERAU-020	Fleet assessment modernization study	Embry- Riddle Aeronautical University	$99,500.00	NA	Embry- Riddle Aeronautical University	$99,500.00	$99,500.00
16-C-TTHP-ERAU-021	Pilot school model feasibility study	Embry- Riddle Aeronautical University	$47,500.00	NA	Embry- Riddle Aeronautical University	$47,500.00	$47,500.00
16-C-TTHP-ERAU-022	Managing training content including adaptive learning capabilities using 21st century technology	Embry- Riddle Aeronautical University	$80,127.00		Embry- Riddle Aeronautical University	$43,897.00	$80,127.00
				$36,230.00	C2 Technologies	$36,230.00	
16-C-TTHP-ERAU-023	Benchmark premier technical training providers	Embry- Riddle Aeronautical University	$99,500.00	NA	Embry- Riddle Aeronautical University	$99,500.00	$99,500.00
16-C-TTHP-IAU-003	Managing training content including adaptive learning capabilities using 21 century technology	Inter-American University	$19,810.00	NA	Inter-American University	$19,810.00	$19,810.00
16-C-TTHP-IAU-004	Employee footprint 21 century approach towards employee development	Inter-American University	$15,405.00	NA	Inter-American University	$15,405.00	$15,405.00
16-C-TTHP-OK-017	COE TTHP technical support	University of Oklahoma	$120,000.00	NA	University of Oklahoma	$120,000.00	$120,000.00
16-C-TTHP-OK-018	Feasibility study of flight inspection aided by UAS based sensing and calibration	University of Oklahoma	$99,998.00	NA	University of Oklahoma	$99,998.00	$99,998.00

Congressional Report-Fiscal Year 2017
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 17)	Total Matching Amount
16-C-TTHP-OK-019	Creating an adaptive & distributed competency based learning environment to develop next generation of aviation safety inspectors	University of Oklahoma	$86,806.00	NA	University of Oklahoma	$86,806.00	$86,806.00
16-C-TTHP-OSU-004	Employee footprint 21st century approach towards employee development	Ohio State University	$20,023.00	NA	Ohio State University	$20,023.00	$20,023.00
16-C-TTHP-PU-003	Technical operations airway transportation systems specialist training analysis	Purdue University	$7,967.00	NA	Purdue University	$7,967.00	$7,967.00
16-C-TTHP-UA-006	Comprehensive aircraft fleet study & system optimization using analytical hierarchy process & discrete event simulation modeling	University of Akron	$73,197.00	NA	University of Akron	$73,197.00	$73,197.00
16-CTTHP-WISU-008	Annual report preparation and information dissemination yr 1	Wichita State University	$94,400.00	$92,460.00	Wichita State University Orion America	$94,400.00 $92,460.00	$94,400.00
16-C-TTHP-WISU-009	Annual report preparation and information dissemination yr 2	Wichita State University	$76,000.00	$73,774.00	Wichita State University Orion America	$2,226.00 $73,774.00	$76,000.00
16C-TTHP-WISU-010	Survey and Site Visit Process	Wichita State University	$20,000.00	$20,000.00	Wichita State University Orion America	$20,000.00	$20,000.00
16-C-TTHP-WMU-003	Technical operations airway transportation systems specialist training analysis	Western Michigan University	$27,572.00	NA	Western Michigan University	$27,572.00	$27,572.00
		Total	**$1,538,757.00**	**$231,305.00**		**Total Match**	**$1,538,757.00**

Congressional Report-Fiscal Year 2017
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 17)	Total Matching Amount
15-C-UAS-ERAU-007	A10: Human factors consideration of UAS procedures & control stations	Embry-Riddle Aeronautical University	$19,869.00	NA	Embry-Riddle Aeronautical University	$19,869.00	$19,869.00
15-C-UAS-KSU-006	A10: Human factors considerations of UAS procedures & controls stations	Kansas State University	$4,590.00	NA	Kansas State University	$4,590.00	$4,590.00
15-C-UAS-MSU-021	A12: Performance analysis of UAS detection technologies operating in airport environments	Mississippi State University	$50,000.00	NA	Mississippi State University	$50,000.00	$50,000.00
15-C-UAS-MSU-022	a10- human factors considerations for UAS procedures and control stations	Mississippi State University	$8,700.00	NA	Mississippi State University	$8,700.00	$8,700.00
15-C-UAS-MSU-025	A12: Performance analysis of UAS detection technologies operating in airport environments	Mississippi State University	$50,000.00	NA	Mississippi State University	$50,000.00	$50,000.00
15-C-UAS-MSU-026	COE UAS program management	Mississippi State University	$1,148,662.00	NA	Mississippi State University	$1,148,662.00	$1,148,662.00
15-C-UAS-MSU-028	A11: Ground collision severity studies	Mississippi State University	$268,243.00	NA	Mississippi State University	$268,243.00	$268,243.00
15-C-UAS-MTSU-005	A10: UAS human factors considerations	Montana State University	$10,650.00	NA	Montana State University	$10,650.00	$10,650.00
15-C-UAS-MTSU-006	A10: UAS human factors considerations	Montana State University	$36,407.00	NA	Montana State University	$36,407.00	$36,407.00
15-C-UAS-MTSU-007	A13: UAS airborne collision severity peer review	Montana State University	$2,379.00	NA	Montana State University	$2,379.00	$2,379.00
15-C-UAS-MTSU-008	A15: STEM II	Montana State University	$45,000.00	NA	NA		
15-C-UAS-NMSU-009	A12: Performance analysis of UAS detection technologies operating in an airport environment	New Mexico State University	$50,000.00	NA	New Mexico State University	$50,000.00	$50,000.00
15-C-UAS-NMSU-010	A12: Performance analysis of UAS detection technologies operating in an airport environment	New Mexico State University	$50,000.00	NA	New Mexico State University	$50,000.00	$50,000.00
15-C-UAS-NMSU-012	A15: STEM II	New Mexico State University	$15,000.00	NA	New Mexico State University		

Congressional Report-Fiscal Year 2017
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 17)	Total Matching Amount
15-C-UAS-NMSU-013	Minority outreach UAS as a stem minority outreach	New Mexico State University	$33,000.00	$16,500.00	New Mexico State University Tuskegee University	$16,500.00	$33,000.00
15-C-UAS-OSU-008	Surveillance criticality for SAA	Ohio State University	$24,961.97	NA	Ohio State University	$24,961.97	$24,961.97
15-C-UAS-OSU-009	A9-Secure command and control link with interference mitigation	Ohio State University	$80,000.00	NA	Ohio State University	$80,000.00	$80,000.00
15-C-UAS-OSU-010	A14: Ground collision severity studies	Ohio State University	$255,351.00	NA	Ohio State University	$255,351.00	$255,351.00
15-C-UAS-UAF-001	A10: Human factors considerations	University of Alaska, Fairbanks	$6,000.00	NA	University of Alaska, Fairbanks	$6,000.00	$6,000.00
15-C-UAS-UAF-002	A15; STEM II	University of Alaska, Fairbanks	$44,982.00	NA	University of Alaska, Fairbanks	$44,982.00	$44,982.00
15-C-UAS-UAH-004	A14: Ground collision severity studies	University of Alabama, Huntsville	$759,375.00	$55,000.00	University of Alabama, Huntsville Virginia Polytechnic Institute and State University	$759,375.00	$759,375.00
15-C-UAS-UCD-001	A15: STEM II	University of California, Davis	$45,000.00	NA	University of California, Davis		
15-C-UAS-UND-007	A10 human factors considerations of UAS procedures & controls stations	University of North Dakota	$5,282.00	NA	University of North Dakota	$5,282.00	$5,282.00
15-C-UAS-UND-008	A12: Performance analysis of UAS detection technologies operating in airport environments	University of North Dakota	$50,000.00	NA	University of North Dakota	$50,000.00	$50,000.00
15-C-UAS-UND-009	A12: Performance analysis of UAS detection technologies operating in airport environments	University of North Dakota	$50,000.00	NA	University of North Dakota	$50,000.00	$50,000.00
15-C-UAS-WISU-003	A13: UAS airborne collision severity peer review	University of Wisconsin, Madison	$4,647.00	NA	University of Wisconsin, Madison	$4,647.00	$4,647.00
15-C-UAS-WISU-005	A14: Ground collision severity studies	Wichita State University	$759,612.00	NA	Wichita State University	$759,612.00	$759,612.00
		Total	$3,883,710.97	$71,500.00		Total Match	$3,883,710.97

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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 17)	Total Matching Amount
13-C-AJFE-BU-011	Project 18: Community measurement of aviation emission contribution of ambient air	Boston University	$270,000.00	NA	Boston University	$270,000.00	$270,000.00
13-C-AJFE-BU-012	Project 3: Cardiovascular disease and aircraft noise exposure	Boston University	$340,000.00	NA	Boston University	$340,000.00	$340,000.00
13-C-AJFE-GIT-028	Travel support for FAA NIFCP program	Georgia Tech Research Corporation	$55,000.00	NA	Georgia Tech Research Corporation	$55,000.00	$55,000.00
13-C-AJFE-GIT-029	Project 36: Parametric uncertainty assessment for AEDT 2b	Georgia Tech Research Corporation	$80,000.00	NA	Georgia Tech Research Corporation	$80,000.00	$80,000.00
13-C-AJFE-GIT-030	Project 36: parametric uncertainty assessment for AEDT 2b	Georgia Tech Research Corporation	$300,000.00	NA	Georgia Tech Research Corporation	$300,000.00	$300,000.00
13-CAJFE-GIT-031	Project 10: Aircraft technology and assessment	Georgia Tech Research Corporation	$562,500.00	NA	Georgia Tech Research Corporation	$562,500.00	$562,500.00
13-C-AJFE-GIT-032	Project 43: Noise power distance re-evaluation	Georgia Tech Research Corporation	$75,000.00	NA	Georgia Tech Research Corporation	$75,000.00	$75,000.00
13-C-AJFE-GIT-033	Project 37: CLEEN II system level assessment	Georgia Tech Research Corporation	$170,000.00	NA	Georgia Tech Research Corporation	$170,000.00	$170,000.00
13-C-AJFE-GIT-034	Project 27A: Advanced combustion area#3	Georgia Tech Research Corporation	$206,000.00	NA	Georgia Tech Research Corporation	$206,000.00	$206,000.00
13-C-AJFE-GIT-035	Project 45: takeoff/climb analysis to support AEDT APM development	Georgia Tech Research Corporation	$75,000.00	NA	Georgia Tech Research Corporation	$75,000.00	$75,000.00
13-C-AJFE-MIT-031	Analytical approach for quantifying noise from advanced operational procedures	Georgia Tech Research Corporation	$250,000.00	NA	Georgia Tech Research Corporation	$250,000.00	$250,000.00
13-C-AJFE-MIT-032	Development of NAS wide and global rapid aviation air quality	Massachusetts Institute of Technology	$250,000.00	NA	Massachusetts Institute of Technology	$250,000.00	$250,000.00

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13-C-AJFE-MIT-033	Alternative jet fuel supply chain analysis 1	Massachusetts Institute of Technology	$475,000.00	NA	Massachusetts Institute of Technology	$475,000.00	$475,000.00
13-C-AJFE-MIT-034	Project 39: Nephthalene removal assessment	Massachusetts Institute of Technology	$290,000.00	NA	Massachusetts Institute of Technology	$290,000.00	$290,000.00
13-C-AJFE-MIT-035	Project 46: Surface analysis to support AEDT APM development	Massachusetts Institute of Technology	$75,000.00	NA	Massachusetts Institute of Technology	$75,000.00	$75,000.00
13-C-AJFE-MIT-036	Project 48: Analysis to support the development of an engine NVPM emissions standard	Massachusetts Institute of Technology	$200,000.00	NA	Massachusetts Institute of Technology	$200,000.00	$200,000.00
13-C-AJFE-MIT-037	Project 21: Improving climate policy analysis tools 21	Massachusetts Institute of Technology	$150,000.00	NA	Massachusetts Institute of Technology	$150,000.00	$150,000.00
13-C-AJFE-MST-010	Re-examination of engine to engine pm variability using an ARP reference sampling and measurement system 2	Missouri Institute of Science and Technology	$725,500.00	NA	Missouri Institute of Science and Technology	$725,000.00	$725,000.00
13-C-AJFE-OSU-005	Project 27B: Turbulent flame speed of conventional and alternative jet fuels	Oregon State University	$59,000.00	NA	Oregon State University	$59,000.00	$59,000.00
13-C-AJFE-PSU-031	Alternative jet fuel supply chain analysis-mid Atlantic 1	Pennsylvania State University	$234,424.00	NA	Pennsylvania State University	$234,424.00	$234,424.00
13-C-AJFE-PSU-032	Project 40: Quantifying uncertainties in predicting aircraft noise in real world situations	Pennsylvania State University	$110,000.00	NA	Pennsylvania State University	$110,000.00	$110,000.00
13-C-AJFE-PSU-033	Project 42: acoustical model of mach cut off ascent	Pennsylvania State University	$150,000.00	NA	Pennsylvania State University	$150,000.00	$150,000.00
13-C-AJFE-PSU-034	Project 41: Identification of noise acceptance onset for noise certification standards for supersonic airplane	Pennsylvania State University	$150,000.00	NA	Pennsylvania State University	$150,000.00	$150,000.00

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13-C-AJFE-PSU-035	Project 41B: ASCENT supersonic community instrumentation and monitoring	Pennsylvania State University	$71,000.00	NA	Pennsylvania State University	$71,000.00	$71,000.00
13-C-AJFE-PSU-036	Project 8: Outreach project for center of excellence for aviation sustainability CENTER	Pennsylvania State University	$25,000.00	NA	Pennsylvania State University	$25,000.00	$25,000.00
13-C-AJFE-PSU-037	Project 38: Rotorcraft noise abatement procedures development	Pennsylvania State University	$150,000.00	NA	Pennsylvania State University	$150,000.00	$150,000.00
13-C-AJFE-PSU-035	Project 41b: ASCENT supersonic community instrumentation and monitoring	Pennsylvania State University	$71,000.00	NA	Pennsylvania State University	$71,000.00	$71,000.00
13-C-AJFE-PSU-036	Project 8: Outreach project for center of excellence for aviation sustainability center	Pennsylvania State University	$25,000.00	NA	Pennsylvania State University	$25,000.00	$25,000.00
13-C-AJFE-PSU-037	Project 38: Rotorcraft noise abatement procedures development	Pennsylvania State University	$150,000.00	NA	Pennsylvania State University	$150,000.00	$150,000.00
13-C-AJFE-PU-018	Project 10: Aircraft technology modeling and assessment	Purdue University	$107,067.00	NA	Purdue University	$107,067.00	$107,067.00
13-C-AJFE-PU-019	Techno-economic & lifecycle analysis of alternative aviation biofuels supply chains	Purdue University	$400,000.00	NA	Purdue University	$400,000.00	$400,000.00
13-C-AJFE-PU-020	Project 40: Quantifying uncertainties in predicting aircraft noise in real world situations	Purdue University	$90,000.00	NA	Purdue University	$90,000.00	$90,000.00
13-C-AJFE-PU-021	National jet fuels combustion program area# 5 atomization tests and models	Purdue University	$150,000.00	NA	Purdue University	$150,000.00	$150,000.00

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13-C-AJFE-SU-017	Project 25: Continuation shock tube and flow reactor studies of kinetics of jet fuels ascent	Stanford University	$200,000.00	NA	Stanford University	$200,000.00	$200,000.00
13-C-AJFE-UD-017	National jet fuels combustion program area # 7 year 2	University of Dayton	$192,997.00	NA	University of Dayton	$192,997.00	$192,997.00
13-C-AJFE-UD-016	Project 31: Alternative jet fuels test and evaluation	University of Dayton	$999,512.00	NA	University of Dayton	$999,512.00	$999,512.00
13-C-AJFE-UH-008	Alternative jet fuel supply chain analysis tropical region analysis	University of Hawaii	$125,000.00	NA	University of Hawaii	$125,000.00	$125,000.00
13-C-AJFE-UI-018	Project 22: evaluation of FAA climate tools	University of Dayton	$100,000.00	NA	University of Dayton	$100,000.00	$100,000.00
13-C-AJFE-UI-019	Project 33: Alternative fuels test database library	University of Illinois	$165,000.00	NA	University of Illinois	$165,000.00	$165,000.00
13-C-AJFE-UNC-006	Development of aviation air quality tools for airport specific impact assessment air quality modeling	University of North Carolina	$424,988.00	NA	University of North Carolina	$424,988.00	$424,988.00
13-C-AJFE-UNC-007	Project 19: Development of aviation air quality tools for airport specific impact assessment air quality modeling	University of North Carolina	$200,390.00	NA	University of North Carolina	$200,390.00	$200,390.00
13-C-AJFE-UPENN-006	Project 17: Pilot study on aircraft noise and sleep disturbance	University of Pennsylvania	$135,306.00	NA	University of Pennsylvania	$135,306.00	$135,306.00
13-C-AJFE-UTENN-006	Techno-market analysis of us bio-refinery supply chains from feedstock alternative jet fuels	University of Tennessee	$225,000.00	NA	University of Tennessee	$225,000.00	$225,000.00
13-CAJFE-WSU-012	Administer program office for center of excellence for alternative jet fuels and environment	Washington State University	$400,002.00	NA	Washington State University	$400,002.00	$400,002.00
13-C-AJFE-WSU-013	Alternative jet fuel supply chain analysis -1	Washington State University	$396,037.00	NA	Washington State University	$396,037.00	$396,037.00
		Total	$9,809,723.00			Total Match	$9,809,723.00

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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 17)	Total Matching Amount
12-C-GA-FIT-016	Project 20: General aviation runway incursions	Florida Institute of Technology	$8,700.00	NA	Florida Institute of Technology	$8,700.00	$8,700.00
12-C-GA-FIT-017	Project 22: Airport safety database & analysis	Florida Institute of Technology	$50,000.00	NA	Florida Institute of Technology	$50,000.00	$50,000.00
12-C-GA-FIT-021	Project 30 Scenario based training for Rotocraft	Florida Institute of Technology	$50,000.00	NA	Florida Institute of Technology	$50,000.00	$50,000.00
12-C-GA-GIT-014	Project 2: Rotorcraft ASIAS	Georgia Tech Research Corporation	$89,255.50	NA	Georgia Tech Research Corporation	$89,255.50	$89,255.50
12-C-GA-GIT-015	Project 25: General aviation 2030-ga exploratory analyses	Georgia Tech Research Corporation	$99,999.00	NA	Georgia Tech Research Corporation	$99,999.00	$99,999.00
12-C-GA-GIT-017	Project 19: Center of Excellence student outreach	Georgia Tech Research Corporation	$49,040.00	NA	NA		
12-C-GA-GIT-018	Project 5: National general aviation flight information database (NGAFID)	Georgia Tech Research Corporation	$70,000.00	NA	Georgia Tech Research Corporation	$70,000.00	$70,000.00
12-C-GA-GIT-019	Project 2: Rotorcraft ASIAS	Georgia Tech Research Corporation	$149,526.00	NA	Georgia Tech Research Corporation	$149,526.00	$149,526.00
12-C-GA-GIT-020	Project 30: Scenario based training for Rotocraft	Georgia Tech Research Corporation	$496,000.00	NA	Georgia Tech Research Corporation	$496,000.00	$496,000.00
12-C-GA-ISU-013	Project 17: LED lighting hot/cold performance testing	Iowa State University	$119,370.00	NA	Iowa State University	$119,370.00	$119,370.00
12-C-GA-ISU-014	Project 7: FAA Pavement marking presence tool	Iowa State University	$65,000.00	NA	Iowa State University	$65,000.00	$65,000.00
12-C-GA-ISU-016	Project: 19 Center of Excellence student outreach	Iowa State University	$6,390.00	NA	NA		
12-C-GA-ISU-019	Project 1: Heated airport pavements task 1-h	Iowa State University	$272,247.00	NA	Iowa State University	$272,247.00	$272,247.00

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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 17)	Total Matching Amount
12-C-GA-OSU-033	Project 17: LED lighting hot/cold performance testing	Ohio State University	$115,298.00	NA	Ohio State University	$115,298.00	$115,298.00
12-C-GA-PU-049	Project 25: General aviation 2030-ga exploratory analyses	Purdue University	$49,994.00	NA	Purdue University	$49,994.00	$49,994.00
12-C-GA-PU-050	Project 26: Drop-in aviation fuel fire safety	Purdue University	$117,985.00	NA	Purdue University	$117,985.00	$117,985.00
12-C-GA-PU-054	Project 19: Center of Excellence student outreach	Purdue University	$42,396.75	NA	NA		
12-C-GA-PU-055	Project 5: National general aviation flight information database	Purdue University	$121,575.00	NA	Purdue University	$121,575.00	$121,575.00
12-C-GA-PU-057	Project 27: Heated pavements phase change material	Purdue University	$210,000.00		Purdue University	$95,404.00	$210,000.00
				$114,596.00	Oregon State University	$114,596.00	
12-C-GA-PU-060	Management of PEGASAS (partnership to enhance general aviation safety accessibility, & sustainability)	Purdue University	$175,000.00	NA	Purdue University	$162,782.00	$175,000.00
					In Kind Support - Full Nelson Consulting	$12,218.00	
12-C-GA-PU-061	Project 29: Technology assessment to improve operations counts at non towered airports	Purdue University	$215,154.00	NA	Purdue University	$169,334.00	$215,154.00
12-C-GA-PU-062	Project 4: Weather technology in the cockpit program	Purdue University	$352,433.00	NA	Purdue University	$352,433.00	$352,433.00
12-C-GA-TEES-015	Project 17:LED light hot/cold performance testing	Texas A&M Engineering Experiment Station	$115,298.00	NA	Texas A&M Engineering Experiment Station	$115,298.00	$115,298.00
12-C-GA-TEES-019	Human performance impacts of head worn displays for general aviation	Texas A&M Engineering Experiment Station	$227,025.00	NA	Texas A&M Engineering Experiment Station	$227,025.00	$227,025.00
		Total	$3,267,686.35	$114,596.00		Total Match	$3,169,589.00.00

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15-C-CST-FIT-004	Task 353: Design and ops considerations for human space flight occupant safety	Florida Institute of Technology	$80,000.00	NA	Florida Institute of Technology	$80,000.00	$80,000.00
15-C-CST-FSU-005	Task 241: High Temperature, Optical Sapphire Pressure Sensors for Hypersonic Vehicles	Florida State University	$49,200.00	NA	Florida State University	$49,346.00	$49,346.00
15-C-CST-FSU-006	Task 325: Optical Measurements of Rocket Nozzle Thrust and Noise	Florida State University	$70,500.00	NA	Florida State University	$70,501.00	$70,501.00
15-C-CST-NMSU-002	Task 371: Space object database	New Mexico State University	$99,039.00		New Mexico State University	$30,142.00	$99,039.00
				$68,897.00	The University of Texas at Austin	$68,897.00	
15-C-CST-NMT-010	Task 299: Nitrous oxide composite tank testing	New Mexico Institute of Mining and Technology	$100,000.00	NA	New Mexico Institute of Mining and Technology	$100,000.00	$100,000.00
15-C-CST-NMT-011	Task 303: COE CST Program Office Support	New Mexico Institute of Mining and Technology	$50,000.00		New Mexico Institute of Mining and Technology		$50,000.00
				$50,000.00	Orion Technologies, LLC	$50,000.00	
15-C-CST-SU-008	Task 331: Advanced 4d special use airspace research	Stanford University	$5,000.00	NA	Stanford University	$5,000.00	$5,000.00
15-C-CST-SU-010	Task 186: Mitigate threats through space environment modeling and predictions	Stanford University	$54,400.00	NA	Stanford University	$54,400.00	$54,400.00
15-C-CST-UC-007	Task 186: Mitigate threats through space environment modeling and predictions	Regents of the University of Colorado	$63,500.00	NA	Regents of the University of Colorado	$63,500.00	$63,500.00
15-C-CST-UC-008	Task 353: Human factors vehicle design focus	Regents of the University of Colorado	$81,581.00	NA	Regents of the University of Colorado	$81,581.00	$81,581.00
15-C-CST-UC-009	Task 373: RA3 workshop event	Regents of the University of Colorado	$12,486.00	NA	Regents of the University of Colorado	$12,486.00	$12,486.00

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15-C-CST-UC-010	Task 367: Cube set cluster deployment tracking	Regents of the University of Colorado	$75,000.00	NA	Regents of the University of Colorado	$75,000.00	$75,000.00
15-C-CST-UCF-006	Task 311: LED-based Low Cost Gas Sensor for Crew and Vehicle Safety	University of Central Florida	$50,000.00	NA	University of Central Florida	$50,000.00	$50,000.00
15-C-CST-UCF-007	Task 368: RA2 workshop event	University of Central Florida	$13,000.00	NA	University of Central Florida	$13,000.00	$13,000.00
15-C-CST-UCF-008	Task 253: Ultra High Temperature Composites damage modeling and health monitoring	University of Central Florida	$43,970.00	NA	University of Central Florida	$43,970.00	$43,970.00
15-C-CST-UFL-002	Task 319: Debris sat panel preparation and fragment characterization	University of Florida	$75,000.00	NA	University of Florida	$75,000.00	$75,000.00
15-C-CST-UTMB-008	Task 308: Suborbital SFP Anxiety Assessment	University of Texas Medical Branch at Galveston	$49,170.00	NA	University of Texas Medical Branch at Galveston	$49,170.00	$49,170.00
15-C-CST-UTMB-009	Task 309: Suborbital Pilot Assessment	University of Texas Medical Branch at Galveston	$71,500.00	NA	University of Texas Medical Branch at Galveston	$71,500.00	$71,500.00
15-C-CST-UTMB-010	Task 310: Increasing Cabin Survivability in Commercial Spacecraft	University of Texas Medical Branch at Galveston	$24,334.00	NA	University of Texas Medical Branch at Galveston	$24,334.00	$24,334.00
15-C-CST-UTMB-011	Task 330: Admin Support Services	University of Texas Medical Branch at Galveston	$7,665.00	NA	University of Texas Medical Branch at Galveston	$7,665.00	$7,665.00
15-C-CST-UTMB-012	Task 330: Admin Support Services	University of Texas Medical Branch at Galveston	$12,190.00		University of Texas Medical Branch at Galveston	$9,199.00	$12,190.00
				$2,991.00	Orion Technologies, LLC	$2,991.00	

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15-C-CST-UTMB-013	Task 330: Admin Support Services	University of Texas Medical Branch at Galveston	$161,758.00		University of Texas Medical Branch at Galveston	$36,613.00	$161,758.00
				$125,145.00	Orion Technologies, LLC	$125,145.00	
15-C-CST-UTMB-014	Task 309: Suborbital Pilot Assessment	University of Texas Medical Branch at Galveston	$15,000.00	NA	University of Texas Medical Branch at Galveston	$15,000.00	$15,000.00
		Total	$1,264,293.00	$247,033.00		Total Match	$1,264,440.00

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Advanced Materials (JAMS)
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12-C-AM-FIU-008	Effect of surface contamination on composite bond integrity and durability	Florida International University	$75,000.00	NA	Florida International University	$75,000.00	$75,000.00
12-C-AM-OSU-008	Failure of notched laminates under out-of-plane bending	Oregon State University	$80,000.00	NA	Oregon State University	$80,000.00	$80,000.00
12-C-AM-UCSD-010	Impact damage formation on composite aircraft structures	University of California, San Diego	$65,000.00	NA	University of California, San Diego	$65,000.00	$65,000.00
12-C-AM-UU-015	Development and evaluation of fracture mechanics test methods for sandwich composites	University of Utah	$75,000.00	NA	University of Utah	$75,000.00	$75,000.00
12-C-AM-UU-016	Durability of adhesively bonded joints for aircraft structures	University of Utah	$75,000.00	NA	University of Utah	$75,000.00	$75,000.00
12-C-AM-UU-017	Development of a building block approach for crashworthiness testing of composites	University of Utah	$75,000.00	NA	University of Utah	$75,000.00	$75,000.00
12-C-AM-UW-032	Improving adhesive bonding of composites through surface characterization	University of Washington	$75,000.00	NA	University of Washington	$75,000.00	$75,000.00
12-C-AM-UW-033	Certification of discontinuous fiber composite material forms of aircraft structures	University of Washington	$224,000.00	NA	University of Washington	$224,000.00	$224,000.00
12-C-AM-UW-034	Improving adhesive bonding of composites through surface characterization 12-uw-bf-improving bonding	University of Washington	$75,000.00	NA	University of Washington	$75,000.00	$75,000.00
12-C-AM-UW-035	Administration of JAMS AMTAS Center of Excellence	University of Washington	$80,273.00	NA	University of Washington	$80,273.00	$80,273.00
12-C-AM-WISU-069	Dynamic response of composite structures subjected to blast loading-phase III	Wichita State University	$270,000.00	NA	Wichita State University	$270,000.00	$270,000.00
12-C-AM-WISU-070	Composite awareness for aviation safety inspectors	Wichita State University	$40,000.00	NA	Wichita State University	$40,000.00	$40,000.00
12-C-AM-WISU-071	Wind tunnel testing services-swept wing	Wichita State University	$35,840.00	NA	Wichita State University	$35,840.00	$35,840.00

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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 17)	Total Matching Amount
12-C-AM-WISU-072	Development and safety management of composite certification guidance JAMS	Wichita State University	$176,000.00	NA	Wichita State University	$176,000.00	$176,000.00
12-C-AM-WISU-073	Environmental factor influence on composite design and certification	Wichita State University	$150,000.00	NA	Wichita State University	$150,000.00	$150,000.00
12-C-AM-WISU-074	Damage tolerance testing and analysis protocols for full-scale composite airframe structures under repeated loading	Wichita State University	$225,000.00	NA	Wichita State University	$225,000.00	$225,000.00
12-C-AM-WISU-075	FAA research requirement on lightning strike of composite structure	Wichita State University	$124,287.00	NA	Wichita State University	$124,287.00	$124,287.00
12-C-AM-WISU-076	Certification by analysis structural crashworthiness	Wichita State University	$426,100.00	NA	Wichita State University	$426,100.00	$426,100.00
12-C-AM-WISU-077	Composites materials handbook	Wichita State University	$125,000.00	NA	Wichita State University	$125,000.00	$125,000.00
12-C-AM-WISU-078	Administration of COE for composites and advanced materials (CECAM) at Wichita State	Wichita State University	$75,000.00	NA	Wichita State University	$75,000.00	$75,000.00
12-C-AM-WISU-079	Inspection and teardown of aged in- service bonded repairs	Wichita State University	$774,975.00	NA	Wichita State University	$774,975.00	$774,975.00
12-C-AM-WISU-080	Polymer based additive manufacturing guidance for aircraft design and certification	Wichita State University	$575,000.00	NA	Wichita State University	$575,000.00	$575,000.00
12-C-AM-WISU-081	Guidelines for formulating & writing process control documents & process specifications for advanced materials	Wichita State University	$250,000.00	NA	Wichita State University	$250,000.00	$250,000.00
12-C-AM-WISU-082	Adhesive qualification guidance for aircraft design and certification	Wichita State University	$675,000.00	NA	Wichita State University	$675,000.00	$675,000.00

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FAA Centers of Excellence (COE)
Advanced Materials (JAMS)
Grant Awards

r	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 17)
	Durability of bonded aerospace structure	Washington State University	$72,994.00	NA	Washington State University	$72,994.00
		Total	$4,894,469.00			Total