

# Unmanned Aircraft Systems (UAS)

## UAS Integration Office Overview

**Presenter: Ron Matusiak**  
**Date: March 11, 2020**



# Overview

## Introduction to Unmanned Aircraft Systems

### Operating a UAS

Registration & DroneZone

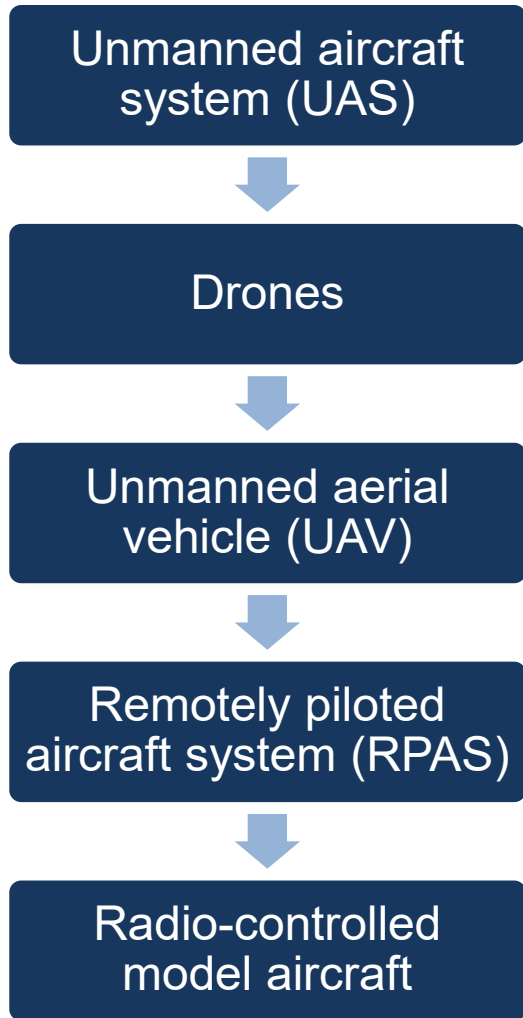
Part 107

### UAS Integration Activities

Next Steps

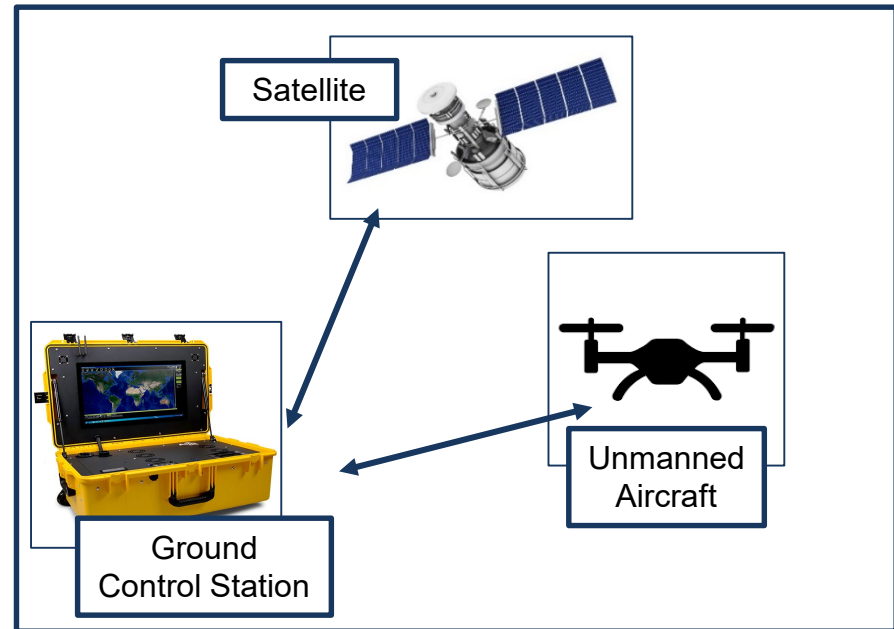
Research, Security, & Engagement

# What is a UAS?



## A UAS is a *system*:

- Unmanned Aircraft
- Ground Control Station
- Command & Control Link(s)



# What is the FAA's Authority?

- **U.S. airspace is public space**
  - 49 U.S.C. §40103(a)(1)
- **UAS are aircraft subject to regulation**
  - 49 U.S.C. §40102(a)(6); 14 CFR 1.1; PL 112-95 §331, §336
  - An aircraft is any device used, or intended to be used, for flight
- **UAS flown outdoors must comply with FAA regulations**

# UAS Integration – Facts & Figures



## 3 Future Rules:

1. Remote identification
2. Routing operations over people, at night
3. Critical infrastructure protection

# Operating a UAS Registration & DroneZone Part 107



# Online UAS Registration

Applies to all small UAS over 0.55 and weighing less than 55 lbs. flown outside



Owner must provide name, address, email

Non-recreational owners (includes Part 107 and Public COA) must provide make, model, and serial number (if available) of each sUAS

Register through FAA DroneZone



# FAA DroneZone

FAADroneZone

Welcome to the FAADroneZone



Fly sUAS under Part 107

I need to register my small unmanned aircraft for recreational, commercial, governmental, or other purposes under [Part 107](#). Each drone must be registered at a cost of \$5.00 and registration is valid for a period of 3 years. Also use this option to apply for a waiver/authorization, or reporting an accident under Part 107.

Register

Fly Model Aircraft under Section 336

I need to register my small unmanned aircraft to fly with an aero-modeling club and following all requirements of the [Special Rule for Model Aircraft](#).

Register

A one-stop-shop for small UAS needs:

- Registration
- Airspace Authorizations & Waivers
- Operational Waivers
- Accident Reporting

## Waivers & Authorizations

sUAS operators who want to fly outside the requirements of the Small UAS Rule (Part 107) may request a waiver and/or airspace authorization using the provided tools.

Applicants are encouraged to review the form instructions below and the [list of regulations](#) subject to waiver prior to submitting via these tools. Please provide all required information in order to facilitate evaluation of your request.

Review the following information before requesting a waiver and/or airspace authorization:

- [Request to Operate in Controlled Airspace instructions \(PDF\)](#)
- [Waiver Application Instructions \(PDF\)](#)

These tools should only be used to request waivers or airspace authorizations under Title 14 CFR Part 107; it is not for modelers or hobbyists flying in accordance with the Special Rule for Model Aircraft (P.L. 112-95, Section 336).

Manage Waivers/Authorizations

4

Total Waivers & Authorizations

1 Approved .....  
1 Canceled .....  
2 Under Review .....



Create Waiver/Authorization



# Types of UAS Operations

	Aircraft Requirements	Pilot Requirements	Airspace Requirements	Types of Operation
<b>Part 107</b>	UAS < 55 lbs.	<a href="#">Part 107</a> remote pilot certificate with small UAS rating	<a href="#">Airspace waiver or authorization</a> for Class B, C, D, E airspace	VLOS, daytime, Class G, 400 ft., not over people (some regulations subject to waiver)
<b>Section 333</b>	As specified in exemption	<a href="#">Part 61</a> airman certificate	Blanket COA or Standard COA for specific airspace	UAS > 55 lbs.
<b>Experimental Aircraft</b>	Experimental Special Airworthiness Certificate	<a href="#">Part 61</a> airman certificate	Standard COA for specific airspace	Research and development, crew training, and market survey
<b>Type Certificated Aircraft</b>	Restricted type or special class certification	<a href="#">Part 61</a> airman certificate	<a href="#">Part 91</a> airspace requirements	Specified in operating authorization
<b>Public Aircraft</b>	Self-certification by public agency	Self-certification by public agency	Blanket COA or Standard COA for specific airspace	Public Aircraft Operations ( <a href="#">AC 00-1.1A</a> ); UAS Test Site operations
<b>Section 336 Model Aircraft</b>	UAS < 55 lbs.*	Community-based organization (CBO) standards	Notification requirement within 5 miles of an airport	Hobby or recreational, VLOS, <a href="#">Section 336</a> operating rules, CBO standards

\*Note: All UAS greater than 0.55 pounds aircraft must be [registered](#) (see [part 47](#) and [part 48](#) requirements).

# Small UAS Rule (Part 107)

First rule for  
small UAS  
(<55 pounds)

Commercial,  
hobby,  
governmental  
operators can  
operate under  
Part 107

Became  
effective  
August 29,  
2016

# Part 107 Operating Rules

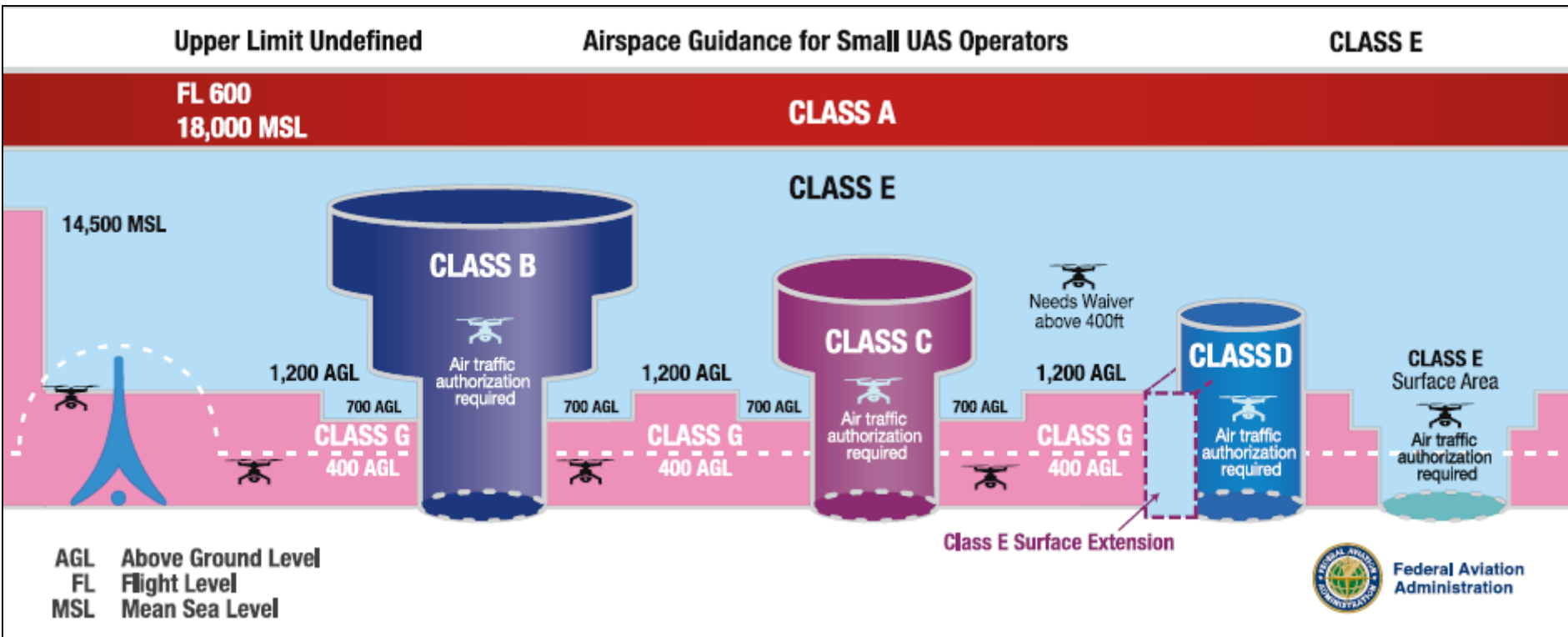


# Part 107 Waivers



- **A number of provisions of Part 107 can be waived, including:**
  - Night operations
  - Operations over people
  - Visual line-of-sight
  - Weather/visibility requirements
  - Swarm
- **Waivers are submitted in the DroneZone and must carefully, clearly, and concretely demonstrate how the proposed operation can be conducted safely**
  - Reading and responding to all the questions in the Waiver Safety Explanation Guidelines is an essential to a successful waiver application
- **The FAA has a webinar series that outlines useful tips and tools for applying for waivers, available on the FAA website.**

# Part 107 Airspace Requirements

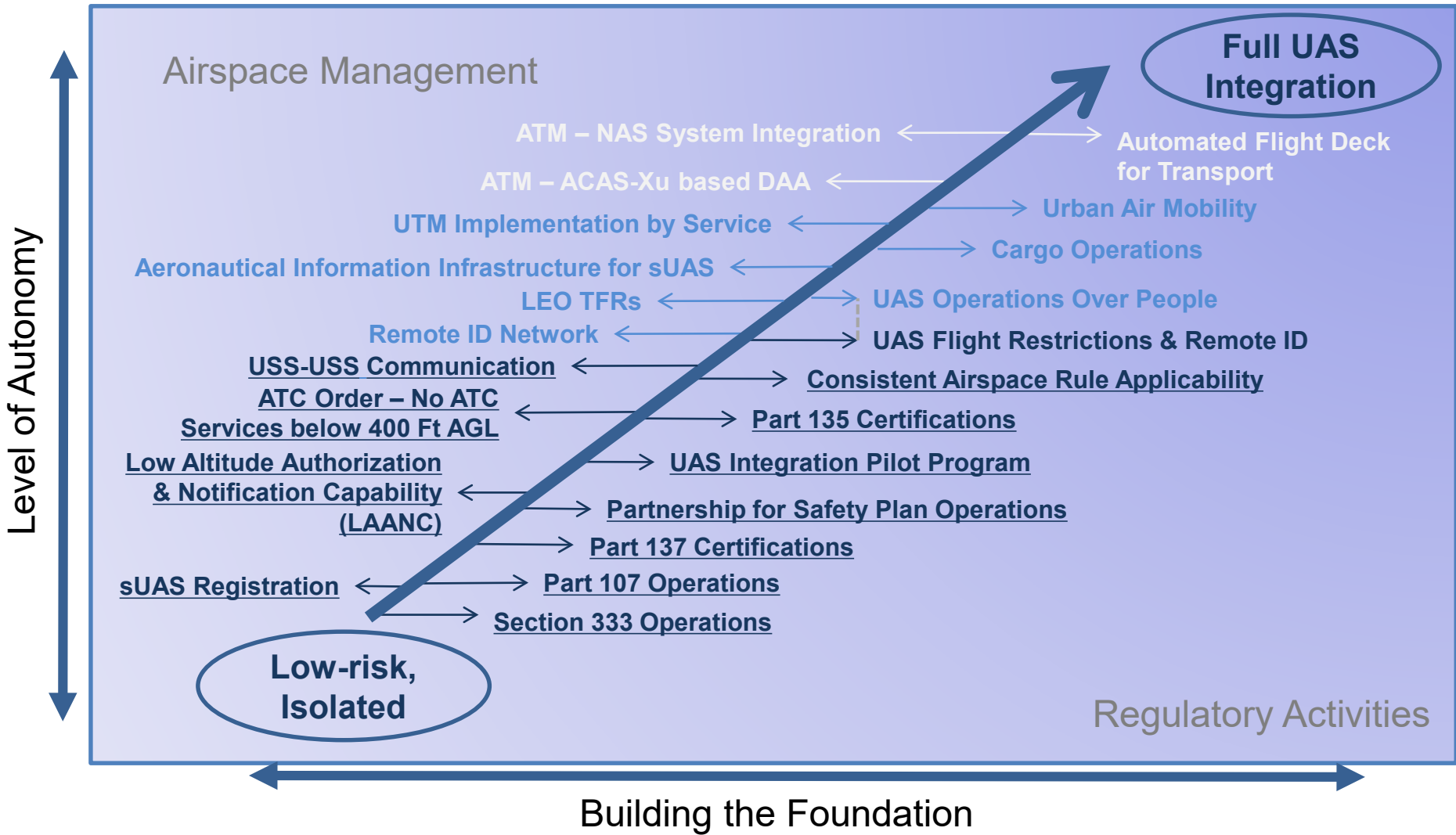


- Operations in Class G and Class E non-surface do not require ATC authorization
- Operations in Class B, C, D & Class E surface areas require ATC authorization
- Online portal available at the FAA DroneZone and through LAANC

# UAS Integration Next Steps Research, Security, & Engagement



# UAS Integration Strategy – 2019

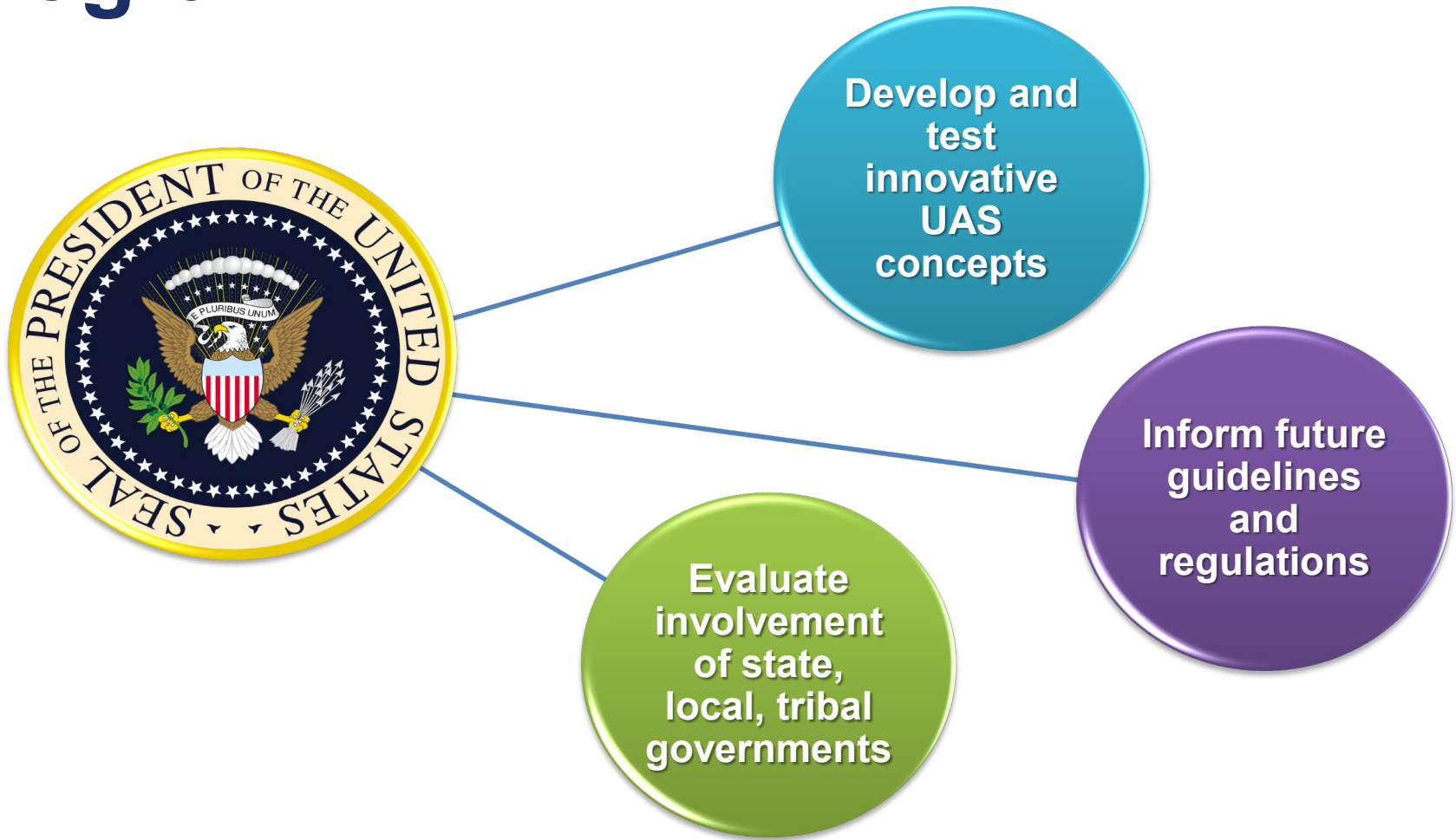


# Remote ID Implementation

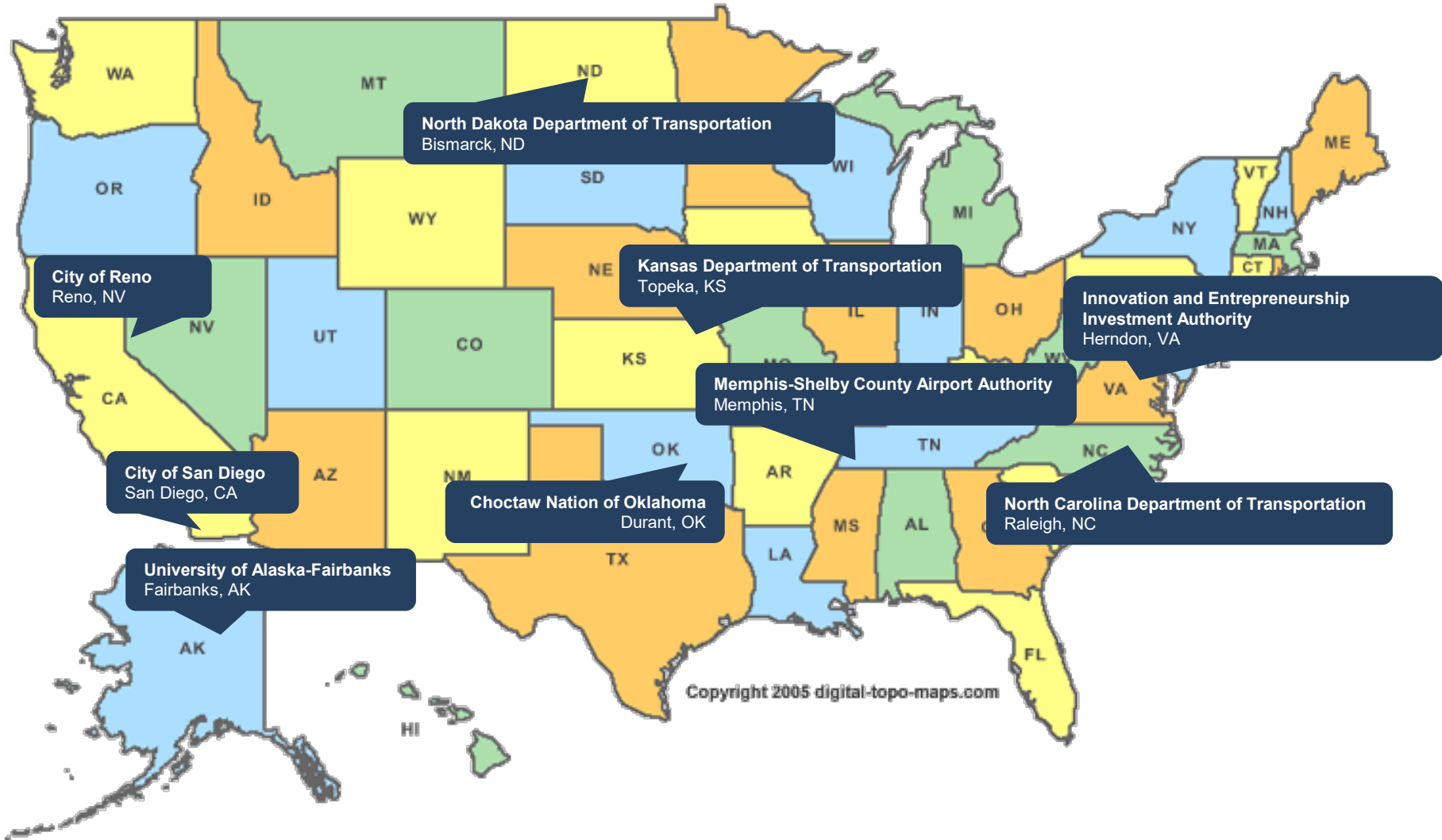
- **Wing partnered with nine UAS Service Suppliers (USS) and UAS operators to demonstrate the remote identification of drones in San Bruno, CA. The demonstration showed that network remote ID based on the ASTM standard is effective, supports a diverse range of drone operators, and can be implemented today.**
- **Status**
  - 12/20/2019: FAA anticipates publishing the Remote ID notice of proposed rulemaking
- **What we're working on NOW: Internal and External Collaboration**
  - Establishing cross-agency team to run the implementation of Remote ID as a program, determining membership, and defining scope
  - Drafting integrated high-level schedule with milestones
  - Establishing governance



# UAS Integration Pilot Program



# UAS IPP Participants



# Major Achievements from IPP

- Chula Vista PD is using drones for emergency response, as part of the San Diego team, under public aircraft rules.
- North Carolina DOT used drones to assess damage after the 2018 hurricanes, as a public aircraft operator.
- North Dakota DOT conducted drone flights to support flooding response efforts under part 107.
- Alaska discovered a previously undetected methane pipeline leak, flying under part 107.
- StateFarm obtained a nationwide waiver to conduct drone operations over people and beyond visual line of site with the use of a visual observer.
- Matternet is conducting routine medical package delivery in Raleigh, NC under part 107.



# Package Delivery Under the IPP

- With the Virginia team, Project Wing obtained the first part 135 certificate to conduct drone package delivery.
- Uber Eats is working towards obtaining the capability to deliver food to customers utilizing drones in an urban environment in conjunction with the City of San Diego IPP team.
- Additional package delivery concepts are expected to be approved by the end of 2019.

# IPP/PSP Waivers and Exemptions

- **Wing (IPP)**
  - Awarded single-pilot part 135 certification in April 2019
  - Working towards standard (multi-pilot) part 135 certification by end of October; expected adjudication of amended exemption request October 11, 2019
  - Announced partnership with FedEx, Walgreens, and Sugar Magnolia (local vendor) as part of package delivery trial operations in Christiansburg, VA
- **Xcel Energy (PSP)**
  - Revised waiver awarded on August 16, 2019 allowing operations over people
  - ~75% complete inspecting 2500 miles of transmission lines
  - Preparing for Strategic meeting with FAA to increase operations by 100% for CY20
  - Significant exposure via Congressional and media releases
- **North Dakota (IPP)**
  - Northern Plains UAS Test Site and Airbus Aerial (on behalf of Xcel Energy) received waiver to operate BVLOS without VOs in the city of Grand Forks
- **Amazon (PSP)**
  - Part 135 Air Carrier Certification anticipated in January 2020
- **UPS/Matternet (IPP)**
  - Issued the first Standard part 135 Air Carrier Certificate for Unmanned Aircraft operations and conducted the first Air Carrier flight with a UAS on September 27, 2019
  - Operating BVLOS with a Visual Observer
  - On demand delivery completed in 2 minutes and 30 seconds for each delivery

# Partnership for Safety Plans (PSPs)

**A collaborative effort** between industry and the FAA to **advance complex UAS operations** supporting FAA integration efforts.



# Major Achievements from PSP

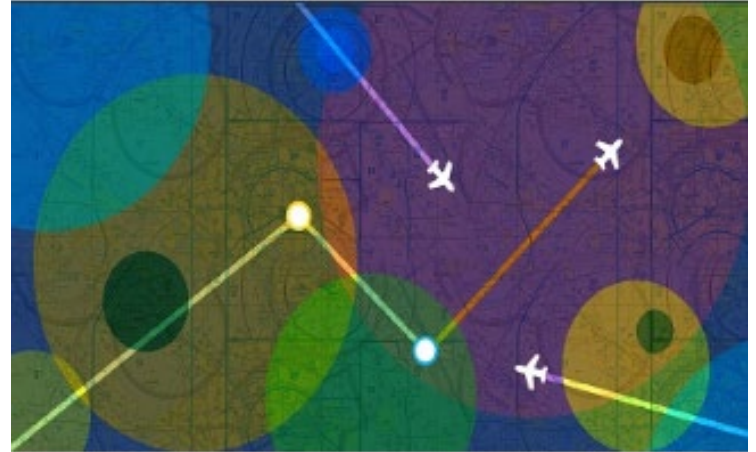
## Lead Participants

- Xcel Energy conducted BVLOS inspections of electric transmission lines within the KDEN Mode C Veil.
- Xcel continues to explore innovative methods for scaling operations throughout its transmission system and is currently awaiting FAA assessment of related waivers.
- General Electric/AirXos is conducting BVLOS flight operations in west Texas using DeTect ground Radar for DAA.
- GE is also testing the First Responder application for mobile devices.
- Amazon is working to conduct package delivery this year and continues work towards airworthiness approval of its aircraft.
- BNSF continues BVLOS operations under a newly granted regulatory exemption issued under 49 USC 44807.



# UAS Security Sensitive Restrictions

- **300+ restrictions over sensitive facilities, including military sites, national landmarks, federal prisons, and other sites**
- **Existing authority from Title 14 CFR 99.7**
- **Must contact facility, and if in controlled airspace, the FAA, to operate over sites**
- **Interactive map and a list of facilities are available here: <https://uas-faa.opendata.arcgis.com/>**
- **Existing restricted airspace remains in effect**





# Reporting Unsafe UAS Activity

- **While flying or at the airport:**
  - Report the sighting to Air Traffic Control
    - Note the location, altitude, and characteristics of the aircraft
- **Anywhere else:**
  - Call local law enforcement
    - The FAA has published guidance for law enforcement to help them respond to unsafe UAS activity
- **Be as detailed & specific as possible**
  - Location, altitude, direction, pictures, videos, etc.

# Education and Outreach



# Questions?



[www.faa.gov/uas](http://www.faa.gov/uas)