

airworthiness maintenance program, which includes a heavy maintenance visit scheduled approximately each 12 months, the FAA believes that operators could conclude any modifications required by this proposed rule within the time constraints of a single heavy maintenance cycle. The FAA believes the March 2005 compliance date would minimize the financial burden for affected operators as well as provide a long-term aviation safety benefit.

Initial Economic Evaluation, Regulatory Flexibility Determination, Trade Impact Assessment, and Unfunded Mandates Assessment

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs each Federal agency proposing or adopting a regulation to make a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this act requires agencies to consider international standards and, where appropriate, use them as the basis for U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed and final rules. An assessment must be prepared only for rules that impose a Federal mandate on State, local, or tribal governments, in the aggregate, or on the private sector, likely to result in a total expenditure of \$100 million or more (adjusted for inflation) in any one year.

In conducting these analyses, the FAA determined the following: the benefits of this proposed rule justify its costs; it would be a "significant regulatory action" as defined in section 3(f) of Executive Order 12866; it would be "significant" as defined in DOT's Regulatory Policies and Procedures; it would not have a significant impact on a substantial number of small entities; it would have no effect on trade-sensitive activity; and it would not impose an unfunded mandate on State, local, or tribal governments, or on the private sector. These analyses, available in the docket, as summarized below.

Benefits and Costs

This proposed rule is part of a series of rulemaking actions aimed at preventing or deterring a similar

occurrence to the September 11 attacks. It is designed to ensure immediate ATC notification of a hijack situation, and to assist in maintaining ATC tracking of the hijacked airplanes for purposes of national security. As such, the benefits of this proposed rule are to ensure the security of the American public.

The cost of another catastrophic terrorist act cannot be reasonably measured in dollars. As it was witnessed on September 11, terrorist acts can result in the complete destruction of an aircraft with the loss of all on board, and with collateral damage far exceeding that of the aircraft and passengers. The main benefit related to this proposed rule is the averted loss of life by taking corrective action.

The economic and social costs of the September 11 attacks have been measured in the billions of dollars, and another terrorist attack could be far more costly. Therefore, the FAA attributes the benefits of this proposed rule to the series of rules designed to ensure the safety and security of the American public. Such benefits cannot be reasonably quantified nor allocated between the multiple actions taken to avoid a repeat of the attack. In addition to preventing the extraordinary costs of another attack, this proposed rule responds to the interest of the U.S. Congress as specified in the Aviation and Transportation Security Act.

The FAA estimates that 7,394 airplanes would be potentially affected by the proposed rule. Given that the deadline to comply with this proposed rule is tentatively set for March 2005 (27 months after the expected issuance of the final rule), the FAA assumes that all retrofitting expenses would be spread evenly, on a monthly basis, between January 2003 and March 2005.

The estimated capital cost to upgrade airplanes with transponders capable of continuous operation in hijack mode is approximately \$3,000 for each airplane. This figure was provided by transponder and transponder control manufacturers, aircraft manufacturers, and airlines that received quotes from suppliers. Purchasing the compliant transponder controls or software upgrade for a fleet of 7,394 airplanes would cost \$22.2 million, over the three-year period. The industry also estimated overall certification costs for the software and hardware to be \$1,000,000, to be incurred in 2002.

The software or hardware investment is only a portion of the cost to the industry. Locking a transponder into continuous operation is a relatively inexpensive and easy solution. Every transponder manufacturer claimed that

a software upgrade would not require any downtime. The transponder could be removed from the airplane in a matter of minutes, replaced by a substitute transponder while the software upgrades were implemented (airlines indicated an abundance of transponders), and then reinstalled. The simplest, and quickest, solution for some operators is a transponder software upload, which is expected to be on the market for less than \$3,000, and which could be accomplished on the airplane (that is, the transponder would not have to be removed). This update could be accomplished in about 5 minutes, and would allow the transponder to lock out all other inputs after the hijack alert code is entered.

To comply with the proposed rule, operators also would need to install a method of rapid activation and isolate electrical power to the transponder control equipment. The labor cost, therefore, would likely be the same, regardless of the solution chosen, because there would be a need to wire a method of rapid activation and isolate the electrical power. Industry identified these tasks as being labor-intensive. Airline technicians would require approximately 52 work hours per aircraft to wire a method of rapid activation and/or install a transponder control in the avionics bay. At an average hourly rate of \$50, this translates into \$19.2 million to retrofit the entire affected fleet. The upgrade would have to be performed during a "C" or "D" check, or place the aircraft out of service for a 2-day period. Alternatively, because the task would not need to be completed in one setting, the wiring could be performed in stages during several overnight maintenance sessions. In addition, the parts and supplies for this wiring would cost about \$1,000 per aircraft. For the entire fleet, this would mean approximately \$7.4 million over the 3 years.

The FAA conservatively estimated that all passenger and cargo airplanes affected by the proposed rule would incur downtime costs, at a fleet-wide average opportunity cost of \$5,178 per aircraft. This opportunity cost of capital represents the return foregone by having invested in the airplane rather than investing in securities. This figure reflects a fleet-wide average value of \$15.0 million per airplane, multiplied by the industry's return on investment of 6.3 percent for the year 2000, for 2 days of lost service. The total cost of airplane downtime is calculated to be approximately \$38.3 million, spread over the 3 years. The FAA believes the estimate of downtime is a high-side estimate because most operators will