

Supporting Statement A UAS Market Survey

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

Executive Order 12862 Setting Customer Service Standards signed September 11, 1993 and most recently updated in Executive Order 13571 requires the Federal Government to provide the “highest quality service possible to the American people.” Under the order, the “standard of quality for services provided to the public shall be: Customer service equal to the best in business.” The Executive Order defines customers as “individual or entity directly served by a department or agency” and “best in business” as defined by “the highest quality of service delivered to customers by private organizations providing comparable or analogous service.” We in the Federal Aviation Administration (FAA) refer to our customers as “stakeholders,” as it more accurately represents the unique relationship that we have with our aviation partners.

FAA has a rulemaking project titled Modernization of Special Airworthiness Certification (RIN 2120-AL50), which intends to further integrate unmanned aircraft by aligning airworthiness certification standards and rigor with the level of risk based on the operation. With these pending improvements to aircraft certification comes the need to also create an airman certification framework that will qualify airmen to fly these aircraft. Information from this survey would help FAA in crafting its proposal.

To support updates to current regulations, FAA plans to survey experts in industry and academia on Unmanned Aircraft Systems (UAS); the common fatigue-related practices and the minimum knowledge, skills, abilities (KSAs), testing, and staffing procedures required for operating UASs. These industry leaders will be able to provide insight to current and future policies from their companies to conduct UAS air carrier operations.

This research effort is in support of RIN 2120-AL50, which has rulemaking requirements in 2021. The required rulemaking effort is a part of a Congressional mandate¹ described in the FAA’s Integration of Civil UAS in the NAS Roadmap². The current team schedule is to reach Milestone 2 by February 2021 and for it to be out of Agency for external review by August 2021. Any delay in obtaining this survey data could jeopardize the project schedule. This particular project supports several requirements from the FAA Reauthorization Act of 2018. The airman certification component of this rulemaking is led by FAA’s General Aviation and Commercial Division (AFS-800) and supported by FAA’s Air Transportation Division (AFS-200).

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.

¹ See FAA Modernization and Reform Act of 2012 (P.L. 112-095), Section 332.

² The Roadmap is available at

https://www.faa.gov/uas/resources/policy_library/media/uas_roadmap_2013.pdf

Currently, UAS operations are expanding beyond the regulatory scope of 14 Code of Federal Regulations (CFR) Part 107 via waiver and exemption. This expansion, which includes package delivery via UAS, will require FAA to establish minimum regulatory standards and guidance for air carrier operations to more broadly accommodate this expansion. Through the waivers and exemptions FAA is able to collect some data to support future exemption approvals and future rulemaking, however the information gained from the survey will provide a much broader data set for FAA to use in rulemaking efforts.

The information collection will be in the form of a survey with responses from UAS engineers, operators, instructors, and managers on UAS knowledge, skills, abilities, testing, staffing, and duty/rest cycle requirements will be used to inform rulemaking for the UAS certification process and support the safe and efficient integration of UAS into the aerospace system. Specifically, FAA will use the information collected for the following purposes:

- Inform FAA rulemaking efforts by the FAA's Flight Standard Service General Aviation and Commercial Division (AFS-800) for UAS operations over people, expanded operations, and non-segregated operations; and
 - Support efforts by the Air Transportation Division (AFS-200) for developing UAS air carrier operator certifications and creating additional guidance for UAS operations
 - Developing and expanding FAA's regulatory framework for qualifying airmen
 - Support FAA efforts establishing appropriate requirements for duty and rest
- Participation is voluntary. This is a one-off survey that does not require future recurring collections.

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.

To the maximum extent possible, the collection effort will rely on electronic submission and communication methods. Beyond reducing costs, the use of electronic collection methods is expected to reduce the burden on the respondents and improve return rates.

Announcement of the upcoming surveys will be through email list distribution. An invitation to participate in the survey will be distributed via email to UAS engineers, operators, instructors, and managers who have submitted waivers to FAA to conduct UAS air carrier operations, who have submitted Part 107 waiver applications to operate UAS outside the limits of Part 107 (but not as air carrier operations), were identified in an academic/training faculty search as having recently taught UAS-related courses, or individuals known to our group who specifically deal with UAS pilots and/or training. The invitation includes the Uniform Resource Locator (URL) for the survey, which the recipient is encouraged to share with colleagues. The survey can be found at https://faafedramp.gov1.qualtrics.com/jfe/preview/SV_3duNE8kVoXICI5H?Q_CHL=preview&Q_SurveyVersionID=current

Personally-identifiable responses and data will not be made available to the public in order

to maintain participant privacy. To support rulemaking purposes, the final report will be made public that will discuss only deidentified and aggregated information.

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.

Stakeholders are the sole source of the information to be collected. It does not exist elsewhere in a comparable format, nor is it (or something similar) collected from other FAA or government agencies.

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

There is no anticipated burden to small businesses.

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.

Failure to collect the data will jeopardize rulemaking efforts by FAA's Flight Standard Service General Aviation and Commercial Division (AFS-800) for UAS operations over people, expanded operations, and non-segregated operations as well as efforts by the Air Transportation Division (AFS-200) for developing UAS air carrier operator certifications and creating additional parts for UAS operations. Current up-to-date information is needed in order to understand rulemaking needs.

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

No special circumstances exist; all statistical data classifications will be reviewed and approved by OMB.

8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission.

FAA published a Notice in the Federal Register on November 17, 2020, seeking comment for a period of 60 days on its intent to conduct a UAS market survey that would collect information pertaining to UAS air carrier-like operations (85 FR 73334). FAA received comments from six organizations: National Agricultural Aviation Association (NAAA), Small UAV Coalition, Airlines for America (A4A), Helicopter Association International (HAI), the Air Line Pilots Association International (ALPA), and Wing Aviation LLC (Wing). FAA then published a Notice in the Federal Register on January 26, 2021, seeking comment for a period of 30 days. FAA received comments from three individuals: an Anonymous Commenter, Logan Tasker, and Kaylee Gronley; FAA also received comments from two

organizations: Washington State Department of Transportation and the Small UAV Coalition. Two organizations, ALPA and Wing, provided questions for consideration. Several of these proposed questions were added to the questionnaire based on the research team's assessment that they would improve the informational quality of the collected data (see attached document Qualtrics Survey Instrument).

- Comment FAA-2020-1056-0002: National Agricultural Aviation Association (NAAA)
 - o Comment: NAAA supports the current effort as it aligns with their avocation for a safe low-altitude airspace for all users to share; NAAA also advocates UAS pilots to hold a pilot certificate. NAAA recommended that respondents include pilots with manned aircraft experience in operating around UAS.
 - o Response: FAA plans to include some of the industries recommended by NAAA, while many are already represented in the participant list. Because of the UAS-specific information and experience FAA is seeking, FAA is requiring that respondents have some kind of work-related experience with UAS or that their organization currently operates or plans to operate UAS commercially.
- Comment FAA-2020-1056-003: Small UAV Coalition ("Coalition")
 - o Comment: The Coalition supports the proposed collection recognizing the benefits of establishing minimum requirements. The Coalition noted in its comment that FAA did not explain how it arrived at the estimate of 180 respondents, and believes the survey should include Part 107 waiver holders because of the experience they have in complex UAS operations; academic experts should also include who may not have experience with UAS operations, but may have valuable experience in studying fatigue.
 - o Response: FAA arrived at the estimate of 180 respondents due to both statistical reasons and prior experience with survey data collections. FAA will provide the survey link to (reachable) commenters who have expressed interest by means of an invitational email; organizations can email the survey invitation to their membership. FAA believes fatigue information recommended would be valuable but such information exceeds the scope of the survey.
- Comment FAA-2020-1056-004: Airlines for America (A4A)
 - o Comment: Airlines for America (A4A) approves of and supports the information collection survey.
 - o Response: FAA appreciates A4A's support.
- Comment FAA-2020-1056-005: Helicopter Association International (HAI)
 - o Comment: HAI believes this collection is a valuable opportunity and suggested FAA seek responses from the broadest possible cross-section of operations. HAI noted that many legacy rotorcraft organizations conducting a wide variety of operations have integrated UAS into their operations with more expected to follow.
 - o Response: FAA designed the survey such that respondents can indicate which area of the industry they represent. FAA has specifically included some of the recommended industries of agriculture, infrastructure, and emergency response.
- Comment FAA-2020-1056-006: Air Line Pilots Association, International (ALPA)
 - o Comment: ALPA provided a list of suggested questions that can be included to enhance the survey regarding fatigue as well as knowledge, skills, and abilities.

They note specifically the role of duty time and the sleep-rest-wake cycle in aviation safety.

- o Response: FAA thanks ALPA for the suggested questions. FAA recognizes the same concerns, and believes that this survey can provide valuable information that can be used to guide rulemaking in these areas.
- Comment FAA-2020-1056-007: Wing Aviation LLC (“Wing”)
 - o Wing raised two areas of concern, vigilance and fatigue, with particular focus on the evolution of automation. Wing notes a particular concern of the different cognitive needs for manual piloting vs automation and monitoring, and how fatigue may affect UAS pilots in these situations differently.
 - o FAA recognizes that changing landscape in UAS automation, and has designed the survey questions based on empirical experience studying needs in related aviation roles. FAA agrees with Wing on avoiding overly focusing on psychomotor fatigue when addressing automated remote piloting roles. FAA appreciates the dialog with Wing and would like to continue the dialog with industry in general.
- Comment FAA-2020-1056-009: Anonymous Commenter
 - o The Anonymous Commenter suggested that FAA should concentrate on regulating manned rotorcraft (e.g., helicopters) instead because of the lack of fatalities involving UAS. The Anonymous Commenter recommends OMB deny FAA’s request to conduct this information collection due to the safety record of UAS operations, which the Anonymous Commenter contrasted with the fatalities associated with manned aircraft.
 - o FAA appreciates the recommendation, and is interested in maintaining a safe national airspace system (NAS) for all users, whether users are flying manned rotorcraft, UAS, or other aircraft. FAA believes that working proactively to establish knowledge, skill, training, testing, and fatigue-related policies and procedures for UAS is necessary to maintain a safe NAS for all users in the coming years.
- Comment FAA-2020-1056-010: Logan Tasker
 - o Logan Tasker supports this information collection effort. Logan Tasker is a General Aviation pilot and a Part 107 certified sUAS operator, and is interested in understanding base levels of knowledge with the goal of preventing future accidents. Logan Tasker has observed reckless behaviors of other UAS operators and recognizes the need to increase the level of safety for all NAS users.
 - o FAA appreciates Logan Tasker’s support of this effort. FAA agrees with Logan Tasker that research in understanding knowledge, skills, and abilities of UAS operators is important in supporting a safe integration of UAS into the NAS, thereby providing increased safety for all NAS users.
- Comment FAA-2020-1056-0011: Kaylee Gronley
 - o Kaylee Gronley supports this information collection effort, and that it will provide FAA with valuable information regarding UAS operator knowledge and skills.
 - o FAA appreciates Kaylee Gronley’s support of this effort. FAA agrees with Kaylee Gronley that research in understanding knowledge and skills will be useful in providing increased safety across the NAS.

- Comment FAA-2020-1056-0012: Kaylee Gronley
 - This comment is a double-post of FAA-2020-1056-0011.
- Comment FAA-2020-1056-0013: Washington State Department of Transportation (WSDOT)
 - WSDOT views this collection as necessary, and suggests expanding the sampled population. WSDOT also recommends several organizations to help identify potential respondents.
 - FAA thanks WSDOT for its support. The sample is planned to include the populations recommended by WSDOT. FAA welcomes organizations to provide their constituents with links to participate in the study. Due to privacy concerns, FAA will neither accept nor distribute contact lists.
- Comment FAA-2020-1056-0014: Small UAV Coalition
 - The Small UAV Coalition (“Coalition”) offers to help disseminate the survey link. The coalition recommends distributing the link to all Part 107 waiver holders and provide the link on the FAA Drone Zone website. The Coalition recommends requirements be tailored to remote pilot fatigue. The Coalition further endorses the questions provided by Wing Aviation LLC.
 - FAA thanks the Coalition for its support. FAA will not be contacting all Part 107 waiver holders and posting a link on the Drone Zone website, as doing so will unnecessarily increase the burden on the American public. For example, Part 107 waivers have been issued for a period spanning years, increasing the chances of out-of-date contacts, and FAA Drone Zone is used by noncommercial UAS pilots who would not be eligible for participation.

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

Payment, issued through 3rd-party contractor Neese Personnel, is provided to compensate participant time spent in completion of the survey. The survey is entirely voluntary and without compensation it is unlikely that the needed data will be sufficiently collected. Payment supports the timely recruitment of participants. Without meeting the participant quota, the study would lack generalizability of the results. In addition, the study could be terminated early. If either of these outcomes were to occur (i.e. lack of generalizability or early termination) then the benefits, from the burdens of time and effort, of the participants who do participate would be diminished if not absent altogether. Based on insufficient data there is a risk that inferior UAS requirements would be created.

The target population are not well-represented as contractors or grantees of FAA. Relying only on FAA contractors or grantees would provide ungeneralizable results and would produce data not useful in rulemaking activities.

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

All data provided will be kept private to the extent possible by law. To preclude the identification of individual respondents, unique identifiers will be assigned and they will be instructed not to provide any identifying information; however, prior to use by FAA, an in-house contractor, Cherokee Nation 3S (CN3S), will review all text entries and “sanitize” them by replacing identifying information with generic terms as placeholders. Only analyses and reports of aggregate data will be produced and released. The data will be collected, analyzed, and reported in accordance with guidelines from the Office of the Secretary of Transportation on Customer Service Standards.

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.

No questions of a sensitive nature relating to sexual behavior, religious attitudes, or other matters commonly considered private, will be asked.

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

Over the survey distribution period, we expect to receive 180 responses. Pilot testing of the survey indicates an estimated forty-five minute time investment. Assuming a time investment of forty-five minutes per respondent, a total time investment of 135 hours is expected. 180 participants * 147 questions per survey = 26460 total responses for this IC. Because FAA is compensating participants for time spent in completion of the study, the estimated cost to participant is 45 minutes (0.75 hours) of annual base wage. Fringe and overhead are difficult to calculate because these costs are not incurred by the participants’ employers. Here, the 31.4% overhead rate provided by the BLS, “Employer Costs for Employee Compensation – September 2020” (BLS News Release published December 17, 2020), is used.

Stakeholder Group	BLS labor category	Quota ³	Hour Burden	Median Hourly Rate (BLS Handbook)	Estimated Cost (Median Hourly Rate*.75)	Estimated Cost w/Fringe & Overhead (Median Hourly Rate *1.314)	Estimated Cost of Data Collection (Estimated Cost * Hour Burden)	Estimated Cost of Data Collection w/Fringe + Overhead (Estimated Cost w/Fringe & Overhead * Hour Burden)
UAS pilots / operators ⁴	Electro-mechanical technician	40	30	\$28.05	\$21.04	\$27.64	\$631.13	\$829.30

³ Quotas are calculated with a power of 0.8 and referring to Part B for more information.

⁴ Costs based on closest-substitute Electro-mechanical Technician in the Bureau of Labor Statistics Handbook. The same substitution is made in this table for UAS Pilots/Operators, UAS Cargo/Sensor Operators, and Other UAS Crew Job roles. See <https://www.bls.gov/ooh/architecture-and-engineering/electro-mechanical-technicians.htm> Note that this substitution is found in other literature as well, see https://study.com/articles/drone_pilot_jobs_salary.html

UAS instructors ⁵	Career and technical education teacher	40	30	\$27.94	\$20.96	\$27.53	\$628.65	\$826.05
UAS managers ⁶	Management	40	30	\$50.79	\$38.09	\$50.05	\$1,142.78	\$1,501.61
UAS cargo / sensor operators ⁷	Electro-mechanical technician	40	30	\$28.05	\$21.04	\$27.64	\$631.13	\$829.30
Other UAS crew job role ⁸	Electro-mechanical technician	10	7.5	\$28.05	\$21.04	\$27.64	\$157.78	\$207.32
UAS Engineers ⁹	Electrical and electronics engineers (found under similar careers for electro-mechanical technicians)	10	7.5	\$48.68	\$36.51	\$47.97	\$273.83	\$359.81
Total		180	135				\$3,465.28	\$4,553.38

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

180 participants * 147 questions per survey = 26460 total responses for this IC
 180 participants * 45 minutes¹⁰ per participant = 135 hours total IC time burden
 180 participants * \$50 payment per participant = \$9000 total IC cost burden (participant)

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 estimated cost (in dollars) to the government is about \$85,000. Research assistants and technicians from CN3S will assist in this project. The tasks they will perform with cost estimates are as follows:

⁵ Costs based on closest-substitute Career and Technical Education Teacher in the Bureau of Labor Statistics Handbook. See <https://www.bls.gov/ooh/education-training-and-library/career-and-technical-education-teachers.htm>

⁶ Based on median annual wage of \$105,660 for management occupations, May 2019, and an assumed 2080 hour national standard year for full time workers. See <https://www.bls.gov/ooh/management/home.htm>

⁷ Costs based on closest-substitute Electro-mechanical Technician in the Bureau of Labor Statistics Handbook. See footnote for UAS Pilot/Operators for more details.

⁸ Costs based on closest-substitute Electro-mechanical Technician in the Bureau of Labor Statistics Handbook. See footnote for UAS Pilot/Operators for more details.

⁹ Costs based on closest-substitute Electrical and Electronics Engineers in the Bureau of Labor Statistics Handbook. See <https://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronics-engineers.htm>

¹⁰ 45 minutes is equal to 0.75 hours. Thus, 180 participants * 0.75 hours = 135 hours total IC time burden.

Task Description	Estimated Cost
Survey Content Development	\$25,000
Create Distribution Lists and Manage Returns	\$20,000
Processing and Reporting	\$40,000
TOTAL	\$85,000

The mission of the Flight Deck Human Factors Research Division employees at CAMI is to support FAA research projects which originate from requests made by various offices within the agency. The proposed questionnaire is such a project. No new employees will be hired to conduct this project. PC & B expenses will be incurred for current employees whether or not this project is undertaken. Thus, it is not necessary to include the cost of FAA employee time.

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

This is a new collection effort.

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.

One purpose of this study is scientific inquiry. We will deliver summary data reports (i.e., item by item frequency distributions) using key variables of interest (e.g., job category and operation type). Analysis of the data will be accomplished using common descriptive and inferential parametric and nonparametric procedures. We will develop an overall data summary report that will be submitted to our research sponsors. We will also provide an overall data summary report that provides deidentified response data in aggregate for the FAA website.

Estimated Schedule

- Data collection
 - o Estimated to begin March-April 2021
 - o Estimated to conclude April-May 2021
- Data processing and reporting (publication)
 - o Estimated to begin April-May 2021 (as soon as participation quotas reached)
 - o Estimated to conclude June-July 2021

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.

Not applicable.

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

No exceptions.