

- Reduced average flight times
- Increased likelihood of receiving a clearance for weather deviations
- Seamless, transparent, and harmonious operations between adjoining RVSM airspaces
- Consistent procedural environment throughout the entire flight
- Reduced impact of adverse weather by permitting aircraft deviations to other airways without any efficiency loss.

Implementation of RVSM in U.S. domestic airspace should increase user satisfaction. The benefits described in this section are compelling in number and operational impact. These benefits are also important in that they are enjoyed both by air traffic and aircraft operators.

Analysis of Alternatives

This rule is a “significant regulatory action” as defined by Executive Order (E.O.) 12866 (Regulatory Planning and Review) because this rule will impose costs exceeding \$100 million annually. The E.O. requires that agencies promulgating economically significant rules provide an assessment of feasible alternatives to their respective rulemaking actions. In addition, the E.O. requires that an explanation of why the final rule, which is significant, is preferable to the identified potential alternatives. We identified and considered three alternatives to the final rule.

Alternative One—The Status Quo

This alternative would maintain the 2,000-foot separation above FL 290 and would avoid the equipment and testing requirements of this rule, which impose a cost of \$869.2 million (\$764.9 million, discounted) from 2002 to 2016 on the aviation industry and the FAA. But maintaining the status quo also means that aviation industry would not receive any of the cost-savings afforded by DRVSM. As mentioned earlier, the cost-savings afforded by this rule are estimated to be \$5.3 billion (\$3.0 billion, discounted) in fuel savings over the same period. Since the foregone cost-savings of the alternative greatly exceed the avoided costs, we reject this alternative in favor of the final rule.

Alternative Two—Implement Domestic RVSM Without the Equipment and Testing Requirements

This alternative would allow RVSM between FL 290 and FL 410 without requiring aircraft system engineering to 14 CFR part 91, appendix G. This alternative would allow the aviation industry to receive the estimated \$5.3 billion (\$3.0 billion, discounted) in fuel

savings while the aviation industry and the FAA avoid RVSM costs of \$869.2 million (\$764.9 million, discounted). Unfortunately, this is not a viable alternative due to safety considerations.

Studies by the FAA and European civil aviation authorities have shown that many aircraft that have not been calibrated to RVSM standards exhibit altitude-keeping errors that exceed the standards established for RVSM safety. In these studies, non-RVSM calibrated aircraft were observed with errors of up to 700 feet. Under RVSM aircraft are allowed to operate with only 1,000 feet vertical separation. If non-RVSM calibrated aircraft were allowed to operate with only 1,000 feet vertical separation, there could be a 400-foot altitude overlap in altitude-keeping errors for two non-RVSM calibrated aircraft operating in close proximity to each other. Thus, there is an increased risk of midair collisions if non-RVSM calibrated aircraft are allowed to operate under RVSM. Since there are some aviation safety concerns with this alternative, this alternative is also rejected in favor of the final rule.

Alternative Three—Delay Implementation of the RVSM by Seven or Eight Years

This alternative would delay implementation of the rule by seven or eight years. This would allow the costs to be spread over a longer period of time so that costs in any one-year would be below \$100 million. This would make the rule no longer economically significant under E.O. 12866. The cost of this alternative would still be the same as the cost of the final rule, although the discounted costs would be lower than the discounted costs of the final rule. However, if implementation of the rule were delayed by seven or eight years, the estimated cost-savings would be reduced by \$2.0 billion or \$2.4 billion, respectively (\$1.5 billion, discounted or \$1.8 billion, discounted, respectively). This is a considerable amount of cost-savings to forego in order for the FAA to avoid issuing an economically significant rule. For this reason, this alternative is rejected in favor of the final rule.

Regulatory Flexibility Analysis

The Regulatory Flexibility Act of 1980 establishes as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation. To achieve that principle, the Act requires agencies to solicit and

consider flexible regulatory proposals and to explain the rationale for their actions. The Act covers a wide-range of small entities including small businesses, not-for-profit organizations, and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the agency must prepare a regulatory flexibility analysis (RFA) as described in the Act.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the 1980 Act provides that the head of the agency may so certify and an RFA is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

Findings of the Regulatory Flexibility Analysis

Operators of large transport aircraft meeting the Small Business Administration (SBA) small entity criteria were identified in the 6-day traffic sample of ETMS data and appear in Table 2 of the Regulatory Impact Analysis. Revenue information for the small entity operators was obtained from the *Air Carrier Financial Statistics Quarterly*, *Dun and Bradstreet Million Dollar Directory*, *J&P Airline Fleets International*, and the *Department of Transportation Bureau of Transportation Statistics Office of Airline Information Web Site*.

Operators of small commercial or general aviation aircraft are typically operated under either 14 CFR part 91 or 14 CFR part 135. This study focuses on part 135 operators. Since they utilize their aircraft as their primary means of revenue generation through offering non-scheduled charter flights, they are more prone to being impacted by this rule. The FAA estimates that 380 operators with less than 1,500 employees operate 2,780 turbojet aircraft on part 135 generating \$7.0 billion in charter revenue per annum. As of December 2002, 422 of these aircraft are RVSM approved leaving 2,358 non-approved aircraft. The FAA estimates the cost to upgrade the non-approved airframes is \$211.4 million. In addition, the FAA estimates that these operators will incur approximately \$74.1 million, or \$195,000 per operator, in lost revenue associated with the downtime necessary to upgrade these airframes for RVSM operations. Based on these estimates, the FAA has