NASA Aeronautics Update

Robert Pearce, Deputy Associate Administrator Aeronautics Research Mission Directorate November 14, 2018



Some Major Transitions for NASA Aeronautics



- Completion of Advanced Composites Project in FY2019
- Completion of ATM Technology Demonstrations Project (ATD) in FY2020
- Completion of UAS in the NAS Project in FY2020
- Completion of UTM Project in FY2020
- New ATM-X and SWS Projects paving the way for what's next for NASA technology development in NAS Ops and In-Time Safety Management
- Expect to start a new project in FY2020 to tackle Urban Air Mobility as next step beyond UAS in the NAS and UTM
- X-59 First Flight planned for FY2021 as part of the Low Boom Flight Demonstration Mission

ARMD Budget Trend (FY 2009 to FY 2019)



- Beginning in FY 2015, Congress has consistently appropriated funding up to 18% over the President's budget.
- Congress has been fully supportive of NASA Aeronautics Strategy
 - FY 19 Senate and House Appropriations Reports (House Report 115-704, Senate Report 115-275) fully fund ARMD's proposed content, and both conference reports call for higher levels of funding than the FY19 PBR.
 - The proposed companion bills titled Aeronautics Innovation Act (S.2977 and H.R. 3033) states, "NASA Aeronautics Research Mission Directorate's 6 strategic thrusts are effective and necessary research areas for the development of next generation aeronautics technology that will preserve the United States lead in the global aviation industry."



1/ FY19 enacted amount represents the average of the House and Senate mark ups

Urban Air Mobility Rapidly Developing

Just in This Year.....

- 2nd Uber Elevate Summit in L.A.
 - Attended by well over 1,000 people with Uber announcing the new 6th vehicle development partner, Karem Airacrft in addition to the five existing partners (Aurora Flight Sciences, Embraer, Bell, Pipistrel Aircraft, and Mooney)
- Boeing announces formation of Boeing NeXt at Farnborough Air Show to take a lead position in Urban Air Mobility
 - Leverage Boeing HorizonX and acquisiton of Aurora Flight Sciences to accelerate progress
- Rolls Royce and Aston Martin announced plan to develop UAM vehicles at Farnborough Air Show
- Airbus formed a new UAM business unit in May
- Japanese government announced a plan to invest \$40M to accelerate UAM development
 - Boeing, Bell, and Uber are participating.
- Well funded new entrants continue vehicle development and flight test
 - Kitty Hawk Cora, Joby S4, Terrafugia TF-2, Lilium Jet, etc

UAM Community is developing rapidly and seeking NASA leadership

UAM Framework and Barriers

Grand Challenge Series Framework

societal integration and acceptance of UAM Operations including public acceptance, supporting infrastructure, operational integration, standards organizations, the local regulatory environment, etc.

Industry Provided

NASA Provided

Low Boom Flight Demonstrator (LBFD) Mission

• LBFD Project:

- Awarded aircraft design/build contract
- On track for baselining Project in Q1 FY19 (KDP C)
- First flight planned for Q3 FY21
- CST Project:
 - Continues to mature signature analysis and uncertainty quantification tools
 - Flight activities using NASA F/A-18 to support Community Response Testing planning and maturing the design of experiments
 - Flight testing in Galveston, TX during November 2018 will build on successful flight campaigns at AFRC (2011) and KSFC (2017)

FDC Project:

- Initial planning for LBFD Phase 3 Flight Operations complete
- Flight assets to support in-flight data measurement and chase identified

CAEP Timeline

