



The Academy of Model Aeronautics (AMA), on behalf of our 180,000 members, respectfully submits the following comments in response to the Federal Aviation Administration’s Notice of Proposed Rulemaking (Docket FAA-2019-1100) regarding Remote Identification of Unmanned Aircraft Systems (Remote ID).

According to the NPRM, the FAA states that requiring Remote ID technologies would address safety, national security, and law enforcement concerns regarding further integration of these aircraft into the National Airspace System (NAS) of the United States. AMA members support the safe and secure operation of all UAS—commercial and recreational—in the NAS. For more than 80 years, AMA members have been safely operating in the NAS—a fact repeatedly and publicly acknowledged by the FAA. However, the proposed rules do not improve the safety or security of model aircraft activities, but rather only impose unnecessary and costly regulations to the one part of the UAS community with existing safety and security standards in place.

Overview

Although AMA supports the overall goal of the NPRM, the failure of the proposed rule to distinguish between different kinds of operators and different types of UAS aircraft will result in tens of thousands of model aircraft hobbyists losing access to the airspace and will impose significant compliance costs on remaining hobbyists. Fundamentally, the FAA has failed to show how the proposed rules imposed on model aircraft conducted within Visual Line of Sight (VLOS) of the operator, or co-located spotter, will improve the safety or security of the NAS.

The NPRM fails to make the distinction between the safety and security differences between VLOS operations and Beyond Visual Line of Sight (BVLOS) operations. Rather than create a set of rules that addresses the vastly different operational ability of recreational UAS, the proposed rule forces model aircraft that are designed and built to operate under VLOS to comply with rules structured for UAS designed and built to operate BVLOS. The FAA is correct in stating that UAS are going to evolve and become more complex to improve performance and capabilities, but model aircraft flying VLOS operations are fundamentally contingent on the skill of the operator providing continual input, not technology or automation.



For those hobbyists whose aircraft cannot meet the proposed rule's technology mandates, or simply cannot afford to comply, they will be regulated to a small number of fixed sites where non-Remote ID operations could occur. Although AMA has cataloged several thousand of our local clubs' fixed flying sites, not every hobbyist has convenient access to a fixed site. The proposed rule states explicitly that it expects the number of fixed sites to decrease over time, further limiting the modeling community's access to the airspace. The NPRM doesn't present any safety or security data to justify these significant limitations to the modeling community's access to the airspace.

The NPRM incorrectly assumes that all recreational UAS operations will eventually become capable of meeting the Standard Remote ID requirement at some point without providing any data to support that assertion. In fact, the NPRM's goal appears to be to drive the hobbyist community to advanced drone platforms or face being regulated to an ever-diminishing number of fixed sites at which to conduct VLOS operations. For more than 80 years, AMA members have been operating via VLOS and that is not going to change. It is a core element of the hobbyists' experience. AMA members only fly VLOS and the FAA failed to consider this crucial operational fact in this rulemaking.

The proposed rule is overly burdensome and costly for model aircraft hobbyists without providing the safety or security benefits that the FAA asserts. If enacted as proposed, the rule would preclude a child flying a model aircraft in his or her neighborhood park unless equipped with Remote ID technology and a paid connection to an approved network. The rule treats this child's afternoon in the park with a 400 gram model aircraft that her or she built from a kit as equivalent to the safety and security risk of a large commercial UAS flying BVLOS operations. The NPRM offers only generic discussions of risks associated with UAS and those comments only discuss BVLOS operations, often using only anecdotal evidence. The NPRM offers no analysis or data of the risk posed by model aircraft hobbyists or by VLOS operations.

The proposed rule grossly understates the costs of compliance and fails to show the benefits accrued in adoption of the rule. For those model aircraft hobbyists who cannot or do not want to operate at fixed sites, the monthly fees could be in the hundreds of dollars to connect to an UAS Service Supplier and cellular networks for multiple aircraft. The NPRM also fails to account for the costs associated with operating at a fixed location because most AMA sites have local club fees associated with using their facility. The reality is that the cost and requirements to fly a model aircraft will result in far fewer young people engaging in the hobby and ultimately in aviation. The NPRM also does not make clear what public safety or security benefit would be addressed by effectively prohibiting VLOS operations outside of fixed sites.

If enacted, these proposed rules would essentially eliminate a majority of the modeling community—a community that FAA has consistently cited as safe and responsible users of the airspace and one that serves as a pipeline for the next generation of aviation enthusiasts and professionals. This will negate the ability of community-based organizations (CBOs) to help the FAA educate the growing number of UAS operators.

Given that the safety and security of these vastly different types of operations need to be recognized in the final rule, AMA respectfully requests that the final rule exempt model aircraft VLOS operations from Remote ID requirements. If a blanket exemption is not provided, AMA believes that its members can address the safety and security concerns stated in the NPRM far more cost effective and under a far less onerous regulatory environment as outlined in the following.



Two Separate Categories: Advanced Drones and Traditional Model Aircraft

Operational reality dictates that less-advanced UAS that operate VLOS do not meet the same level of risk as far more-advanced UAS capable of BVLOS. For the purpose of this document, unmanned aircraft with advanced capabilities will be referred to as advanced drones, and unmanned aircraft designed to only be flown within visual line of sight of the operator will be considered traditional model aircraft.¹

This distinction between traditional model aircraft and advanced drones was provided to the FAA by the Remote Identification and Tracking Aviation Rulemaking Committee, specifically Work Group Two, tasked to set a threshold of compliance. Remote ID is an appropriate requirement for UAS that operate BVLOS. The final rule should accommodate the differences between these two UAS platforms recommended by the ARC.

UAS continue to become more technologically advanced, allowing a variety of operations unthinkable even a few years ago. As the NPRM notes, these advances will enable many important public interests and commercial operations in the future. AMA recognizes the many potential uses of advanced UAS and in no way do our members seek to hold back advances in UAS operations. However, model aircraft use the same basic radio technology that dates back decades to operate.

The NPRM's failure to distinguish the significant technological differences between traditional model aircraft and advanced UAS cannot be understated when assessing both the safety and risk of UAS operations. It is not only a question of misidentifying risk, but also of misapplying a remedy to that risk.

In manned aviation, different types of manned operations come with different risk and different safety and security protocols. AMA recognizes that the increased use of advanced UAS that can operate BVLOS pose new safety and security challenges and risks. Not to disregard the few incidents cited by the NPRM, but AMA would note that in each case, it is an advanced UAS creating the safety and security issue. AMA's safety protocols would not allow these types of operations. The NPRM fails to cite any existing safety or security issue with the operations of traditional model aircraft. In fact, many AMA clubs and

¹Traditional model aircraft require continuous input from the operator and are designed to only be flown within visual line of sight. Advanced drones, on the other hand have the:

1. Ability of the aircraft to navigate between more than one point without direct and active control of the pilot, and
2. Range from control station greater than 400 feet and real-time remotely viewable sensor (the ARC clarifies, this definition is not intending to encompass drone racing at very low altitudes on a closed course that may be authorized by operation, by location, or some other mechanism). This distinction between model aircraft and advanced drones was provided to the FAA by the Remote Identification and Tracking Aviation Rulemaking Committee, specifically Work Group Two, tasked to set a threshold of compliance. The FAA should accommodate the differences between these two UAS platforms in the final rule for Remote ID.



members have operated in controlled airspace for decades without incident. The NPRM fails to provide any data to justify significant mandates and restrictions placed on traditional model aircraft.

The security regulations and requirements are different for commercial aviation, general aviation, and all cargo operations. In commercial aviation, passengers are assessed at different risk levels. AMA believes risk assessment should reflect the technological differences between types of unmanned aircraft. The NPRM seeks only to address risk with a technological solution rather than with an emphasis on the risk the operator poses—contrary to how manned aviation is treated. The operator of a model aircraft is easily identified given the technological limitations of the model he or she is operating. VLOS operations are inherently less risky because the operator of the UAS is operating in sight of his or her model aircraft.

National security and the safety of our airspace is of the utmost importance. AMA believes that the FAA, Department of Defense, Department of Homeland Security, and other relevant agencies need to properly evaluate true risk between various unmanned aircraft platforms. AMA supports regulatory requirements for technologically advanced UAS that will operate BVLOS, and we agree that Remote Identification is an appropriate requirement for these UAS.

Failure to Provide Risk Assessment Should Preclude New Mandates

In the NPRM, the FAA fails to provide any evidence or data that indicates traditional model aircraft present a safety or security risk to the NAS. Given the fact that traditional model aircraft have been safely operating in the NAS for more than 100 years, with the last 84 under the guidance of AMA, this activity is already fully integrated. In order to impose new regulations and mandates on users of the airspace, it is incumbent on the government to justify them. AMA believes that this NPRM provides no data to justify the mandates the proposed rule on Remote ID would impose on the traditional model aircraft community.

While safety and security agencies requested the capability to identify the users of advanced drones where the operator is not easily identified, AMA is unaware of any requests from law enforcement to track users of traditional model aircraft. In fact, the traditional model aircraft community is often viewed as a resource for law enforcement and security agencies, being the first line of defense against those with ill intent.

The lack of a clear risk assessment has resulted in the proposed rule being overly burdensome on traditional model aviation. If traditional model aircraft operators were a risk, AMA is unaware of any government agency making that assertion or having data to justify it. AMA is unaware of any FAA or other governmental agency having conducted a risk assessment for recreational UAS in general or traditional model aviation specifically. The NPRM cites a few discrete instances of drones causing disruption to the NAS here or abroad, otherwise, all of the data in the NPRM is speculative or anecdotal. However, the benefits cited by the NPRM rely on preventing the costs of these potential events.



The NPRM references the FAA’s sightings reports and the need to "...distinguish compliant UAS users from those potentially posing a safety or security risk." This phrase is used repeatedly throughout the NPRM on Remote ID. The NPRM contains a discussion about the need for Remote ID to enable counter UAS actions, but the references are to individual incidents of individuals arrested for using advanced drones.

Given the significant costs of Remote ID compliance to the modeling community, the FAA should have conducted a more thorough risk and cost-benefit analysis before imposing a technological mandate on traditional model aircraft. The risk factor of an advanced drone flying BVLOS is vastly different from a traditional model aircraft flying VLOS and the proposed rule makes no distinction between the two. The costs imposed on traditional model aircraft to comply with Remote ID are significant compared with advanced drones with software that can be updated remotely. The traditional modeler is still going to fly VLOS even with a Remote ID-equipped model, and there is no additional security benefit to law enforcement.

In the cost-benefit section (see Table 6 below), the FAA also mentions the rationale for the "Safety and Security" benefits:

Table 6: Summary of Benefits of Proposed Rule

Safety and Security	<ul style="list-style-type: none"> • Provides situational awareness of UAS flying in the airspace of the United States to other aircraft in the vicinity of those operations and airport operators. • Provides information to distinguish compliant UAS users from those potentially posing a safety or security risk. • Enables the FAA, national security agencies, and law enforcement entities to obtain situational awareness of UAS in the airspace of the United States in near real-time. • Provides additional registration and notification requirements for identifying aircraft and promoting accountability and the safe and efficient use of the airspace of the United States.
Enables Expanded Operations and UAS Integration	<ul style="list-style-type: none"> • Assists in the implementation of operations of small UAS over people and at night. A final rule for operation of small UAS over people and at night is contingent upon a final action for UAS with remote identification being effective.¹³⁷

¹³⁷ "Because these operations have a potential impact on public safety and national security, the FAA does not intend to promulgate a final rule to allow these operations until a regulation finalizes the requirements regarding

AMA will again point out that a user of traditional model aircraft is going to be identifiable to any law enforcement or security personnel. A traditional model aircraft is limited in range. An operator engaging



in unauthorized use of a traditional model aircraft would be easily identified—the goal of the Remote ID mandate.

The NPRM fails to justify the need for Remote ID on all UAS platforms, regardless of capability with hard data. AMA believes that if such data exists, it will help justify why the NPRM runs counter to the Remote Identification and Tracking Aviation Rulemaking Committee, specifically Work Group Two’s recommendation of UAS platform distinction.

Exemption of Traditional Model Aircraft

There is a lack of data associated with the safety and security risk of traditional model aircraft. The aforementioned statement does not prove that the UAS industry has ignored this segment, only that data collection is challenging with so few incidents throughout history. Although safety and security agencies have requested the capability to identify the users of advanced drones, law enforcement has had little issue with users of traditional model aircraft. In fact, the traditional model aircraft community is often viewed as a resource for security agencies, being the first line of defense against those with ill intent.

In addition to a lack of associated risk data, this proposed rule exceeds requirements for some manned aircraft. If this proposed rule were to be implemented as outlined in the NPRM, UAS users would be tasked with meeting more requirements than some general aviation aircraft, experimental aircraft and ultralights. Although we understand it is within the FAA authority to regulate UAS to a higher standard than general aviation aircraft, experimental aircraft and ultralights, security risks associated with UAS should not rise to the same level (payload, speed, distance capabilities, etc.).

AMA recently participated in a Safety Risk Mitigation Panel where AJT was the proponent for operations over 400 feet in uncontrolled and controlled airspace (B, C, D class, and the surface area of E class). During this course of this panel, FAA Air Traffic Operations, Flight Standards, and those within the UAS Integration office repeatedly said that a distinction between traditional model aircraft and advanced drones would make integration much simpler. It was repeated throughout this panel that the traditional model aircraft community does not pose the same risk that advanced drones pose. As the FAA moves forward on this proposed rule, AMA would urge the review of these meetings where multiple internal and external stakeholders expressed this view.

AMA requests that traditional model aircraft be exempt from any and all requirements outlined in Part 89, because of the limited capability of traditional model aircraft, the fact law enforcement has been focused on identifying users of advanced drones, and the fact the FAA recognizes that traditional model aircraft pose much less risk to safety and security. If the final rule does not include an exemption for traditional model aircraft, the following modifications to the NPRM better align the costs and benefits of the rule to users of traditional model aircraft.

FAA-Recognized Identification Areas (FRIA)

The UAS community is happy to see that the proposed rule outlines a path to exempt specific geographic locations from the requirements outlined in the Standard and Limited Remote ID classifications; however,



more flexibility needs to be granted by the FAA to CBOs regarding this process, and the 12-month limitation for exemption needs to be removed. In fact, the rule is expressly designed to phase out these identification areas over time, rather than treat them as a viable long-term option for complying with Remote ID and promoting model aircraft safety. Fixed flying site locations are a solution to many “perceived” UAS-related issues, yet the FAA continues to look at fixed flying site locations as a problem and burden for the agency. Many in the traditional model aviation community will not be able to comply with Standard or Limited Remote ID because of the equipment and other cost requirements, and therefore operating at identification areas will be their only method of Remote ID compliance.

If the FAA does not make identification areas a long-term compliance option, it will greatly reduce the size of the safe model aviation hobby that has, for decades, safely shared the airspace with manned aircraft. There is no safety or security justification explained anywhere in the NPRM for eliminating the FRIA means of compliance with the regulation. The elimination of the fixed flying site exemption appears to be the direct result of the FAA’s lack of resources. We urge the FAA to accommodate and exempt UAS operators at fixed flying site locations and allow fixed site requests and location updates in perpetuity of the rule.

Proposed Solution:

The FAA should amend the proposed rule as follows:

- Accept applications from CBOs to establish FAA-recognized identification areas on an ongoing basis and eliminate the 12-month restriction on new applications.
- Accept applications to renew or relocate FAA-recognized identification areas at any time, regardless of how much time has passed since expiration.
- Extend the renewal time period FAA-recognized identification areas would be in effect to 10 years, limiting the renewal burden on the FAA and hobbyists.

Individual UAS Registration

The Remote ID mandate states that it is to help identify the operator of a UAS. AMA has stated why this is not necessary for people operating VLOS. Any law enforcement officer is going to be able to quickly identify the operator of a traditional model aircraft. This is especially true when the operations are at fixed flying sites.

The NPRM proposed to shift UAS registration to the UAS rather than the user. This proposal would only burden the model aviation community as a whole and provide no operational benefit to the government. The cost for individual UAS registration has been significantly underestimated. If the proposal to register UAS individually goes into effect as it is written, AMA’s 180,000 members would be forced to register roughly 1.62 million aircraft at a cost of \$8.1 million, assuming the \$5 per aircraft registration fee does not increase over time. This is a substantial investment of time and resources for the model aviation community. Furthermore, individual registration is not necessary for UAS operating at FAA-recognized identification areas because these aircraft are always flown within VLOS. This makes it simple for law enforcement to identify the pilot as he or she will be the one at the controls at the FRIA.



The current registration process would meet the FAA's stated needs if aircraft are allowed to be operated without broadcast Remote ID at FRIAs. The identification of the operator would be obvious to any law enforcement officer present at the flying site. The registration number would be required to be affixed only while the aircraft is in flight to preserve the historical accuracy of model aircraft for display purposes.

Proposed Solution:

- Remove the requirement to register individual UAS if the operator is flying recreationally and meeting the statutory requirements of PL 115-254 Section 349.
- Allow the registration number to be temporarily affixed while flying to allow the historic accuracy of the model to be maintained for display purposes.
- Update the economic analysis to incorporate the updated cost numbers to match the AMA data. These costs should be included in the cost-benefit calculations in the final rule.

Internet Connectivity

This proposed rule requires UAS to transmit information via an internet connection for Limited Remote ID, and requests internet connectivity for Standard Remote ID compliance. The majority of the traditional model aviation community has been flying safely for decades in rural areas where there is little or no cellular connectivity. Model aircraft are typically not flown close to residential areas per AMA's safety programming to operate away from people and property. In fact, new requirements and limitations in controlled airspace are pushing our community into these rural areas, in an effort to reduce the "perceived" threat to manned aircraft in more congested areas.² Placing the higher burden of Standard Remote ID in a less populated area does not align with the associated risk. Although the NPRM provides an option to comply with Remote ID by flying at FRIA, Limited Remote ID-compliant model aircraft would not be allowed to operate if the FRIA was outside of cellular coverage and no alternative connection to the internet is available.

A better option, in addition to the FRIA solutions noted above, would be a software-based network solution. The network of UAS Service Suppliers can support Remote ID for non-equipped hobbyists. Although a VLOS UAS operator would be required to have access to the Internet, it would only be when he or she declares the flight. At no time should the UAS or control station need to be connected to the internet. This would allow the UAS operator to declare his or her flight in advance and from a location where internet connection is present. This option would give the FAA and law enforcement the location, identification, and contact information of the UAS operator.

²The term "perceived" is used because the FAA has not substantiated many safety-related issues between traditional model aircraft and manned aircraft. While legislation has changed to mandate the FAA to implement new requirements in the name of safety, the actual safety aspect of our hobby has not changed, especially at fixed sites. Given that the proposed rule is expressly designed to eliminate FRIA areas over time, remote area, limited ID model aircraft flying would become impossible if the NPRM is implemented as written.



Lastly, the proposed remote ID rule does not take into account indoor flying. Many traditional hobbyists and FPV drone racers utilize indoor structures for their recreational operations. Aircraft hangers, empty warehouses, and other large buildings are often the site for recreational UAS activity shielded from network and satellite connectivity. Creating aircraft standards that would limit or restrict operations in environments outside the regulatory authority of the FAA could pose legal challenges for the agency.

Proposed Solution:

- Replace the current Limited Remote ID category with a software-based solution (app or web based). This would remove a majority of manufacturers' standards, leaving standards for only those aircraft designed to be flown beyond visual line of sight. These advanced aircraft could be placed into the Standard Remote ID requirement and transmit a signal for beyond-line-of-sight operations.
- Allow operators to use a software-based solution to mark the location of the operation and the times flying will take place (app or web based) that could be scheduled prior to traveling to the flying location.
- Amend manufacturer/UAS remote ID standards to account for the use of indoor facilities.

Amateur-Built Aircraft

The proposed rule includes an exclusion for compliance with the design and production requirements of Remote ID for "amateur-built" aircraft; however, the definition of what constitutes an amateur-built UAS is inadequate and needs to be clarified. The definition should include situations where aircraft parts are purchased and assembled by an individual. Does the FAA have data that verifies that a greater safety risk is associated with aircraft with less than 50% construction and fabrication from the builder? If not, the rule should not arbitrarily create mandates with any research, data, or justification. The rule should eliminate, or greatly reduce, the "51%" self-manufactured components rule that is applied to full-scale aircraft.

The requirement for amateur-built aircraft to display a serial number is also unnecessary, especially given the fact that many of these aircraft will only operate at FRIA, or encompass drone racing at very low altitudes, and all within visual line of sight of the operator or spotter collocated with the operator. In addition, permanently displayed serial numbers would destroy the historical accuracy of model aircraft that are detailed scale replicas of full-scale manned aircraft.

Lastly, the FAA requests comments about whether persons should be allowed to produce kits for sale that contain 100 percent of the parts and the instructions for assembly necessary to build a fully functioning UAS without remote identification capability. Once assembled, such UAS without remote identification would be required to either have the unmanned aircraft weigh less than 0.55 pounds or operate only within an FAA-recognized identification area. AMA feels strongly that persons should indeed be allowed to produce kits that contain 100 percent of parts and the instructions for assembly necessary to build a fully function UAS without remote Identification capability. Many of these kits would only be flown at FRIA locations and always within VLOS. For those outside of a FRIA, the use of a



software-based remote ID solution (App or web-based) and possible aftermarket solutions could identify the location of the operator.

Proposed Solution:

- Revise the definition of amateur-built aircraft so that it includes situations where aircraft parts are purchased and assembled, as well as aircraft that are entirely built by hand.
- Remove the requirement for an external serial number for amateur-built UAS because the registration number should be enough to tie the aircraft to the operator.
- Allow UAS kits containing 100% of parts and instructions to be produced and sold without remote identification capability.

Implementation Timeline

The NPRM outlines an implementation period of 36 months after the effective date of this rule. Once the 36-month period passes, all UAS operations without remote identification capabilities and outside of a FRIA would be prohibited. AMA feels that the 36-month timeframe is far too aggressive. To put this timeline into perspective, the FAA granted general aviators a total of 10 years to implement automated dependent surveillance-broadcast (ADS-B) systems into their aircraft.

While AMA appreciates the urgency shared by the FAA and security agencies, we feel that a 36-month implementation period is unrealistic and compliance from the industry will suffer.

Proposed Solution:

- Revise the implementation period to a realistic timeline.
- Allow for a 10-year implementation period, similar to the time allowance given to general aviation for ADS-B systems.
- Consider incentives to encourage compliance and offset the burdens placed on manufacturers, operators, and CBOs.

Economic Analysis

Events and Competitions

The proposed rule does not provide an option for Remote ID compliance at established UAS events and competitions, which might not be at a FRIA. Similar to an air show, these events take place in defined locations for a short period of time and often support local charities. The location of these events should be treated like temporary FAA-recognized identification areas, especially because many of the aircraft involved in these shows will not meet the Standard or Limited Remote ID requirements.



Hundreds, if not thousands, of events take place in this type of scenario every year. The NPRM fails to address this issue in its costs and benefits section. For example, if AMA were not able to hold events at its headquarters in Muncie, Indiana, the resulting economic loss to the community would be \$9 million a year. Again, the NPRM fails to consider the unique role traditional model aircraft play in the aviation system. The NPRM fails to address the economic harm that would result in failing to provide a safe harbor for our traditional model aircraft events and competitions.

Proposed Solution:

- Establish a simple and affordable process to request and receive temporary approval on FAA-recognized identification areas for the purpose of a UAS event or competition. AMA is happy to provide this service for our members and to the FAA to ensure data is standardized and meets the goals of the agency.
- One possible means of compliance would be to allow multiple operations to be declared using a software-based solution to mark the location of the operators and event.

Incorrect Assumptions About the Cost of Compliance

The FAA's cost estimates appear to assume that aircraft will become obsolete after three years and will be replaced with Remote ID-compliant aircraft. This assumption is incorrect for traditional model aircraft. Traditional model aircraft remain in operational condition for many decades. As written, the rule would require these aircraft to be retrofitted with Standard or Limited Remote ID-compliant parts after the FRIA sites are eliminated. Additionally, there would be a cost for registering each UAS and a cost for subscribing to the UAS Service Suppliers. The proposed rule footnotes that the FAA's assessment of aircraft ownership does not align with AMA's estimates, and states that the FAA is to contact AMA regarding this issue. AMA's data states that the average AMA member owns nine aircraft. The FAA should use our data when evaluating the costs of potential mandates.

Proposed Solution:

- Update the economic analysis to incorporate the updated cost numbers to match the AMA data. These costs should be included in the cost-benefit calculations in the final rule.
- Update the FAA totals to show an average of nine UAS per AMA member (roughly 1.62 million UAS in the AMA community).

FAA Failed to Include the Economic Impact of Model Aircraft Events on Local Communities, Charities, and Other Affected Entities

With an average number of 2,500 annual AMA national sanctioned events, an average of \$2,500 in direct event spending, and an average of 100 attendees, the economic impact to local communities in terms of food, fuel, lodging, services, taxes, wages, and other attendee- and event-related purchases well surpasses \$10,000 per event. This translates nationally to \$25 million in economic impacts just for



AMA events. This does not include the approximate 9,000 secondary market of model aircraft swap meets, fun flies, and local competitions managed by local clubs and members that also generate millions of dollars in economic impact to local communities. With the eventual closure of model flying fields (FRIAs) these nonflying events will become extinct as will local, community-based flying clubs.

Numerous national and local charities supported by model flying events will be adversely affected economically as well by the rule -to the tune of millions of dollars.

Proposed Solution:

- Provisions need to be added to the rule to continue to recognize the FRIA locations indefinitely and to easily authorize temporary FRIA locations for special events. If the current version of the regulation is implemented, the adverse cost of eliminating or restricting the events should be included in the cost-benefit calculations in the final rule.
- The FAA should survey UAS event managers and contest directors to determine the financial impact that UAS events have on charitable organizations. This study should be added to the “economic impact to small entities” portion of the rule.

The FAA Underestimated the Cost for Registration

The cost for the model aviation community has been significantly underestimated. On average, AMA members each own nine aircraft, and many members own totals reaching into the hundreds. AMA’s 180,000 members would be forced to register roughly 1.62 million aircraft at a cost of \$8.1 million, assuming the \$5 per aircraft registration fee does not increase over time. In addition to cost, the FAA needs to consider the time required to register dozens or even hundreds of aircraft. If FAA registration takes an average of 5 minutes, the time commitment for individual is unreasonably burdensome.

Proposed Solution:

- Update the economic analysis to incorporate the updated cost numbers to match the AMA data. These costs should be included in the cost-benefit calculations in the final rule.
- Recreational UAS registration should remain the status quo. If the true purpose of the registration is to identify the owner of the UAS, the current registration process and requirements meet that objective. In fact, restructuring the registration process would call into question the legitimacy and effectiveness of the current registration process.

The FAA Assessment of the Economic Impact to Small Entities Is Incomplete

The proposed rule fails to evaluate the impact that Remote ID implementation would have on the thousands of hobby stores around the country selling UAS. To properly assess the impact on small entities, the FAA needs to survey this link in the distribution chain.



Proposed Solution:

- Conduct a survey of hobby stores in the United States that sell UAS to determine the cost impact of reduced sales because of the increased cost and complexity of compliance with this proposed rule.
- The impact should be revised to account for the cost to include hobby shops that are small entities. These costs should be included in the cost-benefit calculations in the final rule.

Cost of Implementation by Law Enforcement

Another thing that is not addressed in the proposed rule is the cost of equipping 18,000 police departments with the technology required to access the Remote ID data and the required training of 750,000 sworn officers to use the new technology.

Because there is no demonstrated threat, it is entirely reasonable to expect that budget-challenged departments will not be able to access the Remote ID data or at best designate one or two officers to deal with drone identification.

Proposed Solution:

- The FAA should conduct a survey of law enforcement departments to determine if they are equipped with technology (e.g. smartphones or mobile computers) to allow for the implementation of the NPRM. If not, what would be the cost to equip them? The survey should also include the cost to train the officer workforce in the use of the new technology and the appropriate actions required upon use of the technology. These costs should be included in the cost-benefit calculations in the final rule.

Cost of Creating the Remote ID Applications and Database for Personally Identifiable Information

Currently personally identifiable information is obtained by a law enforcement officer through a two-stage electronic interaction. The first interaction is conducted via the National Law Enforcement Telecommunications System by the officer or his or her dispatcher. When a request is entered into the National Law Enforcement Telecommunications System, it is routed across state systems, for example, an out-of-state registration check, driver's information, or criminal history. At the same time, the officer/dispatcher can make a national request for active wants, warrants, sex-offender registry, or protective orders. These checks are routed via the National Law Enforcement Telecommunications System to the National Crime Information Center via the Criminal Justice Information Services Division of the FBI.

Remote ID will be an entirely new database that will have to be built, managed, maintained, updated, supported, routinely audited, and paid for. The NPRM is silent on who will pay for the creation of the Remote ID database. This database will also have to be integrated with the registration database to



achieve a useful method for the law enforcement officers to identify the individual pilot/owner of the UAS. If the cost of the NCIC is used to inform the cost estimate for this aspect of the regulation, it could be billions of dollars of federal funds.

The NPRM provides no information on how the “secure” tracking application will be built and distributed. How will the chain of custody rules for evidence be met by a third-party application? The footnote (p. 117) that states: *“The FAA anticipates that in the future, third parties may develop mobile phone applications for law enforcement use.”* This appears to be the only mention of the requirement for the development of the application. It appears that at least three apps are going to have to be built, plus, a web portal that integrates all the Remote ID and LAANC UAS Service Suppliers data into a real-time searchable and relatable database. The applications, as well as state and local guidelines for the use of the app will have to be marketed, rolled out, and trained.

Proposed Solution:

- Delay implementation of the regulation until funding and implementation plans are available to align the Remote ID implementation timeline with the availability of the applications and database(s) required to allow law enforcement officers access to the personally identifiable information associated with Remote ID.
- Include the costs of the Remote ID database and application development in the final rule’s cost-benefit analysis.

Viability of the NPRM for Law Enforcement

There is nothing in the NPRM about how Remote ID data will be integrated with the rest of the data that law enforcement routinely uses. This is a critical point because law enforcement officers are trained to use personal identifying information about the person they have in front of them. And because things happen fast, their safety depends on having it available in real-time.

Many local law enforcement agencies do not have the resources to outfit their officers with phones—investigators yes, patrolmen often no (see earlier comment on the cost of equipping law enforcement officers). Given the lack of official mobile phones in many departments, implementation of the NPRM is dependent on officers downloading a “secure” tracking application onto their personal phones that is to be utilized for “official business.” This has the impact of mixing private property for public use, which means it can be taken into evidence.

Without a sustained effort to engage law enforcement, the Remote ID program will not be adopted by the very customers for the information that drove the creation of the rule. If the rule is allowed to become final without these critical questions being answered, the FAA will have “done its job” filling the sky with compliant aircraft, but the people on the ground still won’t be able to identify them or, more importantly, the pilot.

The NPRM states: The owners of small unmanned aircraft registered after the effective date of the final rule would have to comply with the new registration requirements prior to the operation of the



unmanned aircraft. This is a clear regulatory statement but unless verification is built into the UAS Remote ID software, there is no mechanism to enforce the new requirement. How will the FAA measure compliance after the effective date of the regulation?

Proposed Solution:

- Include the plans for rollout to law enforcement departments and agencies in the final rule preamble.
- Include the cost of the rollout activity in the cost-benefit section of the preamble to the final rule.

Compliance and Enforcement Issues

The NPRM states: No UAS could be produced for operation in the United States after two years and no UAS could be operated after three years except in accordance with the requirements of this proposal.

Under what authority will the FAA enforce this? It has nothing to do with civil aviation safety and there is no expansion of the FAA's authority in the FAA reauthorization of 2018. FAA does not have the staff to send agents to monitor every point of sale in the country, both brick-and-mortar shops and online. Are other agencies of the Federal Executive Branch available to enforce these provisions? How can they without federal law on the books that gives them the authority? According to the NPRM, 83% of all drones are imported (Draft p195). That makes this a complex port-of-entry issue, involving some combination of the Department of Commerce and U.S. Customs. If this provision is struck down in the courts, would the rule ever be able to go into effect?

Proposed Solution:

- Publish companion regulations under the Department of Commerce's authority to restrict the import of UAS that are found to be compliant with the Remote ID standard that can be referenced in the FAA final rule.
- Include a legal opinion in the preamble of the FAA final rule from the Department of Justice that spells out the Federal Statutes that provide the authority of the Department of Commerce to enforce the Remote ID import restrictions. These legal opinions should also explain the impact on trade treaties that are currently in place and if these treaties allow for restrictions on imports of noncompliant UAS.

Privacy Issues

The current draft ASTM standard leaves it entirely up to the FAA to decide which message elements (data fields) will be available to each class of user. Providing the public with the location of the operator does not solve any security problems—and quite possibly creates new ones. The license plate analogy for Remote ID of UAS should be carried to the same protection for privacy that is afforded to drivers.



Personally identifiable information for an automobile license is not available to the general public and should not be available for Remote ID either.

The NPRM requires each UAS Service Suppliers to maintain the operational data for a period of time, currently contemplated as six months. Each UAS Service Supplier will secure and safeguard the data, while making it available to the FAA and authorized law enforcement agencies—all while developing and pursuing their own business model. Will the UAS Service Suppliers be able to sell this data? This could possibly reduce the cost of providing the UAS Service Suppliers Remote ID service, but what would be the cost to the individuals to have their information sold?

Proposed Solution:

- Explicitly state that UAS Service Suppliers will not be allowed to sell or barter the personally identifiable information of any participant in the Remote ID system.
- Explicitly state that the personally identifiable information for pilots of UAS will not be made available to the general public and will be protected to the same extent that automobile license plate information is currently protected from unauthorized release.

Respectfully,

A handwritten signature in black ink that reads "Richard D. Hanson". The signature is fluid and cursive, with the first and last names being the most prominent.

Rich Hanson
President, Academy of Model
Aeronautics (AMA)