Federal Aviation Administration

Memorandum

Date: January 23, 2020

To: Docket No. FAA-2019-1100

Subject: Overview of Remote Identification of Unmanned Aircraft Systems notice of proposed rulemaking for the Unmanned Aircraft Systems Integration Pilot Program

On January 23, 2020, the Federal Aviation Administration (FAA) provided a briefing to the Unmanned Aircraft Systems (UAS) Integration Pilot Program (IPP) regarding the Remote Identification of Unmanned Aircraft Systems notice of proposed rulemaking (84 FR 72438). The presentation provided to the UAS IPP is attached.

UAS INTEGRATION PILOT PROGRAM

U.S. Department of Transportation
Federal Aviation Administration

FAA Remote ID NPRM Overview

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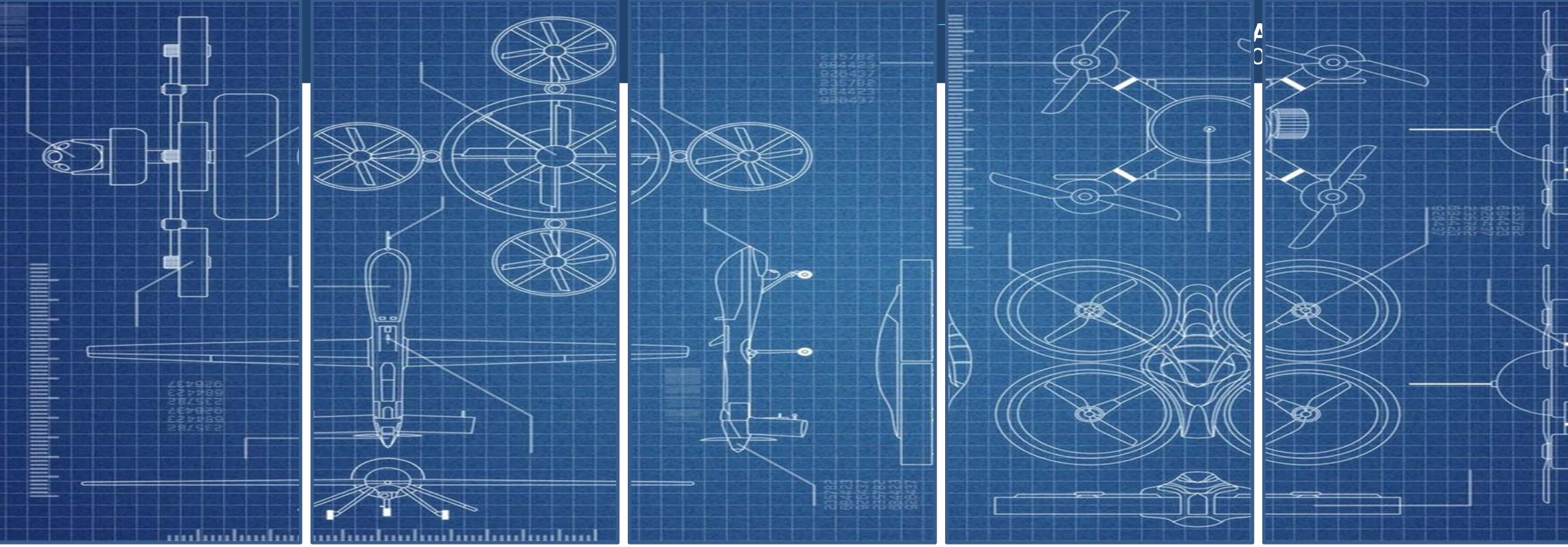


UAS REMOTE IDENTIFICATION

Overview of the proposed rule

What is UAS Remote ID & why is it necessary?

- Remote ID is the ability of a UAS in flight to provide identification and location information that other parties can receive.
- Supports finalization of future UAS rules (Operations Over People) which would allow sUAS to operate in close proximity to people on the ground.
- Establishes the information-sharing foundation for future UAS operational concepts such as BVLOS and UTM.
- Addresses safety & security concerns associated with expanded UAS operations.

Who Must Follow the Remote ID Rule?

- **UAS Operators**
  - Persons operating unmanned aircraft registered or required to be registered
    - Applies to almost all UAS, both recreational and commercial
    - UA under 0.55 pounds excluded, unless operated under Part 107
  - Persons operating foreign civil UAS in the United States
  - Operational requirements take effect 3 years from rule effective date
- **UAS Manufacturers/Producers**
  - New Remote ID design & production requirements would apply to most UAS manufacturers
  - Exceptions: Amateur-built UAS, U.S. government UAS, UA under 0.55 lbs.
  - Manufacturing requirements take effect 2 years from the rule effective date

Operating Rules: Types of Remote ID UAS

Standard Remote Identification UAS

- UAS transmits remote ID messages over the internet to a Remote ID USS, and
- Broadcasts remote ID messages from the UA via RF
- If no internet is available, then may broadcast only
- No operating restrictions

Remote ID message elements:
- UAS ID (S/N or session ID)
- Lat/long and altitude for **Control Station and UA**
- Time mark; Emergency status

Limited Remote Identification UAS

- Cannot broadcast
- UA cannot operate more than 400' from the control station
- Must operate within visual line of sight.
- UAS transmits remote ID messages over the internet to a Remote ID USS

Remote ID message elements:
- UAS ID (S/N or session ID)
- Lat/long and altitude for **Control Station ONLY**
- Time mark; Emergency status

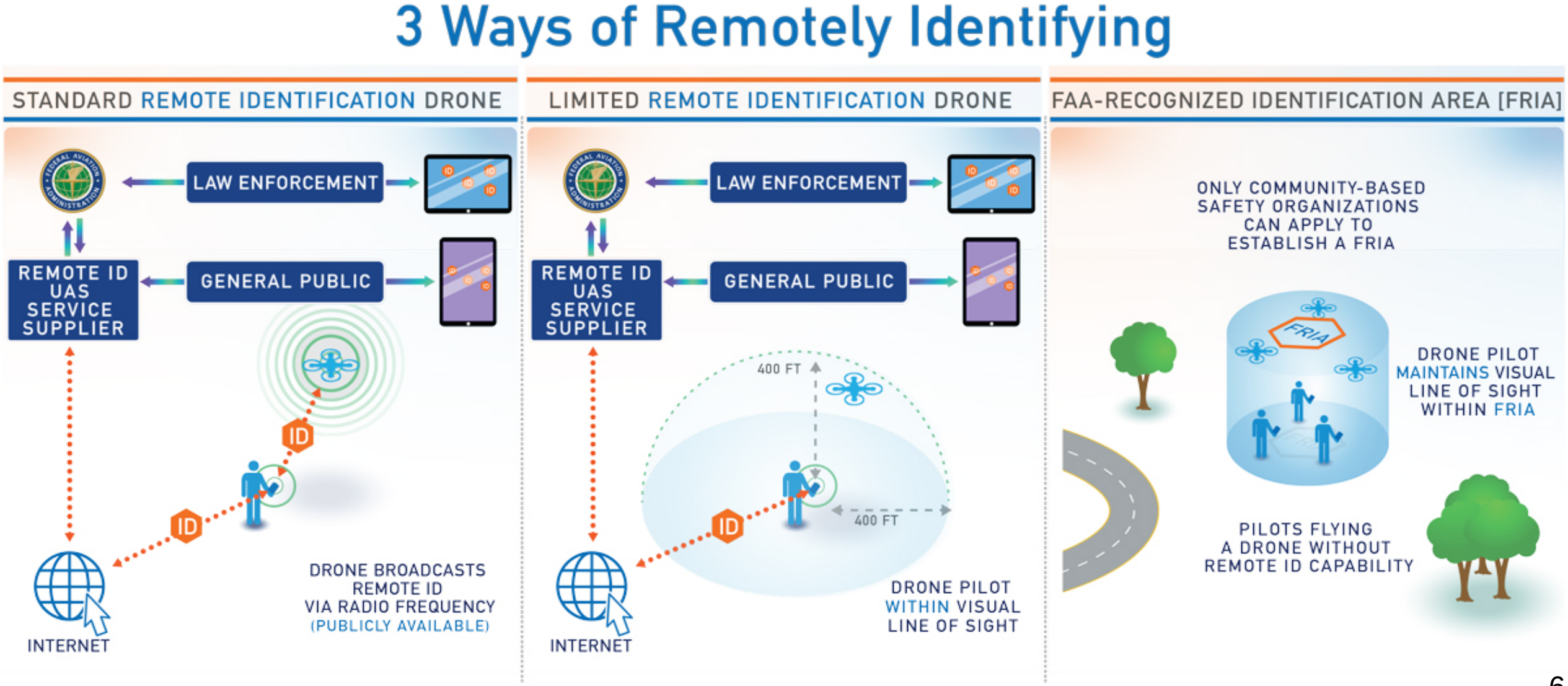
UAS Without Remote Identification

- Applies to UAS manufactured before the production compliance date of the rule,

OR

New amateur-built UAS
- Must operate only within the boundaries of an FAA-recognized Identification Area (FRIA)
- Must operate within visual line of sight
- Exception for UAS operated for aeronautical research or showing compliance w/ rules

3 methods of UAS Remote Identification



Performance Requirements for Remote ID UAS

- **Rule specifies Remote ID message elements and sets minimum requirements for message transmission, accuracy, and remote ID functionality**
- **Highlights**:
  - Self-test so UA can't takeoff if Remote ID is not functioning or transmitting/broadcasting
  - Remote ID can't be turned off; tamper resistant
  - UAS must automatically connect to internet and transmit to Remote ID USS
  - Broadcast must be sent over unlicensed RF spectrum (receivable by personal wireless devices, ex: Wi-Fi or Bluetooth)
  - 400-ft range limitation for limited Remote ID UAS must be built-in

Remote ID UAS Service Suppliers (USS)

- **Provided by third party service suppliers known as Remote ID USS** (similar to LAANC)
- **Requirements and oversight by contract and are NOT in the proposed rule**.
  - Contractually agreed-to terms, conditions, and technical requirements under FAA's contracting authority.
  - RFI issued in December 2018 to establish an industry cohort to explore Remote ID USS technology requirements. Selections have not been made yet – intend to align start of cohort with NPRM
  - Keeping USS requirements outside of rulemaking allows the FAA the flexibility to update based on technology and needs.
- **Remote ID USS and FAA cooperative data exchange –**
  - USS would collect and store remote ID message data, and provide remote ID message data to the FAA and other authorized entities, as required.

FAA-Recognized Identification Areas (FRIA)

- **If you are not flying a Standard or Limited Remote Identification UAS after operational compliance date (3 years), you can only operate in a FRIA**
- **Only UAS flying sites established within the programming of a community based organization (CBO) recognized by the FAA would be eligible**
  - CBOs must apply within one year of the effective date of the final rule
  - FRIAs would be electronically charted and openly viewable by the public with POC info. Duration of approval is 4 years and is renewable
  - Can be rescinded

Means of Compliance & Declaration of Compliance

- **Means of Compliance = requirements for how to design and produce a UAS to meet the performance requirements**
  - Means of Compliance are anticipated to be industry consensus standards, but may be submitted by anyone
  - Submitters must show how the Means of Compliance meets the requirements of the rule
- **Declaration of Compliance = form for UAS manufacturers to affirm that the UAS meets an FAA-accepted Means of Compliance**
  - Manufacturers must label UAS as Standard or Limited Remote Identification
  - Comply with audit, FAA inspection, and customer notification requirements
  - FAA will maintain a list of compliant UAS models on the FAA website

Other Changes (Registration & ADS-B out)

- **Change to part 48 to have single set of registration requirements for all small UAS (recreational and non-recreational)**
  - No longer allowed to register as an individual for recreational operators
  - One registration number to one UA
- **Changes to Parts 47 and 48 to require a serial number for each UA at registration**
  - Serial number used in remote ID message and to associate a UA with the registered owner
  - Serial number format must meet ANSI/CTA-2063-A standard
- **NPRM amends part 91 and 107 to prohibit use of ADS-B Out or ATC Transponders on UAS unless otherwise authorized by the Administrator.**
  - ADS-B Out & ATC transponder use by UAS operating IFR (flight plan and 2-way ATC communication) not prohibited.

Summary of Benefits

Safety and Security

- 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

- 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.
- Provides UAS-specific data to facilitate future, more advanced operational capabilities, such as detect-and-avoid and aircraft-to-aircraft communications that support beyond visual line of sight (BVLOS) operations.
- Provides UAS-specific data contributing to a comprehensive UAS traffic management (UTM) that would facilitate the safe expansion of operations.

Summary of Costs

- For the primary estimate, over a 10-year period of analysis the proposed rule would result in net present value costs of about $581.5 million at a three percent discount rate with annualized net costs of about $68.2 million. At a seven percent discount rate, the net present value costs for the primary estimate are about $473.5 million with annualized net costs of about $67.4 million.

Preliminary Estimates of Net Costs of Proposed Rule ($Millions)
Base Scenario—Primary Estimate

Affected Entity/Category	10-Year Present Value (at 3%)	Annualized (at 3%)	10-Year Present Value (at 7%)	Annualized (at 7%)
UAS Owners/Operators	$145.87	$17.10	$117.48	$16.73
Remote ID USS Subscription	$241.72	$28.34	$191.74	$27.30
UAS Producers (US and Foreign)	$134.58	$15.78	$111.58	$15.89
Developers of Remote ID Means of Compliance	$2.85	$0.33	$2.36	$0.34
Remote ID USS Memoranda of Agreement	$1.60	$0.19	$1.43	$0.20
Community Based Organizations	$0.39	$0.05	$0.35	$0.05
FAA Costs	$56.96	$6.68	$50.33	$7.17
Total Costs	$583.98	$68.46	$475.27	$67.67
Cost Savings	($2.45)	($0.29)	($1.82)	($0.26)
Net Costs	$581.52	$68.17	$473.46	$67.41

Key Elements of Analysis: Retrofits and Savings

➢ Retrofits

- An important assumption used in this analysis involves the availability of retrofits.
  - ❖ The FAA received information from industry on the potential to retrofit during Executive Order 12866 meetings from September through December, 2019.
- Part of the existing fleet of UAS could be retrofit to comply with remote identification requirements with relative ease and minimal cost (e.g., by a software update or “push” through the internet) and this could be achieved within the first year after the effective date of the final rule given the availability of FAA-accepted means of compliance.

➢ Savings

- This proposal would provide cost savings for the FAA and law enforcement resulting from a reduction in hours expended investigating UAS incidents.
  - ❖ A variety of other entities involved with airport operations, facility and infrastructure security, and law enforcement would also save time and resources involved with UAS incident response and investigation.
- This proposed rule, in concert with FAA’s proposed rule for operations over people, would create cost savings for the FAA and part 107 operators by avoiding the time expended processing waivers for these activities (about $25 million in annualized cost savings).

Key Elements of Analysis: Uncertainties and Efficiencies

Key Uncertainties

- Capability of all manufacturers to perform retrofits
- USS subscription fees
- Increased travel to FAA-recognized Identification Areas
- Number of affected unmanned aircraft in recreational flyer fleet
- The Preliminary Regulatory Impact Analysis report in the docket requests information and data on specific uncertainties
  - The FAA specifically asks questions and requests information and data that can be used to clarify or quantify uncertainties. The FAA intends to update its analysis with additional information and data identified during the comment period. Estimates may change for the final rule as a result.

Efficiencies of proposal considering alternatives

- Proposal minimizes risk of flight interruption—analysis did not need to consider flight interruption impact given proposal for standard remote identification UAS (transmit over the internet & broadcast)
- Provides flexibility through minimum performance requirements that would accommodate future innovation and improve the efficiency of UAS operations
- Proposal also does not preclude early compliance for producers or operators to realize earlier expanded operations and commercial opportunities