

REDAC Aircraft Safety Subcommittee

R&D Budget Status

Mike Gallivan

September 6, 2017



Federal Aviation
Administration



FAA FY 2017 Budget

- Full Appropriation signed May 5, 2017

Appropriation	FY 17 Request	House Mark	Senate Mark	Omnibus
Operations	\$ 9,994,352,000	\$ 9,994,352,000	\$ 10,048,352,000	\$ 10,025,852,000
Facilities & Equipment	\$ 2,838,000,000	\$ 2,838,000,000	\$ 2,838,000,000	\$ 2,855,000,000
Research Engineering & Development	\$ 167,500,000	\$ 167,500,000	\$ 176,000,000	\$ 176,500,000
Grants-in-aid for Airports	\$ 2,900,000,000	\$ 3,350,000,000	\$ 3,350,000,000	\$ 3,350,000,000
Total	\$ 15,899,852,000	\$ 16,349,852,000	\$ 16,412,352,000	\$ 16,407,352,000



Federal Aviation
Administration

2

R,E&D FY 2018 Budget

- **FY 18 R,E&D Request \$150M**
 - House Appropriation Committee (full committee)
Introduced to House July 21, 2017
 - R,E&D funded at \$170M
 - Senate Appropriation Committee (full committee)
Introduced to Senate July 27, 2017
 - R,E&D funded at \$179M



Federal Aviation
Administration

3

FAA FY 18 Budget

Appropriation	FY 18 Request	House Mark	Difference	Senate Mark	Difference
Operations	\$ 9,890,886,000	\$ 10,185,482,000	\$ 294,596,000	\$ 10,186,000,000	\$ 295,114,000
Facilities & Equipment	\$ 2,766,200,000	\$ 2,855,000,000	\$ 88,800,000	\$ 3,005,000,000	\$ 238,800,000
Research Engineering & Development	\$ 150,000,000	\$ 170,000,000	\$ 20,000,000	\$ 179,000,000	\$ 29,000,000
Grants-in-aid for Airports	\$ 3,350,000,000	\$ 3,350,000,000	\$ -	\$ 3,600,000,000	\$ 250,000,000
Total	\$ 16,157,086,000	\$ 16,560,482,000	\$ 403,396,000	\$ 16,970,000,000	\$ 812,914,000



Federal Aviation
Administration

4

FY 18 R,E&D Request

FY 2018 Budget Line Item	Program	FY 2018 Request (\$000)	FY 18 House Mark (\$000)	FY 18 Request/FY18 House +/-	FY 2018 Senate Mark (\$000)	FY 18 Request/FY18 Senate +/-	2018 Conference Mark (\$000)
A11 a	Fire Research and Safety	7,044	7,425	381	7,067	23	-
A11 b	Propulsion and Fuel Systems	2,269	2,269	-	2,074	(195)	-
A11 c	Advanced Materials/Structural Safety	4,338	7,000	2,662	10,500	6,162	-
A11 d	Aircraft Long-Digital System Safety	9,253	5,102	(4,151)	9,253	-	-
A11 e	Continued Airworthiness	10,437	10,437	-	11,269	832	-
A11 f	Aircraft Catastrophic Failure Prevention Research	1,570	1,528	(42)	1,570	-	-
A11 g	Flightdeck/Maintenance/System Integration Human Factors	6,825	7,305	480	7,305	480	-
A11 h	System Safety Management	4,149	6,500	2,351	4,726	577	-
A11 i	Air Traffic Control/Technical Operations Human Factors	5,196	6,165	969	5,196	-	-
A11 j	Aeromedical Research	9,765	9,080	(685)	8,538	(1,227)	-
A11 k	Weather Program	13,399	15,478	2,077	15,478	2,077	-
A11 l	Unmanned Aircraft Systems Research	6,787	13,787	7,000	20,035	13,248	-
A11 m	NextGen - Alternative Fuels for General Aviation	5,924	7,000	1,076	7,000	1,076	-
A12 a	Commercial Space	1,796	1,796	-	1,872	76	-
A12 b	NextGen - Wake Turbulence	6,831	7,609	778	6,831	-	-
A12 c	NextGen - Air Ground Integration Human Factors	6,757	7,575	818	6,757	-	-
A12 e	NextGen - Weather Technology in the Cockpit	3,644	4,059	415	3,644	-	-
A13 a	NextGen - Information Security	1,000	1,000	-	1,000	-	-
A13 b	NextGen - Environmental Research - Aircraft Technologies, Fuels, and Metrics	14,497	16,013	1,516	16,013	1,516	-
A14 a	System Planning and Resource Management	23,151	27,174	4,023	27,174	4,023	-
A14 b	William J. Hughes Technical Center Laboratory Facility	2,135	2,288	153	2,288	153	-
A14 b	Facility	3,233	3,412	179	3,412	179	-
TOTAL		150,000	170,000	20,000	179,000	29,000	0

FY 18 House and Senate mark are draft – final bills not voted on in the House or Senate



Federal Aviation
Administration

5

FY 2018 House Language

- **Advanced material/structural integrity safety.**—The Committee recommendation includes \$7,000,000 for Advanced Material/Structural Integrity Safety, an increase of \$2,662,000 above the budget request.
- **NextGen-alternative fuels for general aviation.**—The Committee provides \$7,000,000 for NextGen-Alternative Fuels for General Aviation, an increase of \$1,076,000 above the budget request.
- **Unmanned aircraft systems research.**—The Committee provides \$13,787,000 for Unmanned Aircraft Systems Research, an increase of \$7,000,000 above the budget request. The Administrator shall use FAA integrated laboratories, in partnership with NASA laboratories, to provide for proofs of concept supporting the integration of UAS into the NAS and to ensure interoperability with NAS systems. The Unmanned Traffic Management (UTM) system will create an air traffic control network for UAS that will have the capability to communicate with existing NAS infrastructure.
- **UAS research plan.**—The Committee directs the FAA to submit to the House and Senate Committees on Appropriations a comprehensive plan for research supporting full integration of unmanned aircraft systems no later than 180 days after enactment.



Federal Aviation
Administration

6

FY 2018 House Language (cont.)

- The Committee requests that FAA provide a report within 120 days of enactment of this Act on its progress meeting statutory obligations under Section 2208 of the FAA Extension, Safety, and Security Act of 2016 (Public Law 114–190) to develop a research plan and establish a pilot program to demonstrate a UTM system.
- *UAS test sites.*—The Committee fully supports UAS Test Sites, which were established by Congress through the FAA Modernization Act of 2012 to safely integrate UAS research breakthroughs and technology innovations into national airspace in a safe and comprehensive manner. Since 2013, the UAS industry has grown leaps and bounds, fueled by opportunity and application. The technology continues to push the envelope, and the test sites serve to shepherd these technologies and innovations by merging public safety with application.



Federal Aviation
Administration

7

FY 2018 Senate Language

- *Advanced Materials/Structural Safety.*—The Committee continues to support the impact that stitched resin composites can provide to the aviation industry. Therefore, the Committee recommendation includes \$10,500,000 for Advanced Materials and Structural Safety, which is \$4,000,000 above the fiscal year 2017 enacted level and \$4,162,000 above the budget request. Of the total amount provided, \$2,000,000 is directed for the FAA to work with public/private partners to evaluate the material for airworthiness certification; and \$4,000,000 is to advance the use of new structural material applications and bring new materials into future production while ensuring the safety and integrity for use of these materials into the commercial aviation industry through the FAA Joint Advanced Materials and Structures Center of Excellence.
- *Additive Manufactured Continued Airworthiness.*—The Committee recommends \$11,269,000 for Continued Airworthiness, which is \$2,000,000 above the fiscal year 2017 enacted level, and \$832,000 above the budget request. With the emergence of additive manufacturing, the advances in the fabrication of complex structures has the potential to transform aircraft and spacecraft propulsion. The Committee understands a primary challenge in additive manufacturing for aerospace applications is the certification of flight worthiness of complex constructed components. The Committee, therefore, directs the increase provided under this section, for the FAA to collaborate with academic and industry partners, to develop and define the critical standards and assessment methods for certifying advanced material components for aerospace applications.



Federal Aviation
Administration

8

FY 2018 Senate Language (cont.)

- **Unmanned Aircraft Systems [UAS] Research—Center of Excellence.**—The Committee recognizes the valuable role of the Center of Excellence in assisting the FAA in a host of research challenges associated with the integration of UAS into the National Airspace System. The Committee recommendation includes \$20,035,000 for UAS research, equal to the fiscal year 2017 enacted level and \$13,248,000 above the budget request. Of the funds provided for UAS research, \$12,000,000 is directed to support the expanded role of the Center of Excellence in areas of UAS research, including cybersecurity, agricultural applications, beyond visual line of sight technology, and continuation of air and ground collision studies. Furthermore, the Center of Excellence shall establish a UAS safety research facility at the Center to study appropriate safety standards for UAS and to develop and validate certification standards for such systems; \$5,000,000 is available for research necessary to establish the consensus safety standards requirements, to the maximum extent practicable, leverage the research and testing capacity and capabilities of the Center of Excellence for UAS and the test sites; and \$2,000,000 is to expand the Center's role in transportation disaster preparedness and response, partnering with institutions that have a demonstrated experience in damage assessment, collaboration with State agencies of transportation, and experience in applied UAS field testing.
- **Alternative Fuels for General Aviation.**—The Committee recommendation includes \$7,000,000 to support alternative fuels for general aviation. This funding level is \$1,076,000 above the budget request and equal to the FY 2017 fiscal year level.
- **Environmental Sustainability.**—The Committee recommendation includes a total of \$43,187,000 for research related to environmental sustainability, which is \$5,539,000 above the budget request and equal to the fiscal year 2017 enacted level. This total includes \$16,013,000 under the "Environment and Energy" and another \$27,174,000 under "NextGen—Environmental Research Aircraft Technologies Fuels and Metrics"



Federal Aviation
Administration

9

FY 2018 Senate Language (cont.)

- **Unmanned Aircraft Systems—[UAS] Traffic Management.**—The Committee believes that creation of an unmanned traffic management [UTM] system is critical to the safe integration of drones into the national airspace. The Committee is concerned that FAA is not meeting its statutory obligations under Section 2208 of the FAA Extension, Safety, and Security Act of 2016 (Public Law 114–190) to develop a research plan and establish a pilot program to demonstrate a UTM system. FAA must leverage technology solutions to enable States and regions to establish UTM systems that are part of a national UTM system. Failure to accelerate the implementation of a UTM system for drones will hinder the safe integration of drones into the national airspace. Therefore, the FAA is directed to submit a report within 60 days of enactment of this act to the House and Senate Committees on Appropriations on its progress toward implementation of Section 2208, including a detailed summary of how the FAA has agreed to work concurrently with NASA to establish a UTM system and any memoranda of understanding or work plans entered into between the two agencies to meet the statutory deadlines.
- **Noise Health Effects Research.**—The Committee supports research that is being conducted through the FAA's Center of Excellence for Alternative Jet Fuel and Environment, the Aviation Sustainability Center on the impact of aviation noise on both sleep and cardiovascular health. The Committee directs FAA to continue to prioritize this research, as many communities across the country contend with increased frequency of passing aircraft on a daily basis. In addition, the Committee directs the FAA to continue to evaluate alternative metrics to the current Day Night Level [DNL]65 standard and other methods to address community airplane noise concerns, including cumulative noise impacts from increased frequency of flights.



Federal Aviation
Administration

10

R,E&D FY 2018 Budget

- **At present there is not an overall FY 2018 funding agreement**
 - Without a legislative agreement Sequester Caps will kick in
 - FY 18 Federal sequestration total is estimated to be \$1,064,432,000,000
 - FY 18 is \$5.2B less than FY 17 Budget Act total of \$1,069,599,000,000
 - Currently no break down to the agency level



Federal Aviation
Administration

11

R,E&D FY 2019 Budget

- **FY 2019 target \$150M**
- **Delivered to OST June 2017**
- **FY 2019 remaining schedule**
 - Submit to OMB mid September
 - Submit Presidents request to Congress Feb 5, 2018



Federal Aviation
Administration

12

Out Year Targets

- **Targets established Jan. 2017**
 - FY 19 - \$150M
 - FY 20 - \$150M
 - FY 21 - \$150M
 - FY 22 - \$150M
 - FY 23 - \$150M
- **Expect targets to change**



Federal Aviation
Administration

13

FAA Reauthorization

- **Current Authorization approved by Congress July 14, 2016 and signed by the President July 15, 2016 which extends authorization thru the end of FY 2017 (September 30, 2017)**
- **Awaiting congressional action**
 - Lacking any congressional action expect another extension



Federal Aviation
Administration

14

Budget Future - TBD



Federal Aviation
Administration

15