

# Understanding Unmanned Aircraft Systems (UAS) for Airport Operators

An Overview on Safely Integrating UAS within Your Airspace

A presentation of the  
North Carolina Airport Technical Assistance Program



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# Small Unmanned Aircraft Systems (sUAS)





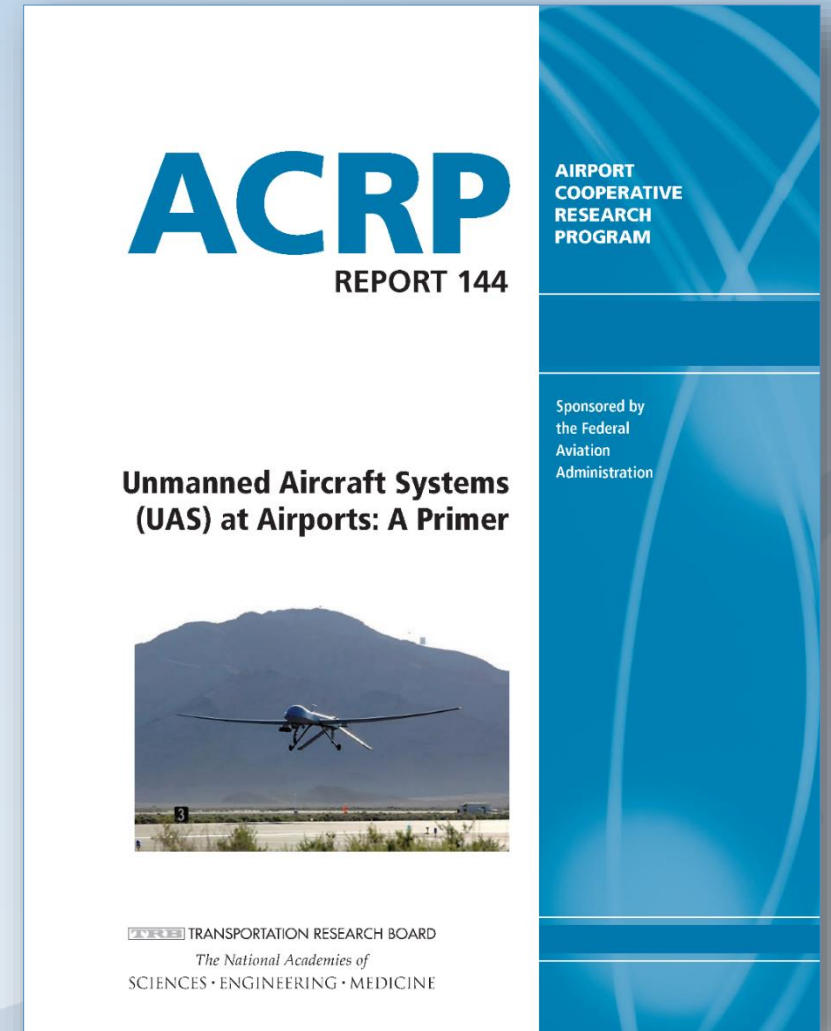
# ACRP Report 144

**Unmanned Aircraft Systems (UAS) at Airports: A Primer** provides airports of all sizes with information about UAS and their potential use and impact on airports.

## ACRP reports and resource materials

- Can assist airports in planning for UAS integration and expansion
- Can assist airport operators to understand and develop revenue streams from UAS operations

<http://www.trb.org/Publications/Blurbs/173263.aspx>



# FAA “Golden Rule” on Commercial UAS Operations near Airports under Blanket COA

Don’t fly within 5 nautical miles of an airport unless you contact the airport and control tower before flying.

To that end, the FAA requires that a UAS must not be flown within:

- **3 NM** from an airport with a published instrument flight procedure, but not an operational tower.
- **2 NM** from an airport without a published instrument flight procedure or an operational tower.
- **2 NM** from a heliport with a published instrument flight procedure.



# UAS Registration

- The FAA requires all owners of model aircraft, small unmanned aircraft or drones, or other RC aircraft weighing between 0.55 and 55 pounds to register online before taking to the skies.
- Failure to register can result in civil penalties up to \$27,500. Criminal penalties for failure to register can include fines of up to \$250,000 under 18 U.S.C. 3571 and/or imprisonment up to three years.
- Registration website [registermyuas.faa.gov](http://registermyuas.faa.gov)



# UAS Intent to Fly Notification Form for Airport

The form should contain, but is not limited to, the following details:

1. Desired Operation Date & Timeframe (Estimated)
2. Planned Location of UAS operations (GPS locations, Altitude)
3. UAS Registration Number
4. UAS Description – type, size, endurance
5. First & Last Name
6. Remote Pilot Certificate number
7. NC Permit number
8. Phone & Email
9. PIC / Agency Address

# Letter of Authorization (LOA) from Airport

## Objective of LOA:

- Communication – communication between operator and airport.
- Procedures – determines operating procedures specifically for that airport.
- Scheduling – Schedule UAS operations with Airport 24 hours prior to ops.

## Expectations:

- UAS Operator initiates with Notification Form.
- Airport provides LOA:
  - LOA is included in flight package (with permits, COAs, etc.) that are on-site.
  - LOA does not replace the need for FAA approval to conduct UAS ops. It is an additional requirement for operating in the airport area.



# Model Aircraft Operations within 5 Miles of Airport

- Current FAA guidance states “when notified of a model aircraft operation (recreational), the ATC or airport operator may deny operations if they impact the safety of other operations at the airport. Specific reasons for the objection should be provided to the person notifying the Air Traffic Control Tower or airport operator at the time of the request and documented.”
- Air Traffic Control will not use the word “approved” in communication with a hobbyist operator, but the lack of a denial constitutes the operation may proceed.

**Helpful Resources from Aircraft Owners and Pilots Association (AOPA):**

[aopa.org/go-fly/aircraft-and-ownership/drones/best-practices-for-flying-your-drone-near-an-airport](https://aopa.org/go-fly/aircraft-and-ownership/drones/best-practices-for-flying-your-drone-near-an-airport)



# UAS Resources

- **Know Before You Fly website** [knowbeforeyoufly.org](http://knowbeforeyoufly.org)
  - Educates prospective users about safe and responsible UAS operation
  - Founded by Association for Unmanned Vehicle Systems International (AUVSI) and Academy of Model Aeronautics (AMA) in partnership with FAA
- **B4UFLY smartphone app** [faa.gov/uas/b4ufly](http://faa.gov/uas/b4ufly)
  - Easy to use, helps unmanned aircraft operators determine if any restrictions or requirements are in effect at the location where they want to fly
  - Provides users with situational awareness
  - Considers the user's current or planned location in relation to operational restrictions to derive a specific status indicator

# Small UAS Rule (Part 107)



# Operating Limits (Part 107)

- The unmanned aircraft must remain within Visual line of sight.
- UAS must not be operated over anyone not directly involved in their operation.
- Daylight-only operations, or civil twilight with appropriate anti-collision lighting.
- Maximum altitude of 400 feet above ground level (AGL).
- Operations in Class B, C, D and E airspace are allowed with the required ATC permission. Class G airspace are allowed without ATC.
- Maximum groundspeed of 100 mph (87 knots).
- Minimum weather visibility from control station is 3 statute miles.

# Operating Limits (Part 107)

- Must yield right of way to other aircraft.
- A person may not act as the operator or observer for more than one unmanned aircraft at a time.
- No operations from a moving vehicle unless the operation is over a sparsely populated area.
- Foreign-registered small unmanned aircraft are allowed to operate under part 107 if they satisfy the requirements of 14 CFR part 375.
- \*\*\* Most of the restrictions discussed are waivable if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.



# Waivers to Certain UAS Operating Rules

- Operation from a moving vehicle or aircraft (§ 107.25)\*
- Daylight operation (§ 107.29)
- Visual line of sight aircraft operation (§ 107.31)\*
- Visual observer (§ 107.33)
- Operation of multiple small unmanned aircraft systems (§ 107.35)
- Yielding the right of way (§ 107.37(a))
- Operation over people (§ 107.39)
- Operation in certain airspace (§ 107.41)

Waiver/Airspace Authorization [www.faa.gov/uas/request\\_waiver](http://www.faa.gov/uas/request_waiver)

# Important

- No more required to file NOTAMs.
- Authorization to fly in B,C,D,E airspace comes from ATC, not airport manager.
- No communication required in Class G airspace outside of avoiding manned aircraft.
- UAS operations are consider an aeronautical activity and the FAA Grant Assurances to protect the rights of UAS operations.
- There needs to be a mindset shift to embrace UAS operations and safely integrate them at airports.
- UAS operators should avoid operating in the traffic pattern or published approach corridors used by manned aircraft.

# UAS Specific NC General Statutes



# Operating UAS in North Carolina

## NC UAS Operator Permit – [ncdot.gov/aviation/uas](https://ncdot.gov/aviation/uas)

- Required for commercial and government drone operations in North Carolina.
- Passing the UAS Knowledge Test is a requirement for obtaining a permit.
- No person shall operate an UAS in the State for commercial purposes unless the person is in possession of a permit.

## Study Guide – [ncdot.gov/aviation/download/UAS\\_Study\\_Guide.pdf](https://ncdot.gov/aviation/download/UAS_Study_Guide.pdf)

- Published by NCDOT Division of Aviation in conjunction with the NC UAS Operators Knowledge Test and NC UAS Operator Permitting System.
- Helps ensure that UAS operators in North Carolina understand and comply with state laws related to UAS use.



# Regulation of Launch and Recovery Sites

- North Carolina General Assembly chose to allow local governments and private property owners to limit the use of UAS on their property.
- The law requires consent when on state or private property prior to UAS launch and recovery. However, this consent does not waive any other FAA requirements once the UAS is airborne.
- Local governments may also adopt ordinances concerning UAS launch and recovery.
- Certain national parks, including some in North Carolina, prohibit UAS flights except as approved in writing by the park superintendent.

# Interference with Manned AC Flight Operations

Anyone who willfully damages, disrupts the operation of, or otherwise interferes with a manned aircraft through use of an unmanned aircraft system, while the manned aircraft is taking off, landing, in flight, or otherwise in motion, will be charged with a felony.



# NC UAS Criminal Offenses

- It is a **Class E** felony for use or possession of a UAS that has a weapon attached.
- It is a **Class 1** misdemeanor to operate an UAS for commercial purposes in NC without NC UAS Permit.
- It is a **Class 1** misdemeanor for use of a UAS to fish or hunt.
- It is a **Class H** felony for use of a UAS to interfere with or disrupt a manned aircraft.
- It is a **Class A1** misdemeanor to publish or disseminate recorded images taken using a UAS with infrared or other thermal imaging and revealing individuals, materials, or activities inside of a structure without consent of the property owner.
- It is a **Class 1** misdemeanor to use a UAS to interfere with the lawful taking of wildlife or harass wildlife in order to disrupt the lawful taking of wildlife.

# FAA Resources for Airport Operators

- The Small UAS Rule is in effect August 29, 2016:  
[faa.gov/uas/media/Part\\_107\\_Summary.pdf](http://faa.gov/uas/media/Part_107_Summary.pdf)
- FAQs about UAS Operations at an Airport:  
[faa.gov/airports/special\\_programs/uas\\_airports](http://faa.gov/airports/special_programs/uas_airports)  
[faa.gov/airports/special\\_programs/uas\\_airports/model\\_airplane\\_faqs](http://faa.gov/airports/special_programs/uas_airports/model_airplane_faqs)  
[faa.gov/uas/getting\\_started/fly\\_for\\_fun](http://faa.gov/uas/getting_started/fly_for_fun)
- For additional questions or concerns, contact the FAA's UAS Integration Office via [uashelp@faa.gov](mailto:uashelp@faa.gov) or call 844-FLY-MY-UAS
- Also contact local FAA Airport District Office (ADO) and Flight Standards District Office (FSDO)



# North Carolina UAS Resources

- **NCDOT UAS Program Office** [ncdot.gov/aviation/uas](http://ncdot.gov/aviation/uas)
  - State statutes, regulations, guidelines
  - Fact sheets
  - Licensing and Permitting information



- **NextGen Air Transportation Program** [itre.ncsu.edu/focus/aviation](http://itre.ncsu.edu/focus/aviation)
  - Consortium information
  - Research activities
  - News and events
  - Best practices



# Thank you!

For more information:  
[go.ncsu.edu/ncairtap](http://go.ncsu.edu/ncairtap)

**James B. Martin, PE**  
NC AirTAP Program Director  
919-515-8620, [jbm@ncsu.edu](mailto:jbm@ncsu.edu)

**Darshan Divakaran**  
Research Associate UAS Flight Ops  
919-987-4333, [ddivaka2@ncsu.edu](mailto:ddivaka2@ncsu.edu)

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