NORTH CAROLINA
Department of Transportation









UAS Regulatory Landscape

Basil Yap, UAS Program Manager

January 24, 2018

UAS Program Office Role

Regulatory

Permitting commercial N.C. UAS operators

Education

Safety, opportunity

Research

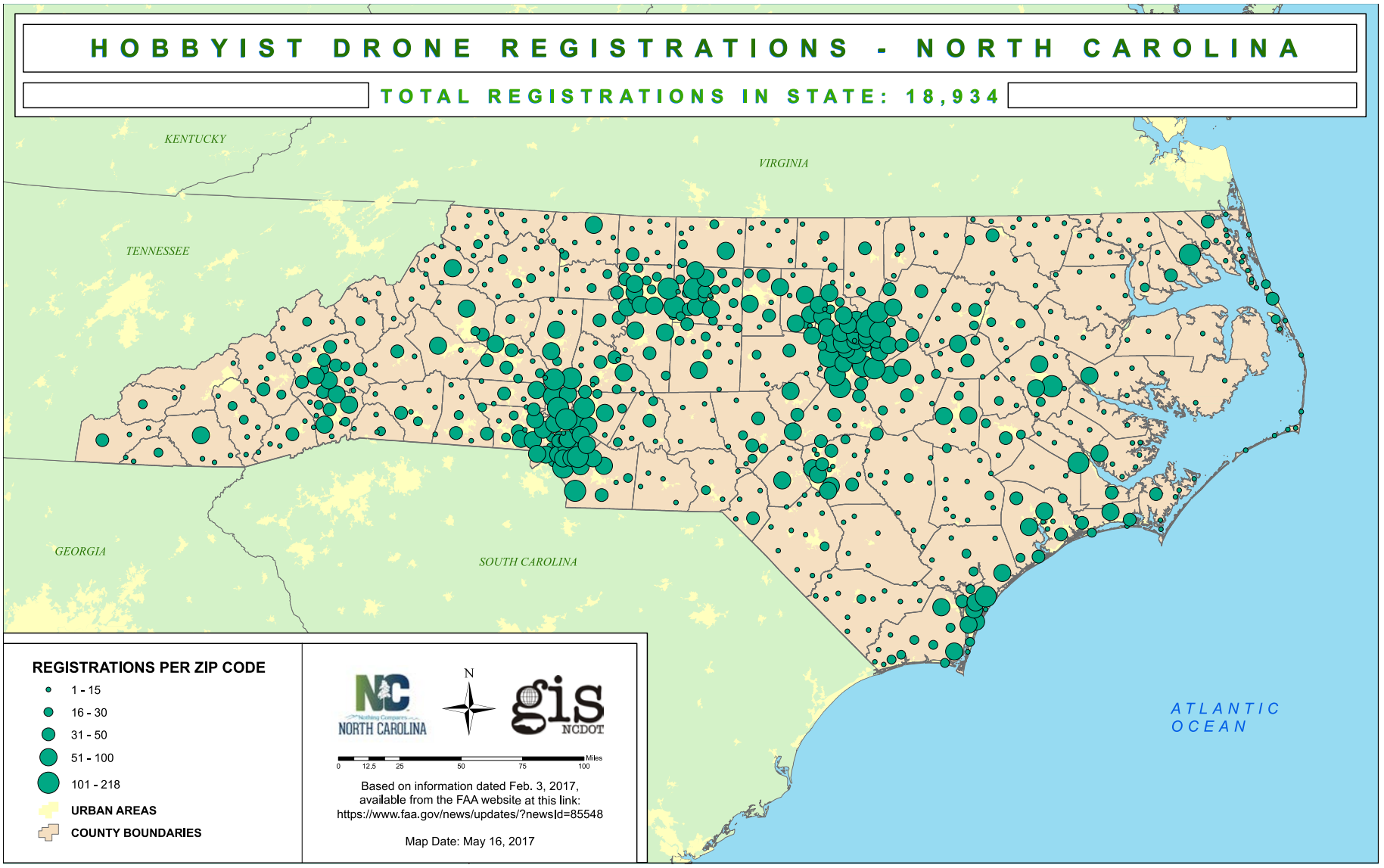
Technology benefiting state

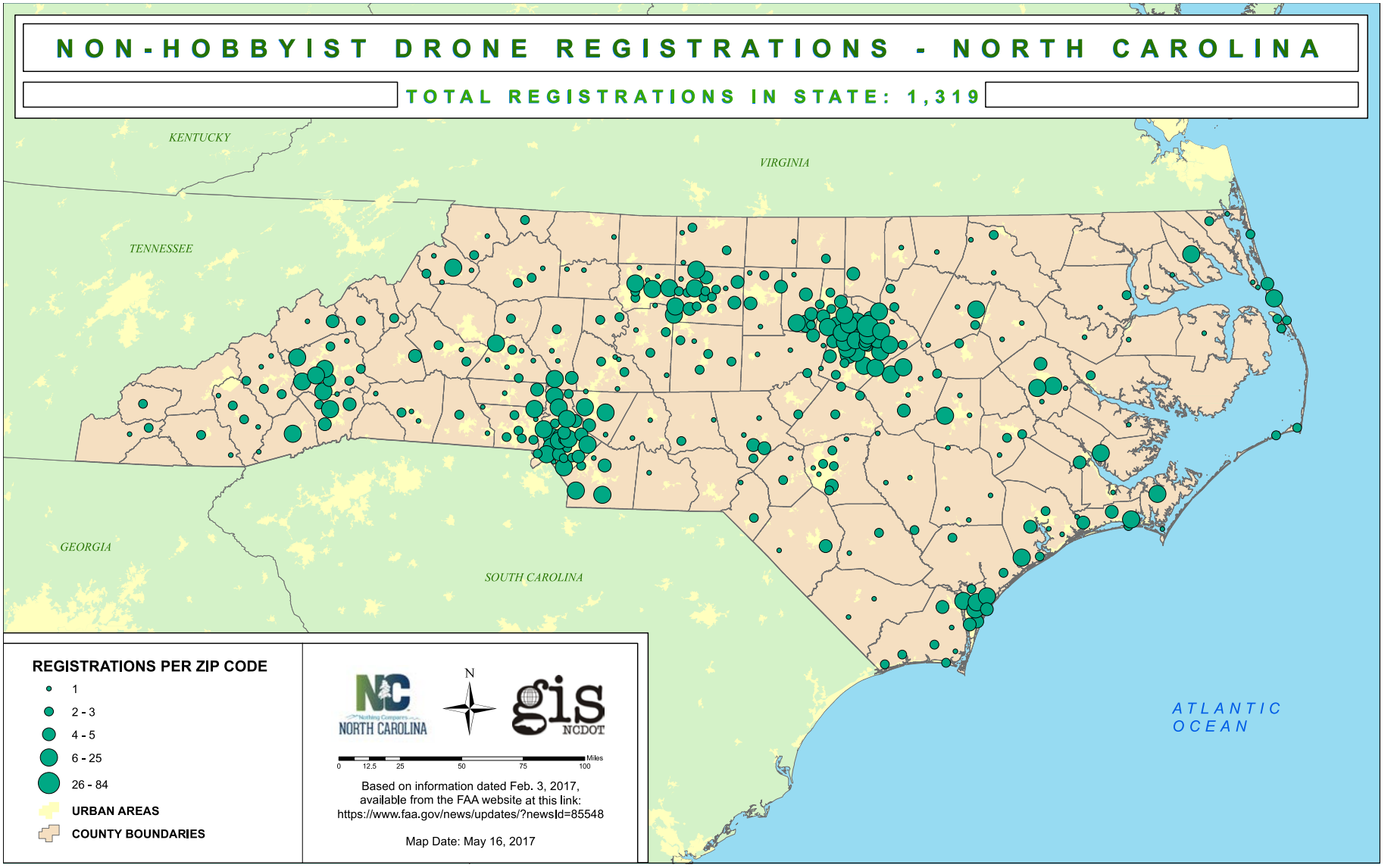
Flight Services

NCDOT, other state agencies, local governments

Government Agency Integration

UAS program development and support


HOBBYIST DRONE REGISTRATIONS - NORTH CAROLINA
TOTAL REGISTRATIONS IN STATE: 18,934
KENTUCKY
VIRGINIA
TENNESSEE
GEORGIA
SOUTH CAROLINA
ATLANTIC OCEAN
REGISTRATIONS PER ZIP CODE
1 - 15
16 - 30
31 - 50
51 - 100
101 - 218
URBAN AREAS
COUNTY BOUNDARIES
N
NORTH CAROLINA
gis NCDOT
0 12.5 25 50 75 100 Miles
Based on information dated Feb. 3, 2017, available from the FAA website at this link: https://www.faa.gov/news/updates/?newsId=85548
Map Date: May 16, 2017


NON-HOBBYIST DRONE REGISTRATIONS - NORTH CAROLINA
TOTAL REGISTRATIONS IN STATE: 1,319
KENTUCKY
VIRGINIA
TENNESSEE
GEORGIA
SOUTH CAROLINA
ATLANTIC OCEAN
REGISTRATIONS PER ZIP CODE
1
2 - 3
4 - 5
6 - 25
26 - 84
URBAN AREAS
COUNTY BOUNDARIES
N
NORTH CAROLINA
gis NCDOT
0 12.5 25 50 75 100 Miles
Based on information dated Feb. 3, 2017, available from the FAA website at this link: https://www.faa.gov/news/updates/?newsId=85548
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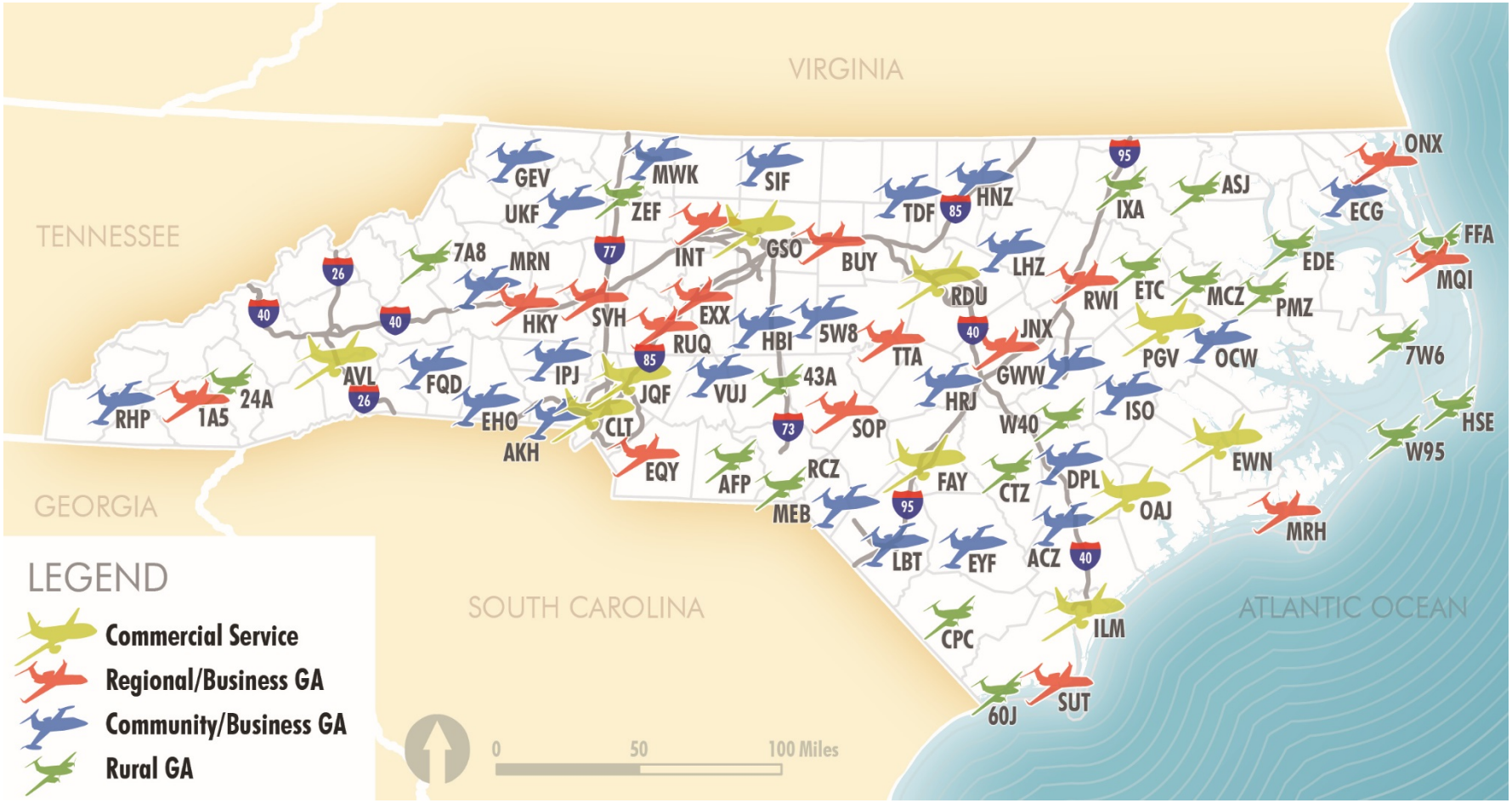
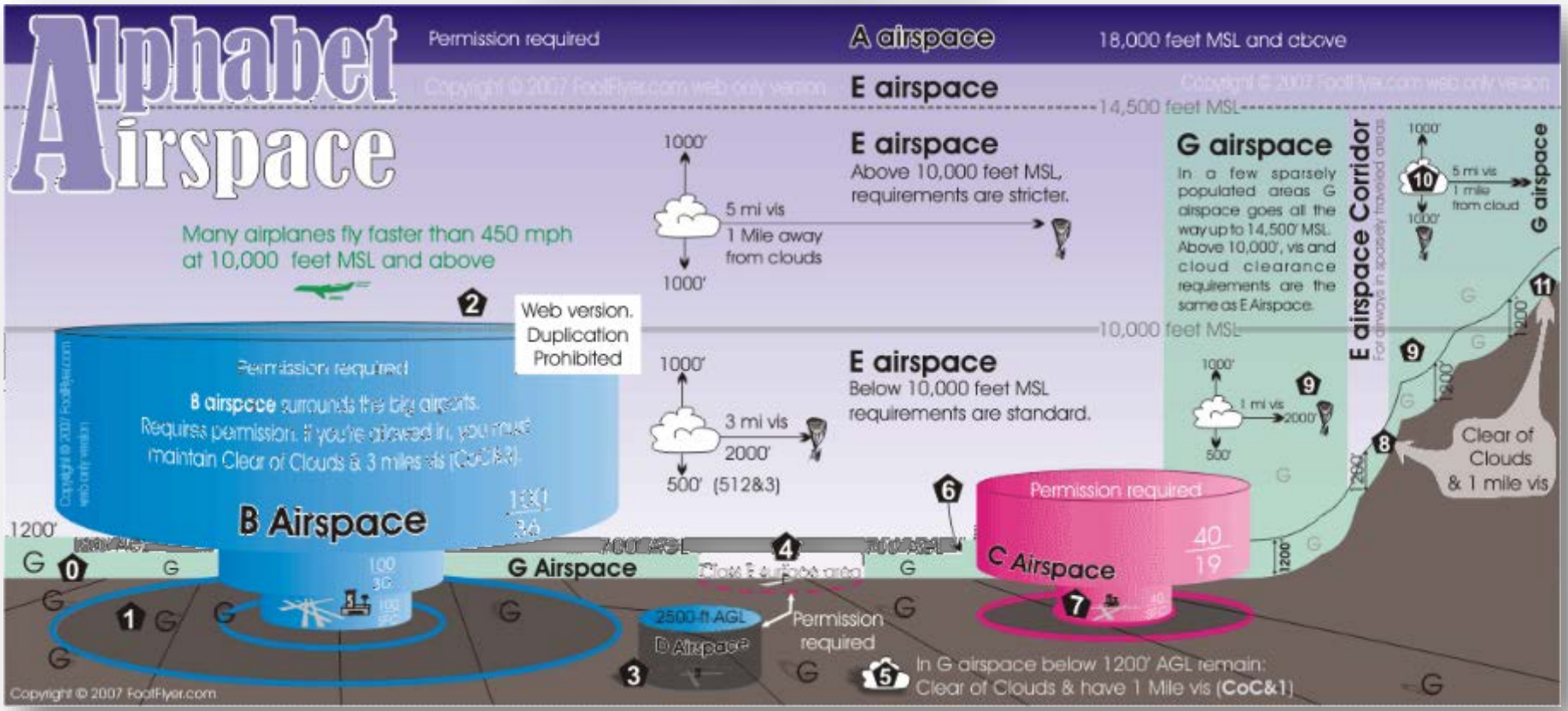
North Carolina's Airport System

72 Publicly Owned Airports in North Carolina



Federal UAS Regulations

Airspace Management



Airspace Access

Government entities have 2 options for flying UAS:

- Fly under the small UAS rule – follow all rules under 14 CFR part 107, including aircraft and pilot requirements
  or
- Obtain a blanket public Certificate of Waiver or Authorization (COA) – permits nationwide flights in Class G airspace at or below 400 feet, self-certification of the UAS pilot, and the option to obtain emergency COAs (e-COAs) under special circumstances

Part 107

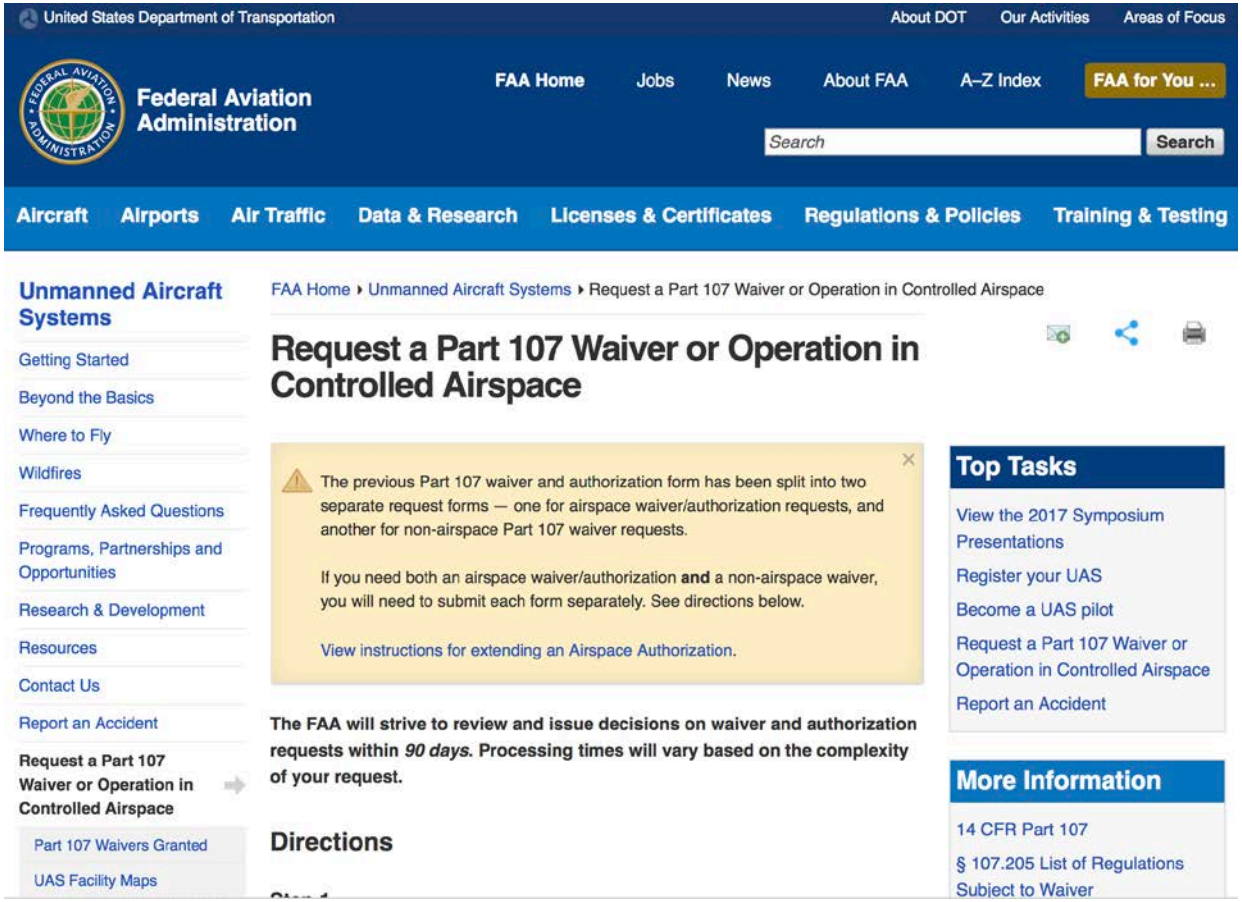
- Obtain Remote Pilot Certificate from FAA (2 years)
- 16 years or older
- Aircraft weighs less than 55 lbs.
- Fly during day and civil twilight*
- Weather minimums including 3 mile visibility
- Max altitude of 400 ft. AGL*
- Max speed of 100 mph
- Must fly within line of sight*
- Cannot fly over people not involved with the operation*
- Class G airspace*

*Waivers for certain small UAS operating rules

Waivable sections of Part 107

- 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)
- Operating limitations for small unmanned aircraft (§ 107.51)
- * The FAA will not waive this section to allow the carriage of property of another by aircraft for compensation or hire.

How to apply for a waiver



https://www.faa.gov/uas/request_waiver/

Future of Airspace Authorizations

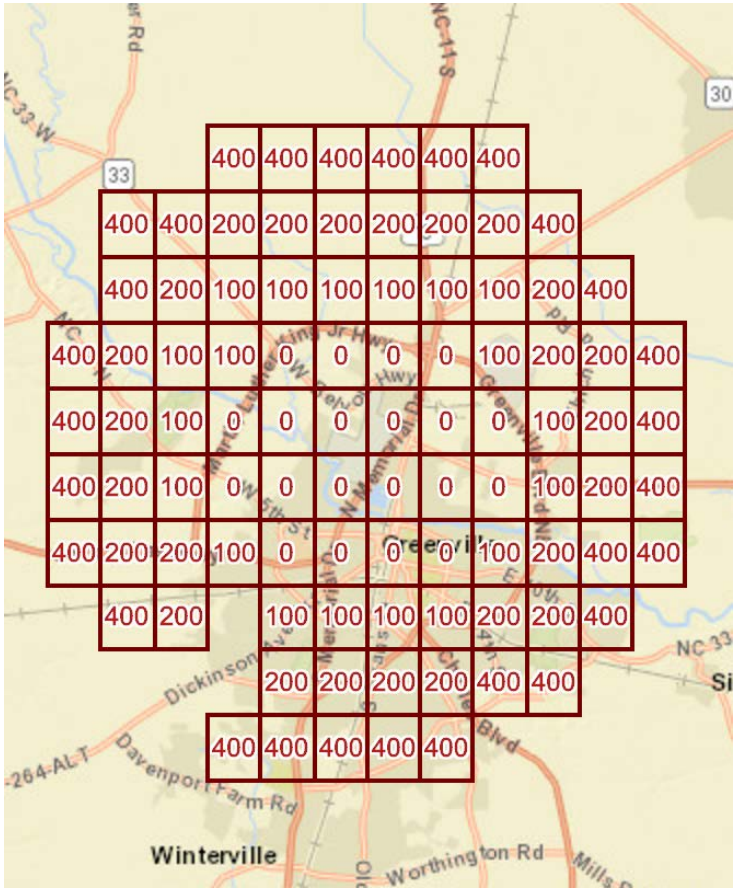
Waiver/Airspace

Currently

- Online Portal
- 90 days or less
- Pilot testing in process

Future

- LAANC should help with Airspace Authorizations

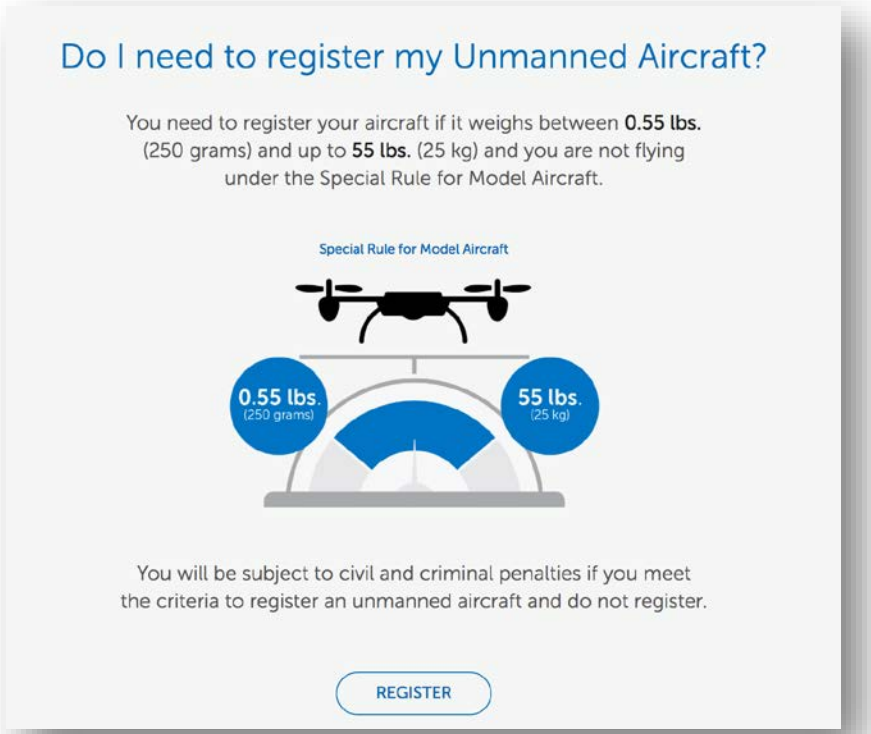


Which COA works for me?

- Blanket Area Public Safety (BAPS) COA
  - Class G, below 400 ft, restrictions based on distances from airports/helipads, 55lbs or less
  - Meets 75% of Public Agencies missions
- Jurisdictional COA
  - Expand operations into D, E, C and B airspace
  - Night operations
- Special Government Interest COA
  - In areas not covered in previous COAs
  - Temporary Flight Restrictions (TFRs)

Federal UAS Regulations

- UAS over .55 lbs. must be registered with the FAA
- https://faadronezone.faa.gov
- $5 registration fee
- UAS must be labeled
- Hobbyist – One number for all aircraft
- Non-Hobbyist – Each aircraft has unique number



Military Airspace

- National Security UAS Flight Restrictions
- FAA and DoD have restricted UAS operations over 132 military facilities.
- The restrictions are up too 400’ AGL, 24 hours a day, 7 days a week.
- Facilities can be found here: http://uas-faa.opendata.arcgis.com/
- Other FAA restricted areas for civil operations apply to UAS operators

County	Base	FAA ID
Onslow	Marine Corps Air Station New River	20170410-DOD-New River-MCAS New River 2
Carteret	MCALF Bogue, Marine Corps Air Station Cherry Point	20161222-DOD-MCALF Bogue-Auxiliary Landing Field (ALF) Bogue CDSA by NOTAM during scheduled operations only.
Jones	MCOLF Oak Grove, Marine Corps Air Station Cherry Point	20161222-DOD-Oak Grove-Outlying Landing Field (OLF) Oak Grove CDSA by NOTAM. Heavy use as an uncontrolled airport.
Richmond	Fort Bragg, NC	20161222-DOD-Fort Bragg-Mackall AAF
Cumberland	Fort Bragg, NC	20161222-DOD-Fort Bragg-Simmons AAF
Stanly	Stanly County, NC	20161222-DOD-Stanly County-Stanly County
Onslow	MCB Camp Lejeune	20170508-DOD-MCB Camp Lejeune

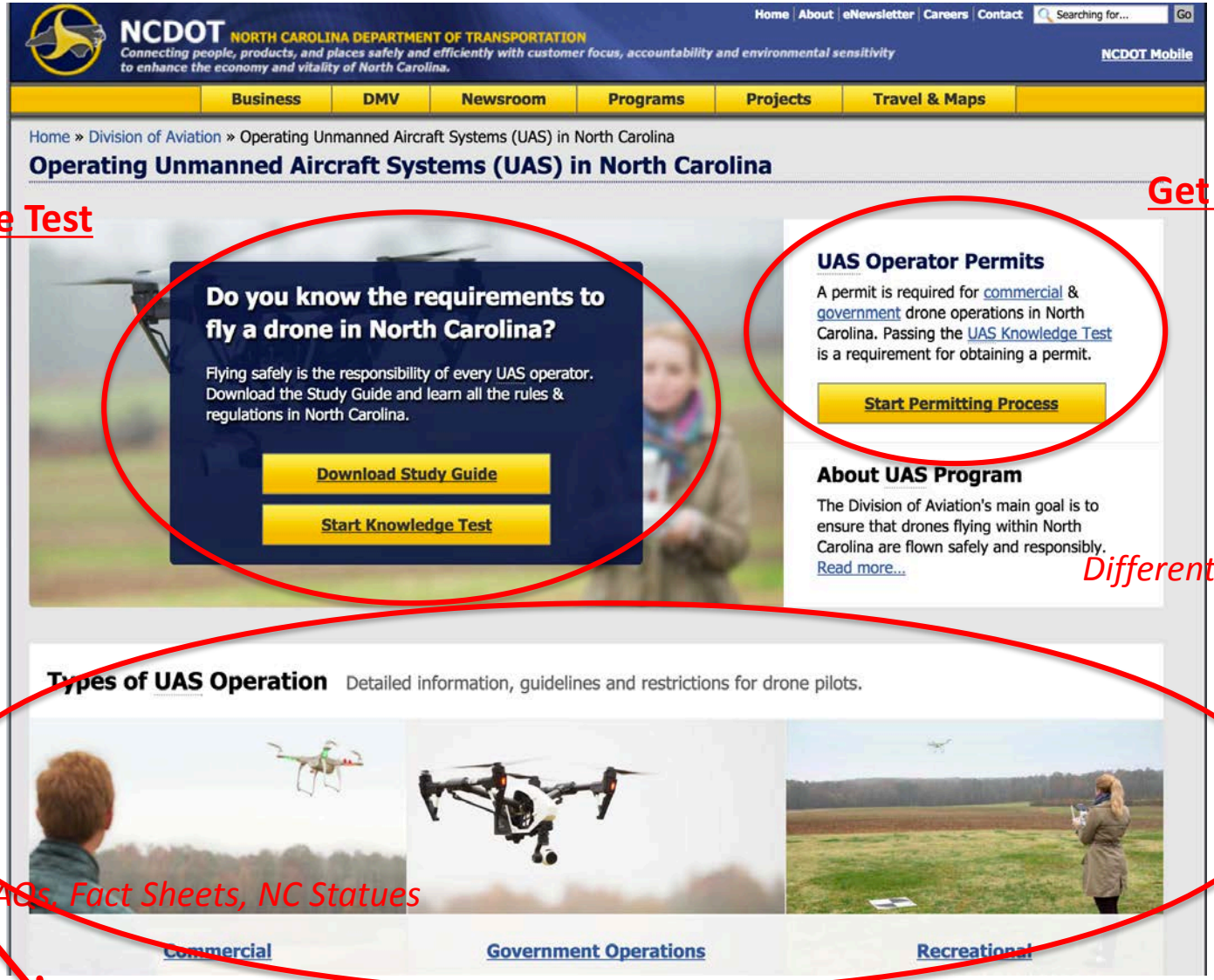
State UAS Regulations

- North Carolina General Assembly passed UAS bills into law in 2013, 2014, 2015, 2016, 2017
- Chapter 14 – Criminal Law
  - § 14-7.45 Crimes committed by use of UAS
  - § 14.280.3 Interference with manned aircraft by UAS
  - § 14.401.24 Unlawful possession and use of UAS (Weapon attached)
  - § 14.401.25 Unlawful distribution of images
- Chapter 15A – Criminal Procedure
  - § 15A-300.1 Restrictions on use of UAS
  - § 15A-300.2 Regulation of launch and recovery sites
  - " § 15A-300.3. Use of an unmanned aircraft system near a confinement or correctional facility prohibited.
- Chapter 63 – Aeronautics
  - § 63-95 Training required for operations of UAS (Knowledge Testing)
  - § 63-96 Permit required for commercial operation of UAS
- Chapter 113 – Conservation and Development
  - § 113-295 Unlawful harassment of persons taking wildlife resources

State UAS Regulations

- § 63-95 Training required for operations of UAS (Knowledge Testing)
  - The Division of Aviation will develop and administer a UAS Knowledge Test
  - Applicable to both government and commercial operators who operate in North Carolina
  - The test can be completed online and is the first part of the permitting process
- § 63-96 Permit required for commercial operation of UAS
  - Must be 16 years of age
  - Must provide a drivers license number
  - Must meet the federal requirements for access to the airspace (Remote pilot certificate)
  - Applies to commercial operators only
  - Application for permit is completed online

NCDOT Aviation UAS Website – One Stop



Take the Test

Get Permit

Learn

Different types of UAS operations

Help

Access FAQs, Fact Sheets, NC Statues

State UAS Regulations

HB337

- Clarifies model aircraft applicability
- Remove restrictions around special imaging
- Adds emergency management exception
- Brings the NC UAS Permit in line with Federal requirements (age and Identification)
- Signed into law July 21, 2017
- Effective December 1, 2017

HB128

- Establishes § 15A-300.3. Use of an unmanned aircraft system near a confinement or correctional facility prohibited.
- Exceptions for commercial operators
- Signed into law July 25, 2017
- Effective December 1, 2017

UAS Prison Signs

new

New signs prohibiting drone usage

Juvenile Facilities
SKU: 20-9723-61

For Prisons
SKU: 20-9722-61

For All Other
Correctional Facilities
SKU: 20-9721-61

A new General Statute went into effect December 1, 2017 prohibiting Drones around all Correctional Facilities including Jails and Federal Facilities. The statute also requires that signage be posted every 100 yards around the perimeter of each facility.

$14.80 each

ORDER NOW

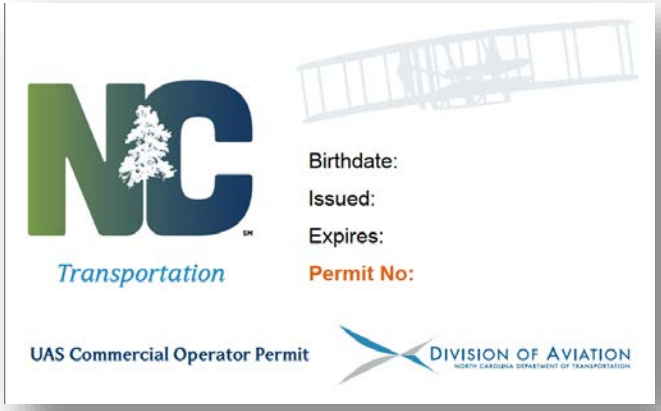
UAS Operator Permits

Federal

- Pass a UAS knowledge test at FAA testing center and TSA background check
- Apply for Remote Pilot Certificate

North Carolina

- Pass NC UAS Knowledge test online
- Apply for commercial or government NC Operator Permit online
- www.ncdot.gov/aviation/uas



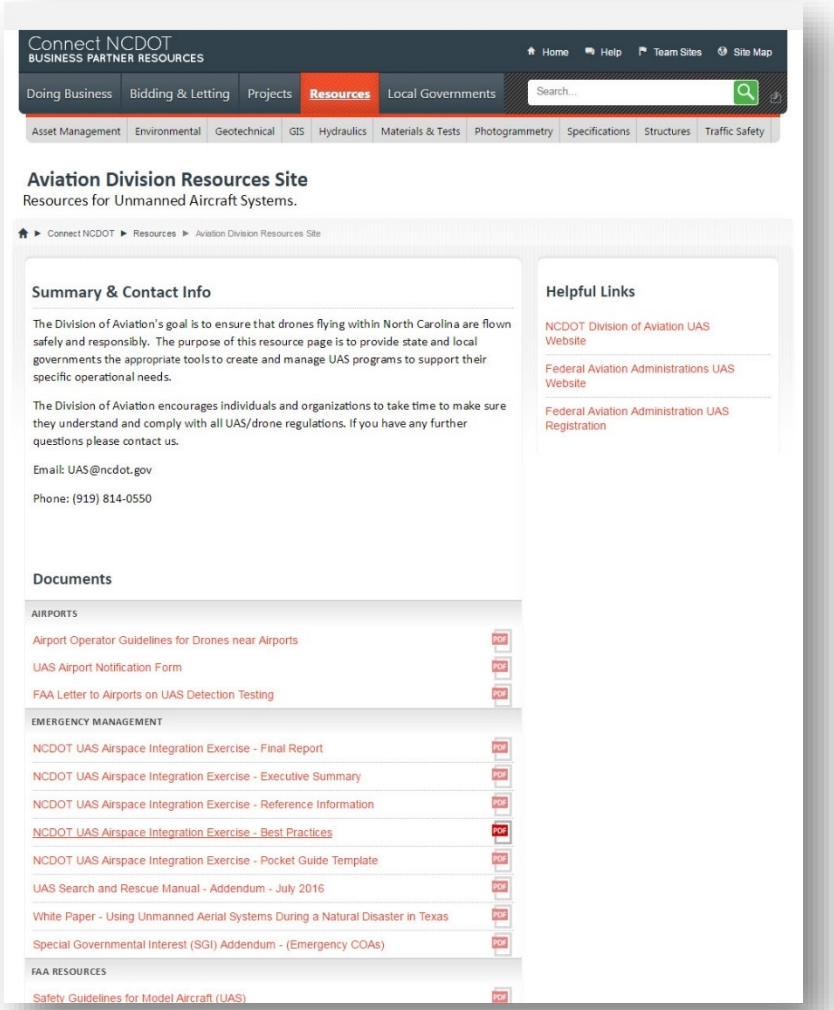
NC UAS Operator Checklist

- ✓ FAA Authorization – Must obtain:
  - Remote Pilot Certificate (under Part 107)
  - Or Certificate of Authorization/Waiver (COA)
- ✓ FAA UAS Registration
  - All UAS/Drones above .55lbs
- ✓ NC Knowledge Test
  - Take and pass the test on the NCDOT Division of Aviation website
- ✓ NC Government Operator Permit
  - Once you have passed your NC UAS Knowledge Test, you may obtain a permit
  - Need to have an airman certificate to complete the process
  - No fee charged at this time
- ✓ Insurance (best practice)

NCDOT UAS Resource Page

Publicly available online:

- List of NC General Statutes
- Best Practices
- UAS Research Reports
- UAS Related Links
- FAA Resources
- Law Enforcement Resources
- Emergency Management Resources
- Airport Operator Resources
- https://connect.ncdot.gov/resources/Pages/Aviation-Division-Resources.aspx



FAA Public Safety Webinars

The FAA will be Hosting webinars on the third Wednesday of every month to discuss topics of interest for public safety agencies. This will be a very Basic Agenda:

- Hot Topics
- Operational considerations (COAs, best practices, etc.)
- Enforcement considerations (case studies and legal issues)
- FAQs or Q&A

To register for the webinar please click on this link to register for the webinar: https://attendee.gotowebinar.com/rt/3721034706553766401

4-1-1 for 9-1-1: Drone Information for Public Safety Personnel

Questions

www.ncdot.gov/aviation/uas

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DIVISION OF AVIATION
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA
Department of Transportation









UAS for Law Enforcement

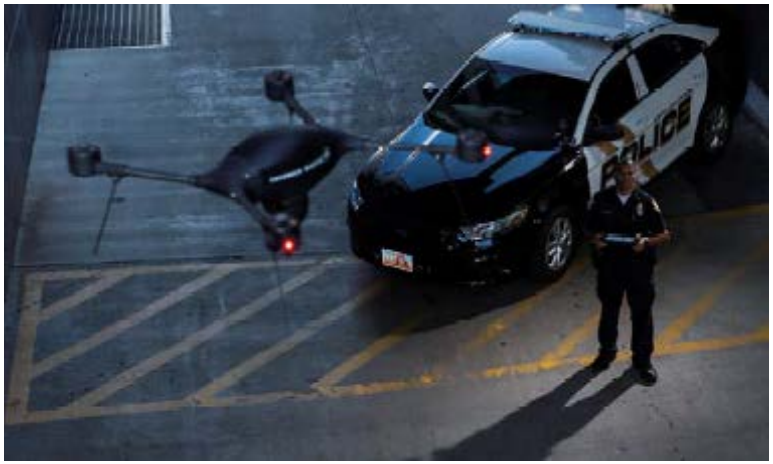
Chris Gibson

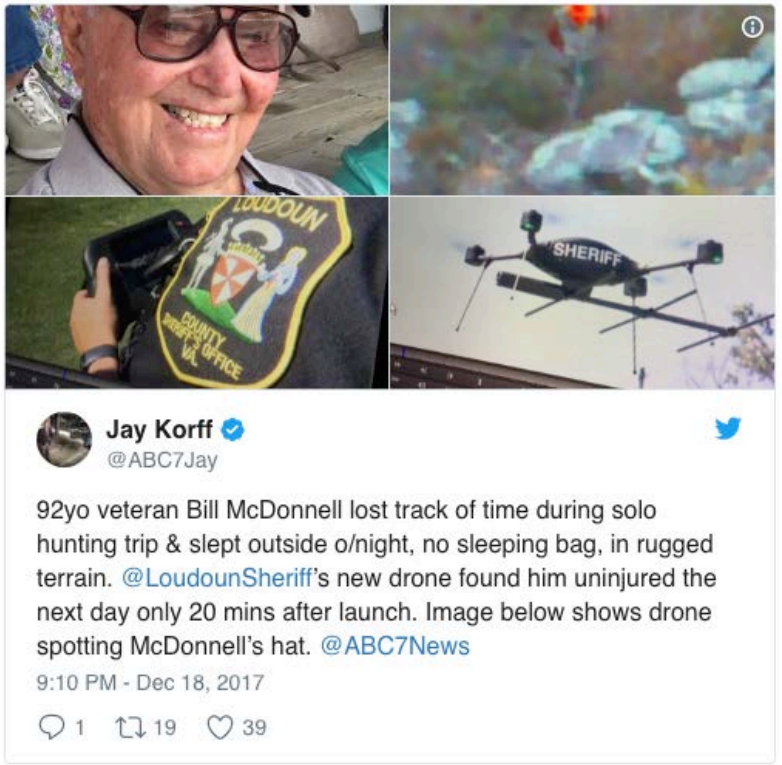
January 24, 2018

Applications

There are tons of opportunities for using UAS to support Law Enforcement …

- Search & Rescue
- Public Events Security
- Fugitive Apprehension
- SWAT/Tactical Team Support
- Crime Scene Documentation
- Emergency Response





http://wjla.com/news/local/92-year-old-wwii-veteran-caught-in-thickets-found-by-search-and-rescue-drone

The Mission

Why do you have/are you developing a UAS program?

What is your PRIMARY mission?

- Your PRIMARY mission should drive your equipment selection(s), personnel assignments, procedures, etc.
- Think of the main mission you want to accomplish with this tool -
  - Is it Search and Rescue, Support of Tactical Teams, Public Events Security, Crime Scene Investigations?
  - Think about how you "sell" this need to your governing political authority and to the public.

Complimentary missions

- *After* your PRIMARY mission, what are the **TOP 2 or 3** *complimentary* missions you need to support with this tool?
  - Crime Scene or Traffic Accident documentation/investigation support, Fugitive recovery, others

AVOID MISSION CREEP

Mission Requirements

Now that you've defined what you need to do, time to determine what you need to do it …

To accomplish your Primary and Top 2 or 3 Complimentary Missions

- Do you need to operate at night?
- Do you need to operate in bad weather, cold weather?
- Do you have significant airspace considerations?
- Do you need aerial mapping capability? If so, for what end purpose and how accurate does it need to be?
- Do you plan to collect evidentiary data with the system?
- What are the key characteristics of your most probable operating environments?
  - Urban/Suburban, Wooded Areas, Wide Open Spaces, Large areas at a time?
- In addition to operating the UAS, what other key skills are needed by the officers executing the mission?
- Concept of Operations – do you need to be able to share data in real time or near real time with others (Command, support personnel, volunteers)?

The answers to these questions will help determine the key requirements for your equipment, software, personnel and procedures

"*Professional*" is a <u>marketing</u> term – look at the specs

Governance, Policies & Procedures

More than just the equipment…

Governance

- Understand the Federal and State Regulations – what you can and can't do
- Who needs to sign off on use of the equipment?

Policies & Procedures

- Borrow and adapt policies and procedures
  - Remember, for the most part the UAS is a tool to support things you already do. You likely have policies and procedures that can be adapted for missions where UAS are used.
  - Where needed, try to Borrow from other departments for UAS specific procedures
- Data Security – where does your data go and who has access to it
  - This is a huge one. Many of the Chinese and Eastern European made drones send data automatically and without notifying you back to their company servers – even if you don't "record" video. It's buried right there in their End User Agreements.
  - Think hard about whether this is an issue for your organization or not.
  - How does that square with your IT policies, your evidence procedures, your requirements to safeguard public and private information?
- Insurance – Self Insured? Additional policy for equipment and/or liability?

Personnel

It's about the mission, and the people …

Personnel

- How many trained operators do you need to make sure you have people on duty/on call at all times? Is that necessary for your mission(s)?
- Training requirements – FAA & State permitting, initial & Currency training
- Are you going to put together a special team for UAS or place UAS responsibility with an already established team?
- Other key skills are needed by the officers executing the missions
  - If your PRIMARY mission is Search and Rescue for example, do you want to focus your UAS team on personnel that already have training in Search and Rescue?

In the end, the mission is the objective, the UAS is a tool.

The most successful UAS programs are using teams made up of personnel that are experienced in the primary mission and then are cross trained in the use of the UAS to support that mission.

Questions

www.ncdot.gov/aviation/uas

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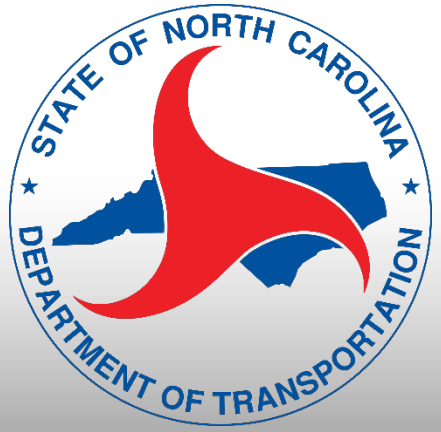
DIVISION OF AVIATION
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NC DEPARTMENT OF
INSURANCE
OFFICE OF STATE FIRE MARSHAL



Small Unmanned Aircraft Systems (sUAS) Awareness Course:

- Joint venture from NCDOT & NC OSFM
- Purpose is to educate NC emergency responder staff in the safe and legal use of Small Unmanned Aircraft Systems (sUAS) or drones within the state.
- Focuses on the regulated fundamentals to operate a sUAS in the airspace above our state.
- This course will serve as a starting point for any agency in developing a sUAS program and implementing this technology.
- NC OSFM has co-developed a sUAS Policy Manual template that can be adapted to provide guidelines and structure in the formation of a drone program.

OSFM

sUAS Course Specifics:

- Initial Course (Part 1 of 2) to provide the sUAS requirements for FAA & NCDOT licensure in a structured presentation.
- NCDOT Knowledge Test Course presentation
- NCDOT Knowledge Test preparation
- Review FAA & NCDOT Regulations
- Review of FAA & NCDOT types of Operator Permits
- Review of Recreational Operator requirements
- Review of Commercial Operator requirements
- Review of Government Operator requirements
- Template for a sUAS Policy Manual

OSFM

NC OSFM sUAS Support:

- OSFM website being modified for sUAS section
- Insurance provided for both the Operator and Equipment in the performance of a sUAS mission operating as a State Agency.(Risk Management _ Signup Required)
- Informational resource providing links to other State Agencies for specific sUAS topics.
- Contact information where sUAS classes are being given at local Community Colleges.
- Schedule for OSFM sUAS Awareness classes.
- Contact information of Fire & Rescue departments with sUAS programs in use.
- Contact information of Fire & Rescue departments with sUAS programs in the development phase.
- Template for developing a sUAS Policy Manual.
- Templates for sUAS program componentry lists.

OSFM

NFPA 2400:

Standards for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations

NFPA 2400	
Organization Deployment and Considerations for sUAS	• program criteria • operational needs assessment • purchase specification
Professional Qualifications for sUAS Public Safety Personnel	• JPRs for remote pilot in command (RPIC) and for visual observer • sUAS quarterly operations
Maintenance of sUAS	• routine service • elements of a maintenance program • authorized personnel

OSFM

More Resources on sUAS:

- https://www.nfpa.org/News-and-Research/Publications/NFPA-Journal/2017/July-August-2017/Features/Drones
- https://www.nfpa.org/assets/files/AboutTheCodes/2400/NFPA_2400_sUAS_Fact_Sheet_2017.pdf
- https://www.iafc.org/topics-and-tools/communications-technology/uas-toolkit/uas-resource/uas-policy
- https://www.iafc.org/on-scene/on-scene-article/unmanned-aerial-systems-potential-meets-reality
- https://www.ncdot.gov/aviation/uas/
- http://www.ncdoi.com/OSFM/Fire_Rescue_Training/
- https://faadronezone.faa.gov/#/

OSFM