

[4910-13]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 135**

**Docket No. FAA-2009-0023; Notice No. 09-02**

**RIN 2120-AJ32**

**Crew Resource Management Training for Crewmembers in Part 135 Operations**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** This proposed rule would require all certificate holders conducting operations under part 135 to include in their training programs crew resource management for crewmembers, including pilots and flight attendants. This proposal is needed to ensure that crewmembers in part 135 operations receive training and practice in the use of crew resource management principles, as appropriate for their operation. This proposed rule would respond to National Transportation Safety Board (NTSB) recommendations, address a recommendation from the Part 125/135 Aviation Rulemaking Committee (ARC), and would codify current FAA guidance. The intended effect of this proposal is to reduce the frequency and severity of errors that are crew based, which will reduce the frequency of accidents and incidents within the scope of part 135 operations.

**DATES:** Send your comments on or before [Insert date 90 days after date of publication in the Federal Register].

**ADDRESSES:** You may send comments identified by Docket Number FAA-2009-0023 using any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov> and follow the online instructions for sending your comments electronically.
- Mail: Send comments to the Docket Operations, M-30; U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC 20590-0001.
- Hand Delivery or Courier: Bring comments to the Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: Fax comments to the Docket Operations at 202-493-2251.

For more information on the rulemaking process, see the SUPPLEMENTARY INFORMATION section of this document.

Privacy: We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. Using the search function of our docket web site, anyone can find and read the comments received into any of our dockets, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78) or you may visit <http://DocketsInfo.dot.gov>.

Docket: To read background documents or comments received, go to <http://www.regulations.gov> at any time and follow the online instructions for accessing the docket, or to the Docket Operations in Room W12-140 of the West Building Ground Floor

at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**FOR FURTHER INFORMATION CONTACT:** For technical questions concerning this proposed rule, contact Nancy Lauck Claussen, Federal Aviation Administration, Flight Standards Service, Air Transportation Division (AFS-200), 800 Independence Avenue, SW, Washington, DC 20591; Telephone: 202-267-8166; E-mail: [nancy.l.claussen@faa.gov](mailto:nancy.l.claussen@faa.gov). For legal questions concerning this proposed rule, contact Anne Bechdolt, Federal Aviation Administration, Office of the Chief Counsel, 800 Independence Avenue, SW, Washington, DC 20591; Telephone: 202-267-3073; E-mail: [anne.bechdolt@faa.gov](mailto:anne.bechdolt@faa.gov).

**SUPPLEMENTARY INFORMATION:**

Later in this preamble under the Additional Information section, we discuss how you can comment on this proposal and how we will handle your comments. Included in this discussion is related information about the docket, privacy, and the handling of proprietary or confidential business information. We also discuss how you can get a copy of related rulemaking documents.

**Authority for this Rulemaking**

The FAA's authority to issue rules on aviation safety is found in Title 49 of the United States Code. This rulemaking is promulgated under the authority described in 49 U.S.C. 44701(a)(5), which requires the Administrator to promulgate regulations and minimum standards for other practices, methods, and procedures necessary for safety in air commerce and national security.

**Background**

Crew Resource Management (CRM) training is the incorporation of team management concepts in flight operations. This training focuses on communication and interactions among pilots, flight attendants, operations personnel, maintenance personnel, air traffic controllers, flight service stations, and others. CRM also focuses on single pilot communications, decision making, and situational awareness. Consequently, CRM activities include team building, transfer of information, problem solving, decision making, maintaining situational awareness, and using automated systems. Training in these areas helps to prevent errors such as runway incursions, misinterpreting information from tower controllers, crewmembers' loss of situational awareness, and crewmembers failing to fully prepare for takeoff or landing.

The Federal Aviation Administration (FAA), National Transportation Safety Board (NTSB), and industry stakeholders have consistently recognized the problems associated with poor decision making, ineffective communication, inadequate leadership, and poor task or resource management as major contributors to accidents and incidents within the aviation industry. Effective CRM training for crewmembers is a critical element in reducing accidents and incidents resulting from these problems. This proposed rule would require all certificate holders conducting part 135 operations that are required to have a training program under 14 CFR §135.341 to implement CRM training for crewmembers in part 135 dual and single-pilot operations.

#### Previous Crew Resource Management Training Rulemaking

On December 20, 1995, the FAA published Air Carrier and Commercial Operator Training Programs. See 60 FR 65940. This final rule required all certificate holders operating under part 121 to include CRM training for crewmembers in their training programs. This requirement also extended to certificate holders conducting operations

under part 135 that are required to comply with part 121 training and qualification requirements, such as those certificate holders that conduct commuter operations with airplanes for which two pilots are required by aircraft certification rules, and those that conduct commuter operations with airplanes having a passenger seating configuration of 10 seats or more. Today's proposed rule, which, if adopted, would require all certificate holders conducting operations under part 135 to include CRM training in their programs, continues the precedent set by the December 20, 1995 final rule.

In considering this proposal to extend CRM training requirements to cover part 135 operators, the FAA conducted a review of all accidents involving airplanes and helicopters that occurred between March 20, 1997 (the compliance date for training and qualifying under part 121 for certain part 135 operators as set forth in the 1995 CRM final rule) and March 7, 2008. The FAA initially identified 268 accidents in part 135 operations that may have been directly or indirectly related to ineffective CRM. Upon further review, the FAA found that 24 of these accidents were directly related to ineffective CRM. These 24 accidents were responsible for 83 fatalities and 12 serious injuries. The causal CRM factors in these accidents did not discriminate between dual and single pilot operations: 14 accidents involved single pilots and 10 involved dual-pilot operations. The following accident histories, identified during this review, signify the critical need to require CRM training in both single and dual-pilot part 135 operations.

On October 25, 2002, a Raytheon (Beechcraft) King Air A100, operating under the part 135 on-demand operation regulations, crashed while the dual-pilot flight crew was attempting to execute a very high frequency omnirange station (VOR) approach to runway 27 at Eveleth-Virginia Municipal Airport, in Eveleth, Minnesota. In its final report on the accident, the NTSB noted that the evidence clearly indicated that neither flightcrew

member was monitoring the airspeed indicator or course deviation indicator during the approach. The NTSB found that if the flightcrew had been adhering to the operator's approach procedures and effectively applying CRM techniques in the cockpit, at least one of the flightcrew members should have been monitoring the instruments during the approach. The two pilots and six passengers were killed in this accident. The airplane was also destroyed by impact forces and a post-crash fire. See NTSB Aircraft Accident Report AAR-03/03 (Nov. 18, 2003).

On September 25, 1999, a single pilot operating an on-demand aerial sightseeing tour crashed into the northeast slope of the Mauna Loa volcano near Volcano, Hawaii. The NTSB determined that the accident was caused by the pilot's decision to continue under visual flight rules (VFR) into instrument meteorological conditions (IMC) in an area of cloud-covered mountainous terrain. In addition, the NTSB found that the pilot's failure to properly navigate and his disregard for standard operating procedures, including flying into IMC while on a VFR flight plan and failure to obtain a current preflight weather briefing, also contributed to the accident. These issues are typically addressed in CRM training. The pilot and all nine passengers were killed, and the airplane was destroyed by impact forces and a post-impact fire. See NTSB Aircraft Accident Report AAB-01-02 (Sept. 26, 2001)

On June 25, 1998, a single pilot operating an on-demand aerial sightseeing tour crashed into a mountainside in Mt. Waialeale, Hawaii. Three helicopters had departed on the tour, with about 2 minutes between each departure. The company's most experienced pilot was leading the tour, followed by the company's second most-experienced pilot, and last, the accident pilot. The pilots had not received a weather briefing from an FAA-approved source, as required by the company's operations specifications. Throughout the flight, the three pilots were in radio contact with each other. During the flight, weather

conditions worsened. The accident pilot became disoriented, misjudged his location, and while cruising toward what he believed was the prescribed crater entranceway, inadvertently entered IMC and collided into the mountainside. The NTSB determined that the probable cause of the accident was the failure of the lead pilot, who had first observed the deteriorating weather conditions, to notify the following pilots of the conditions and direct them to avoid the area. The pilot and all five passengers were killed. See NTSB Accident Report LAX98FA211 (May 17, 2001).

These three accidents were all the result of poor decision making, a loss of situational awareness, a lack of communication between multiple pilots or between pilots and other key operational personnel, and inadequate leadership. Under this proposal, all of these issues would be addressed in CRM initial and recurrent training.

#### National Transportation Safety Board Recommendations

In addition to addressing the issues identified in these accidents, this proposed rule would respond to the following NTSB recommendations: NTSB recommendation A-01-12 to require CRM training for all pilots conducting part 135 on-demand operations in aircraft that require two or more pilots; A-03-52, to require part 135 on-demand operators to provide CRM training to all pilots conducting dual-pilot operations; and A-95-124 to require certificate holders that conduct part 135 operations to provide flightcrew members, during initial and recurrent training programs, with aeronautical decision-making and judgment training that is tailored to the company's flight operations and aviation environment. Further emphasizing the need for the FAA to address CRM training in part 135 operations, on May 14, 2008, the NTSB issued a letter to the FAA noting that

recommendation A-03-52 remains on its most wanted list of Transportation Safety Improvements.

This NPRM exceeds the requirements outlined in NTSB recommendation A-03-52, which only addressed CRM training for dual-pilot operations in part 135. These issues are not limited to dual-pilot operations, but rather, as indicated by the accident review, extend to all operations. Therefore, the FAA has decided it is necessary to require CRM training for crewmembers conducting either dual- or single-pilot operations under part 135.

#### Recommendations from the Part 135/125 Aviation Rulemaking Committee (ARC)

This proposal is also based in part on recommendations submitted by the Part 135/125 ARC, which was established on April 8, 2003. The ARC recommended that all pilots in part 135 operations be proficient at mastering the resources available to them while managing many operational factors, such as communications with air traffic control, advanced cockpit technology, weather services, managing time, maintaining situational awareness, mitigating fatigue and stress, and other factors. The FAA recognizes the importance of training in these areas and has incorporated the ARC's suggestions in this regard.

In addition to the curriculum components, the Part 135/125 ARC recommended CRM training for flight followers. The FAA, however, has decided not to require CRM training for these individuals in this proposal. Current regulations require flight locating in part 135 operations, but there is no associated training requirement for the individuals that perform this function, typically referred to as "flight followers." Furthermore, there are no requirements for dispatchers in part 135 regulations. Therefore, while the FAA recognizes the value and encourages the training of all operational personnel regarding key CRM

principles, this proposal does not include CRM training requirements for flight followers or dispatchers in part 135 operations.

### Current FAA Guidance

The proposed amendments also codify certain elements of FAA guidance contained in Advisory Circular (AC) 120-51, Crew Resource Management Training, and AC 00-64, Air Medical Resource Management, as amended. These ACs present guidelines for developing, implementing, reinforcing, and assessing CRM training for crewmembers and other personnel essential to flight safety. The curriculum components and training methodologies contained in these ACs are designed to become an integral part of training and operations, and as such, have been included in the rule as the basic curriculum components for every CRM training program.

AC 120-51 and AC 00-64, as amended, also contain information regarding recognition of fatigue and stress reduction. These ACs suggest that training may include a review of scientific evidence on fatigue and stress and their effects on performance in both normal operations and emergency situations. These topics are appropriately addressed in CRM training, which may also include training crewmembers on identifying various countermeasures for coping with stressors, recognition of cues that indicate lack or loss of situational awareness, and training in countermeasures to restore that awareness.

## **General Discussion of the Proposal**

### Components of CRM Training

In the 1995 final rule, the FAA anticipated that for a CRM training program to be approved, it would include three distinct components: (1) initial CRM training, during which CRM issues are defined and discussed; (2) a recurrent practice and feedback

component during which trainees gain experience with CRM techniques; and (3) a continuing reinforcement component which ensures that CRM principles are addressed throughout the trainee's employment with the certificate holder. The FAA continues to expect these three components in today's proposal.

Initial CRM training is a curriculum segment with a variety of instructional methods, which can include lectures, discussions, videos, and practice in an operational setting or a Line Oriented Flight Training (LOFT) scenario, with feedback from an instructor. Under the proposed rule, initial CRM training must be provided to crewmembers in part 135 operations. At a minimum, the training should address the authority of the pilot in command; communication processes; how to build and maintain a flight team, manage workload and time, and maintain situational awareness; recognizing and mitigating fatigue and stress; and particular aeronautical decision-making skills tailored to the certificate holder's operations. This training is in addition to current training requirements for crewmembers under part 135.

Recurrent CRM training is best accomplished through the use of operational, performance-based scenarios that provide an opportunity for practice and feedback. Feedback should be directed by a facilitator who has had appropriate CRM training and can identify the CRM markers in a performance-based scenario. Practice and feedback provide participants with opportunities to improve communication, decision-making, and leadership skills.

#### Program Hours and Approval of Training Programs

Consistent with other part 135 training requirements, this proposal does not establish required program hours. In evaluating and approving part 135 CRM training programs, the FAA would consider instructional techniques, the number of students in a

class, the use of performance-based scenarios, new training technology, the use of student feedback, the measurement of training outcomes, as well as the number of hours of training time.

#### Compliance Date

For initial CRM training, the FAA is proposing a compliance date 2 years after the effective date of the final rule. After the compliance date, a certificate holder conducting part 135 operations would be prohibited from using a crewmember unless that person has completed approved initial CRM training. Since a large number of certificate holder employees are required to have this training, the delayed compliance date would allow sufficient time to train instructors who will conduct CRM training, and then, in turn, provide this training to all crewmembers. The delay in compliance is also necessary because most of these operators may be classified as small businesses and may need additional time to develop the training program.

#### Credit for Previous CRM Training

As part of the proposal, the FAA may credit some CRM training received by crewmembers before the compliance date. Specifically, the FAA would consider training aids, devices, methods, and procedures, in accordance with AC 120-51 and AC 00-64, as amended, used by a certificate holder in a voluntary CRM program included in a training program required by 14 CFR §135.341, § 135.345, or § 135.349.

In addition, the FAA recognizes that many crewmembers in part 135 operations work for multiple part 135 operators throughout their careers. In light of the uniform CRM curriculum components proposed in this rule, the FAA has decided that it would be appropriate to credit initial CRM training that a crewmember completed while working for one part 135 operator toward the initial CRM training required by another part 135 operator

if the crewmember is able to provide appropriate training records to his or her new employer.

### **Conclusion**

Effective Crew Resource Management (CRM) training for crewmembers is a critical element in the reduction of accidents and incidents. This proposed rule would require certificate holders conducting operations under part 135 to implement CRM training for crewmembers conducting both dual and single-pilot operations. The intended effect is to reduce accidents and incidents within the scope of part 135 operations. This rule is supported by the NTSB findings and recommendations, long-standing FAA guidance, and the precedent set in 1995 with the promulgation of the final rule requiring a CRM training component for certificate holders conducting operations under part 121, as well as those part 135 operators that must operate under the rules of part 121.

### **Paperwork Reduction Act**

This proposal contains the following new information collection requirements. As required by the Paperwork Reduction Act of 1995, the FAA has submitted the information requirements associated with this proposal to the Office of Management and Budget for its review. See 44 U.S.C. 3507(d).

**Title:** Crew Resource Management Training for Crewmembers in Part 135 Operations

**Summary:** This proposed rule would require CRM training for crewmembers, in 14 CFR part 135 operations. This proposal is needed to ensure that crewmembers in part 135 operations receive training and practice in the use of CRM principles, as appropriate for their operation. The intended effect of this proposal is to reduce the frequency and

severity of errors that are crew based, which will reduce the frequency of accidents and incidents within the scope of part 135 operations.

**Use of:** This project is in direct support of the Department of Transportation’s Strategic Plan – Strategic Goal – SAFETY; i.e., to promote the public health and safety by working toward the elimination of transportation-related deaths and injuries. This request for clearance reflects requirements necessary under Title 14 CFR part 135 to ensure safety-of-flight by making certain that complete and adequate training is obtained and maintained by those who operate under this part of the regulation. The FAA will use the information it collects and reviews to ensure compliance and adherence to regulations and, where necessary, to take enforcement action on violators of the regulations.

**Respondents (including number of):** The FAA estimates there are 1,625 certificate holders who would be required to provide information in accordance with the proposed rule. The respondents to this proposed information requirement are certificate holders using the training requirements in 14 CFR part 135.

**Frequency:** The FAA estimates certificate holders will have a one time information collection, and will then collect or report information occasionally thereafter.

**Annual Burden Estimate:** This proposal would result in a 10-year recordkeeping and reporting burden as follows:

**Summary of time and costs (10-year):**

	Cost	Hours
Development and submission of CRM Training Program	\$302,260.00	8,636.0
Crewmember Training Record Keeping	\$ 65,540.50	1,872.5
<b>TOTAL</b>	<b>\$367,800.50</b>	<b>10,508.5</b>

The agency is soliciting comments to—

- (1) Evaluate whether the proposed information requirement is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;
- (2) Evaluate the accuracy of the agency's estimate of the burden;
- (3) Enhance the quality, utility, and clarity of the information to be collected;  
and
- (4) Minimize the burden of collecting information on those who are to respond, including by using appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Individuals and organizations may send comments on the information collection requirement by [\[Insert date 90 days after publication in the Federal Register\]](#), and should direct them to the address listed in the Addresses section at the beginning of this preamble. Comments also should be submitted to the Office of Management and Budget, Office of Information and Regulatory Affairs, Attention: Desk Officer for FAA, New Executive Building, Room 10202, 725 17<sup>th</sup> Street, N.W., Washington, DC 20053.

According to the 1995 amendments to the Paperwork Reduction Act (5 CFR § 1320.8(b)(2)(vi)), an agency may not collect or sponsor the collection of information, nor may it impose an information collection requirement unless it displays a currently valid OMB control number. The OMB control number for this information collection will be published in the [Federal Register](#), after the Office of Management and Budget approves it.

## **International Compatibility**

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. The FAA has determined that there are no ICAO Standards and Recommended Practices that correspond to these proposed regulations.

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

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Public Law 96-354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Public Law 96-39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Public Law 104-4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of \$100 million or more annually (adjusted for inflation with base year of 1995). This portion of the preamble summarizes the FAA's analysis of the economic impacts of this proposed rule. We suggest readers

seeking greater detail read the full regulatory evaluation, a copy of which we have placed in the docket for this rulemaking.

In conducting these analyses, the FAA has determined that this proposed rule: (1) has benefits that justify its costs; (2) is not an economically “significant regulatory action” as defined in section 3(f) of Executive Order 12866; (3) is not “significant” as defined in DOT's Regulatory Policies and Procedures; (4) would not have a significant economic impact on a substantial number of small entities; (5) would not create unnecessary obstacles to the foreign commerce of the United States; and (6) would not impose an unfunded mandate on state, local, or tribal governments, or on the private sector by exceeding the threshold identified above. These analyses are summarized as follows.

#### Total Benefits and Costs of this Proposed Rule

The estimated cost of this proposed rule is \$11.2 million, or \$8 million in present value terms. An upper bound estimate of the potential benefits would be a 25 percent reduction in part 135 accidents in which the lack of CRM training would be a causal factor, and is estimated at about \$121 million. If a one accident could be averted like the 2002 Beechcraft accident where the NTSB found effective CRM techniques should have been followed, then the benefits of this rule would easily exceed the costs.

#### Aviation Industry Affected

The proposed rule would affect operators of airplanes and helicopters and crewmembers who fly under part 135. There would be 1,625 part 135 operators that employ 25,033 crewmembers, of whom 24,447 would be pilots and 586 would be flight attendants.

### Period of Analysis

We used a 10-year time period to calculate the CRM training costs and potential benefits from CRM training. A 10-year period of analysis is sufficient to determine costs and benefits.

### Risk of an Accident Caused by the Absence of CRM Training

We evaluated part 135 accidents from March 20, 1997, through March 7, 2008. During this time period, there were 24 accidents (18 involving airplanes and 6 involving helicopters) with causal factors directly related to a lack of effective CRM. These accidents were responsible for 83 fatalities (66 involving airplanes and 17 involving helicopters) and 12 serious injuries (all involving airplanes).

Further, of the 18 airplane accidents, 8 involved single pilot operations and 10 involved dual-pilot operations. All 6 of the helicopter accidents involved single pilot operations. The individual accident histories are provided in the Initial Regulatory Evaluation, which is in the docket.

### Assumptions and Data Used to Estimate Benefits

The value of a prevented fatality is \$5.8 million, which is the Department of Transportation value of a statistical life.

### Potential CRM Training Effectiveness and Benefits

We reviewed all part 121 accidents contained in the NTSB database between 1988 through 2007 involving the same causal factors and divided them into accidents occurring from 1988 through 1997, and accidents occurring after 1997. As described earlier, the CRM rule for part 121 and for some part 135 operations became effective in 1997. We then calculated the CRM training-related accident rates for these two groups and

found that the accident rates decreased from 0.0000206 to 0.0000182 (an 11.65 percent decline) and the accident rate for all fatal accidents decreased from 0.0000048 to 0.0000036 (a 25 percent decline). Although this accident rate reduction is not statistically significant due to the infrequency of these accidents, it is useful in establishing an upper bound for the potential CRM training effectiveness rate for part 135 operations.

In order to illustrate the potential part 135 CRM training benefits, we applied the part 121 accident rate reductions of 25 percent for fatal accidents and 11.65 percent for non-fatal accidents to the 24 CRM-related part 135 accidents. Had the proposed CRM training rule been in effect in 1997, it could have prevented 2.75 of these fatal airplane accidents involving 16.5 fatalities and 2.25 serious injuries, as well as 1 fatal helicopter accident involving 4.25 fatalities. It also could have prevented one non-fatal airplane and helicopter accident. On that basis, the proposed rule could have prevented 3.75 fatal accidents involving 20.75 fatalities and 2.25 serious injuries. Thus, applying the DOT values to the accidents hypothetically prevented, an upper-bound quantified benefit of about \$121 million would have resulted had the proposed rule been in effect since 1997.

#### Compliance Cost Assumptions

Current industry practice is the baseline for the incremental compliance costs. CRM training is classroom training that would be incorporated into the annual training already required of each part 135 operator.

All 26 large part 135 operators with more than 100 crewmembers and 10 percent of the 400 part 135 operators with 10-99 crewmembers (40 operators) provide CRM training and would incur minimal compliance costs. The FAA estimates that 360 of the

medium-sized operators and none of the 1,199 small operators with less than 10 crewmembers currently provide CRM training and all would incur compliance costs.

We based training costs on the guidelines in the FAA Advisory Circular 120-51E and on the size of the firm.

The average cost to develop a CRM training program would be \$1,170 for a medium-sized operator and \$680 for a small operator.

Current pilots and future new pilots in medium-sized operations would need 4 hours for initial CRM training while those in small operations would need 3 hours.

Current flight attendants and future new flight attendants would need 2 hours for initial CRM training.

Annual recurrent CRM training would take one-half of the time that initial CRM training would require.

There would be an average of 10 pilots in an initial or recurrent CRM training session for a medium-sized operator and an average of 3.66 for a small operator.

There would be an average of 3.92 flight attendants in an initial or recurrent CRM training session for a medium-sized operator and an average of 1.1 flight attendants for a small operator.

The average cost for an initial CRM pilot training session would be \$1,293 for a medium-sized operator and \$428 for a small operator.

The average cost for an initial CRM flight attendant training session would be \$207 for a medium-sized operator and \$94 for a small operator.

The average cost for recurrent CRM pilot training would be \$647 for a medium-sized operator and \$214 for a small operator.

The average cost for recurrent CRM flight attendant training would be \$104 for a medium-sized operator and \$47 for a small operator.

Initial CRM training for new entrants would be done on a one-to-one basis with the trainer. The average cost would be \$208 per new pilot hire for medium-sized operators and \$156 for small operators. The average cost would be \$76 per new flight attendant hire for medium-sized and small operators.

A crewmember who has received initial CRM training from an operator would not need to repeat this initial CRM training if the crewmember changes part 135 employers.

#### Compliance Costs

Based on those data and assumptions, as shown in Table 1, we estimated that the proposed rule from 2009 through 2018 would have a total cost of \$11.2 million, which would have a present value of \$8 million using a 7 percent discount rate, and a present value of \$9.6 million using a 3 percent discount rate

TABLE 1  
SUMMARY OF THE TOTAL CRM TRAINING COSTS BY SOURCE OF COST  
(2009 through 2018)

(Rounded to the Nearest Thousand Dollars)

SOURCE OF COST	TOTAL COSTS		
	NOMINAL	PRESENT VALUE (7%)	PRESENT VALUE (3%)
CURRENT OPERATOR CRM PLAN	\$ 1,177	\$1,101	\$1,143
NEW OPERATOR CRM PLAN	\$345	\$234	\$290
CURRENT PILOT TRAINING	\$1,476	\$1,289	\$1,391
NEW PILOT TRAINING	\$1,437	\$964	\$1,203
PILOT RECURRENT TRAINING	\$6,684	\$4,326	\$5,510
CURRENT FLIGHT ATTENDANT TRAINING	\$6	\$5	\$6
NEW FLIGHT ATTENDANT TRAINING	\$18	\$12	\$15
FLIGHT ATTENDANT RECURRENT TRAINING	\$50	\$32	\$41
TOTAL	\$11,193	\$7,963	\$9,599

### Cost-Benefit Comparison

As presented earlier, an upper-bound estimate of the quantified benefits of a \$5.8 million value for a prevented fatality would be \$121 million, which would be larger than the undiscounted compliance cost of \$11.2 million. As we do not predict the number of prevented accidents that would occur from this proposed rule, we do not provide present value benefits from preventing future accidents.

An alternative way of looking at the cost-benefit analysis is that if the proposed rule were to prevent only 2 fatalities during this 10-year period, the rule would be cost beneficial.

Finally, 9 out of 9 operators we surveyed already provide CRM training. Thus, these operators have already made an implied internal cost-benefit analysis that the benefits from CRM training are worth its costs.

For those reasons, we conclude that the proposed CRM training rule would be cost beneficial.

### Regulatory Flexibility Assessment

The Regulatory Flexibility Act of 1980 (Public Law 96-354) (RFA) establishes “as a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration.” The RFA 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 rule will have a significant economic impact on a substantial number of small entities. If the agency determines that it will, the agency must prepare a regulatory flexibility analysis as described in the RFA.

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

The FAA reviewed the North American Industrial Classification System codes to determine which entities affected by this rule would be considered small businesses. Applying NAICS codes 481211 (Non-Scheduled Chartered Air Services), 481212 (Non-Scheduled Chartered Freight Services), and 621910 (Ambulance Services), the FAA determined that 1,559 entities employing 11,815 crewmembers would be affected by the proposed rule. The average number of crewmembers per entity would be 7.6. The Small Business Administration (SBA) has established that all operators with fewer than 1,500 employees in NAICS codes 481211 and 481212 are considered small businesses, and operators in NAICS code 621910 who have annual receipts of less than \$7,000,000 are also small businesses. Thus, all 1,559 operators in these NAICS codes that would be affected by the proposed rule would be considered small businesses under the applicable SBA size standard. See 13 CFR § 121.201.

Although the proposed rule would impact a substantial number of small businesses, the FAA has determined that the economic impact on these businesses would not be significant. The average initial cost per operator would be between \$680 and \$1,170. Further, the average annual cost per operator would be \$450. Thus, even for the smallest of these operators that may have revenues of \$250,000, the initial costs would range from 0.25 percent to 0.45 percent of revenues. Thus, in accordance with 5 U.S.C. 605(b), the FAA certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities. The FAA solicits comments regarding this determination.

### **International Trade Impact Analysis**

The Trade Agreements Act of 1979 (Public Law 96-39), as amended by the Uruguay Round Agreements Act (Public Law 103-465), prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of standards is not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standards have a legitimate domestic objective, such the protection of safety and do not operate in a manner that excludes imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. The FAA notes the purpose is to ensure the safety of the American public, and has assessed the effects of this proposed rule to ensure it does not exclude imports that meet this objective. As a result, this proposed rule is not considered as creating an unnecessary obstacle to foreign commerce and has determined that it would only have a domestic impact and therefore no effect on international trade.

## **Unfunded Mandates Assessment**

Title II of the Unfunded Mandates Reform Act of 1995 (Public Law 104-4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of \$100 million or more (in 1995 dollars) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a "significant regulatory action." The FAA currently uses an inflation-adjusted value of \$136.1 million in lieu of \$100 million. This proposed rule does not contain such a mandate; therefore, the requirements of Title II of the Act do not apply.

## **Executive Order 13132, Federalism**

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. We determined that this action would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government, and, therefore, would not have federalism implications.

## **Regulations Affecting Intrastate Aviation in Alaska**

Section 1205 of the FAA Reauthorization Act of 1996 (110 Stat. 3213) requires the Administrator, when modifying regulations in title 14 of the CFR in a manner affecting intrastate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish appropriate regulatory distinctions. Because this proposed rule would apply to part 135 operations in Alaska, it could, if adopted, affect intrastate aviation in Alaska. We note that 7 of the 24 accidents previously referenced occurred in Alaskan operations. The FAA, therefore, specifically

requests comments on whether there is justification for applying the proposed rule differently in intrastate operations in Alaska.

### **Environmental Analysis**

FAA Order 1050.1E identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this proposed rulemaking action qualifies for the categorical exclusion identified in paragraph 312f and involves no extraordinary circumstances.

### **Regulations that Significantly Affect Energy Supply, Distribution, or Use**

The FAA has analyzed this NPRM under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). We have determined that it is not a “significant regulatory action” under the executive order because it is not a “significant regulatory action” under Executive Order 12866 and DOT’s Regulatory Policies and Procedures, and it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

### **Additional Information**

#### Comments Invited:

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. We also invite comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, please send only one copy of written

comments, or if you are filing comments electronically, please submit your comments only one time.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

#### Proprietary or Confidential Business Information

Do not file in the docket information that you consider to be proprietary or confidential business information. Send or deliver this information directly to the person identified in the FOR FURTHER INFORMATION CONTACT section of this document. You must mark the information that you consider proprietary or confidential. If you send the information on a disk or CD ROM, mark the outside of the disk or CD ROM and also identify electronically within the disk or CD ROM the specific information that is proprietary or confidential.

Under 14 CFR § 11.35(b), when we are aware of proprietary information filed with a comment, we do not place it in the docket. We hold it in a separate file to which the public does not have access, and we place a note in the docket that we have received it. If we receive a request to examine or copy this information, we treat it as any other request under the Freedom of Information Act (5 U.S.C. 552). We process such a request under the DOT procedures found in 49 CFR Part 7.

## Availability of Rulemaking Documents

You can get an electronic copy of rulemaking documents using the Internet by—

1. Searching the Federal eRulemaking Portal (<http://www.regulations.gov>);
2. Visiting the FAA's Regulations and Policies web page at [http://www.faa.gov/regulations\\_policies](http://www.faa.gov/regulations_policies) or
3. Accessing the Government Printing Office's web page at <http://www.gpoaccess.gov/fr/index.html>.

You can also get a copy by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue S.W., Washington, DC 20591, or by calling (202) 267-9680. Make sure to identify the docket number or notice number of this rulemaking.

You may access all documents the FAA considered in developing this proposed rule, including economic analyses and technical reports, from the internet through the Federal eRulemaking Portal referenced in paragraph 1.

### **List of Subjects in 14 CFR Part 135**

Air carriers, Aircraft, Aviation safety, Reporting and recordkeeping requirements, Safety, Transportation

### **The Proposed Amendment**

In consideration of the foregoing, the Federal Aviation Administration proposes to amend Chapter I of Title 14, Code of Federal Regulations, as follows:

**PART 135--OPERATING REQUIREMENTS: COMMUTER AND ON  
DEMAND OPERATIONS AND RULES GOVERNING PERSONS ON BOARD  
SUCH AIRCRAFT**

1. The authority citation for part 135 continues to read as follows:

Authority: 49 U.S.C. 106(g), 41706, 40113, 44701-44702, 44705, 44709, 44711-44713, 44715-44717, 44722, 45101-45105.

2. In §135.329, add paragraph (a)(4) to read as follows:

§ 135.329 Crewmember training requirements.

(a) \* \* \*

(4) Crew resource management training in § 135.330.

\* \* \* \* \*

3. Add § 135.330 to subpart H to read as follows:

§ 135.330 Crew resource management training.

(a) Each certificate holder must have an approved crew resource management training program that includes initial and recurrent training. The training program must include at least the following:

(1) Authority of the pilot in command;

(2) Communication processes, decisions, and coordination, to include communication with Air Traffic Control, personnel performing flight locating and other operational functions, and passengers;

(3) Building and maintenance of a flight team;

(4) Workload and time management;

(5) Situational awareness;

(6) Effects of fatigue on performance, avoidance strategies and countermeasures;

(7) Effects of stress and stress reduction strategies; and

(8) Aeronautical decision-making and judgment training tailored to the operator's flight operations and aviation environment.

(b) After [Two years after the effective date of the rule], no certificate holder may use a person as a flightcrew member or flight attendant unless that person has completed approved crew resource management initial training with that certificate holder or with another certificate holder.

(c) For flightcrew members and flight attendants, the Administrator, at his or her discretion, may credit crew resource management training received before [Two years after the effective date of the rule] toward all or part of the initial CRM training required by this section.

(d) In granting credit for initial CRM training, the Administrator considers training aids, devices, methods and procedures used by the certificate holder in a voluntary CRM program included in a training program required by §135.341, §135.345, or §135.349.

4. In § 135.351, revise paragraph (b)(2) to read as follows:

§ 135.351 Recurrent Training.

\* \* \* \* \*

(b) \* \* \*

(2) Instruction as necessary in the subjects required for initial ground training by this subpart, as appropriate, including low-altitude windshear training and training on operating during ground icing conditions as prescribed in §135.341 and described in §135.345, crew

resource management training as prescribed in §135.330, and emergency training as prescribed in §135.331.

\* \* \* \* \*

Issued in Washington, DC, on April 27, 2009.

John McGraw

Acting Director, Flight Standards Service