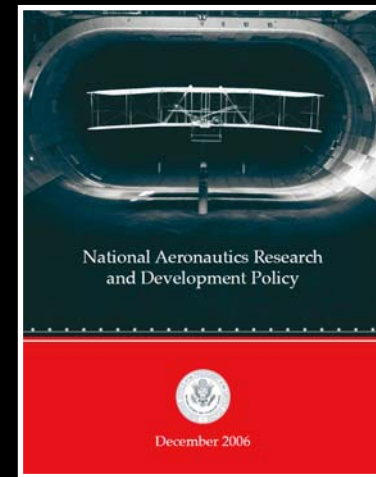


Public meeting of the National
Aeronautics Research and
Development Plan

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Safety Coordinating Group

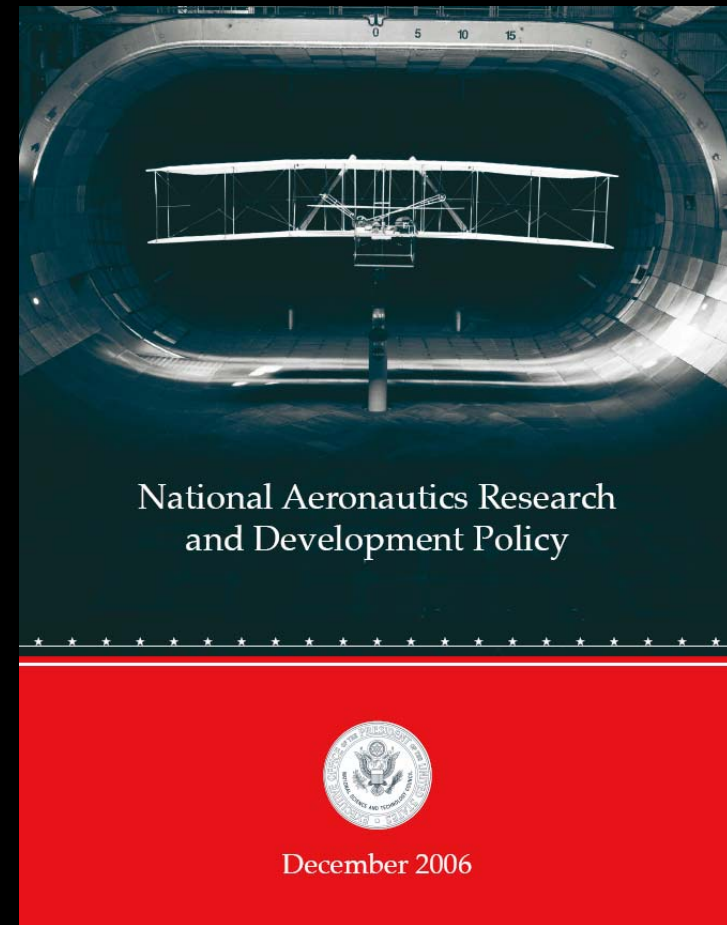
Report and Discussion

11 July 2007

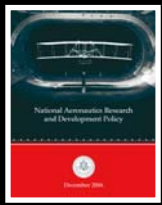
Safety CG Co-chairs:
Herb Schlickemaier, NASA
Pat Lewis, FAA

National Aeronautics R&D Policy

- Executive Order 13419
- Establishes Principles
- Sets Policy Goal and Objectives
- Creates General Guidelines for Federal Government
- Establishes Specific Guidelines
- Implementation Guidelines



<http://www.ostp.gov/nstc/aeroplans/>



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Policy Goal

“Advance U.S. technological leadership in aeronautics by fostering a vibrant and dynamic aeronautics R&D community that includes government, industry, and academia.”



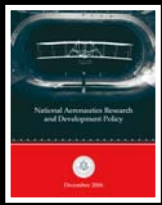
Policy Principles

1. *Mobility* through the air is vital to economic stability, growth, and security as a nation
2. Aviation is vital to *national security and homeland defense*
3. Aviation *safety* is paramount
4. *Security* of and within the aeronautics enterprise must be maintained

Policy Principles



5. The US should continue to possess, rely on, and develop its world-class aeronautics *workforce*
6. Assuring *energy availability and efficiency* is central to the growth of the aeronautics enterprise
7. The *environment* must be protected while sustaining growth in air transportation



Strategy for Development of Plans

Creation of R&D Coordinating Groups:

- Mobility
- National Security and Homeland Defense
- **Aviation Safety**
- Aviation Security
- Energy and Environment
- RDT&E Infrastructure

National Aeronautics R&D Plan Timeline – 2007



Coord. Groups “finished” – NLT Sept. 3

Final Release – NLT Dec. 30

April May June July Aug. Sept. Oct. Nov. Dec.

Aero S&T Subcomm.

Monthly Update Meetings

Planning and Execution of Rollout



1st Outreach April 24, NAS

July 11, JPC

July 30, NASA ARC

Integration, Public posting for comments

AST Subcomm. Signoff – NLT Nov. 1

Coordinating Groups

Final Coordination



Each CG have first meeting late April /early May

2-3 Outreach Sessions for each CG

Deliver Plans to ASTS for integration

Expectations of CGs for each monthly update meeting:

- | | | | |
|---|---------------------------------------|---|--|
| - Update on current status | - Status check | - 2-day full review of each CG progress | - All individual CG outreach finished |
| - Schedule for upcoming outreach events | - Emerging goals/objectives | | - Draft chapters in each CG in final editing |
| - Completion of “bibliography review” | - Candidates for cross-cutting themes | | - Report out on each Chapter |
| - Plan of attack | | | |

NSTC COT

NSTC COT clearance NLT Nov. 30

OSTP

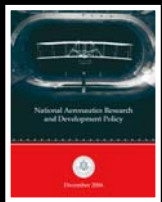
Dr. Marburger clearance NLT Dec. 20



Safety Coordinating Group Outreach

- Participate in NSTC-sponsored outreach:
 - Cincinnati, OH, 11 July
 - Mountain View, CA, 30 July
- Participation in industry-Government safety meetings:
 - Center for General Aviation Research Annual Meeting, Atlantic City, NJ, 6 June 2007
 - Data Mining for Aeronautics, Science and Exploration Systems Conference 2007, Mountain View, CA, 26 June 2007
 - Center for Advanced Materials Annual Meeting, Atlantic City, NJ, 10 July
 - 2007 National Software and Complex Electronic Hardware Conference, New Orleans, LA, 24 July
- Call for White Papers

Call for White Papers

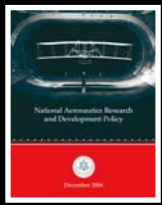


- Articulate the most important aeronautics safety R&D challenges facing our nation
- Identify well-defined technical aeronautics safety goals and objectives (*with numerical targets if appropriate*) by the three timeframes
- Propose promising R&D approaches to advance the future of national aeronautics knowledge and/or capabilities
- Identify fundamental limitations and knowledge barriers
- Identify promising innovations and possible timelines



DRAFT Sample Topics — First Round White Papers

- Loss-of-Control
- Crashworthiness of composites
- Capability to move from pilot-in-the-loop to fully autonomous control systems (UAS)
- High-confidence software systems
- Human-automation integration in complex environments
- Proximity detection systems for rotorcraft
- Flight recording devices for rotorcraft
- Safety management systems for rotorcraft
- Training improvements
- Flight deck human automation integration
- Communications systems improvements
- Improved procedures for pilots in new environment
- Improvements in certification of complex systems
- Health & reliability management
- Safety of air traffic system
- Critical role of software engineering & need for competence in the skill
- Structural health monitoring
- Adaptive controls
- Multidisciplinary Design Optimization
- Transformational advanced systems, aircraft technologies, policies, and procedures in NextGen ConOps
- Secure network-centric avionics architectures and systems for data link and data transfer
- Smaller, lighter and less expensive avionics
- More efficient certification processes for complex systems
- Design, development, and upgrade processes for complex, software-intensive systems, including tools for design, development and V&V
- Use CAST model to drive research requirements
- Complex Systems' analyses & validation
- Data sharing and data mining

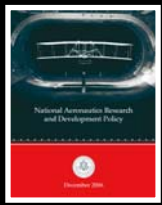


Call for White Papers

- 1-3 pages will be considered as input to the Safety Chapter content:
 - Open through August
 - Submit to Aviation Safety: aero.safety@ostp.gov

For more information visit:

www.ostp.gov/nstc/aeroplans



Safety Coordinating Group

- Theme: “Continual Safety Improvement”
- Supporting objectives by domain and discipline:
 - Domain:
 - Vehicle Safety
 - Cabin-Passenger Safety
 - Airspace-airborne Safety
 - Ground Safety (*e.g., runway and airport safety*)
 - Discipline:
 - Structures & Materials (*inspection and evaluation*)
 - Controls and dynamics (*adaptation*)
 - Sensing (*monitoring and health management*)
 - Verification and Validation (*software and complex systems*)
 - Human-automation integration
- Understand state-of-the-art, direction and develop gap analysis
- Identify normal linkages with other Coordinating Groups

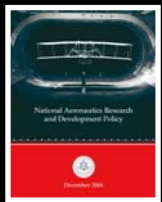
Timeline Definitions



Near-Term	Mid-Term	Far-Term
JPDO Epoch 1	JPDO Epoch 2	JPDO Epoch 3
FY2007-11	FY2012-18	FY2019-26

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National Aeronautics R&D Policy



Questions?