NASA Aeronautics Overview

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NASA Aeronautics Six Strategic Thrusts

6 Strategic Research and Technology Thrusts

Safe, Efficient Growth in Global Operations
- Enable full NextGen and develop technologies to substantially reduce aircraft safety risks

Innovation in Commercial Supersonic Aircraft
- Achieve a low-boom standard

Ultra-Efficient Commercial Vehicles
- Pioneer technologies for big leaps in efficiency and environmental performance

Transition to Low-Carbon Propulsion
- Characterize drop-in alternative fuels and pioneer low-carbon propulsion technology

Real-Time System-Wide Safety Assurance
- Develop an integrated prototype of a real-time safety monitoring and assurance system

Assured Autonomy for Aviation Transformation
- Develop high impact aviation autonomy applications

http://www.aeronautics.nasa.gov/pdf/armd-strategic-implementation-plan.pdf

ARMD Programs with Strategic Thrusts

MISSION PROGRAMS

Airspace Operations and Safety Program

- Safe, Efficient Growth in Global Operations
- Real-Time System-Wide Safety Assurance
- Assured Autonomy for Aviation Transformation

Advanced Air Vehicles Program

- Ultra-Efficient Commercial Vehicles
- Innovation in Commercial Supersonic Aircraft
- Transition to Low-Carbon Propulsion
- Assured Autonomy for Aviation Transformation

Integrated Aviation Systems Program

- Flight Research-Oriented Integrated, System-Level R&T support all six thrusts
- X-Planes / Test Environment

SEEDLING PROGRAM

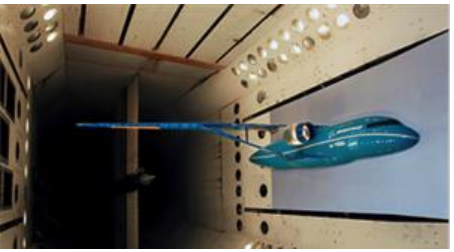
Transformative Aeronautics Concepts Program

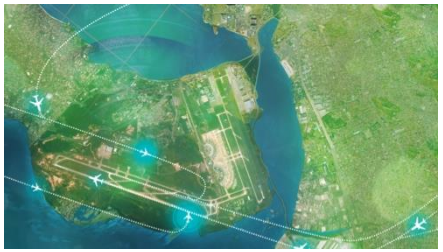
- High-risk, leap-frog ideas supporting all six thrusts
- Critical cross-cutting tools and technology development

FY 2016 Budget

Budget Authority	Actual FY 2014	Enacted FY 2015	Request FY 2016	Outyears are Notional FY 2017	FY 2018	FY 2019	FY 2020
Aeronautics	**$566.0**	**$651.0**	**$571.4**	**$580.0**	**$588.7**	**$597.5**	**$606.4**
Airspace Operations Safety		154.0	142.4	153.2	159.6	160.0	163.0
Advanced Air Vehicles		249.6	240.9	243.2	241.2	231.0	232.8
Integrated Aviation Systems		150.0	96.0	85.6	89.0	101.6	104.8
Transformative Aeronautics Concept		97.4	92.1	98.0	98.9	104.9	105.8
Aviation Safety	80.0						
Airspace Systems	91.8						
Fundamental Aeronautics	168.0						
Aeronautics Test	77.0						
Integrated Systems Research	126.5						
Aeronautics Strategy and Management	22.7						

FY 2016 Budget Highlights






World leading UAS integration research:

- Completes a flight test campaign to provide data to the FAA to verify and validate Minimum Operational Performance Standards to enable safe operations of Unmanned Aircraft Systems (UAS) in the National Airspace System.
- Expands upon UAS Traffic Management (UTM) Build 1 capabilities to enable dynamic UAS mission and trajectory adjustments providing increased safety and operational complexity for an expanded range of aircraft and business objectives

Transformative concepts and technologies:

- Develops a detailed conceptual design of a revolutionary hybrid gas-electric propulsion system which has potential benefits of reduced noise, emissions, and energy consumption compared to today's turbine engines

Continued success in transitioning NextGen Air Traffic Management (ATM) technologies to FAA:

- Completes development of the prototype Flight-Deck Interval Management Avionics for ATM Technology Demonstration-1 and prepares for future flight trial validation

High-Impact collaborations to reduce aircraft environmental impacts:

- Begins a series of flight demonstrations to both mature candidate environmentally friendly technologies and transfer them to US industry
- Begins high-fidelity validation experiments to improve accuracy of computational tools used in advanced aircraft design

Summary

NASA Aeronautics is celebrating 100 years of excellence—from NACA to NASA

NASA Aeronautics is ready to usher in the next 100 years of excellence

- Compelling, community-endorsed vision and strategy
- Demonstrated ability to perform high impact research, complete our commitments, and deliver results
  (Environmentally Responsible Aviation Project, Research Transition Teams)
- Taking on the community's most urgent needs
  (Unmanned Aircraft Systems integration into the National Airspace System)
- Leading the community with transformative concepts and solutions
  (UAS Traffic Management, Future Aircraft Concepts, Computational Fluid Dynamics 2030 Vision)
- Successfully collaborating with universities and industry
  (NASA Research Announcements, cost-sharing cooperative agreements)
- Global thought leaders that are leveraging international capabilities
  (International Forum for Aviation Research)