Low Level Airspace Issues & Challenges

Federal Aviation Administration

Presented to:

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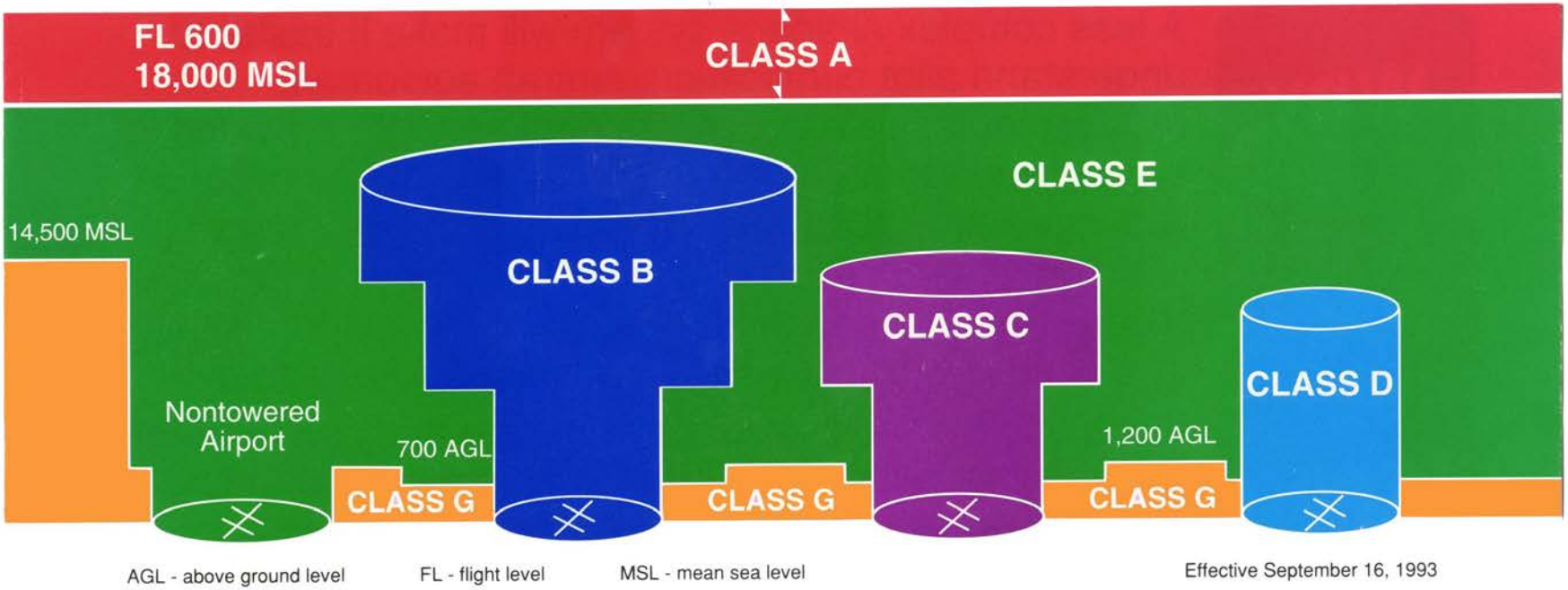
Low-Level Airspace Key Challenges

- **Shortage of Weather Sensors/Reporting Stations**
- **ADS-B Coverage/Accuracy at Low Altitude**
- **Radio Reception**
- **ATC Prioritzation/Privatization**
- **Zero Funding for Heliport Infrastructure in FAA Budget**
- **Airspace Utilization/New Entrants (i.e. VTOL, UAS, etc.)**

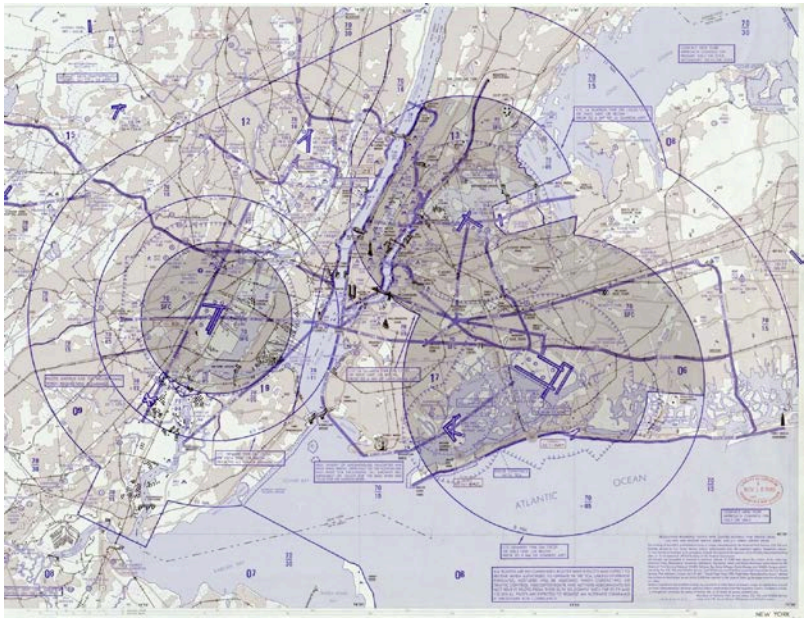
Airspace Classifications

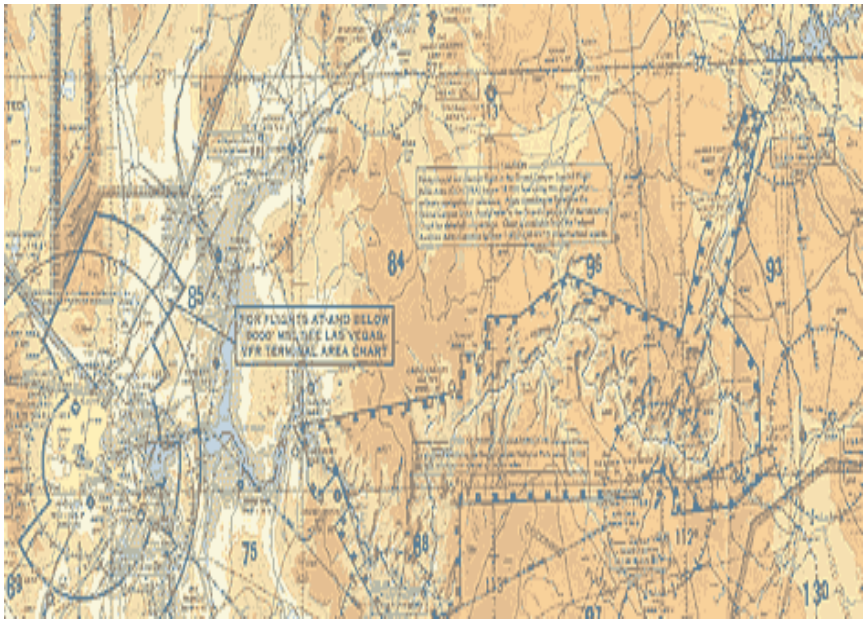


- **Low-Level Airspace consists of all classes of airspace except Class A**
- **Low-Level Airspace contains various landing areas (Class B/C/D/E/G airports, VFR/IFR heliports, landing zones, etc.)**

SFRA Airspace

- **SFRA = Special Flight Rules Airspace**
- **Examples: New York City SFRA, Grand Canyon SFRA, Washington D.C. SFRA**



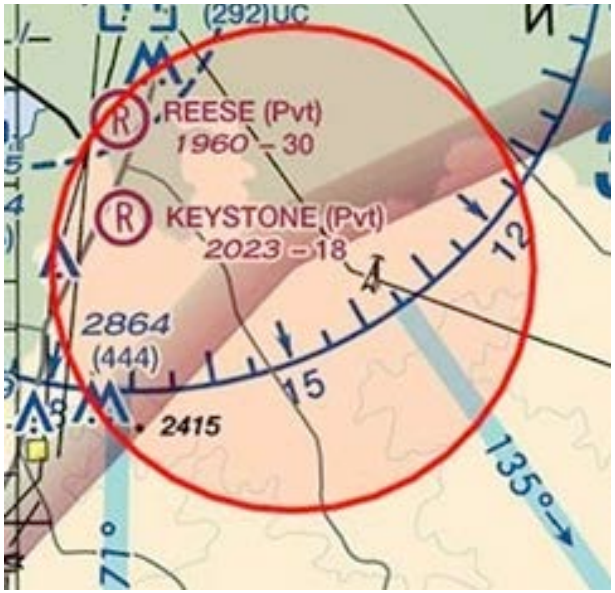


SUA Airspace

- **SUA = Special Use Airspace**

TFR Airpsace

- **TFR = Temporary Flight Restrictions**
- **Discussion of moving TFR for some UAS operations**



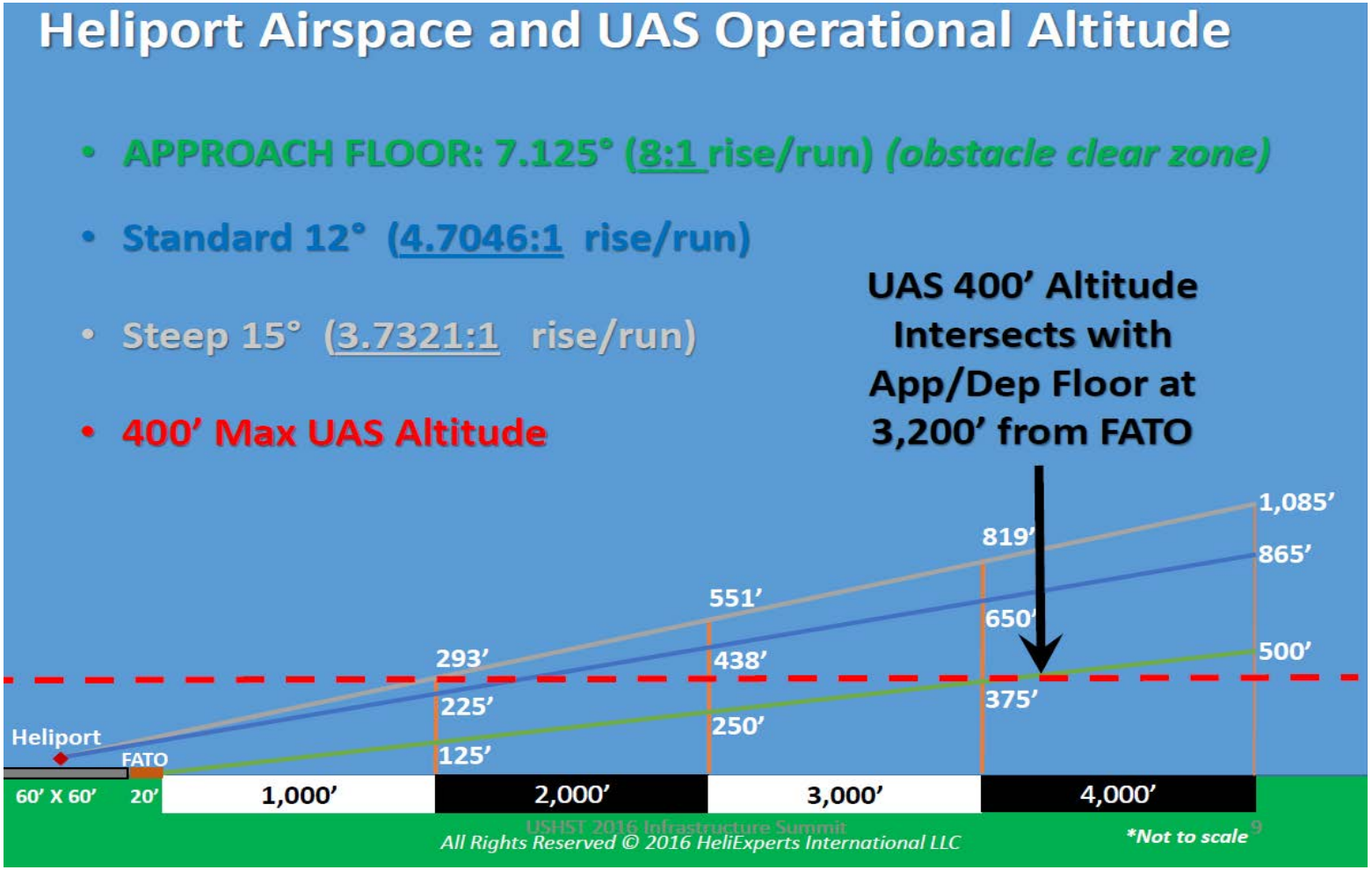
Low-Level Airspace Users

- **Unmanned Aircraft Systems (UAS)**
- **General Aviation (GA)**
- **On-Demand Mobility (ODM)/Vertical Takeoff and Landing (VTOL)**
- **Commercial Space (CST)**
- **Rotorcraft**

Unmanned Aircraft Systems

- **Sizes from 0.55 lbs. to 55 lbs. in Part 107, but other larger systems that want to fly in the same airspace.**
- **Altitudes vary not just 400’ and below per Part 107, waivers and exemptions push this higher**
- **Rulemaking for Beyond Visual Line of Sight (BVLOS) and Operations Over People (OOP) operations at low altitudes is in the works**

Heliport UAS Operational Considerations



Note: Slide courtesy of Rex Alexander, HeliExperts International, LLC

General Aviation

- **Various types of aircraft**
- **Multiple mission segments (training, agriculture, search and rescue, etc.)**

Commercial Space

- **Geographically diverse launch and recovery sites**
- **Crosses all classes of airspace**

Air Launch

Sea Launch

Launch Sites

Ground Launch

Reusable Launch Vehicles

Suborbital Rockets

Rotorcraft

- **Diverse mission segments**
- **Operational variants/capabilities (autopilots, FMS's, etc.)**
- **Unique airspace requirements (TK-routes, Point In Space/Offshore approaches, etc.)**

Example – New York Airspace

- **Flight Inspection Procedures**
- **IFR Routing from NY Airports (i.e. Teterboro) can add 30-60 minutes of flight time for a helicopter flight to the Hamptons. Some operators are only flying VFR or getting a Special VFR clearance to cross the river to avoid going IFR due to delays**

Low-Level Infrastructure Potential Solutions

- **Better Weather Sensors/Additional Weather Reporting Stations**
- **Access to Additional Infrastructure Data (i.e. Heliport/Helipad Information)**
- **Improved ADS-B Coverage/Accuracy/Distribution at Low Altitude**
- **New IFR Route Concepts (RNP-AR, NextGen Routes, etc.)**
- **Unmanned Traffic Management (UTM)**
- **Vision Systems Technologies**

ADS-B Coverage

- **Low-Level ADS-B Coverage is a known issue**
- **Can we equip more areas with high density of helicopter traffic (i.e. outside of Los Angeles, New York, Grand Canyon, Las Vegas, Offshore, etc.) with low-cost ADS-B equipment?**
- **Can we utilize ADS-B or similar systems as a replacement for voice communications?**

IFR Route Concepts

- TK Routes
- RNAV Routes
- LNAV/LPV Approaches
- Transitions To/From IFR System
- Approaches/Departures from Heliports/Landing Zones
- PBN Concepts
- RNP-AR & Other Routings

UTM

- **UTM = Unmanned Traffic Management**

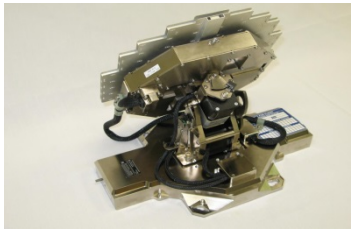
- ***UTM is not intended to directly manage the manned aircraft in uncontrolled airspace* (Source: UTM CONOPS Document)**

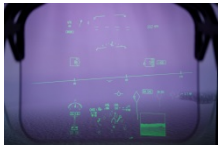
Advanced Vision System = “EHVS”
Enhanced Helicopter Vision System

Sensor & Computer + **Display** = **EHVS**

(FLIR, MMWIR, LIDAR, etc.)

(HWD, HMD, HUD, HDD, etc.)





Vision Systems Technologies

- **USHST Safety Enhancement #91-Enhanced Helicopter Vision Systems**
- Helicopter Advanced Vision Systems research seeks to examine EHVS (i.e. sensor and display technologies/concept of operations) in order to establish rule changes (14CFR 91.175/176 amendment for helicopter operations, 8260.42B revision, 9090-C revision) that allow helicopter operators to utilize these systems operationally (i.e. in low visibility conditions).
- Focus of the research is on two areas:
  - Operational Concepts (i.e. the “Visual Segment” of the Instrument Approach (required cues and items for helipad/helideck/landing zone acquisition))
  - Sensor Performance/Feasibility

Questions?