

**MEMORANDUM OF UNDERSTANDING**

**Between**

**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

**and**

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

**Concerning**

**A PARTNERSHIP TO ACHIEVE GOALS IN AVIATION  
AND SPACE TRANSPORTATION**

**I. PURPOSE**

The Department of Transportation/Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA), hereinafter "the Parties," are committed to a close partnership in the pursuit of complementary goals in aviation and space transportation. These goals include aviation and space transportation safety, airspace system efficiency, environmental compatibility, international leadership, and others. To facilitate this partnership, the agencies will coordinate their planning efforts, and senior management will monitor the collaborative activities necessary to accomplish these goals. This Agreement builds upon and expands the longstanding relationship between the FAA and NASA.

**II. BACKGROUND**

The FAA's mission is to provide a safe, secure, and efficient global aerospace system that contributes to national security and promotes United States aerospace safety. The FAA's research primarily focuses on more immediate needs in the areas of aviation safety, capacity, environmental compatibility, commercial space transportation safety, and international leadership in aviation.

NASA's mission includes research in advanced aeronautics, space, and related technologies. NASA's aeronautics research focuses on advancing technologies that are anticipated to be instrumental to the future success of the nation. This includes foundational research in core aeronautics competencies, as well as the development of system-level technologies and competencies. NASA aeronautics research further contributes to the development of new transportation vehicles and associated systems.

NASA's space science research includes next-generation Earth-to-orbit transportation capabilities, as well as in-space transportation capabilities.

The missions of the FAA and NASA are interdependent, and must be coordinated to meet the goals of the national vision for aviation and space transportation. The results of NASA and FAA collaborative research in aviation benefit system users to the extent that such results are implemented by FAA through the modernization and transformation of the National Airspace System (NAS).

The 2004 United States Space Transportation Policy stated that the "United States shall sustain a focused technology development program for next-generation space transportation capabilities to transform U.S. access to and use of space." The policy directs NASA, the Department of Defense, and where appropriate, private industry, to develop roadmaps and strategies for next-generation space transportation capabilities "with the objective of dramatically improving the reliability, responsiveness, and cost of Earth-to-orbit space transportation." Because the FAA licenses and regulates commercial launch and reentry activities that may utilize NASA-developed technologies, interagency cooperation benefits industry and the general public.

The previous partnership agreement between FAA and NASA, entitled "A Partnership to Achieve Goals in Aviation and Future Space Transportation" was signed October 9, 1998. That agreement formalized the FAA and NASA commitment to pursue complementary goals in aviation and future space transportation, to coordinate planning efforts, and to have the senior management at each agency monitor the collaborative activities necessary to accomplish those goals. Cooperative research efforts were outlined and documented in seven (7) separate Memoranda of Understanding (MOU) giving the rationale, objectives, and examples of the types of research activities to be undertaken cooperatively by the two agencies.

Since 1998, both agencies have continued working toward complementary goals in aviation and space transportation. Most recently, the FAA has established the Air Traffic Organization (ATO) on February 8, 2004. The ATO combined FAA's Research and Acquisitions, Air Traffic Services, and Free Flight offices into one performance-based organization. The primary service of the ATO is to safely and efficiently move air traffic. The customers of the ATO include both commercial and private aviation, as well as the military. The employees of ATO are the service providers - including the air traffic controllers, technicians, engineers, and support personnel whose daily efforts keep airplanes moving, and the NAS operating.

In January 2004, President Bush announced a new vision for NASA, to extend humanity's presence across the solar system, starting with a return to the moon by the end of next decade, to be followed by journeys to Mars and beyond. NASA is working to fulfill this vision through its four primary mission directorates - the Aeronautics Research Mission Directorate (ARMD), the Science Mission Directorate (SMD), the Exploration Systems Mission Directorate (ESMD), and the Space Operations Mission Directorate (SOMD).

NASA's Mission Directorates have unique capabilities to contribute to research in aviation and space transportation. NASA's ARMD has primary missions in airspace systems, aviation safety, and fundamental aeronautics research. NASA's SMD is responsible for both earth science research and space science research. In particular, one of SMD's strategic objectives is to advance scientific knowledge of the Earth through space-based observation, assimilation of new observations, and development and deployment of enabling technologies, systems, and capabilities, including those with the potential to improve future operating systems. While ESMD is primarily responsible for developing systems that enable NASA's Vision, SOMD supports the International Space Station, Space Shuttle operations, launch services for NASA and commercial payloads, and space communications.

FAA and NASA are now partners in the Joint Planning and Development Office (JPDO), which was established by the 108<sup>th</sup> Congress as part of the Vision 100 - Century of Aviation Reauthorization Act (Public Law 108-176). This Act, signed into law on December 12, 2003, created the JPDO and empowered it with the development of a national plan for the Next Generation Air Transportation System (NGATS), a critical first step toward transforming our air transportation system.

### **III. AGREEMENT**

The FAA and NASA agree to cooperate and collaborate, in the best interest of the public, in all relevant areas of aeronautics and space transportation research. These areas are described in documents such as the following:

- The JPDO Integrated National Plan for the NGATS
- The FAA Flight Plan
- The FAA Operational Evolution Plan
- The FAA National Aviation Research Plan
- The NASA Strategic Plan

Executive direction and oversight will be provided through a process identified in Section IV below. Specific research activities to be undertaken cooperatively by the two agencies will be delineated by subsequent Memoranda of Agreement (MOA).

### **IV. FAA/NASA EXECUTIVE RESEARCH STEERING COMMITTEE**

The FAA/NASA Executive Research Steering Committee shall be responsible for the executive direction and oversight of the FAA and NASA joint aviation and space transportation research and development efforts. The Agency Administrators shall select individuals to co-chair this committee. The FAA co-chair will select members from the FAA Lines of Business with active research programs, including the ATO, the Office of Aviation Safety, the Office of Commercial Space Transportation, and the Office of

Airports. The NASA co-chair will select members from ARMD, SMD, and SOMD as appropriate. The committee will:

- A. Foster an effective FAA/NASA partnership in research, development, and applications.
- B. Ensure that complementary aviation and space transportation goals for FAA and NASA are defined that reflect each agency's mission, and which both agencies acknowledge and support.
- C. Ensure that FAA and NASA planning and resources to achieve the goals are coordinated, when appropriate.
- D. Monitor progress toward the goals and propose adjustments in agency roadmaps, plans, and resources as necessary.
- E. Propose changes to goals and plans based on changing stakeholder and customer requirements.

The necessary implementing executive actions to carry into effect an agreement of the committee will be taken by individual members under the authority vested in them by their respective agency. Actions of the committee are intended to support, not supplant, existing strategic planning activities in each agency.

#### **V. AUTHORITY AND APPLICABLE LAW**

- A. This Agreement is entered into on behalf of the FAA under the authority of Sections 226 and 227 of the FAA Reauthorization Act of 1996, 49 U.S.C. §106 (l)(6) and (m), 49 U.S.C. Subtitle IX, Chapter 701 – Commercial Space Launch Activities, and Executive Order 12465.
- B. This Agreement is entered into on behalf of NASA under authority of Sections 203 (c)(5) and (c)(6) of the National Aeronautics and Space Act of 1958, as amended, 42 U.S.C. 2473 (c)(5) and (c)(6).
- C. Nothing in this MOU alters the statutory authorities of NASA or the FAA. This MOU is intended to facilitate cooperative efforts of the Parties in the area of aviation and space transportation research.
- D. U.S. Federal law governs this Agreement for all purposes, including, but not limited to, determining the validity of the Agreement, the meaning of its provisions, and the rights, obligations and remedies of the Parties.

## VI. MODIFICATIONS

This Agreement may be modified upon the mutual written consent of both Parties. Modifications must be signed by the original signatories to the Agreement, or their designees or successors. No oral statement by any person shall be interpreted as modifying or otherwise affecting the terms of this Agreement.

## VII. CANCELLATIONS

The previous Partnership Agreement between the FAA and NASA, executed on October 9, 1998, is hereby cancelled.

All active MOUs (as listed below) are hereby cancelled:

**Table 1.**

<b>MOU No.</b>	<b>MOU Title</b>	<b>Effective Date</b>
FNA 01	Cockpit/ATC Integration Research	08.14.1990
FNA 02	Human Factors Research	08.14.1990
FNA 05	Program Support	08.15.1990
FNA 07	Airspace System User Operational Flexibility & Productivity	09.11.1995
FNA 08	Aviation Safety Research	07.02.1999
FNA 09	Aviation Environmental Compatibility	10.06.2000
FNA 10	Future Space Transportation Systems	10.28.1999

All active MOAs (as listed below) are to remain valid, under the auspices of this MOU, until their expiration dates:

**Table 2.**

<b>MOA No.</b>	<b>MOA Title</b>	<b>Effective Date</b>	<b>Expiration Date</b>
FNA/05-97-01	Support of FAA R&D Field Offices at NASA Centers	03.12.1997	12.31.2007
FNA/05-97-02	Joint University Research in Air Transportation	09.25.1997	09.30.2007
FNA/07-98-02	Air Traffic Management Research and Technology Development	07.17.1998	12.31.2008
FNA/08-99-01	Aviation Safety and Reporting System (ASRS)	06.15.1999	Mutual agreement or 12 months written notice
FNA/09-01-01	Impact of Aviation Air Emissions on Climate and Global Atmospheric Composition	04.16.2001	04.15.2009

**Table 2. – Continued**

<b>MOA No.</b>	<b>MOA Title</b>	<b>Effective Date</b>	<b>Expiration Date</b>
FNA/08-01-01	Accident and Incident Mitigation Research	06.21.2001	06.20.2006
FNA/08-02-01	Development and Evaluation of Enhanced Situational Awareness Technologies	06.18.2002	06.17.2007
FNA/09-02-01	Aircraft Noise Reduction Technology	06.20.2002	06.19.2007
FNA/02-03-01	Aeronautical Safety and Human Factors	12.12.2003	12.11.2008
FNA/07-04-01	Wake Turbulence Research and Development	02.27.2004	02.26.2009
FNA/10-02-01	Commercial Space Transportation Infrastructure Development	05.08.2002	05.07.2007

**VIII. TERMINATION**

Either Party may terminate this Agreement at any time, with or without cause, and without incurring any liability or obligation to the terminated Party by giving the other Party at least 60 days prior written notice of termination.

**IX. PERIOD OF PERFORMANCE**

This Agreement shall be effective when signed by both Agencies' Administrators. It shall remain in effect unless modified or terminated upon written request of either Party.

**EXECUTION**

In consideration of the foregoing, the undersigned hereby execute this Agreement.

**AGREED BY:**



Marion C. Blakey  
Administrator  
Department of Transportation  
Federal Aviation Administration



Michael D. Griffin  
Administrator  
National Aeronautics and Space Administration

DATE: 4/14/06

DATE: May 15, 2006