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REGULATORY EVALUATION, FINAL REGULATORY FLEXIBILITY DETERMINATION, UNFUNDED MANDATES ACT ASSESSMENT AND TRADE IMPACT ASSESSMENT

AIRCRAFT OPERATOR SECURITY

Final Rule
(14 CFR Part 108)

**OFFICE OF AVIATION POLICY,
PLANS, AND MANAGEMENT ANALYSIS
OPERATIONS REGULATORY ANALYSIS BRANCH, APO-310**

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EXECUTIVE SUMMARY

This regulatory evaluation prepared for the Final Rule estimates the costs and benefits of amending 14 Code of Federal Regulations part 108 (Aircraft Operator Security) of the Federal Aviation Regulations. The rule will permit the following: (1) incorporate requirements previously implemented in the aircraft operator security programs, (2) extend the applicability of part 108 regulations to certain private charter and helicopter operations, and (3) require all aircraft operators to implement certain programs to better prevent criminal acts against civil aviation. This rule is intended to provide selected aviation security requirements and enhance security in the operating environment of U.S. aircraft operators.

The rule was prompted by the wave of terrorist attacks against civil aviation that began in the early 1980s and has led to a concerted international effort to strengthen aviation security throughout the world. Since then, the FAA has extensively amended aircraft operator security programs required by part 108 as a response to the threat. The rule is a continuation of that effort.

Costs

There are 29 sections that will be amended by the rule but only five sections will result in cost impacts. The other 24 sections will not impose costs because they contain minor definitional, clarification, and procedural changes. In addition, some of these sections will not impose costs because they will codify existing practices as contained in an approved aircraft operator Standard Security Programs (SSP). The total cost of compliance of the rule over the next 10 years will be approximately $40 million (or $29 million, discounted) in 1998 dollars). All values are expressed rounded terms.

Benefits

This rule and the rule to amend part 107 are intended to enhance aviation safety for U.S. airports and aircraft operators in ways that

are not currently addressed. The benefits of these rules will be a strengthening of both aircraft operator and airport security, respectively, by adding to their effectiveness. Security is achieved through an intricate set of interdependent requirements.

It would also be extremely difficult to determine to what extent an averted terrorist incident can be credited to either airport operator security or to aircraft operator security. Accordingly, the benefits from the rules for parts 107 (airport operators) and 108 (aircraft operators) have been combined in this benefit-cost analysis. These benefits are comprised of the criminal and terrorist incidents that these rules are intended to prevent; hence, these benefits will be measured against the costs of the changes to parts 107 and 108. The combined costs of these rules, over the next 10 years, are expected to amount to an estimated $131 million ($104 million, discounted). These values are expresses in rounded terms.

Since the cost of a Class 1 Explosion on a large domestic airplane is approximately $272 million, coupled with the relative low cost of compliance ($131 million), this rule (and the rule for part 107) will need to prevent one Class I Explosion over the next 10 years in order for quantified benefits to exceed costs. In view of the recent history of terrorist incidents in the United States, a potential catastrophic loss of at least this magnitude is considered to be plausible.

Conclusion

The FAA contends that the rule to amend part 108 will be cost-beneficial if it were to prevent one class 1 explosion on an airplane operating in the United States over the next 10 years. The rule is not expected to present a significant impediment to either U.S. firms doing business abroad, or foreign firms doing business in the United States. Furthermore, the FAA has determined that the rule will not

have a significant economic impact on a substantial number of small aircraft operators or commercial operators.

I. INTRODUCTION

I. INTRODUCTION

This regulatory evaluation prepared for the Final Rule estimates the costs and benefits of amending 14 Code of Federal Regulations part 108 (Aircraft Operator Security) of the Federal Aviation Regulations. The NPRM will permit the following: (1) incorporate requirements previously implemented in the aircraft operator security programs, (2) extend the applicability of part 108 regulations to certain private charter and helicopter operations, and (3) require all aircraft operators to implement certain programs as an immediate response to criminal acts against civil aviation and escalating terrorist threat. This rule is intended to provide more selected aviation security information to the flying public and enhance security in the operating environment of U.S. aircraft operators.

Due, in large part, to the wave of terrorist attacks against civil aviation that began in the early 1980s, the Federal Aviation Administration (FAA) has extensively amended aircraft operator security programs required by part 108 as a response to the threat. The rule is a continuation of that effort.

II. BACKGROUND

A. The Problem

The wave of terrorist attacks against civil aviation that began in the early 1980s has led to a concerted international effort to strengthen aviation security throughout the world. Since 1985, the FAA has extensively amended aircraft operator security programs required by 14 CFR part 108 of the Federal Aviation Regulations, as an immediate response to the threat. Terrorist attacks continue to be directed against U.S. interests and the threat is not anticipated to diminish in the foreseeable future. It is because of this concern that the rule has been developed.

Between 1985 and 1991, 943 people died in criminal acts against civil aviation. Over this period, there has been a shift in terrorist operations from hijacking to bombing aircraft.

The terrorist threat level in the United States over the next decade will remain at least as high as it is at present and, indeed, will probably rise. This judgment is based on consideration of a number of factors.

First, there are numerous unresolved conflicts across the globe, many of which show no sign of early resolution. While many of these do not involve the United States directly, the status of the United States as sole superpower means that parties to the conflict are prone to decry either U.S. involvement or lack of involvement.

Second, since the United States is variously perceived as a supporter of unpopular regimes, an enemy of Islam, and an exponent of imperialism (whether political, economic, or cultural), any number of terrorist groups view U.S. interests as fundamentally inimical to their own, and thus see attacks against U.S. interests as justifiable, even meritorious.

Third, the expanding geographical range of terrorist activity is increasingly evident. Members of foreign terrorist groups, representatives from state sponsors of terrorism, and radical fundamentalist elements are present in the United States. The activities of some of these individuals and groups go beyond fund-raising. These activities now include recruiting other persons (both foreign and U.S. citizens) for terrorist-related activities, obtaining and training with weapons, providing safe haven for fugitives, and making bombs. A few foreign terrorist groups have supporters inside the United States who could be used to support terrorism.

Fourth, the vulnerabilities of the critical national infrastructure of the United States may prove inviting to foreign and domestic terrorists wishing to inflict damage on the U.S. economy.

Fifth, although it remains to be seen what lessons terrorists will draw from the World Trade Center bombing in 1993 and the Oklahoma City bombing in 1995, a particularly worrisome development is the increasing willingness on the part of various terrorist groups to carry out attacks intended to bring about indiscriminate casualties.

Finally, the phenomenon of ad hoc or non-traditional terrorist groups (such as the group responsible for the World Trade Center bombing) has become a primary concern to law enforcement. Difficulties exist in denying entry of such individuals (who are not members of any known terrorist group) into the United States, recognizing or identifying them as terrorists once they are here, or anticipating the timing or targets of their attacks.

With respect specifically to the threat to civil aviation in the United States, it must be seen in the context of the broader threat. The events in Asia early in 1995 showed that the terrorists persisted in planning to attack aviation even when there were other targets identifiable within the United States, and even when they knew that the security measures protecting aviation had been strengthened. Publicity about problems with U.S. domestic civil aviation security measures increases the potential for attacks here. Civil aviation targets may be chosen by terrorists even if alternatives, and (in their view) softer, targets are available, especially since an attack on aviation

seizes the public imagination to a degree equaled by few other types of attack.

Security measures needed to counter the changing threat posed by international terrorism are generally implemented through the aircraft operators' security programs. Due to the nature of aircraft operator security, most of the provisions of each aircraft operator's security program cannot be disclosed to the public. Moving that portion of these provisions that can be disclosed to the public out of the security programs and into the Federal Aviation Regulations does not involve a change to the regulations. When provisions of the aircraft operator security program are moved into the Federal Aviation Regulations, the public will be afforded an opportunity to comment on them.

B. The Final Rule

The final rule will amend part 108 by adding new security requirements and incorporating existing requirements presently contained in aircraft operator security programs, without significantly adding to the burden on regulated parties. This rule is a response to criminal acts against civil aviation and the changing nature of the threat, which has demonstrated an increased sabotage capability.

III. MAJOR ASSUMPTIONS

In an effort to facilitate this evaluation, some general assumptions have been employed. Specific assumptions are given in those areas for which they apply. The general assumptions are as follows:

1. The final rule is expected to be published during the first half of calendar year 2000.
2. All monetary values are expressed in 1998 dollars.
3. The time horizon used for this regulatory evaluation is 10 years (2000 - 2009).

4. The potential benefits of the rule for part 108 cannot be easily separated from those for the rule for part 107. For this reason, the derivation of benefits for these two rules was done jointly. More on this matter will be provided in the benefits section of this evaluation.

5. There are currently 2,977 U.S. certificated aircraft operators providing scheduled and non-scheduled domestic and international passenger services.[1]

IV. DISCUSSION OF COMMENTS ON COST IMPACT ISSUES

A review of the regulatory docket for the proposed rule revealed that no substantive comments on economic issues (such as potential costs and benefits) were submitted with regards to part 108 (Aircraft Security). The term substantive, in terms of this regulatory evaluation, pertain to those comments that specifically addressed some aspects of issues related to the potential costs imposed or benefits generated by the proposed rule.

V. ANALYSIS OF COSTS

The total cost of compliance of the rule over the next 10 years is estimated to be $40 million (1998 dollars), or $29 million, discounted (7 percent). These values are expresses in rounded terms. Of the 29 sections amended by the rule, only five sections will result in cost impacts. An assessment will be provided for each of the 29 sections, starting with the 24 sections for which the rule will not impose any measurable costs (shown in Section A), followed by the five sections

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[1] Many of these aircraft operators are also certificated for cargo operations, as well. Estimate based on data from: (1) Regional Airline Association. 1994 Annual Report of the Regional Airline Association. Washington, D.C., (2) U.S. Department of Transportation. Certificated Aircraft operators, Types of Authority Held with Order Numbers (Table-Office of Aviation Policy and Plans), March 1995, and (3) Office of Aviation Analysis. U.S. Department of Transportation. Commuter Aircraft Operators by Official Names, March 1995. Part of this information has been updated to reflect industry practice as of 1998.

that will potentially impose costs (shown in Section B).

A. Sections With No Cost Impact

Section 108.1 - Applicability

This section of the final rule will extend the application of section 108.1 to include private charter operations, including helicopters, when passengers are enplaned from or deplaned into a sterile area. The cost impact of increasing the scope of part 108 is shown in the specific section affected by the rule change.

Section 108.3 - Definitions

This section of the final rule will revise some existing definitions, add new definitions, and make the definitions in the final rule for part 107 applicable to part 108. Definitions will be expanded to incorporate commonly used terms within the aviation community and to promote a basis for common understanding when referring to portions of the regulation. The minor rule changes are clarifying in nature.

Section 108.5 - Inspection authority

This section of the final rule will renumber existing section 108.5 (Security program: Adoption and implementation) to 108.101. In accordance with the requirements of this section (108.5), each aircraft operator shall allow the Administrator to determine its compliance with various aspects of the FAA's security program by allowing inspections, at any time or place, regarding its operations. Upon the Administrator's request, the costs associated with the copying of documents and provision of records are expected to be negligible since such information is usually available as part of an aircraft operator's routine business operations.

Section 108.9 - Security responsibilities of employees and other persons

This section of the final rule will ensure that security measures within the civil aviation system are properly implemented. This

objective will be accomplished by implementing specific requirements to make individuals responsible for violating prohibitions against interfering with or compromising security methods or procedures, which may generate federal sanctions.

Section 108.103 - Form, content, and availability

This section of the final rule will renumber existing section 108.7 to 108.103. Existing section 108.7 requires that certificate holders maintain a copy of security documents at each airport where security screening is being conducted. The rule change to this section (108.103) will require that a certificate holder ensure the availability of such documents at its corporate office. In addition, the certificate holder's security program shall provide measures against acts of criminal violence and air piracy, and other life-threatening acts. The rule will codify a current practice in each aircraft operator's Standard Security Program (SSP) by making it part of the Federal Aviation Regulations.

Section 108.105 - Approval and amendments

This rule change will renumber existing section 108.25 (Approval of security programs and amendments) to 108.105, and it will delegate security program approval or amendment approval to the Assistant Administrator for Civil Aviation Security rather than the Administrator. This portion of the rule represents a minor procedural change. The change will also require aircraft operators to submit a petition to reconsider an amendment within 15 days before its effective date. Rather than allowing aircraft operators to wait until the last minute, this portion of the rule will require them to submit their petition for reconsideration of an amendment 15 days sooner than they normally do. Otherwise, this rule resembles current practice.

Section 108.201 - Screening of persons and accessible property

This rule will renumber existing section 108.9 (Screening of passengers and property) to 108.201. In addition, it will require

the screening of persons and inspection of property prior to entering a sterile area, with emphasis on the detection of items that could compromise aircraft operator security such as unauthorized weapons and explosives. Although current security procedures applicable to the acceptance of cargo for transport on board passenger aircraft are contained in the aircraft operators' approved security programs, the basic requirement to apply security measures to cargo is not currently in the rule. Thus, the rule will impose a minor procedural change and codify a current practice in each aircraft operator's SSP by making it part of the Federal Aviation Regulations.

Section 108.203 - Acceptance and screening of checked baggage

This section of the rule will require each aircraft operator to use the procedures, facilities, and equipment described in its security program to prevent or deter the carriage of explosives or incendiaries onboard a passenger aircraft in checked baggage. This section states the requirements for the carriage of ammunition and firearms in checked baggage. Title 49 CFR part 175 provides additional requirements governing carriage of ammunition on aircraft. Scheduled U.S. aircraft operators with more than 60 passenger seats will not be impacted by this action because they are already subject to the same requirements under the proposed rule for checked baggage. Those scheduled passenger, public charter, aircraft operators with 31 to 60 passenger seats will not be impacted by this action, since they too are currently subject to a partial security program. Since they will be already be in compliance with this rule change, no incremental cost impacts are expected to be incurred by these types of aircraft operators.

Section 108.205 - Acceptance and screening of cargo

This section of the rule will require each aircraft operator to use the procedures, facilities, and equipment described in its security program to prevent or deter the carriage of explosives or

incendiaries onboard a passenger aircraft in cargo. This section of the rule is expected to potentially impose a negligible cost impact on some part 108 aircraft operators for those reasons stated previously in section 108.203.

Section 108.207 - Use of metal detection devices

This rule change will restrict the use of metal detectors to inspect persons to an approved security program. It will also require metal detectors to meet the calibration standard set by the FAA. The rule will codify a current practice in each aircraft operator's SSP by making it part of the Federal Aviation Regulations.

Section 108.209 - Use of X-ray systems

This section of the rule will renumber existing section 108.17 (Use of X-ray systems) to 108.209. The rule will extend the application of this section to X-rays under the aircraft operator's operational control at foreign airports. The rule will codify a current practice in each aircraft operator's SSP by making it part of the Federal Aviation Regulations.

Section 108.211 - Use of explosive detection systems

This section is renumbered from section 108.20 and does not change the current language of that section.

Section 108.213 - Employment standards for screening personnel

This minor clarification change will only renumber section 108.213 (Employment standards for screening personnel) from existing section 108.31.

Section 108.215 - Security coordinators

This minor section change will be clarifying in nature because it renumbers existing section 108.10 as section 108.301 and points out that the aircraft operator must designate a security coordinator. Specifically, the rule will require that an aircraft operator

designate an Aircraft Operator Security Coordinator for the prevention and movement of hijackings and sabotage attempts.

Section 108.217 - Law enforcement officers

Existing section 108.15 (Law enforcement officers) will be renumbered as section 108.217 and will extend the current requirements for law enforcement support to private charter operators (fixed-wing and rotorcraft types) as they will be required to implement a security program for certain operations. The rule will incorporate a clarification change as the result of renumbering existing section 108.15 to 108.217. The rule will codify a current practice in each aircraft operator's SSP by making it part of the Federal Aviation Regulations. This section is also extending the applicability of new section 108.101 to scheduled passenger or public charter operations with aircraft having passenger seating configurations of less than 61 seats engaged in operations to, from, or outside of the United States.

In those airports where law enforcement officers may not be present, aircraft operators needing their services are expected to contact the local law enforcement for assistance in those areas where such airports are located. Therefore, such operators would only incur zero to negligible costs as the result of compliance with this section of the rule.

Section 108.219 - Carriage of accessible weapons

Existing section 108.11 (Carriage of weapons) will be renumbered as section 108.219. Essentially, this amended section will require that only those persons performing official duties that meet the "need" criteria which requires them to be armed while on board an aircraft will be permitted to carry firearms in flight. In addition, all persons flying armed will be required to complete a standard training program. The rule will codify a current practice

in each aircraft operator's SSP by making it part of the Federal Aviation Regulations.

Section 108.221 - Carriage of prisoners under the control of armed law enforcement officers

This amended section will delete the requirement on seating individuals under legal custody in the rearmost seat. Moreover, this rule change will provide the certificate holder with more latitude in assigning seats to the escorts and persons under this control. The rule redefines "maximum risk" as "high risk." The determination is made by the entity directing the transportation of the prisoner. This rule change represents only a minor procedural change.

Section 108.223 - Transportation of Federal Air Marshals

This amended change section change will prohibit divulging information about Federal Air Marshals (FAMs) missions and require an aircraft operator to let FAMs observe preflight searches. This rule will also require an aircraft operator to transport FAMs on another flight if scheduled flight is canceled. The rule will codify a current practice in each aircraft operator's SSP by making it part of the Federal Aviation Regulations.

Section 108.225 - Security of aircraft and facilities

This rule change will require an aircraft operator to prevent unauthorized access to areas controlled for security purposes. The rule will codify a current practice in each aircraft operator's SSP by making it part of the Federal Aviation Regulations.

Section 108.227 - Exclusive area agreements

This rule section change will allow the Administrator to grant or deny an amendment that permits an aircraft operator that has a security program under part 108 to assume responsibility for specified security measures for all or part of an airport

operations area, security identification display (I.D.) area, or secured area.

Section 108.229 - Employment history, verification, and criminal history records checks

This rule section will renumber and change the name of that action from 108.33 (unescorted access privilege) to 108.229 (Employment history, verification, and criminal history records checks). Thus, the amended change to section 108.229 is procedural in nature and will not impose an incremental cost impact.

Section 108.231 - Airport-Approved personnel identification systems and exclusive areas

This rule will establish a new section that will require those aircraft operator flight and cabin crew personnel to mirror standards for accountability of airport-issued identification systems. In addition, the aircraft operator will be required to use an identification system for its flight and cabin crewmembers based on accountability standards similar to those required by airport operators. The rule represents a minor procedural change. The current requirements of this section are stated in general terms. The rule will make the requirements more specific to its intended functions.

In short, the rule will primarily require aircraft operators to place expiration dates on the I.D. badges of their flight and cabin crew employees and to audit that procedure at least once a year. This requirement to have an expiration date on employee I.D. badges is expected to have only a negligible cost impact on aircraft operators. This rule change will give potentially impacted aircraft operators a great deal of latitude to devise the most cost-effective means of compliance over a two-year period. One of the most cost-effective means of compliance could involve placing a bar-coded sticker, with an expiration date, on the I.D. badges of employees.

In addition to the placement of expiration dates on I.D. badges of employees, aircraft operators will be required to audit this procedure at least once a year. The auditing of this procedure is expected to involve nothing more than making certain that I.D. badges are only issued to current employees. Given the nature of this minor procedural change, it appears that aircraft operators can meet this requirement with current support/security personnel resources. While some additional costs may be incurred to setup this auditing requirement, it does not appear to be significant for two reasons: (1) because only flight and cabin crew employees will be impacted and (2) one means of compliance can more than likely be achieved by minor software tweaks to existing computerized employee I.D. badge systems maintained by nearly all of the potentially impacted aircraft operators.

Section 108.233 - Security coordinators and crewmembers, training

This rule will primarily require satisfactory training for any person within 12 months prior to serving as a ground or in-flight security coordinator. The rule represents a minor clarification change. The current requirements of this section are stated in general terms. The rule will make the requirements more specific to its intended functions.

B. Sections With Potential Cost Impacts

Section 108.101 - Adoption and implementation

The rule changes to this section will increase the number of aircraft operators that must adopt and maintain security programs. Specifically, section 108.101 will require that the following types of aircraft operators adopt and implement security programs:

A Full Security Program

- Applies to any U.S. scheduled passenger or public charter passenger operation with an aircraft having a passenger-seating configuration of more than 60 seats.

- Applies to any U.S. scheduled passenger or public charter passenger operation using an aircraft having a seating configuration of less than 61 passenger seats when passengers are enplaned from or deplaned into a sterile area.

A Partial Program

- Applies to any scheduled passenger or public charter operation with an aircraft having a passenger-seating configuration of more than 30 and less than 61 seats inclusive that does not enplane from or deplane into a sterile area.

- A scheduled passenger or public charter operation with an aircraft having a passenger-seating configuration of less than 61 seats engaged in operations to, from, or outside the United States that does not enplane from or deplane into a sterile area.

A Limited Program

- Applies to any other U.S. operator (such as an all cargo carrier) holding a certificate under part 119 that chooses to have a security program. Such an operator shall carry out and meet the requirements of section 108.101(e).

A Private Charter Program

- Applies to any U.S. private charter operation (regardless of passenger-seating configuration) in which passengers are enplaned from or deplaned into a sterile area.

Because some of these aircraft operators are not currently required under part 108 to maintain a security program, this section will impose cost on them once they adopt and maintain a security program. The newly affected operators are the private charter and rotorcraft types that operate to or from a sterile area. Also affected by this requirement are aircraft operators with less than 61 passenger seats operating to, from, or outside of the United States. In addition, any operators seeking certification in these size categories in the future will bear the same incremental cost. Of the estimated 2,977 U.S. certificated aircraft operators, approximately 51 will be affected by the rule change.[2] Since the

[2] Based on FAA's best available estimate of potentially impacted aircraft operators.

majors, nationals, and the large regional aircraft operators already implement security programs, the major impact of this section will be on operators operating aircraft with less than 61 passenger seats.

The potential cost impact on this section of the final rule is estimated to be $142,700 ($103,100, discounted, 7 percent) over the next 10 years. Note: The cost estimates in this section and in each of the following sections may not add due to rounding:

- The average wage rate for administrative security personnel is $28 per hour (includes fringe benefits);[3]
- The time required to complete application and secure a partial security program from the FAA is 8 hours; and
- The time required updating, amending, and maintaining the application is 8 hours annually.[4]
- The estimate of $239.50 ($28 x 8 [time to complete and secure application for a partial security program] = $224 + $15.50 for postage and photocopies) represents the one-time cost per applicant. The estimate of $224 ($28 x 8[time needed to maintain application] represents the recurring staff cost to maintain the application.

As the result of this rule, an estimated 51 existing operators will incur a potential cost of compliance of about $126,500 (or about $91,700, discounted) over the next 10 years. Multiplying the one-time application cost of $239.50 and the recurring staff cost of $224 times the number of potentially impacted operators of 51 over

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[3] Estimate of $28.00 is based on information obtained from Aviation Week's Careers 2000: SALARY SURVEY & JOBS FORECAST. The non-pilot hourly salary information from this survey was updated from 1996 to 1998 dollars by using the GDP Implicit Price Deflator. The hourly salary estimate of $28.00 represents non-pilot types such as scheduling/planning personnel with annual salaries ranging from $48,606 to $64,992. The average of these two salary figures ($56,800) was divided by 2080 hours, which is equivalent to the total estimated number of hours worked by each non-flight crew member or non-pilot personnel member.

[4] U.S. Dept. of Transportation, Federal Aviation Administration, Office of Aviation Policy and Plans. Figure converted to 1994 dollars based on data from the Bureau of Labor Statistics (U.S. Dept. of Labor). This base-year value has been updated to 1998 dollars using the GDP Implicit Price Deflator.

the 10-year period derived this cost estimate of $126,500. Similarly, new applicants will also be impacted. This evaluation assumes that three to four new applicants will file for certification in this aircraft operator group annually.[5] This action will result in an estimated potential cost of compliance of $16,200 (or $11,400, discounted) over the next 10 years.[6] This cost estimate of $16,200 was derived by multiplying the one-time application cost of $239.50 and the recurring staff cost of $224 times the number of potentially impacted new applicant operators of 35 (or 3 to 4 annually) over the 10-year period. Thus, the total potential cost (rounded) of compliance for this section $142,700 ($126,500+$16,200). For a more detailed description of how these costs were derived, please see Tables A-1.0 through A-1.4 in Appendix A to this evaluation. (Note: Cost estimates in these and other tables shown in Appendix A may not add due to rounding).

Section 108.235 - Training and knowledge of persons with security-related duties

The FAA requires extensive training for personnel who perform extraordinary security procedures for aircraft operators under part 108, in accordance with their approved security programs.

The potential incremental cost for the rule change to this section is estimated to be $14.1 million, or $10.6 million (discounted), over the next 10 years. This cost estimate was derived based on the following cost components and assumptions:

- The time required to train additional staff;
- The time and cost of an instructor;
- The classroom equipment and material costs;

5 This figure is the rounded average from the estimates ranging from 2 to 5 new applicants annually based on information received from aircraft operations.

6 For detailed calculations refer to Appendix A.

- ✈ An additional 4,477 aircraft operator personnel will require security training;[7]
- ✈ The security training will require an initial 25 hours followed by 6 hours annually thereafter;[8]
- ✈ The hourly rate for aircraft operator employees is $28;[9] and
- ✈ An approved aircraft operator instructor makes $27.25 per hour.[10]

The rule changes to this section will impose $14.1 million in incremental costs over the next 10 years ($10.6 million, discounted). This estimate of $14.1 million was derived in three steps. First, adding the cost of training employees ($4.7 million) to the cost for an instructor ($464,600) over the 10-year period derived the Initial Aircraft operator Training cost estimate of $5.2 million. Second, the cost estimate of $8.9 million for annual aircraft operator training requirements was derived by combining the employee training cost estimate ($8.1 million) with that for an instructor ($787,700) over the 10-year period. And last, both of these cost components were summed. For a more detailed description of how these costs were derived, please see Tables A-2.0 through A-2.4, in Appendix A to this evaluation.

Section 108.301 - Security contingency plan

This section will require aircraft operators with approved contingency plans test them periodically in coordination with the respective airport operators' contingency plan tests. Based on the informed opinion of FAA security personnel, 16 hours will be

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[8] Based on requirements in the ACSSP.

[9] Estimate of $28.00 is based on information obtained from Aviation Week's Careers 2000: SALARY SURVEY & JOBS FORECAST. The non-pilot hourly salary information from this survey was updated from 1996 to 1998 dollars by using the GDP Implicit Price Deflator.

[10] U.S. Dept. of Transportation, Federal Aviation Administration, Office of Civil Aviation Security Policy and Planning. The office estimates an aircraft operator instructor salary at $41,200. The figure used in this evaluation adds 25 percent for fringe benefits. In the same manner as described in footnote 9, the instructor's salary estimate was updated to 1998 dollars.

required for each test of the contingency plan each year; the rule changes to this section will impose an incremental cost of approximately $24 million to operators over 10 years (or about $17 million, discounted). This cost was derived based on the following cost components and assumptions:

- The staff time needed to review airport plans and adjust the existing aircraft operator plan accordingly;
- The cost to test the contingency plan each year;
- The average wage of administrative security personnel is $28 per hour (includes fringe benefits);[11] and
- The time required to develop an airport-consistent contingency plan is an additional 8 hours; and,
- The time needed to review airport operator contingency plan is approximately 8 hours.[12]

This estimate of $24 million to ensure conformity with airport plans was derived by a two-step process: The first step estimated the one-time cost for ensuring conformity by conducting aircraft operator initial review of contingency plans. In the first year (2000) only, cost for this step is estimated by multiplying the number of impacted aircraft operators (192) times the number of airports involved (25) times the number of hours of work required to review plan (16) times the hourly salary of aircraft operator security personnel ($28). For example, this computation will result in an estimated one-time compliance cost of $2,150,400 (192 x 25 x 16 x $28) for the conformity consists of reviewing the contingency plan. And, the last step involves costs that will be incurred as the result testing the plan. Over 10 years, cost estimation for this step represents multiplying the number of

[11] U.S. Dept. of Transportation, Federal Aviation Administration, Office of Aviation Policy and Plans. Figure converted from 1992 to 1994 values based on data from the Bureau of Labor Statistics (U.S. Dept. of Labor). These values have been updated to 1998 dollars using the GDP Implicit Price Deflator.

impacted aircraft operators (1,920 = 192 x 10) by the number of airports involved (25) the number of hours of work required to test plan (16) times the hourly salary of aircraft operator security personnel ($28). For example, this computation will result in a compliance cost estimate of $21,504,000 (1,920 x 25 x 16 x $28), over the 10-year period, for testing of contingency plans. Thus, the total compliance cost for this section was derived by summing the two cost components ($23,654,400 = [$2,150,400 + $21,504,000]). For a more detailed description of how these costs were derived, please see Table A-3.0 in Appendix A to this evaluation.

Section 108.303 - Bomb or air piracy threats

Aircraft operators follow a set of standard procedures, mandated by the FAA, in the event that an operation is threatened by an act of terrorism (bomb threat, hijacking, etc.). Currently, this does not always require that the aircraft be cleared of passengers in the event of a terrorist threat. The FAA will amend these procedures to require that an operator deplane all passengers on board a threatened aircraft so that the appropriate security personnel may conduct a security inspection.

As the result of the anticipated delay imposed during the inspection period and associated with complete deplaning and subsequent reboarding of passengers and crew, the potential incremental cost of compliance for this rule change to this section is estimated to be $1.2 million over the next 10 years (discounted, cost will be about $850,000). This cost estimate was derived based on the following cost components and assumptions:[13]

✈ The value of flight crew time: $40 per hour[14];

[13] It is conceivable that additional costs could be incurred if deplaned passengers subsequently miss connecting flights. This cost has not been quantified in this evaluation due to the lack of available data.

[14] This hourly salary estimate represents a weighted average based on information received from the Air Inc. Report entitled, "Careers 2000, Salary Survey and Jobs Forecast, 1999" and the Flight Attendants Association (Washington, D.C.). The weighted average hourly salary includes

- The value of passenger time: $28 per hour;[15]
- The value of idle time as measured by an aircraft's non-operational hourly costs: $336.75 an hour;[16]
- The average aircraft operator impacted by this rule operates an aircraft with about 112 passenger seats at nearly 69.0 percent of capacity;[17]
- The average aircraft operator aircraft has five crewmembers;[18]
- The average aircraft operator aircraft requires 4.5 hours to deplane and search for bombs and other dangerous material;[19] and
- There are 10 credible threats every year for which, under the rule, an aircraft operator aircraft will need to be deplaned.

Estimating and summing the estimates for three cost components over the next 10 years derived this figure of $1.2 million. The first component is the Value of Time for Aircraft estimate ($151,500 = 100 x 4.5 $336.75). This estimate represents the number of credible threats (100 over 10 years) multiplied by the average number of hours an aircraft is down due to a threat (4.5) times the

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flight attendants, first officers, and captains by airline categories (such as majors, nationals, and regionals).

[15] Office of Policy and Plans, Federal Aviation Administration, U.S. Dept. of Transportation. Economic Values for Evaluation of Federal Aviation Investment and Regulatory Programs. June 1998, Table E-1, p. E-2. This figure was in 1995 dollars and updated to 1998 dollars using the GDP Implicit Price Deflator.

[16] Based on the average non-operating costs for a similar sized aircraft, the Airbus A320, as described in the Aviation Daily, December 9, 1992, p. 404. This figure was updated to 1998 dollars using the GDP Implicit Price Deflator.

[17] Federal Aviation Administration, U.S. Dept. of Transportation. FAA Aviation Forecasts: Fiscal Years 1999-2010. March 1999.

[18] U.S. Department of Transportation, Federal Aviation Administration, Economic Values for Evaluation of Federal Aviation Administration Investment Programs. June 1998, p. E-3.

[19] Based on conversations with the Directors of Security at American Airlines, America West Airlines, and United Airlines. The figure of 4.5 hours is a weighted average estimate. It takes approximately 6-8 hours for a human search of an aircraft of this size, and approximately two hours for a canine team. Canine team use is limited to availability and is, therefore, used only about 50 percent of the time.

cost per hour of downtime ($336.75). The second component is Value of Flight Crew Time estimate ($80,640 = 448 x 4.5 x $40). This estimate represents the number of aircraft flight crew employees delayed by a threat (448 over 10 years) multiplied by the average number of hours delayed due to a threat (4.5) times the average flight crew employee salary cost per hour ($40). The third component is the Value of Passenger Time estimate ($979,000). This estimate represents the number of passengers delayed by a threat (7,770 over 10 years) multiplied times the average number of hours delayed due to a threat (4.5) times the passenger value of time per hour ($28). For a more detailed description of how these costs were derived, please see Tables A-4.0 through A-4.3, in Appendix A to this evaluation.

Section 108.305 - Security directives and information circulars

This revision will require that all aircraft operators develop and implement standardized procedures to deal with security directives and information circulars issued by FAA. The affected aircraft operator shall specify the method by which the measures in the security directive have been implemented by providing the FAA a copy of the written measures and implementation procedures when required by the security directive or upon request by Administrator. The potential incremental cost of this rule change is estimated to be $666,200 (or $468,000, discounted). This cost estimate will be imposed as the result of the staff time required processing and responding to a directive. This estimate was derived based on the following cost components and assumptions:

- The time to respond by phone and subsequently to forward a written summary of procedures is approximately 13 minutes;[20]
- The average hourly wage of aircraft operator security personnel

[20] Based on interviews with directors of security at America West Airlines, Northwest Airlines, and American Airlines, the times required to respond to an initial telephone call is estimated to be 3 minutes; and, time to complete written acknowledgement (standard one page document) is estimated to be 10 minutes. Total incremental staff time is estimated to be 13 minutes.

is $28;[21]

Thus, aircraft operators receive on average 30 directives a year. The rule change to this section will impose incremental costs of approximately $666,200.[22] On a discounted basis, this cost of compliance is estimated to be $468,000. This estimate of $666,200 to Notify the Principal Security Inspector (PSI), including acknowledgment and forwarding of results, was derived by combining the cost estimates for Staff to Process Directives ($349,400) with that for phone calls and faxes ($316,800). For a more detailed description of how these costs were derived, please see Table A-5.0 in Appendix A to this evaluation.

The estimated potential cost of compliance for each of the aforementioned five amended sections, which total about $40 million ($29 million, discounted), is shown in Table 1.

Table 1
Summary of Incremental Compliance Costs For Part 108 By Section
(10 Years, 1998 Dollars)

Section	Title	Undiscounted	Discounted (7.0%)
108.101	Adoption and Implementation	$142,678	$103,102
108.235	Training and Knowledge of Persons with Security-related Duties	$14,110,743	$10,630,129
108.301	Contingency Plans	$23,654,400	$17,113,229
108.303	Bomb or Piracy Threats	$1,211,200	$848,072
108.305	Security Directives and Information Circulars	$666,240	$467,939
Total		**$39,785,261**	**$29,162,472**

[21] U.S. Dept. of Transportation, Federal Aviation Administration, Office of Aviation Policy and Plans. Figure converted to 1994 dollars based on data from the Bureau of Labor Statistics (U.S. Dept. of Labor). This base-year value has been updated to 1998 dollars using the GDP Implicit Price Deflator.

[22] U.S. Dept. of Transportation, Federal Aviation Administration, Office of Aviation Policy and Plans. Figure converted to 1994 dollars based on data from the Bureau of Labor Statistics (U.S. Dept. of Labor). This base-year value has been updated to 1998 dollars using the GDP Implicit Price Deflator.

Source: U.S. Dept. of Trans., FAA, Office of Aviation Policy, Plans, and Management Analysis, Operations Regulatory Analysis Branch, APO-310, July 1999.

VI. ANALYSIS OF BENEFITS

The rules to amend parts 107 and 108 are intended to enhance aviation safety for U.S. airports and aircraft operators in ways that are not currently addressed. The benefits of the rules will be a strengthening of both airport and aircraft operator security by adding to their effectiveness. Security is achieved through an intricate set of interdependent requirements.

It would be difficult to separate out any one change or set of changes in the rules to amend part 107 or part 108 and identify the extent that change or set of changes will have on preventing a criminal or terrorist act in the future. Nevertheless, these changes in both rules are an integral part of the total program needed by the airport operator, the aircraft operators, and the FAA to thwart such incidents.

It would also be extremely difficult to determine to what extent an averted terrorist incident can be credited to either airport operator security or to air aircraft operator security. Accordingly, the benefits from the rules for parts 107 (airport operators) and 108 (Aircraft Operators) have been combined in this benefit-cost analysis. These benefits are comprised of the criminal and terrorist incidents that these rules are intended to prevent; hence, these benefits will be contrasted against the costs of the changes to parts 107 and 108. As shown in Table 2, the combined costs of part 107 and 108 sum to about $131 million ($104 million, discounted).

TABLE 2 - FINAL RULE COST SUMMARY (1998 Dollars, 000,000)

	Total Costs	Discounted Costs
Cost of Rule for Part 107	$91.5	$74.9

Cost of Rule for Part 108	$39.8	$29.2
Total Cost of Rules	**$131.3**	**$104.1**

Source: U.S. Dept. of Trans., FAA, APO-310, February 2000.

Since 1987, the FAA has initiated rulemaking and promulgated 11 security-related amendments that have amended both parts 107 and 108.[23] The amendments in these two rules combined with the previous rulemakings add to the effectiveness of both parts to augment aspects of the total security system to help prevent further criminal and terrorist activities.

Terrorism can occur anytime and anywhere within the United States. Members of foreign terrorist groups, representatives from state sponsors of terrorism, and radical fundamentalist elements from many nations are present in the United States. In addition, Americans are joining terrorist groups. The activities of some these individuals and groups go beyond fund raising. These activities now include recruiting other persons (both foreign and U.S.) for activities and training with weapons and making bombs. These extremists operate in small groups and can act without guidance or support from state sponsors. This makes it difficult to identify them or to anticipate and counter their activities. The following discussion outlines some of the concrete evidence of the increasing terrorist threat within the United States and to domestic aviation.

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[23] These include:

- Access to Secured Areas on Airports (1989)
- Security Programs for Foreign Aircraft Operators (1989)
- Security Directives (1989)
- Explosives Detection Systems (1989)
- X-Ray Systems (1991)
- Flight and Cabin Crew Notification Guidelines (1991)
- Foreign Aircraft Operator Security Programs (1991)
- Employment Standards for Airport Security Personnel (1991)
- Unescorted Access Privilege (1995)
- Falsification of Security Records (1996)
- Sensitive Security Information (1997)
- Employment History, Verification and Criminal History Records Check (1998)
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Investigation into the February 1993 attack on the World Trade Center (WTC) uncovered a foreign terrorist threat in the United States that is more serious than previously known. The WTC investigation disclosed that Ramzi Yousef had arrived in the United States in September 1992 and had presented himself to immigration officials as an Iraqi dissident-seeking asylum. Yousef and a group of Islamic radicals in the United States then spent the next five months planning the bombing of the WTC and other acts of terrorism in the United States. Yousef returned to Pakistan on the evening of February 26, 1993, the same day that the WTC bombing took place. Yousef traveled to the Philippines in early 1994 and by August of the same year had conceived a plan to bomb as many as twelve U.S. airliners flying between East Asian cities and the United States.

Yousef and co-conspirators Abdul Murad and Wali Khan tested the type of explosive devices to be used in the aircraft bombings and demonstrated the group's ability to assemble such a device in a public place, in the December 1994 bombing of a Manila theater. Later the same month, the capability to get an explosive device past airport screening procedures and detonate it aboard an aircraft also was successfully tested when a bomb was placed by Yousef aboard the first leg of Philippine Airlines Flight 424 from Manila to Tokyo. The device detonated during the second leg of the flight, after Yousef had deplaned at an intermediate stop in the Philippine city of Cebu. Preparations for executing the plan were progressing rapidly. However, the airliner-bombing plot was discovered in January 1995 by chance after a fire led Philippine police to the Manila apartment where the explosive devices were being assembled. Homemade explosives, batteries, timers, electronic components, and a notebook full of instructions for building bombs were discovered. Subsequent investigations of computer files taken from the apartment revealed the plan, in which five terrorists were to have placed explosive devices aboard United, Northwest, and Delta airline flights. In each case, a

similar technique was to be used. A terrorist would fly the first leg of a flight out of a city in East Asia, planting the device aboard the aircraft and then deplane at an intermediate stop. The explosive device would then destroy the aircraft, continuing on a subsequent leg of the flight to the United States. It is likely that thousands of passengers would have been killed if the plot had been successfully carried out.

Yousef, Murad and Khan were arrested and convicted in the bombing of Philippine Airlines flight 424 and in the conspiracy to bomb U.S. airliners. Yousef was sentenced to life imprisonment for his role in the Manila plot. The two other co-conspirators have also been convicted for the same crime. Yousef also was convicted and sentenced to 240 years for the World Trade Center bombing. However, there are continuing concerns about the possibility that other conspirators remain at large. The airline-bombing plot, as described in the files of Yousef's laptop computer, would have had five participants. This suggests that, while Yousef, Murad and Khan are in custody, there may be others at large with the knowledge and skills necessary to carry out similar plots against civil aviation.

The fact that Ramzi Yousef was responsible for both the WTC bombing and the plot to bomb as many as twelve United States aircraft operators' aircraft shows that: (1) foreign terrorists are able to operate in the U.S. and (2) foreign terrorists are capable of building and artfully concealing improvised explosive devices that pose a serious challenge to aviation security. This, in turn, suggests that foreign terrorists conducting future attacks in the U.S. may choose civil aviation as a target. Civil aviation's prominence as a prospective target is clearly illustrated by the circumstances of the 1995 Yousef conspiracy.

The bombing of a Federal office building in Oklahoma City, Oklahoma shows the potential for terrorism from domestic groups. While the

specific motivation that led to the Oklahoma City bombing would not translate into a threat to civil aviation, the fact that domestic elements have shown a willingness to carry out attacks resulting in indiscriminate destruction is worrisome. At a minimum, the possibility that a future plot hatched by domestic elements could include civil aircraft among possible targets must be taken into consideration. Thus, an increasing threat to civil aviation from both foreign sources and potential domestic ones exists and needs to be prevented and/or countered.

That both the international and domestic threats have increased is undeniable. While it is extremely difficult to quantify this increase in threat, the overall threat can be roughly estimated by recognizing the following:

- U.S. aircraft and American passengers are representatives of the United States, and therefore are targets;
- Up to 12 airplanes could have been destroyed and thousands of passengers killed in the actual plot described above;[24]
- These plots came close to being carried out; it was only through a fortunate discovery and then extra tight security after the discovery of the plot that these incidents were thwarted;
- It is just as easy for international terrorists to operate within the United States as domestic terrorists, as evidenced by the World Trade Center bombing; therefore,
- Based on these facts, the increased threat to domestic aviation could be seen as equivalent to some portion of 12 Class I Explosions on U.S. airplanes. (The FAA defines Class I Explosions as incidents that involve the loss of an entire aircraft and incur a large number of fatalities.)

In 1996, both Congress and the White House Commission on Aviation Safety and Security (Commission) recommended further specific actions

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[24] While these rules would not have prevented the plot described above, this plot is representative of the type and seriousness of the threat that this rule is trying to prevent.

to increase civil aviation security. The Commission stated that it believes that the threat against civil aviation is changing and growing, and recommended that the Federal Government commit greater resources to improving civil aviation security. President Clinton, in July 1996, declared that the threat of both foreign and domestic terrorism to aviation is a national threat. The U.S. Congress recognized this growing threat in the Federal Aviation Reauthorization Act of 1996 by: (1) authorizing money for the purchase of specific anti-terrorist equipment and the hiring of extra civil aviation security personnel and (2) requiring the FAA to promulgate additional security-related regulations.

In the absence of increased protection for the U.S. domestic passenger air transportation system, it is conceivable that the system would be targeted for future acts of terrorism. If even one such act were successful, the traveling public would demand immediate increased security. Providing immediate protection on an ad hoc emergency basis would result in major inconveniences, costs, and delays to air travelers that may substantially exceed those imposed by the planned and measured steps contained in these rules.

Based on the above statement, the FAA concludes that these rules set forth a better method to provide increased security at the present time. The FAA considered to the limited extent possible, the benefits of these rules in reducing the costs associated with terrorist acts. The following analysis describes alternative assumptions regarding the number of terrorist acts prevented and potential market disruptions averted that result in these rules' benefits to be at least equal to these rules' costs. This is intended to allow the reader to judge the likelihood of benefits of these rules equaling or exceeding their cost.

The cost of a catastrophic terrorist act can be estimated in terms of lives lost, property damage, decreased public utilization of air

transportation, etc. Terrorist acts can result in the complete destruction of an aircraft with the loss of all on board. The FAA considers a Boeing 737 as representative of a typical airplane flown domestically. The fair market value of a Boeing 737 is $16.5 million, and the typical 737 airplane has 113 seats.[25] It flies with an average load factor of about 65.0 percent, which translates into 73 passengers per flight; the airplane will also have three pilots and three flight attendants.[26]

A terrorist catastrophic event could also result in fatalities on the ground. There were 11 such fatalities in the Pan Am 103 explosion and 15 in a collision of an AeroMexico airplane with a Piper PA-28 airplane over Cerritos, California in 1986.[27] However, looking at the number of accidents including aircraft covered by these rules and the number of fatalities on the ground over the last 10 years, the average fatality was less than 0.5 persons per accident. Therefore, the FAA will not assume any ground fatalities in this analysis.

In order to provide a benchmark comparison of the expected safety benefits of rulemaking actions with estimated costs in dollars, a minimum of $2.7 million is used as the value of avoiding an aviation fatality (based on the willingness to pay approach for avoiding a fatality). In these computations, the present value of each incident was calculated using the current discount rate of 7 percent. Applying this value, the total fatality loss of a single Boeing 737 is represented by a cost of about $211 million (78 x $2.7 million).

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[25] See Federal Aviation Administration, Economic Values for Evaluation of Federal Aviation Administration Investment and Regulatory Programs (Economic Values), FAA-APO-98-8, June 1998. The price of the Boeing 737 was adjusted to 1998 dollars.

[26] FAA regulations require one flight attendant for every 50 seats. As the typical 737 airplane has 132 seats, this translates into 3 flight attendants.

[27] This took place on August 31, 1986. The AeroMexico airplane was a DC-9, and all 64 on board were killed. Eighteen others were killed, including 3 in the Piper and 15 on the ground.

The safety related costs of a single domestic terrorist act on civil aviation are summarized in Table 3.

TABLE 3
COSTS OF A DOMESTIC CLASS I EXPLOSION
(1998 Dollars)

	Number	Value	Total Cost
Fatalities	78	$2,700,000	$210,600,000
Aircraft	1	$16,500,000	$16,500,000
Property	1	$12,500,000	$12,500,000
Investigation[28]	1	$28,600,600	$28,600,600
Legal Fees[29]		$3,600,400	$3,600,400
Total			**$271,801,000**
Total, discounted			**$190,900,700**

Source: U.S. DOT, FAA, APO-310, June 1999.

The estimated discounted cost of these final rules is about $104 million, while the discounted benefits for each Class I Explosion averted comes to about $191 million. Hence, if these rules prevent one Class I explosion, the benefits of these rules will exceed their costs. In view of the recent history of terrorist incidents in the United States, a potential catastrophic loss of at least this magnitude is considered to be plausible in the absence of this rule.

The FAA also used the same set of benefits in two proposed rulemakings, Security of Checked Baggage on Flights Within the United States and Certification of Screening Companies; all these rulemakings have the same goal--to significantly increased the protection to U.S. citizens and other citizens traveling on U.S. domestic aircraft operator flights from acts of terrorism as well as also increase protection for those operating aircraft. Because the combined discounted costs of all of these rules exceeds $191 million, the cost

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[28] This assessment is based on the investigation to date on Pan Am 103 bombing over Lockerbie, Scotland, in December 1988.

[29] Both the civil and criminal trials stemming from the Pan Am 103 tragedy have not yet been completed. Thus, it is impossible to estimate all the legal costs from these trials. However, the government spent between $3,534,043 (1998 dollars) on the civil trial as of August 1992, so this figure will be used as a lower limit for such tragedies.

of one Class I Explosion, the FAA calculated the economic impact and the potential averted market disruption sufficient, in combination with safety benefits, to justify all these rulemakings.[30]

Certainly the primary concern of the FAA is preventing loss of life, but there are other considerations as well. Another large economic impact is related to decreased airline travel following a terrorist event. A study performed for the FAA indicated that it takes about 9 to 10 months for passenger traffic to return to the pre-incident level after a single event.[31] [32] Such a reduction occurred immediately following the destruction of Pan Am Flight 103 over Lockerbie, Scotland in December 1988, and can be seen in Tables 4 and 5, which are based on Pan Am's Trans-Atlantic enplanements:

TABLE 4 - PAN AM - MONTHLY ENPLANEMENTS FOR TRANS-ATLANTIC ROUTES

	1985	1986	1987	1988	1989	1990
Jan	364,182	394,938	429,627	497,908	405,876	494,168
Feb	314,873	334,406	360,140	434,335	324,156	407,373
Mar	296,733	422,164	473,734	573,078	449,154	531,867
Apr	337,936	401,276	525,844	599,707	513,900	587,046
May	502,857	438,585	596,839	656,265	574,414	624,165
June	569,492	481,808	663,563	718,781	660,945	734,271
July	572,062	503,910	715,506	730,224	671,131	734,881
Aug	568,605	573,630	746,261	752,226	677,074	663,405
Sept	567,147	538,396	659,922	687,924	622,350	566,867
Oct	498,354	493,161	645,901	668,763	581,780	261,280
Nov	395,361	429,760	507,773	494,815	499,130	287,110
Dec	399,508	439,083	516,347	488,812	507,562	226,510
Total	**5,387,110**	**5,451,117**	**6,841,457**	**7,302,838**	**6,487,472**	

Source: U.S. Dept. of Trans., FAA, APO-310, June 1999.

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[30] The discounted costs for Security of Checked Baggage on Flights within the United States is $2.0 billion and Certification of Screening Companies is $221.4 billion (converted to 1998 dollars).

[31] Pailen-Johnson Associates, Inc., "An Econometric Model of the Impact of Terrorism on U.S. aircraft operators' North Atlantic Operations", Contract No. DTFA01-86-Y-01055, Prepared for Aircraft/Interactively & Safety Branch, FAA, WASHINGTON D.C., Sept. 1987.

[32] No study has looked at the effect of more than one explosion or other criminal or terrorist incident, such as the plot masterminded by Ramzi Yousef to blow up twelve airplanes, happening within a short period of time. The amount of market loss (due to a disruption in passengers' confidence to fly) from these multiple acts (such as Class I Explosions) could have been significant.

TABLE 5 - COMPARISON OF SELECTED YEARS FROM TABLE 6			
	Comparison of 1988 to 1987	Comparison of 1989 to 1988	Comparison of 1990 to 1988
Jan	115.9%	81.5%	99.2%
Feb	120.6%	74.6%	93.8%
Mar	121.0%	78.4%	92.8%
Apr	114.0%	85.7%	97.9%
May	110.0%	87.5%	95.1%
June	108.3%	92.0%	102.2%
July	102.1%	91.9%	100.6%
Aug	100.8%	90.0%	
Sept	104.2%	90.5%	
Oct	103.5%	87.0%	
Nov	97.4%	100.9%	
Dec	94.7%	103.8%	

Source: U.S. Dept. of Trans., FAA, APO-310, June 1999.

As the Tables show, in general, 1988 enplanements were above 1987's. There was a dramatic fall-off in enplanement in the first 3 months of 1989 immediately following the Pan Am 103 tragedy, and it took until November 1989 for enplanements to approximate their 1987 and 1988 levels. By 1990, enplanements were at the level they were in 1988. Trans-Atlantic enplanements increased, from 1985 to 1988, at an annual rate of 10.7 percent.[33] Projecting this rate to 1989 would have yielded 1989 enplanements of 8.1 million, or 1.6 million more than Pan Am actually experienced. This represents almost a 20 percent reduction in expected enplanements caused by the destruction of Pan Am 103 by terrorists.

The estimated effect of a successful terrorist act on the domestic market has not been studied. Although there are important differences between international and domestic travel (such as the availability of alternative destinations and means of travel), the FAA believes that the traffic loss associated with international terrorist acts is representative of the potential domestic disruption.

[33] The only substantive pause in the increase in Pan Am enplanements occurred from May through October in 1986, due to fears brought on by the bombing of TWA 840 over the Aegean Sea, in April 1986.

There is a social cost associated with travel disruptions and cancellations caused by terrorist events. The cost is composed of several elements. First is the loss associated with passengers opting not to fly -- the value of the flight to the passenger (consumer surplus) in the absence of increased security risk and the profit that would be earned by the airline (producer surplus). Even if a passenger opts to travel by air, the additional risk may reduce the associated consumer surplus. Second, passengers who cancel plane trips would not purchase other goods and services normally associated with the trip, such as meals, lodging, and car rental, which would also result in losses of related consumer and producer surplus. Finally, although spending on air travel would decrease, pleasure and business travelers may substitute spending on other goods and services (which produces some value) for the foregone air trips. Economic theory suggests that the sum of the several societal value impacts associated with canceled flights would be a net loss. As a corollary, prevention of market disruption (preservation of consumer and producer welfare) through increased security created by these rules is a benefit.

The FAA is unable to estimate the actual net societal cost of travel disruptions and the corollary benefit gained by preventing the disruptions. However, there is a basis for judging the likelihood of attaining benefits by averting market disruption sufficient, in combination with safety benefits, to justify the rule. The discounted cost of these four rulemakings is slightly more than $2.3 billion, while the discounted benefits for each Class I Explosion averted comes to an estimated $191 million. Hence, if one Class I Explosion is averted, the present value of losses due to market disruption must at least equal $2.1 billion ($2.3 billion less $191 million -- one Class I Explosion). If two Class I Explosions are averted, the present value of losses due to market disruption must at least equal $1.9 billion ($2.3 billion less $400 million -- two Class I Explosions).

The value of market loss averted is the product of the number of foregone trips and the average market loss per trip (combination of all impacts on consumer and producer surplus). If one uses an average ticket price of $160 as a surrogate of the combined loss, preservation of a minimum of 13.4 million lost trips would be suffered, in combination with the safety benefits of one averted Class I Explosion, for the benefits of these rulemakings to equal costs. This represents less than 4 percent of annual domestic trips (the traffic loss caused by Pan Am 103 on its trans-Atlantic routes was 20 percent).[34]

Calculations can be made on the minimum number of averted lost trips needed if the net value loss was only 75 percent of the ticket price or exceeded the ticket price by 25 percent. If total market disruption cost was $130 or $200 per trip, a minimum retention of 16.3 and 10.6 million lost trips, respectively, would need to occur for the benefits to equal the costs of these rulemakings, assuming one Class I Explosion would be prevented. The FAA requests comments on the potential size of market loss per trip and number of lost trips averted.[35]

Table 6 presents combinations of the total number of trips not taken as a result of one to four Class I Explosions at alternative values per lost trip that would be sufficient to generate monetary benefits in excess of the estimated costs of these rulemakings.

Table 6 - Number of Trips Not Taken as a Result of One to Four Class I Explosions Avoided (for Benefits to Equal Costs)

Number of Class I	Assumed Net Market Loss Per Trip

[34] The average price of a ticket and the number of domestic enplanements were estimated based on information contained in the report entitled FAA Aerospace Forecasts: Fiscal Years 1999-2010, Tables 7 and 12, FAA-APO-99-1, March 1999. Total domestic trips in 1998 were 396 million and were obtained by assuming 1.4 enplanements per one-way trip.

[35] The FAA used the same set of benefits two other rulemakings, Security of Checked Baggage on Flights Within the United States and Certification of Screening Companies as all these rulemakings have the same goal--to significantly increased the protection to U.S. citizens and other citizens traveling on U.S. domestic aircraft operator flights from acts of terrorism as well as also increase protection for those operating aircraft. Accordingly, the FAA calculated the economic impact and the potential averted market disruption sufficient, in combination with safety benefits, to justify both proposed rules.

Explosions Avoided	(in 1998 Dollars)		
	$130	$160	$200
1	16.3 million	13.3 million	10.6 million
2	14.8 million	12.1 million	9.6 million
3	13.4 million	10.9 million	8.7 million
4	11.9 million	9.7 million	7.7 million

Source: U.S. Dept. of Trans., FAA, APO-310, June 1999.

The FAA stresses that the range of trips discussed in Table 6 should be looked upon as examples and does not represent an explicit endorsement that these would be the exact number of trips that would actually be lost. As noted above, it is important to compare, to the limited extent possible, the cost of these rulemakings to some estimate of the benefit of increased security it would provide as that level of security relates to the threat level.

Based on changes in the domestic security risk, the White House Commission recommendation, recent Congressional mandates, and the known reaction of Americans to any aircraft disaster, the FAA believes that pro-active regulation is warranted to prevent terrorist acts (such as Class I Explosions) before they occur.

VII. COMPARISON OF COSTS AND BENEFITS

This rule, combined with the part 107 rule, will cost an estimated $131 million ($104 million, discounted) over 10 years. This cost needs to be compared to the possible tragedy that could occur if a bomb or some other incendiary device were to get onto an airplane and cause an explosion. Recent history not only points to Pan Am 103's explosion over Lockerbie, Scotland, but also the potential of up to 12 American airplanes being blown up in Asia in early 1995.

Since the cost of a Class 1 Explosion on a large domestic airplane is approximately $272 million, coupled with the relative low cost of compliance ($131 million), this rule (and the rule for part 107) will need to prevent one Class I Explosion over the next 10 years in order

for quantified benefits to exceed costs. In view of the recent history of terrorist incidents in the United States, a potential catastrophic loss of at least this magnitude is considered to be plausible in the absence of this rule.

VIII. FINAL REGULATORY FLEXIBILITY DETERMINATIONINITIAL REGULATORY FLEXIBILITY DETERMINATIONINITIAL REGULATORY FLEXIBILITY DETERMINATIONINITIAL REGULATORY FLEXIBILITY DETERMINATION

The Regulatory Flexibility Act of 1980 establishes "as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the proposed rule and of 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 or rules 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.

The Small Business Administration has defined small business entities relating to aircraft operators (Standard Industrial Codes 4512 and

4522) required complying with part 108 as entities comprising 1,500 or fewer employees. These small entities include: (1) Scheduled aircraft operators whose fleet consists primarily (if not entirely) of aircraft with more than 60 passenger seats, (2) Other scheduled aircraft operators whose fleet consists primarily (if not entirely) of aircraft with less than 60 passenger seats (e.g., commuter operators and small majors/nationals types), and (3) Unscheduled aircraft operators. Unscheduled operators include primarily air taxi and charter types. These types of operators generally operate aircraft with less than 60 passenger seats.

The final rule will potentially impact small U.S. aircraft operators engaged in charter services and selected helicopter operators. These aircraft operators are engaged in services under parts 121 and 135. An examination of small entities under each of these parts, by size of aircraft, will be discussed by each amended change to a section as follows. (The non-annual costs of the rule have been annualized by multiplying them by a capital recovery factor of .14238 [10 years, 7 percent].)

For purposes of this evaluation, a significant economic impact refers to one percent of the annual median revenue ($222,200, at the 50th percentile, in 1998 dollars) of the small part 121 scheduled aircraft operators subject to part 108 requirements. In addition, a significant economic impact on unscheduled part 135 operators (2,718) refers to one percent their annual median revenue ($5,700, at the 50th percentile). The FAA has identified small operators ranging from 51 to 2,930 that may be impacted by this definition. Three of the five following sections impose potential costs only on scheduled operators. And the other two following sections impose costs on both groups of scheduled and non-scheduled aircraft operators.

Section 108.101 - Adoption and Implementation

The rule change to Section 108.101 will only affect estimated 51 small aircraft operators. This estimate of 51 includes: 15 non-scheduled domestic service operators with greater than 60 seats, 11 scheduled international service operators with fewer than 31 seats, and 25 non-scheduled international service operators (including air taxi operations). The rule change to this section will impose an annualized cost of compliance estimate of $288 for each of the 51 aircraft operators. The estimate of $288 was derived by employing two steps: First, by dividing the discounted cost of compliance estimate for this section ($103,100) by the number of potentially impacted aircraft operators (51). This calculation results in a discounted 10-year per entity cost estimate of $2,022. And last, the cost estimate of $2,022 was multiplied by the 10-year (7%) capital recovery factor of 0.14238. This same procedure was used for each of the following sections. This section of the rule will primarily impact small non-scheduled operators (40).

Given the nature of their operations (namely, private charters) and the size of their aircraft, each of these of these aircraft operators is considered to be a small entity. That is, each of these operators is assumed to have less than 1,500 employees. This same assessment applies equally to each of those aircraft operators discussed in the following sections, unless otherwise stated.

Section 108.235 - Training and Knowledge of Persons with Security-related Duties

The rule change to Section 108.235 will affect estimated 2,930 small aircraft operators.[36] This estimate of 2,930 includes: 74 scheduled operators with between 31 and 60 passenger seats, 131 scheduled operators with less than 31 passenger seats, 15 non-scheduled

[36] This estimate does not include 47 scheduled aircraft operators operating aircraft with more than 60 passenger seats. These operators are already considered to be in compliance. About 32 of these aircraft operators are the same as those identified in the regulatory evaluation prepared for the FAA's proposed rule for CAPS. The remaining 15 scheduled operators conduct international operations.

operators with more than 60 passenger seats, and 2,710 non-scheduled operators with less than 61 passenger seats. This rule change to section will impose an annualized cost of compliance estimate of $517 for each of the 2,930 small aircraft operators. This section of the rule will primarily impact non-scheduled operators (2,725).

Section 108.301 - Contingency Plans

The rule change to Section 108.301 will affect an estimated 172 (192 less 20 large aircraft operators) small U.S. aircraft operators.[37] This will impose an annualized cost of compliance estimate of $12,691 for each of the 172 small operators that will be affected by this section.[38] This section of the rule will only impact domestic scheduled aircraft operators, regardless of the size of their aircraft (172).

Section 108.303 - Bomb or Piracy Threats

The rule change to Section 108.303 will affect all 172 small U.S. aircraft operators. This rule change to section will impose an annualized cost of compliance estimate of $629 for each of the 172 small aircraft operators.

Section 108.305 - Information Circulars

The rule change to Section 108.305 will affect an estimated 172 U.S. aircraft operators. This rule change to section will impose an annualized cost of compliance of $347 for each of the 172 small operators that will be affected by this section.

Conclusion

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[37] These are the same 20 large aircraft operators identified in the regulatory evaluation prepared for the FAA's proposed rule for CAPS. Each of these operators has at least 1,500 employees.

[38] Estimated 192 aircraft operators were used to derive this cost estimate of $12,691. However, an estimated 20 of these aircraft operators are considered to be large. Therefore, for the purpose of this review, only about 172 small aircraft operators are discussed in this section.

The total annualized cost of compliance for each of the scheduled operators is expected to be nearly $14,470 and about $800 for each of the non-scheduled operators). Since the total annualized cost of compliance of about $14,470 is less than the significant economic impact amount of $222,200, this rule will not impose a significant economic impact on a substantial number of scheduled small entities. Similarly, the rule is not expected to impose a significant economic impact on a substantial number of small non-scheduled operators, since the annualized cost of compliance (about $800) for each operator will not exceed the significant economic impact amount ($5,700). In view of the aforementioned cost impact discussion and pursuant to the Regulatory Flexibility Act [5 U.S.C. 605(b)], the FAA certifies with reasonable certainty that the final rule will not impose a significant economic impact on a substantial number of small entities.

IX. INTERNATIONAL TRADE IMPACT ASSESSMENTINTERNATIONAL TRADE IMPACT ASSESSMENTINTERNATIONAL TRADE IMPACT ASSESSMENTINTERNATIONAL TRADE IMPACT ASSESSMENT

In accordance with the Office of Management and Budget memorandum dated March 1983, federal agencies engaged in rulemaking activities are required to assess the effects of regulatory changes on international trade.

The rule will have no impact on the competitive posture of either U.S. aircraft operators doing business in foreign countries or foreign aircraft operators doing business in the United States. This assessment is based on the fact that the rule will not have a significant economic impact on any of the potentially impacted operators. Most of the requirements imposed by this rule are aimed at strengthening the requirements of aircraft operators with existing full and partial security programs. However, this rule will require scheduled passenger or public charter aircraft operators, with more than 60 passenger seats, to adopt and implement full security programs. In addition, this rule will require those scheduled

passenger or public charter aircraft operators, with less than 61 passenger seats, to adopt and implement security programs prior to enplaning or deplaning passengers into sterile areas at airports. Private charter aircraft operators will have to comply with a similar requirement. Those aircraft operators who do not routinely deplane or enplane passengers into sterile areas at airports will be the least impacted by this rule. Such operators will only have a partial security program. When engaged in foreign travel, these operators usually fly from the U.S. to a foreign destination and return. These operators do not have aircraft based in foreign countries for flights to the U.S. and other foreign countries. Thus, neither domestic nor foreign aircraft operators will be affected disproportionately by these new requirements. These new requirements, therefore, will not cause a competitive trade disadvantage for U.S. aircraft operators operating overseas or for foreign aircraft operators operating in the United States.

X. UNFUNDED MANDATES ASSESSMENT

Title II of the Unfunded Mandates Reform Act of 1995, enacted as Public Law 104-4 on March 22, 1995, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects of any Federal mandate by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more (adjusted annually for inflation) in any one year. In 1998 dollars, this estimate of $100 million translates into $105 million using the GDP implicit price deflators for 1995 and 1998. Section 204(a) of the Act, Title 2 of the United States Code 1534(a), requires the Federal agency to develop an effectiveness process to permit timely input by elected officers (or their designees) of State, local, and tribal governments on a proposed or final rule "significant intergovernmental mandate." A significant intergovernmental mandate under the Act is any provision in a Federal agency regulation that will impose an enforceable duty upon State, local, and tribal

governments, in the aggregate, of $100 million (adjusted annually for inflation) in any one year. For the purpose of this evaluation, this estimate expressed in 1998 dollars translates into $105 million. Section 203 of the Act, Title 2 of the United States Code 1533, which supplements section 204(a), provides that before establishing any regulatory requirements that might significantly or uniquely affect small governments, the agency shall have developed a plan that, among other things, provides for notice to potentially affected small governments, if any, and for a meaningful and timely opportunity any affected small governments to provide input in the development of rules.

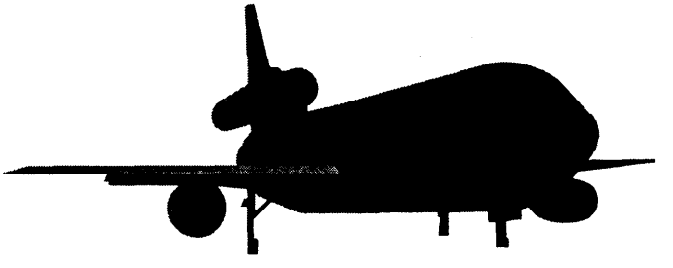
Based on the evaluation and impacts reported herein, the final rule is not expected to meet the $100 million per year cost threshold ($105 million, in 1998 dollars). Consequently, it would not impose a significant cost on or uniquely affect small governments. Therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply to the final rule.

Appendix A

(Revised)

Detailed Methodology on How Potential Cost Estimates Were Derived for the Final Rule to Amend 14 CFR Part 108

(1998 Dollars)



AIRCRAFT OPERATOR SECURITY

A-0.0 Base Assumptions, All Analysis	
Discount Rate:	7.0%
Avg. Growth in Aircraft Operations	3.4%
Avg. Growth in Passenger Traffic	4.0%
No. of Civil Aviation Airports Serving Scheduled Operations of AC Aircraft with > 30 Pax Seats	434

A-1.0 Number of Passenger Carriers and Security Program by Size Category*

Class	Number by Type Number	Total	Type of Program
U.S. Carriers Engaged in Domestic:			
Scheduled Service		192	
>60	32		Full(1)
31-60	44		Partial(2)
<31	116		None
Non-Scheduled Service		2,700	
>60	15		Partial(2)
<=60	2,685		None
Subtotal, Domestic		2,892	
U.S. Carriers Engaged in International:			
Scheduled Service		60	
>60	15		Full(1)
31-60	30		Partial(2)
<31	15		Partial(2)
Non-Scheduled Service		25	Partial(2)
Subtotal, Int'l		85	
TOTAL		**2,977**	

(1) Represents a Full Security Program upon implementation.

(2) Represents less than a Full Security Program upon implementation, unless directed to do otherwise by the FAA.

* An air carrier can be classified in more than one category. This evaluation assumes that each air carrier complies with the highest-security provisions of those classes met.

A-1.1. Part 108.101: Impacts on Certificated Population to Final Rule Changes

Class	Number of Carriers Affected	Change from Existing Rules	Number of Carriers Affected
U.S. Carriers Engaged in Domestic:			
Scheduled Service			
>60	0	No change	0
31-60	0	No change	0
<31	0	No change	0
Non-Scheduled Service			
>60	15	Yes	15
<=60	0	No change	0
Subtotal, Domestic	15		15
U.S. Carriers Engaged in International:			
Scheduled Service			
>60	0	No change	0
31-60	0	No change	0
<31	11	Yes	11
Non-Scheduled Service	25	Yes	25
Subtotal, Int'l	36		36
TOTAL	51		51

A-1.2. Part 108.101: Cost of "Partial" Security Program Implementation (Revised)

Program Type	Labor	Photo Copies	Other Costs: Postage	Total
Application	**$224.00**	$10.00	$5.50	**$239.50**
Annual Costs	**$224.00**	$0.00	$0.00	**$224.00**

Assumptions:

Labor hourly cost for paperwork (non-flight crew personnel):	**$28.00**
Hours for Filing Security Plan Application:	8.00
Hours of work annually:	8.00
Avg. Postage Costs	5.50
Number of Photocopies (@ $0.10/pg.)	100.00
Number of New Carrier Certificate Applications Annually:	3.60

Sample calculation:

Initial Application Cost = (Hours x Labor Cost /Hr.) + (Cost of Photocopies and Postage)

Recurring Annual Cost = (Annual Maintenance Hours) x (Labor Cost/Hr.)

A-1.3. Part 108.101: Incremental Cost of Compliance by Type of Operation (Revised).

Year	U.S. Domestic Carriers		U.S. Carriers Engaged in Int'l Operations		
	Application	Annual Staff	Application	Annual Staff	Total
	(Column A)	(Column B)	(Column C)	(Column D)	(A+B+C+D)
2000	$3,593	$3,360	$8,622	$8,064	$23,639
2001	$0	$3,360	$0	$8,064	$11,424
2002	$0	$3,360	$0	$8,064	$11,424
2003	$0	$3,360	$0	$8,064	$11,424
2004	$0	$3,360	$0	$8,064	$11,424
2005	$0	$3,360	$0	$8,064	$11,424
2006	$0	$3,360	$0	$8,064	$11,424
2007	$0	$3,360	$0	$8,064	$11,424
2008	$0	$3,360	$0	$8,064	$11,424
2009	$0	$3,360	$0	$8,064	$11,424
Total	**$3,593**	**$33,600**	**$8,622**	**$80,640**	**$126,455**
PV	**$3,358**	**$23,599**	**$8,058**	**$56,638**	**$91,653**

Assumptions:

Labor hourly cost for paperwork:	**$28.00**
Hours for Filing Security Plan Application:	8.00
Hours of work annually:	8.00
Avg. Postage Costs	5.50
Number of Photocopies (@ $0.10/pg.)	100.00
Number of New Carrier Certificate Applications Annually:	3.50

Estimated One-time Cost Per Applicant:
($28 x 8 = $224 + $15.50 for postage and Photocopies) **$239.50**

Estimated Recurring Annual Staff Cost Per Applicant:
($28 x 8 = $224) **$224.00**

Sample calculation:
Total Application Cost in 2000 = (Application Cost [from A-1.2]) x
(Number of Carriers Affected): eg., $239.50 x 51[15+36] = $12,214.50 [$3,592.50 + $8,622]
Total Annual Maintenance Cost = (Recurring Annual Cost [from A-1.2]) x
(Number of Carriers Affected): eg., $224 x 51 [15+36] = $11,424 [$3,360 + $8,064]
Total estimated Cost of Compliance in 2000: $23,638.50 = [$12,214.50 + $11,424]

A-2.0 Part 108.235: No. of Carrier Employees Affected (Incremental)			
Class	**Number of Carriers**	**Employees**	**Total Employees**
U.S. Certificated Carriers By No. of Seats			
Scheduled			
>60	47	0	0
31 - 60	74	13	962
<31	131	5	655
Non-Scheduled			
>60	15	10	150
<=60	2,710	1	2,710
Total	**2,977**		**4,477**

Note: No impact on the major airlines because the rule will only codify existing practice.

A-2.1. Part 108.235: Forecast of Training Requirements

Year	Initial Staff to be Trained	New Staff/Yr.	Total Training Requirements
2000	2,239	0	2,239
2001	2,238	224	2,461
2002	0	232	232
2003	0	240	240
2004	0	249	249
2005	0	258	258
2006	0	267	267
2007	0	276	276
2008	0	286	286
2009	0	296	296
Total	**4,477**	**2,327**	**6,804**

Base Assumptions:

Based on information received from air carrier operators, an estimated 4,477 employees will receive initial training. This evaluation estimates that half of the initial training would take place in 2000 and 2001, respectively.

This evaluation also assumes that new hires will start in 2001 at a rate of 10.0% of the initial number to be trained in 2001. Each year after 2001, this rate wIl increase by 4.0%.

New staff increases at a rate of 4.0% per year.

A-2.2. Part 108.235: Forecast of Initial Carrier Training Costs

Year	Hours/ Carrier	No. of Classes	Total Training Requirements	Instructor Cost	Employee Time (hrs)	Employee Costs	Total Carrier Costs
2000	25	224	2,239	$152,600	55,975	$1,567,300	$1,719,900
2001	25	246	2,461	$167,588	61,525	$1,722,700	$1,890,288
2002	25	23	232	$15,669	5,800	$162,400	$178,069
2003	25	24	240	$16,350	6,000	$168,000	$184,350
2004	25	25	249	$17,031	6,225	$174,300	$191,331
2005	25	26	258	$17,713	6,450	$180,600	$198,313
2006	25	27	267	$18,394	6,675	$186,900	$205,294
2007	25	28	276	$19,075	6,900	$193,200	$212,275
2008	25	29	286	$19,756	7,150	$200,200	$219,956
2009	25	30	296	$20,438	7,400	$207,200	$227,638
Total				$464,613		$4,762,800	**$5,227,414**
PV				$381,896		$3,917,849	**$4,299,746**

Base Assumptions:

Employee Cost/Hr.	$28.00
Air Carrier Instructor Cost/Hr.	$27.25
FAA Instructor Cost/Hr.	$28.50
Time to Train Staff (Hours)	25.00
Average Class Size	10.00
Employee Growth Rate (%)	4.00

Initial staff to be trained will be split between the first two years

Sample calculation:

Instructor Cost in 2000 = (Time to Train Staff) x (No. of Classes) x (Air Carrier Instr. Cost/Hr.):
eg., $152,600 = [25 x 224 x $27.25]
Employee Time in 2000 = (Time to Train Staff) x (Total Training Req'ts.)
eg., 55,975 = [2,239 x 25]
Employee Cost in 2000 = (Total Training Req'ts.) x (Time to Train Staff) x (Employee Cost/Hr.)
eg., $1,567,300 = [2,239 x 25 x $28.00]
Total Carrier Costs in 2000 = ((Instructor Cost) + (Employee Cost): $1,719,900 = [$152,600 + $1,567,300]

A-2.3. Part 108.235: Forecast of Annual Training Requirements

Year	Hours/ Carrier	Number of Employees	Number of Classes	Instructor Cost	Employee Cost	Total Cost
2000	0	0	0	$0	$0	**$0**
2001	6	4,636	464	$75,864	$778,848	**$854,712**
2002	6	4,801	480	$78,480	$806,568	**$885,048**
2003	6	4,972	497	$81,260	$835,296	**$916,556**
2004	6	5,149	515	$84,203	$865,032	**$949,235**
2005	6	5,332	533	$87,146	$895,776	**$982,922**
2006	6	5,522	552	$90,252	$927,696	**$1,017,948**
2007	6	5,719	572	$93,522	$960,792	**$1,054,314**
2008	6	5,923	592	$96,792	$995,064	**$1,091,856**
2009	6	6,134	613	$100,226	$1,030,512	**$1,130,738**
Total				$787,743	$8,095,584	**$8,883,329**
PV				$561,381	$5,769,001	**$6,330,383**

Base Assumptions:

Employee Cost/Hr.	$28.00
Air Carrier Instructor Cost/Hr.	$27.25
Annual Training Req't./Hrs.	6.00
Employee Growth Rate (%)	4.00
Average Class Size (Number of Carrier Employees/Session)	10.00

Sample Calculation:

Instructor Cost in 2001 = (No. of Classes) x (Annual Training Req't/Hrs.) x (Air Carrier Instructor Cost):
eg., $75,864 = [464 x 6 x $27.25]
Employee Cost in 2001 = (No. of Employees) x (Annual Training Req't.) x (Employee Cost/Hr.):
eg., $778,848 = [4,636 x 6 x $28.00]
Total Cost in 2001 = (Instructor Cost) + (Employee Cost): $854,712 = [$75,864+ $778,848]

A-2.4. Part 108.235: Summary, All Incremental Costs (Revised).

Year	Initial Air Carrier Traning Costs (Col. A: Table A-2.2)	Recurring Air Carrier Training Costs (Col. B: Table A-2.3)	Total Costs, Part 108.235 (Columns A+B)
2000	$1,719,900	$0	$1,719,900
2001	$1,890,288	$854,712	$2,745,000
2002	$178,069	$885,048	$1,063,117
2003	$184,350	$916,556	$1,100,906
2004	$191,331	$949,235	$1,140,566
2005	$198,313	$982,922	$1,181,235
2006	$205,294	$1,017,948	$1,223,242
2007	$212,275	$1,054,314	$1,266,589
2008	$219,956	$1,091,856	$1,311,812
2009	$227,638	$1,130,738	$1,358,376
Total	**$5,227,414**	**$8,883,329**	**$14,110,743**
PV	**$4,299,746**	**$6,330,383**	**$10,630,129**

Note: Total Carrier Cost (Col. B above) =(Initial Carrier Training Cost) + (Annual Training Cost)

A-3.0 Part 108.301: Forecast of Cost to Review, Ensure Conformity with Airport Plans (Revised).

Year	Number of Air Carriers Involved	Average No. of Airports Served	Time to Review, Conform (Hrs)	Time to Test Plan Annually (Hrs.)	System time (Hrs.): Carrier Review, conformance	To test plan annually	Total Cost (Value of Time)
2000	192	25	16	16	76,800	76,800	$4,300,800
2001	192	25	0	16	0	76,800	$2,150,400
2002	192	25	0	16	0	76,800	$2,150,400
2003	192	25	0	16	0	76,800	$2,150,400
2004	192	25	0	16	0	76,800	$2,150,400
2005	192	25	0	16	0	76,800	$2,150,400
2006	192	25	0	16	0	76,800	$2,150,400
2007	192	25	0	16	0	76,800	$2,150,400
2008	192	25	0	16	0	76,800	$2,150,400
2009	192	25	0	16	0	76,800	$2,150,400
Total							**$23,654,400**
PV							**$17,113,229**

Base Assumptions:

Value of Time, Security Personnel	**$28.00**
Time to Ensure Conformity:	
- to review plan (hrs)	8
- to ensure conformity (hrs)	8
Time to Test Plan:	
- to plan and coordinate (hrs)	8
- to test (hrs)	8

Sample calculation:

System Time Cost in 2000: Carrier Review, Conf. = (No. of Carriers x No. of Airports) x Hours of Work req'd.):
eg., $2,150,400 = (192 x 25 x 16 = 76,800) x $28
System Time Cost in 2000: Test Plan = (Number of Carriers x Number of Airports) x (Time to Test Plan annually):
eg., $2,150,400 = (192 x 25 x 16 = 76,800) x $28
Total Cost in 2000 = (System Time: Carrier Review, Conf.) x (Sytem Time: Test Plan) x (28/Hr.):
eg., $4,300,800 = [$2,150,400 + $2,150,400]

A-4.0. Part 108.303: Forecast of Employee Cost to Clear Threatened Aircraft (Revised).

Year	Average Aircraft Size (from FAA Forecasts)	Average Number of Employees	Number of Credible Threats	Total Employees	Value of Time
2000	109	4.4	10	44	$7,920
2001	110	4.4	10	44	$7,920
2002	110	4.4	10	44	$7,920
2003	111	4.4	10	44	$7,920
2004	111	4.4	10	44	$7,920
2005	112	4.5	10	45	$8,100
2006	113	4.5	10	45	$8,100
2007	114	4.6	10	46	$8,280
2008	115	4.6	10	46	$8,280
2009	116	4.6	10	46	$8,280
Total				**448**	**$80,640**
PV					**$56,447**

Base Assumptions:

No. of Credible Threats	10.00
Employees/Aircraft (%)	4.00
Employee Cost (Flt. Crew Personnel)/Hr.	**$40.00**
Average Downtime/Threat (Hrs.)	4.50

Sample calculation:

Value of Time in 2000 = (Total Employees) x (Employee Cost/Hr.) x (4.5 Hours):

eg., $7,920 = [44 x $40.00 x 4.5]

A-4.1. Part 108.303: Forecast of Passenger Cost to Clear Threatened Aircraft (Revised).

Year	Average Aircraft Size (from FAA Forecasts)	Average Load Factor	Average No. Passengers Per Aircraft	Number of Credible Threats	Total Passengers	Value of Time
2000	109	69.50%	76	10	760	$95,760
2001	110	69.10%	76	10	760	$95,760
2002	110	69.20%	76	10	760	$95,760
2003	111	69.20%	77	10	770	$97,020
2004	111	69.20%	77	10	770	$97,020
2005	112	69.20%	78	10	780	$98,280
2006	113	69.20%	78	10	780	$98,280
2007	114	69.20%	79	10	790	$99,540
2008	115	69.20%	80	10	800	$100,800
2009	116	69.20%	80	10	800	$100,800
Total			**777**		**7,770**	**$979,020**
PV						**$685,190**

Base Assumptions:

No. of Credible Threats:	10.00
Passenger Value of Time/Hr.	$28.00
Average Downtime/Threat (Hrs.)	4.50

Sample calculation:

Value of Time in 2000 = (Total Passengers) x (Passenger Value of Time/Hr. x 4.5 hours):

eg., $124,740 = [990 x 4.5 x $28.00]

A-4.2. Part 108.303: Forecast of Aircraft Cost to Clear Threatened Aircraft

Year	Number of Credible Threats	Aircraft Value of Time
2000	10	$15,154
2001	10	$15,154
2002	10	$15,154
2003	10	$15,154
2004	10	$15,154
2005	10	$15,154
2006	10	$15,154
2007	10	$15,154
2008	10	$15,154
2009	10	$15,154
Total		**$151,538**
PV		**$106,434**

Base Assumptions:

No. of CredibleThreats:	10.00
Average Downtime/Threat (Hrs.)	4.50
Average Cost, Aircraft Idletime/Hr.	$336.75

Sample calculation:

Val. of Time=(Avg. Cost, Aircraft Idle Time/Hr.) x (Avg. IdleTime/Threat) x (No. of Cred. Threats):

eg., In 2000, the cost of compliance is $15,153.75 = 10 x 4.5 x $336.75

A-4.3. Part 108.303: Summary, All Incremental Costs (Revised)

Year	Number of Credible Threats	Aircraft Value of Time	Passenger Value of Time	Employee Value of Time	Total Value of Time
2000	10	$15,154	$95,760	$7,920	$118,834
2001	10	$15,154	$95,760	$7,920	$118,834
2002	10	$15,154	$95,760	$7,920	$118,834
2003	10	$15,154	$97,020	$7,920	$120,094
2004	10	$15,154	$97,020	$7,920	$120,094
2005	10	$15,154	$98,280	$8,100	$121,534
2006	10	$15,154	$98,280	$8,100	$121,534
2007	10	$15,154	$99,540	$8,280	$122,974
2008	10	$15,154	$100,800	$8,280	$124,234
2009	10	$15,154	$100,800	$8,280	$124,234
Total		$151,538	$979,020	$80,640	**$1,211,200**
PV		$106,434	$685,190	$56,447	**$848,072**

Sample calculation:

Tot. Val.of Time=(Arcft. Val. of Time)+(Pass. Val. of Time)+(Empl. Val. of Time)

A-5.0. Part 108.305: Forecast of Cost to Notify PSI, Acknowledge, and Forward Results (Revised).

Year	Number of Directives Annually	Number of Air Carriers Involved	Cost to Process: Staff	Cost to Process: Phone, FAX	Total Cost
2000	30	192	$34,944	$31,680	$66,624
2001	30	192	$34,944	$31,680	$66,624
2002	30	192	$34,944	$31,680	$66,624
2003	30	192	$34,944	$31,680	$66,624
2004	30	192	$34,944	$31,680	$66,624
2005	30	192	$34,944	$31,680	$66,624
2006	30	192	$34,944	$31,680	$66,624
2007	30	192	$34,944	$31,680	$66,624
2008	30	192	$34,944	$31,680	$66,624
2009	30	192	$34,944	$31,680	$66,624
Total			**$349,440**	**$316,800**	**$666,240**
PV			**$245,432**	**$222,507**	**$467,939**

Base Assumptions:

Value of Time, Security Personnel	**$28.00**
Time per Directive/Circular:	
- to respond initially (minutes)	3.00
- to fax out materials (minutes)	10.00
Number of Directives/Year	30.00
Cost of Phone, FAX per Directive:	$5.50
Number of Carriers Affected	192.00

Sample calculation:

Staff Cost in 2000 = (No. of Directives) x (Time per Directive/60) x ($28) x (No. of Carriers):

eg., $34,944 = (30 x ([3+10]/60) x $28 x 192)

Phone, FAX Cost in 2000 = (No. of directives) x ($5.50) x (No. of Carriers): eg., $31,680 = [30 x $5.50 x 192]

Total Cost in 2000 = (Staff Cost) + (Phone, Fax Cost): $66,624 = [$34,944 + $31,680]

Table 1

Summary of Incremental Compliance Costs For Part 108 By Section

(10 Years, 1998 Dollars)

Section	Title	Undiscounted	Discounted (7.0%)
108.101	Adoption and Implementation	$142,678	$103,102
108.235	Training and Knowledge of Persons with Security-related Duties	$14,110,743	$10,630,129
108.301	Contingency Plans	$23,654,400	$17,113,229
108.303	Bomb or Piracy Threats	$1,211,200	$848,072
108.305	Security Directives and Information Circulars	$666,240	$467,939
Total		**$39,785,261**	**$29,162,472**