**Supporting Statement A**

**Hazardous Materials Training Requirements**

**OMB Control # 2120-0705**

**1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection.**

This information collection directly supports the Department of Transportation‘s strategic goal on *SAFETY.* Specifically, the goalis to promote the public health and safety by working toward the elimination of transportation-related deaths, injuries, and property damage.

Title 49 USC, Section 44702, empowers the Secretary of Transportation to issue air carrier operating certificates and to establish minimum safety standards for the operation of the air carrier to whom such certificates are issued. Under the authority of Title 49 USC, Section 44701, Federal Aviation Regulations part 121 and part 135 prescribe the terms, conditions, and limitations as are necessary to ensure safety in air transportation. This package incorporates requirements included in the final rule, “Hazardous Materials Training Requirements” (70 FR 58796; Oct. 7, 2005).

The changes in the 2005 final rule were adopted as a result of the National Transportation Safety Board (NTSB) investigation of the May 1996 crash of Valujet flight 592. The NTSB issued a number of Safety Recommendations to the FAA to strengthen, clarify, and amend air carrier hazardous materials training and manual requirements.

The Federal Aviation Regulations require air operators engaging in common carriage air transportation (air carriers) to have in force a certificate and operations specifications that prescribe the authorizations, limitations, and procedures under which each kind of operation must be conducted. The FAA amended §119.49 (a)(13) to provide that a certificate holder’s operations specifications must include either an authorization permitting the certificate holder to handle and transport hazmat (will-carry certificate holder) or a prohibition against handling and transporting hazmat (will-not-carry certificate holder). Prior to the 2005 final rule, the last amendments to the FAA regulations governing hazardous materials training for part 121 operators were adopted in 1980, and for part 135 operators the last amendments were part of a complete rewrite in 1978.

Each part 121 and part 135 certificate holder keeps current a manual for use in conducting its operations. The 2005 rulemaking clarified and amended hazardous materials training and manual requirements for part 121 and part 135 certificate holders. It set clear training standards and ensured uniform compliance with these training requirements. These manual and training regulations in part 121 and part 135 now incorporate most of the guidance that is currently contained in Advisory Circulars (ACs). The FAA believes that this rulemaking ensures training and manual requirements for part 121 and part 135 certificate holders accurately reflects current industry practices, increase harmonization with the ICAO Technical Instructions, and increases the continuity of FAA Advisory Circulars and FAA certification practices.

* Hazardous Material Training Program--Affects all part 121 and part 135 air carriers. 14 CFR 121.401 and 135.323 currently require that operators shall establish and implement a training program that satisfies the requirements that each person assigned duties for the carriage and handling of hazardous materials is adequately trained to perform their assigned duties.

In addition, NTSB’s report on Valujet Flight 592 and the FAA’s experience with repair stations resulted in amending the part 145 certification requirements so that the FAA could increase its oversight of the training that repair stations are required to conduct to comply with 49 CFR part 172. The 2005 rulemaking required part 145 certificate holders to validate that “hazmat employees” as defined in 49 CFR Parts 100 through 185, have received hazardous materials training as required in Subpart H of 49 CFR Part 172. The FAA is also requiring communication between the part 121 and part 135 certificate holders and the part 145 repair stations regarding the will-carry or will-not-carry status of the certificate holder.

* A part 145 repair station must provide a certification to the FAA that all hazmat employees have been trained in accordance with 49 CFR prior to a part 145 certificate or change of rating being issued. This notification requirement affects only repair stations that are regulated by 49 CFR Parts 100 through 180.
* A part 121 and part 135 certificate holder must ensure that each repair station performing work for, or on behalf of, the certificate holder’s is notified in writing, and is aware of, the certificate holder’s policies and operations specification authorization permitting or prohibition against the acceptance, rejection, handling, storage incidental to transport, and carriage of hazardous materials, including company material. This affects only the part 121 and part 135 certificate holders who contract with a repair station regulated by 49 CFR parts 100 through 180.
* The part 145 repair station notified by the part 121 and part 135 certificate holder is required to verify receipt of the notification to the part 121 and 135 certificate holder. This notification requirement affects only repair stations that are regulated by 49 CFR parts 100 through 180.
* Part 145 repair stations must notify their employees, contractors, or subcontractors that handle or replace aircraft components or other items regulated by 49 CFR parts 171 through 180 of the will-carry or will-not-carry status of the certificate holders for which the repair station does work. This notification requirement affects only repair stations that are regulated by 49 CFR parts 100 through 180.

**2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.**

Currently the FAA, as prescribed in 14 CFR parts 121 and 135, requires certificate holders to report data by submitting manuals and hazmat training programs, or a revision to an approved hazmat training program to obtain initial and final approval as part of the FAA certification process. These may be electronic and in outline form unless it is necessary to see the full outline of the hazmat training program to understand the content. Original certification is completed in accordance with part 119. Continuing certification is completed in accordance with part 121 and part 135. The FAA uses the approval process to determine compliance of the hazmat training programs with the applicable regulations, national policies and safe operating practices. The FAA must ensure that the documents adequately establish safe operating procedures.

* Sections 121.905 (e) and 135.505(e) require a certificate holder to ensure that each repair station performing work on the certificate holder’s behalf is notified in writing, and is aware of, the certificate holder’s policies and operations specification authorization permitting or prohibition against the acceptance, rejection, handling, storage incidental to transport, and carriage of hazardous materials, including company material. This notification requirement applies only to repair stations that are regulated by 49 CFR parts 171 through 180. This affects only the part 121 and part 135 certificate holders who contract with a repair station regulated by 49 CFR parts 171 through 180. Some repair stations are also certificated under part 121 or part 135, so the notification would be in place currently.
* Section 145.53 requires a certification that all hazmat employees have been trained in accordance with 49 CFR be provided to the FAA prior to a part 145 certificate or change of rating being issued. This notification requirement affects only repair stations that are regulated by 49 CFR parts 100 through 185.
* Section 145.206 (a) requires each repair station notified by the part 121 or part 135 certificate holder to verify receipt of the notification to the certificate holder. This notification requirement affects only repair stations that are regulated by 49 CFR parts 100 through 180.
* Section 145.206 (b) requires that repair stations must notify their employees, contractors, or subcontractors that handle or replace aircraft components or other items regulated by 49 CFR parts 100 through 180 of the will-carry or will-not-carry status of the certificate holders for which the repair station performs work for or on behalf of. This notification requirement affects only repair stations that are regulated by 49 CFR parts 171 through 180.

 The FAA currently uses the information collected and reviews it to ensure compliance with the hazmat regulations and, if necessary, take enforcement action on violators of the regulations. The certification provided by the part 145 repair stations to FAA prior to issuing a certificate helps to provide oversight to ensure that a repair station is aware of, and has completed, the required hazmat training at the time of certification or receiving a change in rating.

**3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.**

Parts 121 and 135 operators may develop manuals in an electronic format, and submit electronically, such as email. There is no form or template for this manual. Advisory Circular (AC) 121-40, Chapter 3, Section 3.6.7 provides guidance on development of the manual. This guidance is publically available.

The burden associated with part 121 and part 135 requirements is recordkeeping. However, in the 2005 final rule, the requirement to conduct training was reduced from annually to every 24 months; therefore, the requirement to record the completion of training is only every 24 months.

The FAA has encouraged the use of automation by part 121, part 135, and part 145 certificate holders to reduce their burdens. Operations Specifications are now automated and issued by the FAA. In compliance with the Government Paperwork Elimination Act (GPEA), the recordkeeping requirement in §121.907 and §135.507 for employee training records are permitted to be in 100% electronic format and produced upon request at the location of the employees. In addition, the content of the records is identical to the content required in 49 CFR 172.704 (d), ICAO TI 1;4.2.4, and IATA DGR 1;1.5.4.1. One set of records will provide compliance with all of the hazmat regulatory recordkeeping requirements.

In §§121.905 and 135.505, the requirement for written notification can be complied with in different ways including electronic transmission (e.g. regular mail, overnight mail, facsimile, email, etc.). However, written notification (through physical or electronic means) ensures that the certificate holder has done something verifiable to communicate the status.

In §145.206, the notification of the repair station employees as to the will-carry or will-not-carry status of the certificate holders for which the repair station performs work is not required to be in a mandated format or delivery method. Also, the repair station must verify to the certificate holder that it has received the required notification. This also is not required in a mandated format. Therefore, electronic means may be used.

**4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.**

We have reviewed our other FAA public-use reports and find no duplication. Also, we know of no other agency collecting the information from part 121, part 135, or part 145 certificate holders prescribing the terms, conditions, and limitations of their of their operating certificate. This information is to ensure air transportation safety.

The information collected is only available from the applicant applying for an operating certificate. The information is not available from any other source.

Therefore, the same record will comply with both regulations.

FAA closely considered the related training requirements for both domestic and international requirements to ensure the same records required under this information collection can be used for compliance with all hazmat regulations having the same requirements (49 CFR 172.704(d), ICAO TI 1;4.2.4, and IATA DGR 1;1.5.4.1). Therefore, to enable the certificate holders to use the same records for compliance with the recordkeeping requirement in §121.907 and §135.507 and 49 CFR 172.704 (d), we are requiring the same information be recorded. For repair stations under part 145, this information collection implements a National Transportation Safety Board recommendation to close a gap for subcontractor facilities personnel.

The additional requirements in this information collection do not create duplicative burdens and are necessary to establish the safe operating procedures of the operator or repair station.

**5. If the collection of information involves small businesses or other small entities, describe the methods used to minimize burden.**

Pursuant to the Regulatory Flexibility Act, 5 U.S.C. 605 (b), the Federal Aviation Administration certifies that this rulemaking and information collection will not have a significant economic impact on substantial number of small businesses.

Applicants for operating certificates, whether small business or large, are guided through the administrative requirements of parts 121, 135, and 145 by local district offices assigned certificate responsibilities. The actual operations specifications are automated and the paragraphs issued are only those appropriate to a specific carrier’s operation.

**6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.**

The information collection frequency was designed to minimize burden on the operators and repair stations. Part 121 and part 135 operators are required to receive approval prior to implementation of the training program, and when significant changes are submitted. There is no requirement for these operators to provide periodic updates. Part 145 repair stations are required prior to the FAA issuing a certificate, not at the time of application. The frequency of information collection is dependent on the applicant’s business plan and the need for operators who have obtained air carrier certification to undergo recertification if they plan to conduct new kinds of operations. The applicant who requests certification benefits, for the most part, determines the frequency of information.

Without this information collection, FAA expects an increase the number of undeclared and improperly declared hazardous materials incidents. Enforceable hazmat training standards serve the dual purpose of establishing a mandatory hazmat training program with uniform requirements, and reducing the potential that “discoverable” hazmat shipments will move undetected. A “discoverable” hazmat shipment is a shipment that is likely to be flagged by a trained individual as a potential hazmat shipment, even though it is not properly prepared for shipment or is shipped undeclared.

**7. Explain any special circumstances that would cause an information collection to be conducted in a manner:**

There are no special circumstances.

**8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.**

A Federal Register Notice published on November 2, 2018 (83 FR 55233), solicited public comment. No public comments were received.

**9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.**

No payments or gifts are provided to respondents.

**10. Describe any assurance of confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.**

Assurance of confidentiality is not provided to respondents.

**11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.**

There are no questions of a sensitive nature.

**12. Provide estimates of the hour burden of the collection of information. The statement should:**

The FAA has estimated the burdens of this information collection.

Manuals

There is a one-time cost to revise manuals. Manuals are revised when there are regulatory updates so this presently is an ongoing process for the carrier. The carrier is only required to submit the revision unless the entire program is necessary to understand the content. To do a minimal revision, the FAA estimates that part 121 operators will require .8 hours annualized to revise their manuals and part 135 operators can accomplish this task in .4 hours annualized. The estimated annualized number of hours needed for the additional revisions ranges from 4 hours for part 121 operators to 2 hours for part 135 operators. FAA continues to assume these time burdens are reasonable estimates.

For this information collection, FAA has adjusted the estimates based on the updated figures for the active number of operators, and the number of approvals that FAA provided for manuals. In fiscal year 2018 there were 2,106 total active firms. In fiscal year 2018, FAA approved new/and or revisions for 360 manuals from Part 135 operators and 68 manuals from Part 121 operators. FAA estimates the hourly wage costs, including benefits, for making the revision range from $66.30 per hour[[1]](#footnote-1) for 135 operators to $116.46 per hour[[2]](#footnote-2) for 121 operators.

Therefore, we estimate a slight overall increase in the number of hours by 474 hours (or .23 hours per carrier) from the 2015 information collection notice.

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| **Annual Manual Revision Costs**  |
| **Category** | **Total Firms** | **Minimal Revision/ Hours** | **Affected Firms for Substantial Revision** | **Additional Hours for Substantial Revision** | **Wages** | **Hour Burden** | **Cost** |
| Part 121 | 80 | 0.8 | 68 | 4 | $116.45 | 336 | $39,127.20 |
| Part 135 | 2026 | 0.4 | 360 | 2 | $66.30 | 1,530 | $101,439.00 |
| Total | 2,106 |  | 428 |  |  | 1,866 | $140,566.20 |

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| **Annual Manual Revision Costs Per Carrier** |
| **Category** | **Annual Hour Burden** | **Annual Cost Burden** | **Annual Cost Per/Carrier** |
| Part 121 | 336 | $39,127.20 | $489.09 |
| Part 135 | 1,530.40 | $101,439.00 | $50.07 |
| Total | 1,866.40 | $140,566.20 | $66.75 |

Recording & Recordkeeping

The data required in the recordkeeping requirements for part 119 certificate holders adopted in the 2005 final rule mirror those requirements contained in 49 CFR 172.704 and the ICAO Recommendations and IATA DGR. In its analysis, the FAA assumes that many of these operators will maintain computer-based records. The 2005 rulemaking estimated an initial cost to restructure the database to respond to the rulemaking. As described in the rulemaking economic analysis, we assume all database restructuring was completed within the ten years following rulemaking publication. Therefore, we are not including the burden hours in the 2015 information collection notice which provided an annualized estimate for this one-time cost.

The FAA continues to estimates that updating training records will take a clerk five minutes per employeereceiving hazardous materials training every 24 months. The hourly wage of the clerk, including benefits is estimated to be $29.67for both part 121 operators and part 135 operators[[3]](#footnote-3). The FAA estimates that using 65% of the estimated total employees performing 5 minutes per 12 months, provides conservative approach to capturing the burden hours. Furthermore, the number of firms and employees has been on downward trend. Therefore, FAA’s continued use of the 2015 estimates for the total number of employees further provides a conservative estimate.

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| **Annual Recording & Recording Costs** |
| **Carriers** | **No. of Employees (65% of total employees)**  | **Time in Hours** | **Total Annual Hours** | **Wage** | **Cost** | **Annual Cost Per/Carrier** | **Annual Hours Per/Carrier** |
| Part 121 | 368,683 | 0.08 | 29,494.64 | $29.67 | $875,105.97 | $10,938.82 | 368.68 |
| Part 135  | 120,732 | 0.08 | 9,658.56 | $29.67 | $286,569.48 | $141.45 | 4.59 |

Notification

Part 121 and part 135 certificate holders are required to notify part 145 repair stations performing work on their behalf and regulated under 49 CFR 171 – 180 of the part 121 or part 135 certificate holders will-carry or will-not-carry status.

The FAA estimates that the amount of time required to prepare and approve the notification and verification varies depending on the size of the part 121 or part 135 certificate holder and ranges from One hour for Part 121 carriers to Thirty minutes for the Part 135 carriers.

According to FAA staff, the number of part 145 repair stations used by part 119 certificate holders largely depends upon the size of the part 121 or part 135 certificate holder. The FAA estimates that part 121 or part 135 certificate holders will have to notify 20 percent of the total number of repair stations annually over the 10-year period as part 121 and part 135 certificate holders may change repair stations or may change their own will-carry or will-not-carry status.

The annualized hourly burden and cost of this requirement is summarized below. Based upon the percentages of major manual revisions, professional expertise, and industry experience we project 85% of the total notifications to come from Part 135 certificates and 15% to come from Part 121 certificates.

Therefore, the total annual hourly burden and cost for notification of Part 145 operators by Part 121 and Part 135 carriers is as follows:

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| **Notification by 121/135 Operators (to Part 145 Repair Stations) Annual Hourly Burden and Cost** |
|  | **Total Notifications** | **Hourly Burden Per/Notification** | **Hourly Wage** | **Cost** | **Cost Per/Carrier** | **Hourly Burden Per/Carrier** |
| Part 121 | 146.94 | 1 | $29.67 | $4,359.71 | $54.50 | 1.84 |
| Part 135 | 832.66 | .5 | $29.67 | $12,352.51 | $6.10 | .21 |
| Total | 979.6 |  |  | $16712.22 |  |  |

Therefore, the total burdens for Part 121 and Part 135 operators include the following:

**Summary of Annual Time Burden and Costs to Part 121 and Part 135 Operators**

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| **Annual Costs to Part 121 and Part 135** | **Annual Cost Burden Per/Carrier** |
| **Cost Area** | **Time Burden** | **Cost Burden** |
| **Part 121 Operators** | **Part 135 Operators** | **Part 121 Operators** | **Part 135 Operators** | **Part 121** | **Part 135** |
| Manuals | 336 | 1,530.40 | $39,127.20 | $101,439.00 | $489.09 | $50.07 |
| Recording & Recordkeeping | 29,494.64 | 9,658.56 | $875,105.97 | $286,569.48 | $10,938.82 | $141.45 |
| Notifications | 146.94 | 416.33 | $4,359.71 | $12,352.51 | $54.50 | $6.10 |
| Total Annual Burden | 29,977.58 | 11,605.29 | $918,592.88 | $400,360.99 | $11,482.41 | $197.62 |
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**Summary of Burdens and Costs for Part 145 operators**

Section 145.53 will cross-reference the existing training requirement in 49 CFR 172.704 for repair stations that meet the definition of a hazmat employer under 49 CFR 171.8. The FAA assumes that verifying that all Hazmat employees are trained would be completed by and office or administrative employee at $33.59 per hour[[4]](#footnote-4). The FAA continues to estimate that this requirement will cost each applicant is $134.36 assuming an estimated 4 hours annually per firm.. FAA has updated estimates for the number of repair stations. FAA estimates that approximately 269 repair stations will be subject to this provision annually. The time burden and associated costs are shown in the next table.

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| --- | --- | --- | --- | --- | --- |
| **Number of Firms** | **Estimated Hours per Firm Annually** | **Hourly Wage** | **Annual Hour Burden** | **Annual Cost** | **Annual Cost Per Firm** |
| 269 | 4 | $33. 59 | 1,076 | $36,142.84 | $134.36 |

Section 145.206 will require repair stations to notify its employees, contractors, or subcontractors that handle or replace aircraft components or other items regulated by 49 CFR parts 171 through 180 of each part 121 and 135 certificated holder as to the certificate holder’s “will” or “will not” carry status. Notifying employees, contractors, or subcontractors of the certificate holder’s status would also be completed by office or administrative staff. The FAA estimates that 4898 independent domestic repair stations serve part 121 and 135 air carriers and will be subject to the notification requirement, spending no more than 1 hour each annually. FAA continues to assume 80% of Part 145 air carriers are small, 18% are medium, and 2% are large.

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| **Size of Firm** | **Number of Firms** | **Hourly Wage** |  **Time Required per Year (Hours)** | **Annual Cost** |
| Small | 3,918 | $33.59 | 1 | $131,605.62 |
| Medium | 882 | $33.59 | 1 | $29,626.38 |
| Large | 98 | $33.59 | 1 | $3,291.82 |
| Total | 4,898 | $33.59 | 1 | $164,523.82 |

**Summary of Costs to Part 145 Repair Stations**

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| --- | --- |
|  | **Annual Costs to Part 145 Repair Stations** |
| **Cost Area** | **Time Burden** |  | **Cost Burden** |
| Certification Submission | 1,076 |  | $36,142.84 |
| Notification | 4898 |  | $164,523.82 |
| Total | 5,974 |  | $200,666.66 |

 **Summary of Burden and Costs to All Operators**

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| --- | --- | --- | --- |
| **Cost Area** | **Time Burden to Operators** | **Cost Burden to Operators** | **Annual Cost Burden Per/Operator** |
| **Part 121** **(80 firms)** | **Part 135** **(2,026 firms)** | **Part 145 (4,898 firms)** | **Part 121**  | **Part 135**  | **Part 145**  | **Part 121** | **Part 135** | **Part 145**  |
| **Total Annual Burden** | **29,978** | **11,605** | **1,077** | **$918.592.88** | **$400,360.99** | **$200,666.66** | **$11,482.41** | **$197.62** | **$33.59** |

**13. Provide an estimate for the total annual cost burden to respondents or record keepers resulting from the collection of information.**

See answer 12.

**14. Provide estimates of annualized costs to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information.**

The FAA anticipates that this rule will not impose an additional cost on the Federal Government for two reasons:

1. No additional inspectors/personnel will be hired to address administrative and operational demands of the rule.
2. All of the work demands of the rule will fall within the routine administrative, regulatory, and operational functions of the FAA. The FAA is involved with utilizing this recordkeeping in three ways. The first two are interrelated in the certificate approval and management roles of the FAA. The first is that HAZMAT manuals are reviewed and approved as part of any Air Carrier’s certification process. Secondly, when a change or revision to the manual or a certificate Operations Specification occurs, the manual as a whole or just the proposed changes are reviewed and approved by the FAA. This recordkeeping and approval requirement streamlines FAA’s ability to ensure an Air Carrier’s suitability to conduct hazardous materials activities. Prior to this recordkeeping requirement, there were more frequent inspections that required additional man-hours and travel. All given inspectors at every given station had to review all of the Air Carriers’ other manuals and procedures to pick and choose which addressed the Hazardous Materials Regulations and then conduct extensive Air Carrier employee interviews to ensure all employees were operating within these requirements. The third type of review that FAA performs is periodic inspections. We do not anticipate the review of manuals during inspections poses an additional cost to government. As stated above, prior to having this recordkeeping requirement in place, inspectors still had to verify compliance by reviewing a larger number of documents and conducting interview. Overall, this recordkeeping requirement has created a streamlined source of information for both operators and the government for all three ways the FAA interacts with these records.

**15. Explain the reasons for any program changes or adjustments.**

For this information collection, FAA has adjusted the estimates based on the updated figures for the active number of operators, and the number of approvals that FAA provided for manuals. FAA estimates 80 active firms under Part 121, 2,026 active Part 135 firms, and 4,898 active firms under Part 145. This provides 7,004 active certificates. All totals have been adjusted to reflect updated assumptions. The agency has separated collection activity into appropriate information collections, there has not been additional forms or applications added.

**16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.**

There is no publication plan.

**17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons why display would be inappropriate.**

No such approval is being sought.

**18. Explain each exception to the topics of the certification statement identified in “Certification for Paperwork Reduction Act Submissions.”**

There are no exceptions.

1. Bureau of Labor Statistics (BLS). *Occupational Employment and Wages*, May 2018. Commercial Pilots NAICS Code 53-2012. <https://www.bls.gov/oes/current/oes532012.htm>. Yearly salary of $96,530 divided by 2080 hour = $46.41. Includes employee compensation. BLS. *EMPLOYER COSTS FOR EMPLOYEE COMPENSATION* – Dec. 2018. For private industry, BLS data shows that wages are 70 percent of total compensation costs while benefits are 30 percent. – <https://www.bls.gov/bls/news-release/ecec.htm#2017> [↑](#footnote-ref-1)
2. Bureau of Labor Statistics. Occupational Employment and Wages, May 2018. Airline Pilots, Copilots, and Flight Engineers NAICS 53-2011. https://www.bls.gov/oes/current/oes532011.htm. Hourly wage = $169,560 divided by 2080 hours per year = $81.52. Includes private industry employee compensation. BLS. *EMPLOYER COSTS FOR EMPLOYEE COMPENSATION* – Dec. 2018. [↑](#footnote-ref-2)
3. Bureau of Labor Statistics (BLS). *Occupational Employment and Wages*, May 2018. Office Clerks NAICS Code 43-9061. Mean Hourly Wage of $20.77. <https://www.bls.gov/oes/current/naics3_481000.htm> Includes employee compensation for private industry. BLS. *EMPLOYER COSTS FOR EMPLOYEE COMPENSATION* – Dec. 2018. [↑](#footnote-ref-3)
4. Bureau of Labor Statistics (BLS). *Occupational Employment and Wages*, May 2018. Office and Administrative Support Occupations NAICS Code 43-0000. <https://www.bls.gov/oes/current/naics3_481000.htm> Mean Hourly wage of $23.51. Includes employee compensation. BLS. *EMPLOYER COSTS FOR EMPLOYEE COMPENSATION* – Dec. 2018. For private industry, BLS data shows that wages are 70 percent of total compensation costs while benefits are 30 percent. – <https://www.bls.gov/bls/news-release/ecec.htm#2017> [↑](#footnote-ref-4)