Oral Testimony of the American Psychological Association
Steven Breckler, PhD, Executive Director for Science

Presented April 24, 2007 to the
United States House of Representatives Committee on Appropriations
Subcommittee on Commerce, Justice, Science, and Related Agencies
The Honorable Alan Mollohan, Chairman

Fiscal Year 2008 Appropriations for the National Science Foundation and National Aeronautics and Space Administration

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Good afternoon, I am Dr. Steve Breckler, Executive Director for Science at the American Psychological Association. APA is a scientific and professional organization of more than 145,000 psychologists and affiliates, many of whom play vital roles in both **NSF and NASA.** I would like to address the proposed FY08 research budgets for these two agencies.

APA urges the Subcommittee to support the President's FY08 request of $6.43 billion for NSF, and to implement plans for doubling the NSF budget over the next ten years. As you know, NSF is the only federal agency whose primary mission is to support basic research and education in math, engineering and science – including the behavioral and social sciences. NSF's investment in basic research across these disciplines has allowed for extraordinary scientific and technological progress, ensuring continued economic growth, improvements in the design, implementation and evaluation of public education, strengthened national security, and the generation of cutting edge new knowledge.

Increases in research funding for all scientific disciplines supported by NSF are consistent with Administration and Congressional plans to invest substantially in federal science agencies that have the capacity to stimulate global competitiveness and innovation. APA supports a strong investment in psychological research throughout the NSF directorates, because addressing critical national challenges demands a better understanding of human behavior.

Although many NSF programs support psychological research, most of it is supported by the **Social, Behavioral and Economic Sciences Directorate, SBE**. In addition to core behavioral research in cognitive neuroscience, human cognition and perception, learning and development, and social psychology, SBE also will continue to support a **Special Research Priority in Human and Social Dynamics, HSD** in FY08.

Psychologists and other behavioral and social scientists are uniquely poised to address the complex issue of how people and organizations can better understand and manage the profound and rapid societal changes we face – through research on decision-making, risk and uncertainty; adaptation and resistance to technological change; the evolution of society and its interaction with climate, geography and environment; and ways in which human performance can be enhanced in conjunction with advances in biology, engineering, nanotechnology, robotics and information technology.

APA also supports a new emphasis within SBE on the development of science metrics, or a "Science of Science and Innovation Policy," designed to develop models of creative processes and their translation into social and economic outcomes, and more effectively evaluate the return on research investments.

APA recommends funding NASA at $18.3 billion in FY08, and in particular we ask you to restore support for the human-centered NASA research programs to their FY06 levels at a minimum. In the NASA Authorization Act of 2005, Congress endorsed the Vision for Space Exploration (VSE) and authorized $18.7 for FY08. The President's FY08 budget request shortchanges the agency by over $1 billion, while simultaneously undertaking an extremely costly program to send humans to the moon and then to Mars. APA requests that NASA's budget be at least $18.3 billion so the agency can succeed in moving forward with the VSE while also keeping its non-Exploration missions solvent.

Humans perform critical functions throughout all aspects of every NASA mission, from concept development, system design and acquisition through operations. The ability to measure and predict human performance through all mission phases enhances mission safety and mission success. A range of psychological, behavioral and human factors research can enhance the national capability to explore the stars and understand our own planet while contributing to the safety, affordability and efficiency of aerospace operations.

Over the last 20 years, NASA's research budget has gone down steadily, with space exploration expanding at about the same rate. As a result, there is a significant and increasing gap in scientific human factors knowledge – knowledge that is critical for successful space exploration. Serious errors, such as those that led to the Challenger and Columbia disasters, can be avoided only when scientists are able to study them and prepare for new challenges. With a diminishing research budget, NASA scientists are ill-equipped to take on this crucial task.

Over the past several years, support for programs in the life sciences has diminished significantly. **Now what remains of the Human Systems Research and Technology Theme, the Human Research Program, is budgeted at**

183.3 million, a modest increase of 8.4 million relative to FY 2007 but still less than half of the 2006 program allocation.

Aeronautics research (including human factors) has also long been a cornerstone of NASA. APA applauds NASA Ames Research Center for its historic attention to human factors research but continued cuts to aeronautics programming and a recent reorganization of the Aeronautics Research Mission Directorate threaten to dismantle this once world-class center for human factors research. The Aeronautics Research Mission has been re-oriented to emphasize disciplines such as aerodynamics over human performance and operational issues. This reorganization has already forced NASA centers to substantially cut jobs and university grants in aeronautics research, especially in the area of human performance. **Further, the President's proposed FY08 budget diminishes the spending power of the aeronautics program by over 40% since 2004. APA recommends that Congress restore NASA's Aeronautics programs to at least the FY06 level of $884 million.**

A safe, secure and efficient airspace of the future will require much greater attention to the design of complex human integrated systems now. NASA research must employ a broad, interdisciplinary approach that includes technology designers, users, and experts in human and organizational performance from the earliest stages of conceptual design through final implementation. Airspace management, as a geographically distributed activity, must focus research on keeping humans at the center of coordinated decision-making and planning functions that are mediated by computers and automated systems across the United States and throughout the world.

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