Written Testimony of the American Psychological Association
Submitted April 16, 2009 to the
United States House of Representatives Committee on Appropriations
Subcommittee on Transportation, Housing and Urban Development, and Related Agencies
The Honorable John W. Olver, Chairman
Fiscal Year 2010 Appropriations for the Department of Transportation and Housing and Urban Development

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The American Psychological Association (APA), a scientific and professional organization of more than 150,000 psychologists and affiliates, is pleased to submit testimony for the record. Because our behavioral scientists conduct research funded by, or that informs programs at, the **Department of Transportation (DoT) and the Department of Housing and Urban Development (HUD),** APA will address the proposed FY10 budgets for both of these agencies.

Department of Transportation

Federal Aviation Administration

The Federal Aviation Administration (FAA) supports and applies psychological research to the benefit of every sector of the National Aviation System (NAS). Coordination of that research occurs through the Air Traffic Organization's Planning Research and Development Office and through the Associate Administrator for Aviation Safety. Because detailed information is not yet available for the FY 2010 Administration budget request, APA is writing to request full support for FAA's research and development budget and to highlight human factors research programs and issues that are critical to on-going or planned enhancements to the NAS. Much of the research is subsumed under the heading of Aerospace Human Factors and is conducted at, or supported by, the Civil Aerospace Medical Institute (CAMI) across seven broad categories: Advanced Air Traffic Control Systems, which evaluates the effect of new technologies on air traffic controller (ATC) performance and workload, as well as studying communication between controllers and aircrews; Flight Crew Performance Assessment, which evaluates the effect of advanced flight deck technology on general aviation aircrew performance; Behavioral Stressors, which examines environmental and individual stressors on aircrew and ATC performance; Individual and Team Performance Assessment, which examines the cognitive strategies and processes used in skill acquisition for effective training programs; Organizational Effectiveness, which evaluates the relationship between psychological variables and the work environment, as well as the effect of organizational innovations; Personnel Selection, which evaluates the relationship between human abilities and job performance and develops test instruments to optimize selection; and Simulation and Re-Creation, which provides controlled environments to evaluate the performance of aircrews and ATC personnel.

In addition, a tremendous amount of human systems integration research is needed for the safe and efficient implementation of the Next Generation Air Transportation System (NextGen). APA fully supports the observations, findings and recommendations of the Subcommittee on Human Factors of the FAA's Research, Engineering and Development Advisory Committee (REDAC) as outlined in REDAC's report to the FAA Administrator on October 17, 2008. The Subcommittee observed that while human factors personnel have demonstrated high levels of collaboration and cooperation across the Aviation Safety and Air Traffic Organizations within

FAA, continuing that level of cooperation will be critical to successful NextGen implementation. The subcommittee produced four findings and associated recommendations. First, recent planning for NextGen has focused primarily on equipment acquisition, insufficiently addresses human-related issues and requirements, and needs to place greater emphasis on human systems integration. Second, human factors resources (both personnel and funding) in the Aviation Safety and Air Traffic Organizations are insufficient to carry out the range of activities required to adequately support NextGen development and implementation. Third, Post Implementation Review of new NextGen technologies may reveal significant human factors findings, but without a clear path to feed those findings forward to benefit other NextGen programs. Fourth, the NextGen management structure should be revised to ensure that cross-cutting human factors (system integration) issues are recognized and addressed.

External auditors and end-users have also raised concern about the need for added attention to human factors research within NextGen. In a hearing on March 18, 2009 before the House Subcommittee on Aviation, Committee on Transportation and Infrastructure, Dr. Gerald Dillingham, representing the Government Accountability Office, addressed ongoing research needs. Among those scientific priorities for NextGen he highlighted the need for human factors research and voiced concern about the diminished role NASA was playing in that effort.

> "Human factors research explores what is known about people and their abilities, characteristics, and limitations in the design of the equipment they use, the environments in which they function, and the jobs they perform. Compared with the current ATC system, NextGen will rely to a greater extent on automation, and the roles and responsibilities of pilots and air traffic controllers will change. For example, both pilots and controllers will depend more on automated communications and less on voice communications. Such changes in roles and responsibilities raise significant human factors issues for the safety and efficiency of the national airspace system. Until fiscal year 2005, NASA was a primary source of federal aviation-related human factors research, but NASA then began reducing its human factors research staff, reassigning some staff to other programs and reducing the contractor and academic technical support for human factors research. According to NASA, human factors research continues to be a critical component of its aeronautics research program, although its work is now focused at the foundational (earlier-stage) level. FAA plans to invest $180.4 million in human factors research from fiscal year 2009 through fiscal year 2013. It remains to be seen whether or to what extent FAA's research and development, which is typically more applied than NASA's, will offset NASA's reductions in human factors."

During the same hearing, Patrick Forrey, President of the National Air Traffic Controllers Association (NATCA), one of the principle end-users of a modernized air transport system, likewise highlighted human factors issues.

> "In an attempt to create artificial economic incentives for early equipage, the FAA has announced that it will implement a policy that would "provide 'best-equipped, best-served' priority in the NAS to early adopters." This has serious implications for safe and efficient operations and for the workload and complexity for air traffic controllers.

Currently, air traffic controllers provide service on a first-come, first-serve basis. Air traffic controllers instruct aircraft to merge onto airways or disburse to their destinations in the order which comes most naturally, the order in which they arrive. Giving priority to particular aircraft would require complex maneuvering on the part of air traffic controllers, who would have to vector aircraft around one another in order to give preferential treatment. This is an unnecessary level of complexity introduced into the already complex air traffic control environment. As with any additional complexity, it brings with it an increased risk in terms of both safety and delays.

Air traffic controllers are also taught to maximize the efficiency of the NAS to the maximum extent practicable without sacrificing safety. This often means granting requests from pilots to proceed directly to particular navigation points of reference, VORs, rather than continuing along the prescribed route. Currently, this is done whenever air traffic and whether conditions permit. As there is no way to increase the use of these on-the-fly improvements to efficiency, the only way to provide incentives is to instruct controllers to avoid giving direct routes to aircraft without the new equipment. This means decreasing the overall efficiency of the NAS, and increasing flight delays for unequipped aircraft.

Lastly, differential treatment from air traffic control based on level of equipage requires the controller to know the level of equipage. This would mean an additional piece of information in an already-cluttered data-block. According to a Civil Aerospace Medical Institute (CAMI) study, the quantity of information in the display has a direct relationship to the time it takes for a controller to scan that display. Similarly, when a display is cluttered with information, it takes additional time to scan and parse out the relevant data. Therefore, adding this additional information to the data blocks will increase the complexity of air traffic control even before one accounts for the preferential maneuvering.

The FAA's NextGen plans include increased automation and eventual self-separation of aircraft, resulting in a shift in the "traditional responsibilities and practices of pilots/controllers." Under the proposed system, air traffic control would shift to what the FAA is euphemistically referring to as "Trajectory Management." Essentially, air traffic controllers would discontinue active air traffic control and shift instead to air traffic monitoring and route management. This could have serious implications for the safety of the NAS.

Studies have shown that -when acting as a monitor of an automated system, people are frequently slow in detecting that a problem has occurred that necessitates their intervention. Once detected, additional time is also needed to determine the state of the system and sufficiently understand what is happening in order to be able to act in an appropriate manner. The extra time associated with performing these steps can be critical, prohibiting performance of the very activity the human is present to handle. Safe air traffic control depends on the ability to quickly assess situations and make split second decisions.

Training and experience would also be a serious issue in this scenario. After this changeover of duties is completed it won't be long before the system is staffed entirely by individuals with no active air traffic control experience or on the job training. Even those

who might remain in the profession and remember active air traffic control would quickly fall out of practice. Currently, controllers and managers who are working off the floor are required to work positions for 16 hours to maintain currency. Maintaining this level of currency would be impossible should automated separation become the standard. This too, would make it difficult for air traffic monitors to safely perform air traffic control functions should automated separation fail."

These concerns would appear to dovetail well with resource allocations itemized in the FAA's five-year 2008 National Aviation Research Plan (NARP), which called for substantial increases in NextGen Human Factors Research in FY2010 across two domains: Controller Efficiency and Air/Ground Integration. APA fully supports the proposed increase of $7.9 million for Controller Efficiency and $4.8 million for Air/Ground Integration over FY2009, as called for in the NARP. However, APA is concerned that these large increases come at the expense of other critical human factors programs, including Flightdeck/Maintenance/System Integration Human Factors and Air Traffic Control/Technical Operations Human Factors, which will receive increases of only 1.5-2.9% within an average of 10.5% for the Research, Engineering and Development programs overall.

Federal Motor Carrier Safety Administration

APA is concerned that the Federal Motor Carrier Safety Administration (FMCSA) adopted an hours of operation rule for commercial drivers in November, 2008, nine days after the last election that essentially left unchanged the rule that had been adopted in 2004. The 2004 rule was successfully challenged twice in federal court on the basis that FMCSA did not properly account for the health consequences of permitting commercial drivers to drive eleven hours at a stretch rather than the formerly allowed ten hours of driving. While the American Trucking Association supported the rule, many members of Congress, unions and advocacy groups have called the extended hours dangerous. While the Department may choose not to reopen a discussion of this rule, APA urges the subcommittee to provide an increase of $2.5 million for additional safety research, particularly to help develop model health and wellness programs for commercial drivers, which have been identified by the National Academy of Sciences as the most promising way to assist in the reduction of commercial driver accidents and fatalities.

National Highway Traffic Safety Administration

APA applauds the leadership of this Subcommittee for requesting that the National Highway Traffic Safety Administration (NHTSA) prepare a report to consolidate current knowledge on driver distraction for use by policy makers. The request was included in the reports that accompanied the FY2006 Appropriations Act, PL 109-115, and was meant to assist federal, state and local governments in the formulation of effective policies, regulations and laws. NHTSA followed through, and the report, entitled "Driver Distraction: A Review of the Current State-of- Knowledge," was submitted to the Subcommittee in April, 2008, and was made public at that time. APA members reviewed the report and commended the Department for the preparation of a very comprehensive and highly professional review of the state of knowledge. This is an important baseline and helps policy makers better understand the likely effectiveness of proposed interventions. The report also helps identify gaps in current knowledge. Following the release of the report, NTSHA began to develop an Action Plan to identify the important next steps in both research and public policy outreach to address the problems caused by distracted drivers. We recommend that the Subcommittee request a briefing from the Department on the

content of the status of this Action Plan and support its implementation through the FY2010 budget.

Department of Housing and Urban Development

Homelessness Prevention Fund

At a time of critical challenges in the U.S. economy, homelessness is reaching epidemic proportions. Among the most impacted are families with children, single adults, and youth who for various reasons no longer have places to live. While homelessness has historically been associated with long-standing poverty, increased layoffs, mortgage foreclosures, evictions and the inability to obtain credit is resulting in the loss of housing among working and middle class individuals, as well as those living in poverty.

The stressful events leading to homelessness and the emotional hardship that accompanies being displaced from homes, neighborhoods, schools, and social supports has serious long-term mental health implications for adults and children alike. While homelessness has been associated with chronic and severe mental disorders, more commonly, a convergence of risks, vulnerabilities and events results in people not having the ability to afford or maintain housing. Many homeless adults experience the long-lasting, deleterious psychological effects of childhood trauma, physical and sexual abuse, and violence. Homeless adults have difficulty gaining access to medical and psychological treatment, and often use emergency centers at hospitals or temporary shelters to meet their needs.

APA urges Congress to continue to support the Homelessness Prevention Fund at the Department of Housing and Urban Development which re-houses homeless persons and families who enter shelters, and expands efforts to prevent homelessness among those facing a sudden economic crisis.

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