Testimony prepared by
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Subcommittee on Transportation, Treasury and Housing and Urban Development, The Judiciary, and the
District of Columbia
U.S. House Committee on Appropriations
Regarding FY 2006 Appropriations for the
Federal Highway Administration (FHWA) and the Federal Aviation Administration (FAA)

On behalf of the University Corporation for Atmospheric Research (UCAR) and the university community involved in weather and climate research and related education, training and support activities, I submit this written testimony for the record of the House Committee on Appropriations, Subcommittee on Transportation, Treasury and Housing and Urban Development, The Judiciary, and the District of Columbia

UCAR is a consortium of 68 universities that manages and operates the National Center for Atmospheric Research (NCAR) and additional research, education, training, and research applications programs in the atmospheric and related sciences. The UCAR mission is to support, enhance, and extend the research and education capabilities of the university community, nationally and internationally; to understand the behavior of the atmosphere and related systems and the global environment; and to foster the transfer of knowledge and technology for the betterment of life on earth. In addition to its member universities, UCAR has formal relationships with approximately 100 additional undergraduate and graduate schools including several historically black and minority-serving institutions, and 40 international universities and laboratories. UCAR is supported by the National Science Foundation (NSF) and other federal agencies including the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the Federal Aviation Administration. I would like to comment on the FY06 budgets for the FHWA and the FAA.

The Federal Highway Administration

The FY 2006 budget request for the FHWA should support the Administration’s and the country’s commitment to a safe, efficient, and modern surface transportation system. Weather research and intelligent transportation system (ITS) technology significantly contributes to this commitment. According to the National Academy of Sciences, weather reduces roadway safety, capacity and efficiency and is often the catalyst for triggering congestion. In the U.S. each year, approximately 7,000 highway deaths and 450,000 injuries are associated with poor weather-related driving conditions. The economic toll of these deaths and injuries is estimated at $42B per year. Weather plays a role in about 28 percent of the total crashes and 19 percent of the total fatalities. The societal and economic impacts of adverse weather on the highway system are enormous.

Road Weather Research Program

To mitigate the effects of weather, the FHWA’s Road Weather Management Program conducts applied research in partnership with a broad spectrum of the weather research and transportation stakeholders with a goal of transitioning advanced weather detection and forecasting technologies into operational use to
support traffic, incident, and emergency management, maintenance operations, and traveler information systems. Leveraging the work of the research community, the FHWA has made tremendous strides in just a few years in understanding and developing decision support systems to address the impact of poor weather on the surface transportation system. Enhanced research on pavement condition prediction, snow and ice control, fog, road friction, flooding, thunderstorm forecasting, icing, sensor development, and other areas will result in even more savings, in lives and dollars. Advanced surface transportation weather technologies are critical components of ITS solutions.

Regarding the FY 2006 request for the FHWA, I would like to comment on accounts related to surface transportation weather research that fund the collaborative work of surface transportation weather researchers and stakeholders. These accounts are relatively small in dollar amounts, but the work is potentially life saving for the users of the national surface transportation system. It should be noted that according to the 2004 National Research Council’s report titled Where the Weather Meets the Road: A Research Agenda for Improving Road Weather Services, the investment required to satisfy the unmet needs for road weather information is $25M per year for 15 years. An investment at this level would be focused on developing decision support systems for traveler information systems, winter road maintenance, traffic, incident and emergency management, in-vehicle information systems, and ITS.

Only recently has the FHWA begun investing in road weather research and this investment level has been very low (~$2M to $4M per year) considering its impact on the transportation system. The funding has come partly from ITS Research and Development and from FHWA Operations. An investment at a much higher level is required.

An adequately funded road weather research program will improved the safety, capacity, efficiency and mobility (reduce congestion), of the national roadway system. It will benefit the general public, commercial trucking industry, State DOT traffic, incident and emergency managers, operators and maintenance personnel. The road weather program will focus on the development of decision support systems for winter maintenance to improve snow and ice control operations by reducing staff costs and optimizing chemical use, which will result in environmental benefits. It will also focus on detecting, predicting, and communicating road weather hazards such as black ice, fog, hail, flooding, strong winds, and snow. Decision support systems for traffic, incident, and emergency management will also be developed and implemented taking advantage of new and emerging ITS technologies, such as vehicle infrastructure integration, and road weather information sensor systems. In-vehicle information systems capable of alerting drivers to dangerous weather and road conditions will also be developed as part of this research program.

The Transportation Reauthorization Bill, HR-3 (TEA-LU), Section 5607 contains language that establishes a merit based Road Weather Research and Development Program within the FHWA ITS Research and Development Program with annual funding at $4M (significantly less than the NRC recommendation of $25M). The establishment of a Road Weather Program is well supported by numerous organizations including the American Association of State Highway and Transportation Officials (AASHTO), the International Transportation Safety Association (ITSA), the Transportation Research Board (TRB), the National Research Council (NRC), and State Departments of Transportation (DOTs). Please support this important roadway safety and efficiency improvement program; I urge the Committee to fund a Road Weather Research and Development Program of, at a minimum, $4 million in FY 2006.
Federal Aviation Administration (FAA)

"Hazardous weather is a leading cause of aviation accidents—with more than 100 general aviation fatalities per year due to weather—and providing weather information directly to the cockpit is seen as a key factor in helping reduce weather-related accidents." – FAA’s ARA News Bulletin

Safety is of paramount importance to the flying public; weather is a primary factor in more than 40 percent of commercial aviation fatal accidents. A goal of the FAA is to reduce weather-related fatal accidents for commercial and general aviation by 80 percent by 2006. While substantial progress has been made through the FAA’s Aviation Weather Research Program (AWRP), continuation of ongoing efforts is essential to reach its goal.

To mitigate the effects of weather, the FAA's AWRP conducts applied research in partnership with a broad spectrum of the weather research and user communities with a goal of transitioning advanced weather detection and forecasting technologies into operational use. Leveraging the work of the research community, the FAA has made tremendous strides in understanding and mitigating severe weather on aviation. Enhanced research on turbulence, thunderstorm forecasting, oceanic weather, icing, and other areas will result in even more savings, in lives and dollars. I ask you to support the FY 2006 request of $20.6 million for the Aviation Weather Research Program, which is within the FAA’s Research, Engineering and Development (RE&D) appropriations.

I also ask you to support the request for the following accounts that fund the collaborative work of researchers in universities and federal laboratories. These accounts are relatively small in dollar amounts, but the work is potentially life saving for our nation’s pilots and passengers.

Joint Planning and Development Office (JPDO)
The President has requested $18.1 million in its RE&D appropriation for the JPDO in FY 2006 to support planning and development for the Next Generation Air Transportation System (NGATS). Working in close collaboration with the Departments of Commerce, Defense, and Homeland Security, the FAA, NASA, the White House Office of Science and Technology Policy, and other experts from the public and private sectors, the JPDO is developing a business plan for the aviation system of the future. Its goals and objectives focus on eight specific areas, one of which is aviation weather forecasting. The research community has years of expertise and knowledge to contribute to this area. The request of $18.1 million is a significant increase from the FY 2005 level of $5 million, and is supported by the Secretaries of Transportation, Commerce and the Air Force, and the NASA administrator. I urge you to support the requested amount of $18.1 million for the Joint Planning and Development Office.

Wind Profiling and Weather Research-Juneau
Turbulence costs U.S. airlines an estimated $100 million each year in injuries and operational disruptions such as delays and rerouting. High wind information can help airlines adjust their routes and schedules to optimize usage of the airport. Within the FAA’s Facilities and Equipment is the program, Wind Profiling and Weather Research-Juneau, which supports the Juneau Airport Wind System (JAWS), an operational system in development, designed to detect and warn of wind hazards. For FY 2006, the FAA is requesting $3.16 million to continue this work; while it is less than last year’s level approved by Congress, I am pleased that this is the first year the FAA has requested funds for this effort. I ask that
you support the Administration’s request of $3.16 million for Wind Profiling and Weather Research-Juneau.

Wake Turbulence
Improving the detection and forecasting of wake turbulence is a key element to the FAA’s goal of tripling air travel capacity by the year 2025. The Joint Planning and Development Office Integrated Product Team is committed to better understanding wake vortex behavior, and improved forecasting of this invisible threat. Within the FAA’s F&E account, $2 million is requested for wake turbulence research. Another $2.3 million is requested in its RE&D account. *Given the importance of this relatively small research program to the FAA’s capacity goal, I urge you to support these requests for wake vortex capacity enhancement.*

On behalf of UCAR, as well as all U.S. citizens who use the surface and air transportation systems, I want to thank the Committee for the important work you do that supports the country’s scientific research, training, and technology transfer. We understand and appreciate that the nation is undergoing significant budget pressures at this time, but a strong nation in the future depends on the investments we make in research and development today. We appreciate your attention to the recommendations of our community concerning the FY 2006 FHWA and FAA budgets and we appreciate your concern for safety within the nation’s transportation systems.