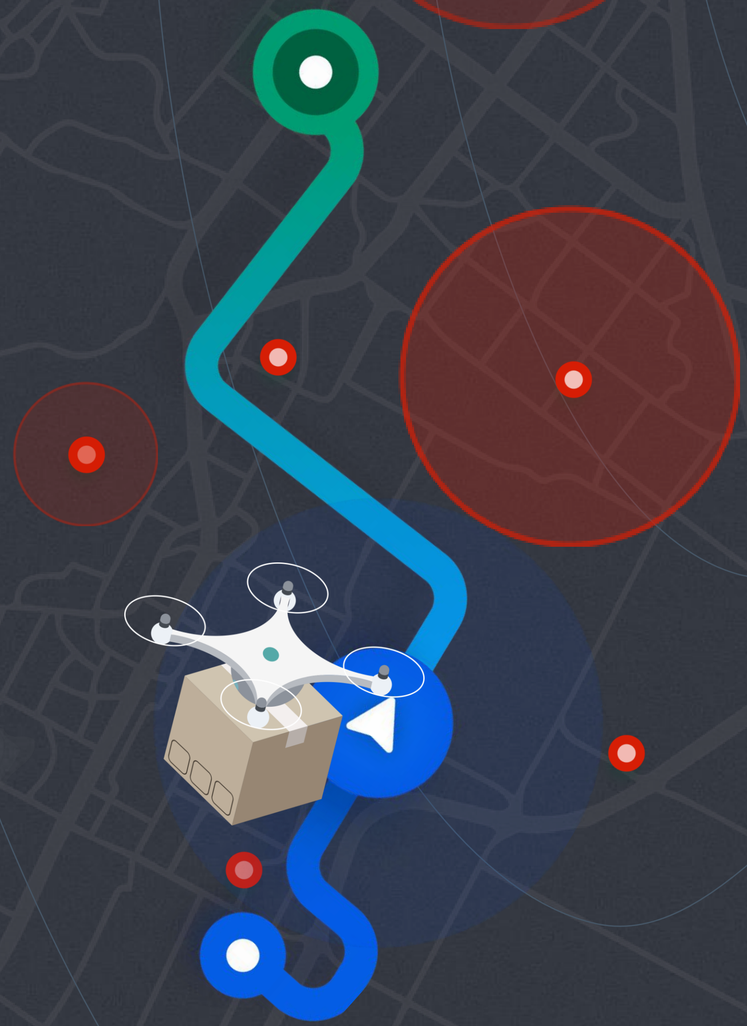
Preparing for the Next Dimension of Mobility

airspacelink™

NCTCOG September Meeting



The Next Dimension Of Mobility Is Here

FAA Is Authorizing Drone Package Delivery

Part 135 Operators

- UPS Flight Forward
- Alphabet Wing
- Amazon Prime Air
- Zipline

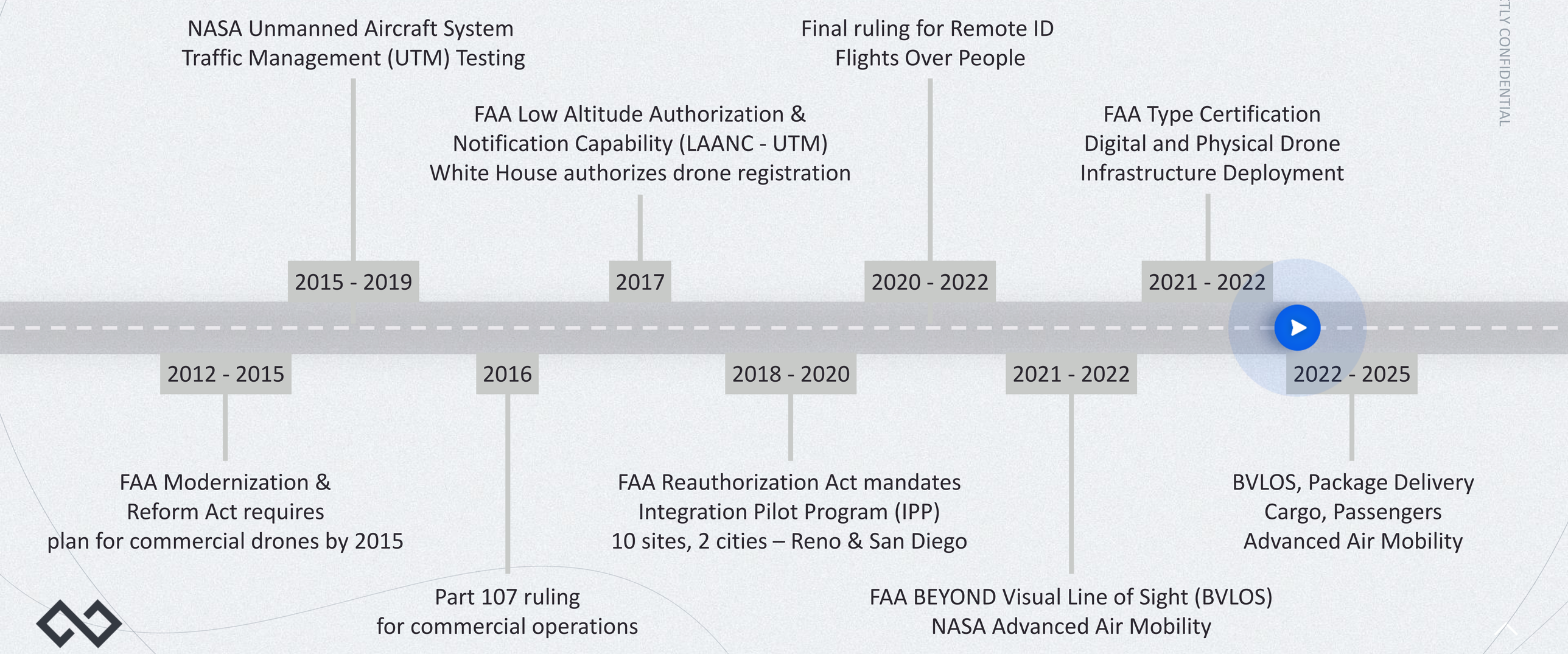
Rising Part 135 Operators

- MissionGo
- Spright (Air Methods)
- DroneUp
- Flytrex
- DroneXpress
- Causey Aviation

Locations

- Fayetteville, NC
- Detroit, MI
- Frisco, TX
- Lockeford, CA
- Salt Lake City, UT
- Fayetteville, AR
- Villages, FL
- Christiansburg, VA
- **Walmart deploying in 34 locations!**

Current State Of Market Regulations



We Provide Key Components of Traffic Management Infrastructure

Governments are choosing Airspace Link as the provider of shared authoritative data, software, and infrastructure that safely scales BVLOS UAS and Advanced Air Mobility operations

FAA Approved

Certified

State and Local Government Specialty

Standardized

Integrated UAS Traffic Management

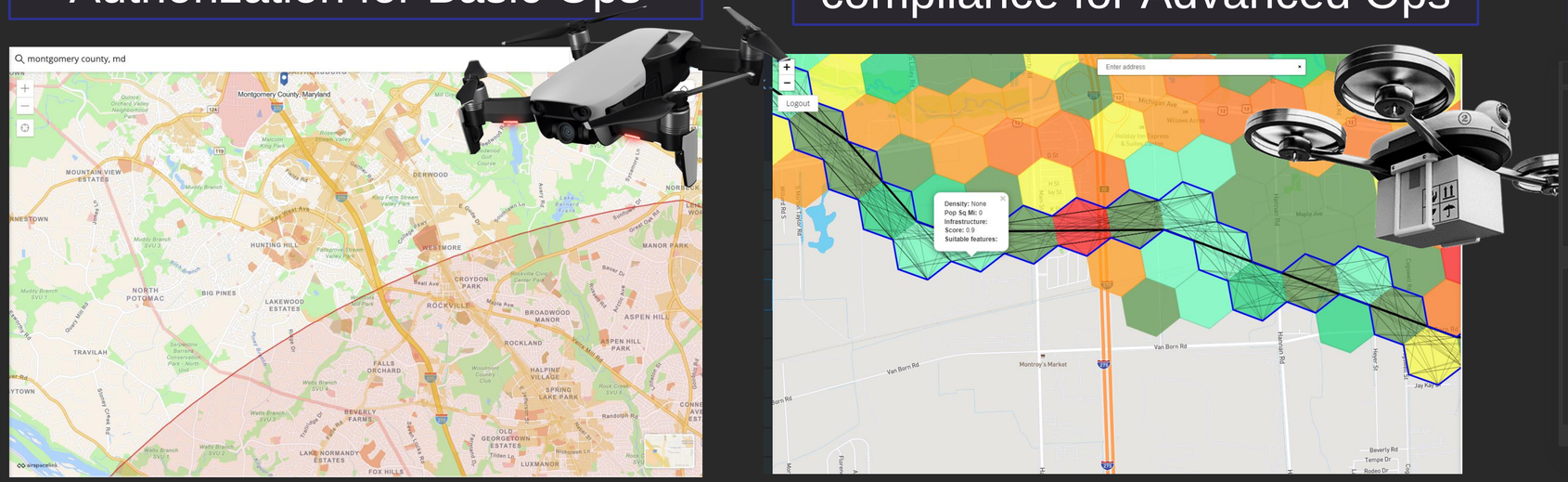
THALES

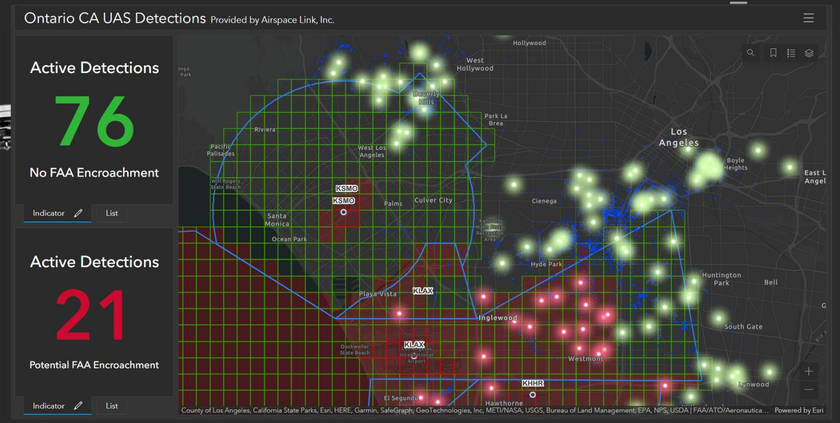
Our Role in the UAS Ecosystem

UAS Flight Planning & Authorization for Basic Ops

Safety insights, routing & compliance for Advanced Ops

Airspace Insights/Traffic Mgt. for Scalable Operations



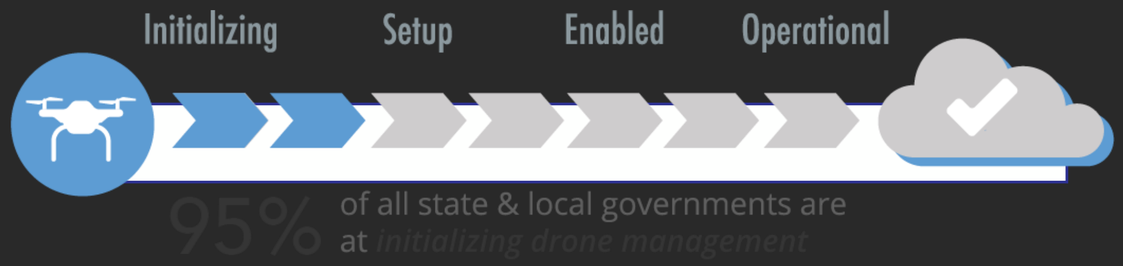


Data Exchange with Federal, State, Local Authorities

Time Is Now For State & Local Government Participation

STATE & LOCAL GOVERNMENT CHALLENGES:

- Coordination with industry, UAS Operators
- Public Awareness, Engagement and Safety
- Establishing Policies, Regulations (takeoff, landing, local advisories, infrastructure monetization)
- How to prepare, plan for and participate?



95% of all state & local governments are at *initializing drone management*

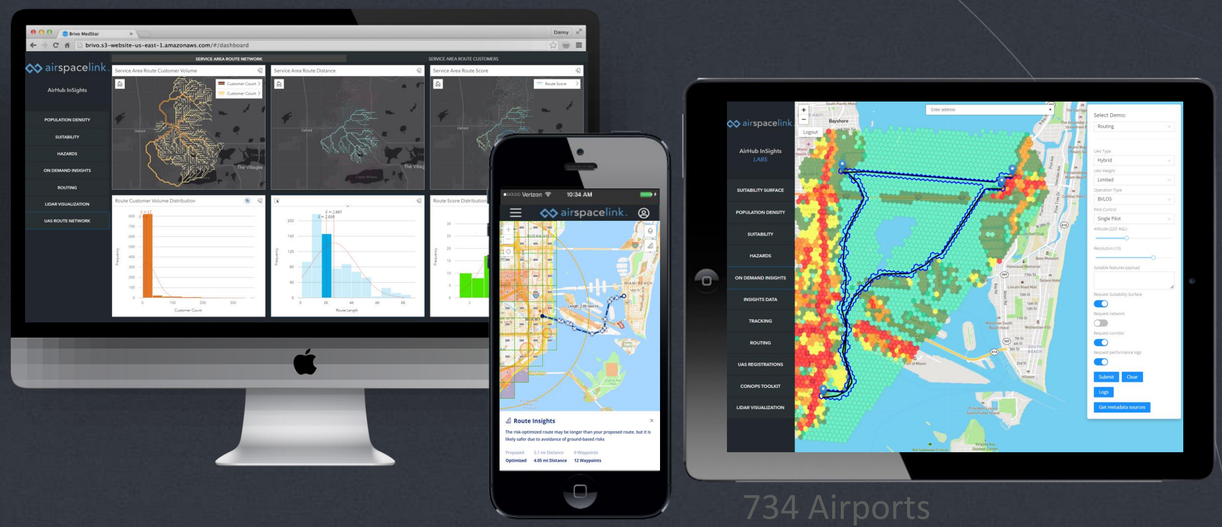
PROS AND CONS OF NEW TECHNOLOGIES

FLYSAFE IS POWERED BY AIRHUB SOLUTIONS

AirHub® Launch

PROVIDING CAPABILITIES FOR DRONE OPERATORS

- LAANC – Airspace Approvals
- UTM - Traffic Management
- Simple Flight Authorization (Residents, Business and Commercial)
- Advanced Flight Authorization
- Safety Case Reporting
- Flight and Route Optimize Planning
- BVLOS Waivers
- Authoritative Visualizations
- Aircraft Compliance

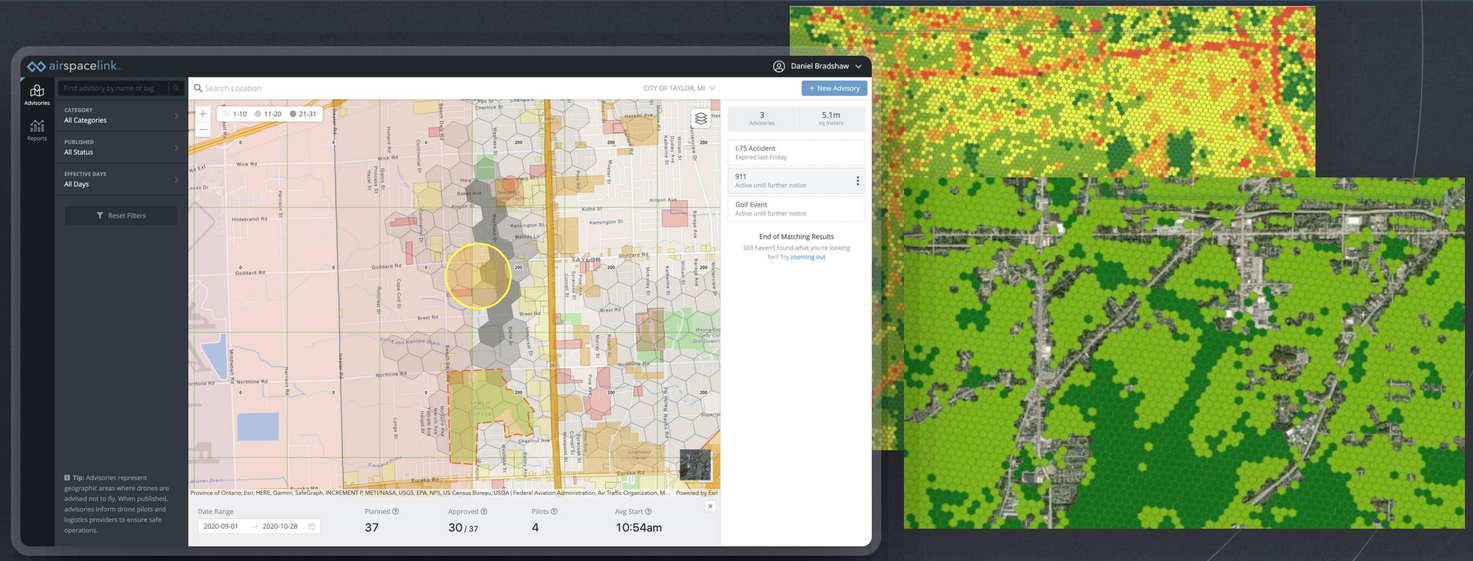


airspacelink™

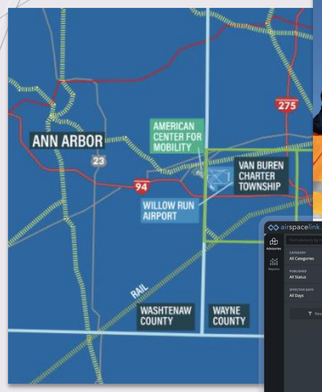
AirHub® Connect

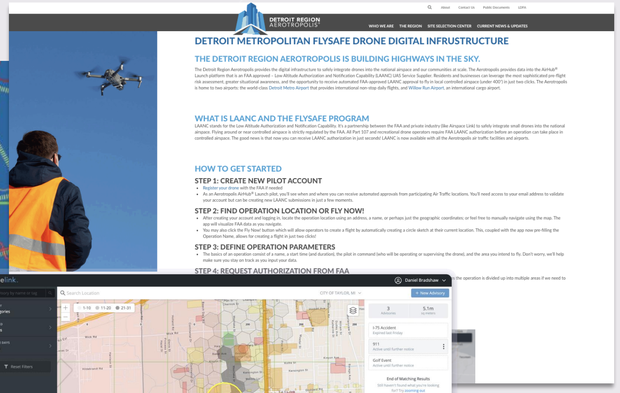
SUPPORTING GOVERNMENT AND PLANNING AGENCIES

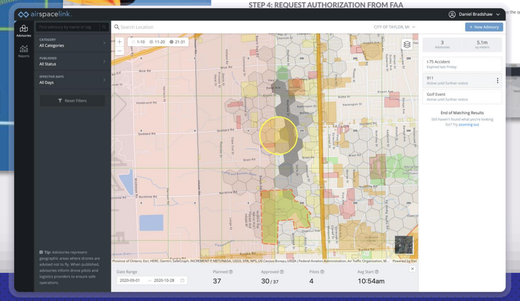
- Transportation Planning
- Risk Modeling
- Advisory Management
- Flight Reports
- Edit & Publishing
- Permitting
- Ordinance
- Federal Data Exchange
- Flight Restrictions
- Geo-Enrichment



Momentum Starts With Communities







2018

Airspace Link partnership with Detroit Aerotropolis (2 airports, 4 communities, 2 counties, ACM)

Michigan announces autonomous corridor connecting Ann Arbor to Detroit

2020

2021

MDOT publishes RFP for “Connected Air Mobility”, adding another dimension to CAV corridor

UAS medical item delivery pilot with City of Royal Oak & Beaumont hospital

2022

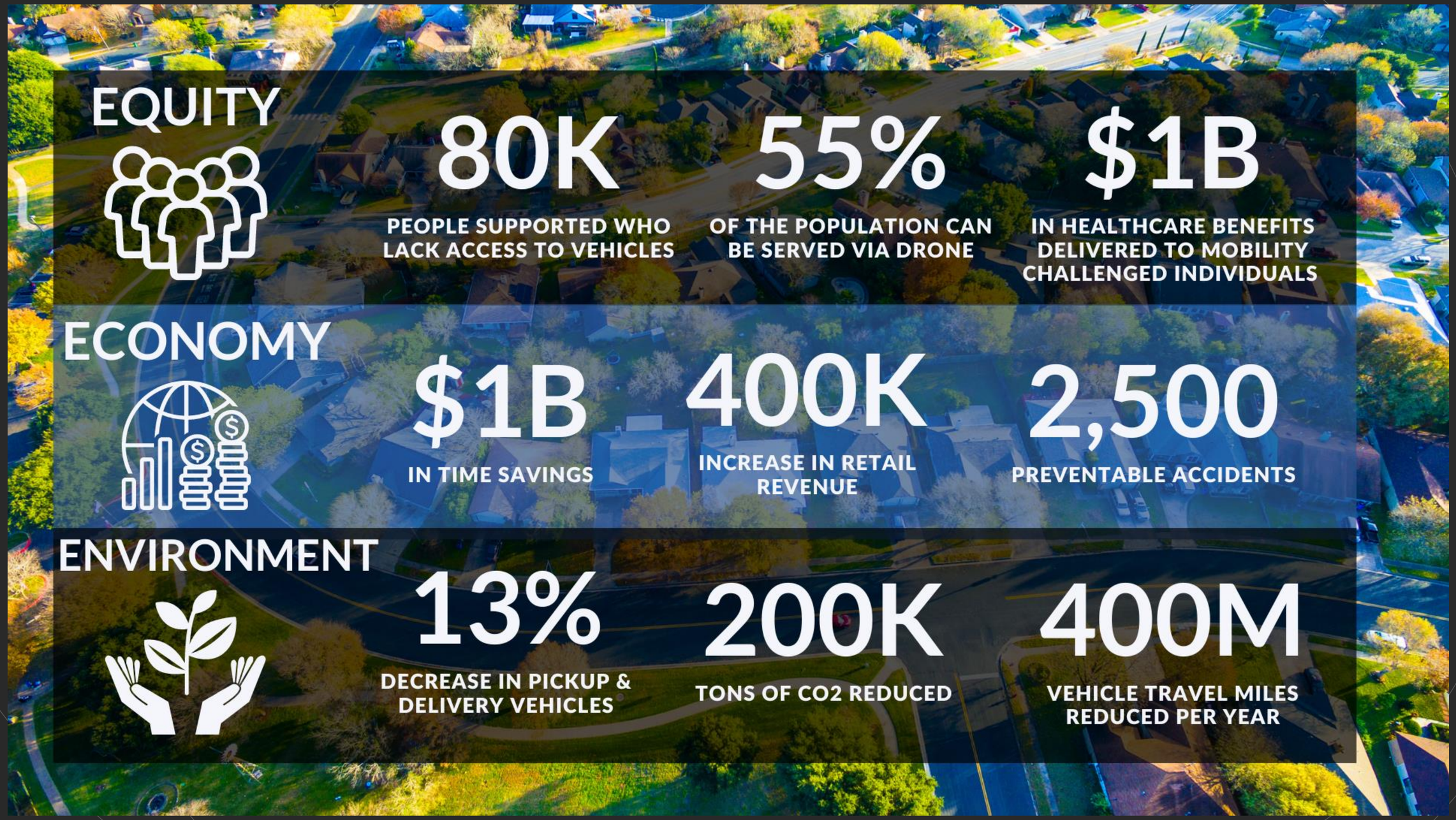
Virtual town hall meetings with local communities / industry stakeholders

Shared Use Infrastructure Is Required for Safety, Scale, and Efficiency

Airspace Link Has The Experience and The Solutions to Pave the Way!

Powering Real-World BVLOS UAS Operations Today

Community Benefits (medium size population density)



airspacelink

Questions?

Please contact us for more information and demonstrations

Chris.mitton@airspacelink.com

http://airspacelink.com - SIGN UP FOR A DEMO ACCOUNT!
https://connect.airspacelink.com/#/

NCTCOG UAS Task Force Meeting

Wisk Aero Overview

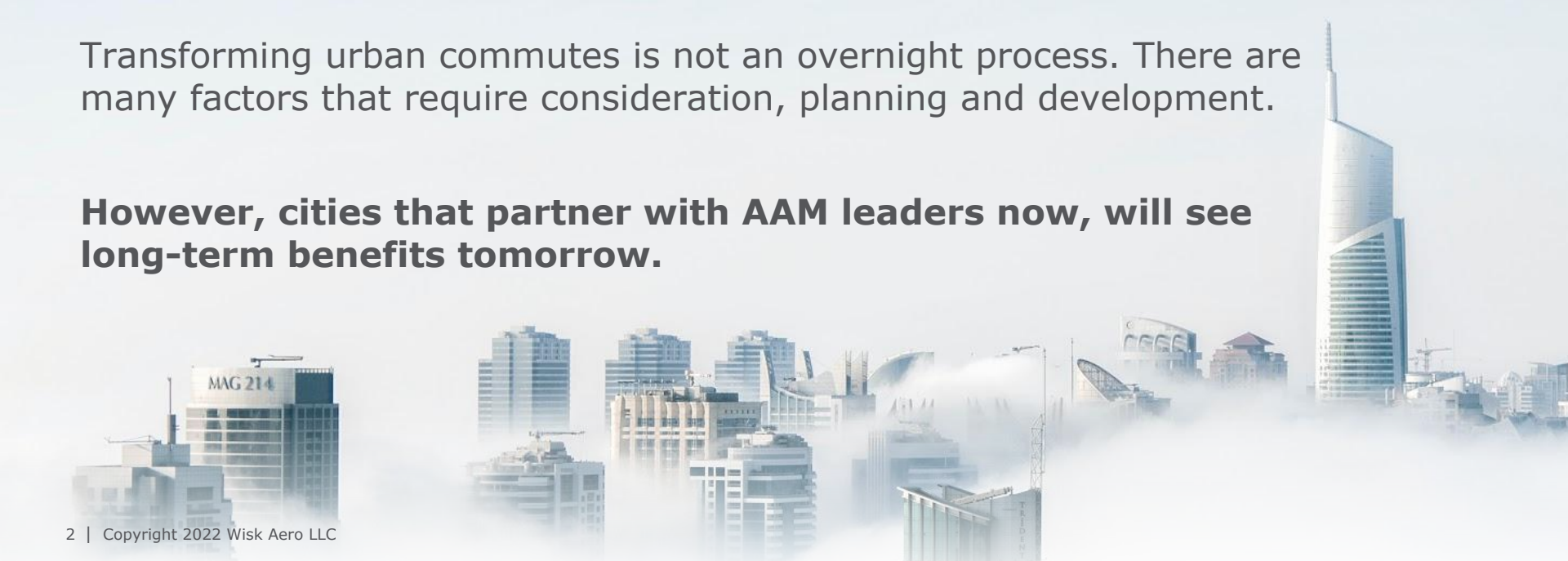
8.30.22

Why Now?

Technology has advanced and can meet commuter demand for alternative mobility options.

Transforming urban commutes is not an overnight process. There are many factors that require consideration, planning and development.

However, cities that partner with AAM leaders now, will see long-term benefits tomorrow.



Why Wisk?

Wisk operates as a true partner to local city governments, working hand-in-hand with city officials to ensure minimal city disruption and maximum community support.

Through local job creation, economic stimulation and educational opportunities, we're bringing more than just the future of flight.

OUR VISION

Less time getting there means more time being there

OUR MISSION

Deliver safe everyday flight for everyone.


wisk

Who We Are

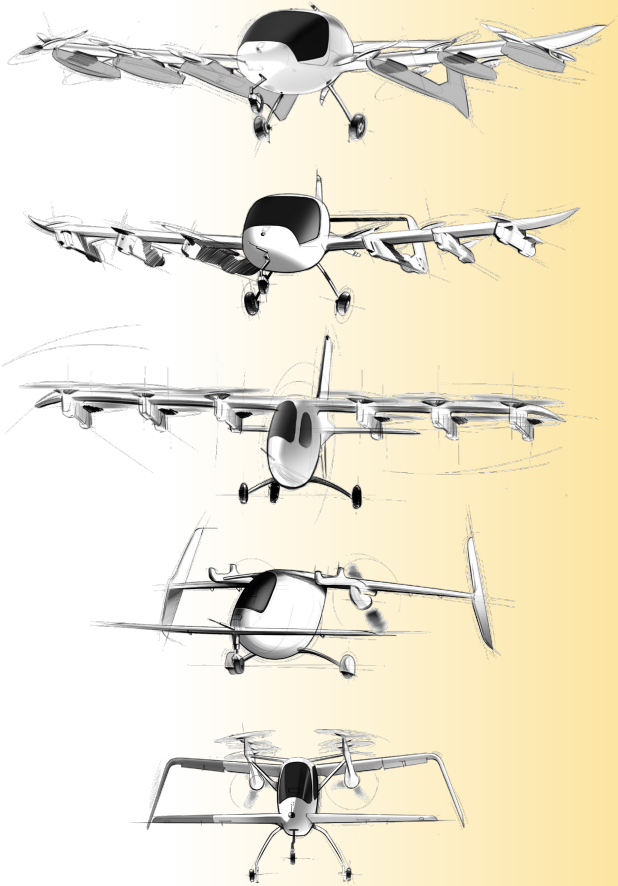
Employees: ~425* with most in engineering, manufacturing, and flight test

Locations: Bay Area CA (HQ), New Zealand and Atlanta

Patents issued: 175+

Test flights: 1550+ (all full-scale aircraft)

Backed by leaders in aviation: The Boeing Company and Kitty Hawk



Generation 5
2018 - current

Generation 4
2017 - current

Generation 3
2015 - 2017

Generation 2
2015

Generation 1
2011 - 2014

*Includes ~100 Boeing engineers supporting future aircraft.

Self-flying First

- Piloted vs. self-flying
- Improved safety
- Where UAM is ultimately headed
- Easier to scale:
  - Pilot shortage is a problem
  - Lower cost
  - Simpler to maintain

INDUSTRY-LEADING PARTNERSHIPS

Stronger Together

30 years of autonomous experience | Breadth & depth of technical leadership | Joint regulatory engagement | Dozens of aircraft FAA type certified | Access to ecosystem and technology investments | Global aerospace reach & scale | Stakeholder relationships

wisk

NASA AIR NEW ZEALAND BLADE

BOEING

Aurora AVIALL ForeFlight INSITU JEPPESEN

Decarbonizing Transportation

Wisk is a leader in the electric aviation evolution. Wisk has put carbon-neutral technologies and sustainable operations at the heart of everything we do.

Zero-emissions future of air transportation

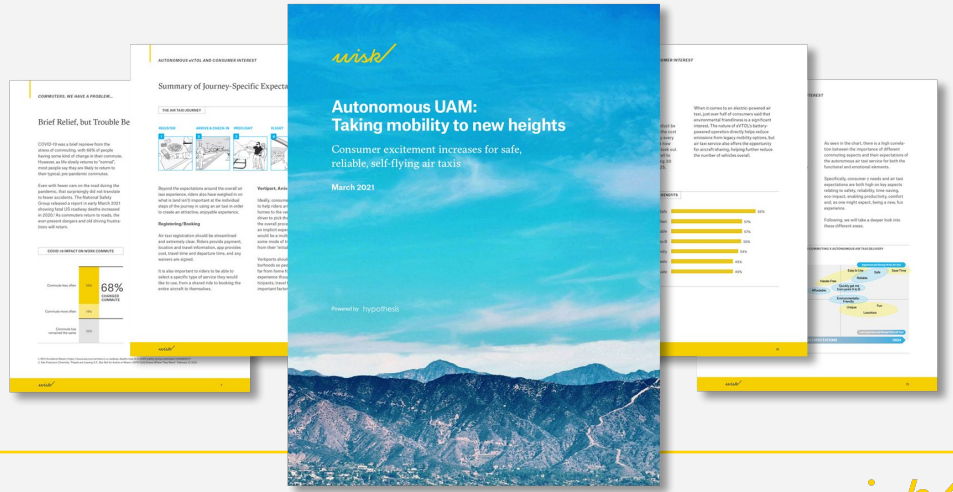
Sustainable design (eg, battery, composite recycling, etc).

Stronger Together

wisk BOEING

Wisk White Papers Shared with Industry

wisk.aero/whitepaper

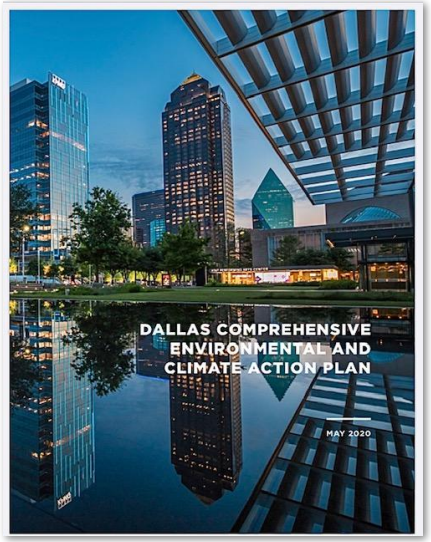


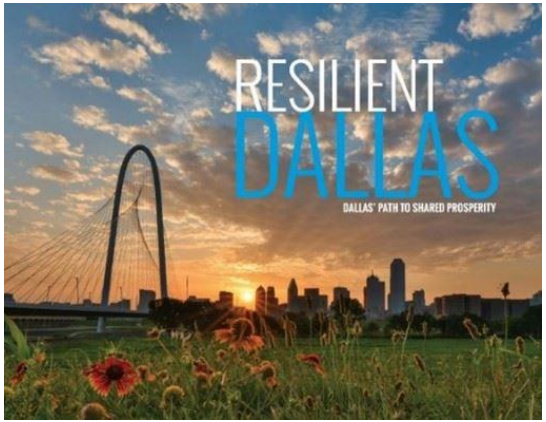
AAM Potential in Dallas

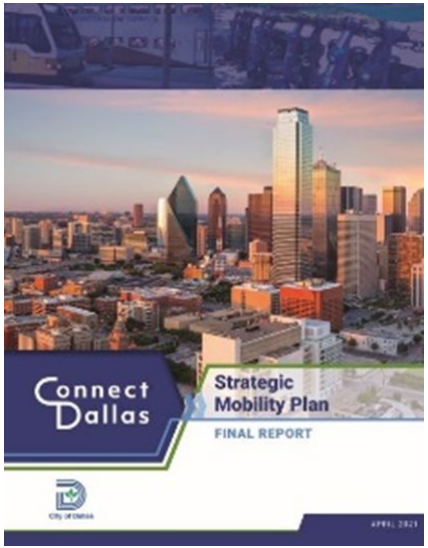
Dallas has all the ingredients required to make AAM an essential part of the transportation offering, thus spurring economic growth.

- Business friendly, zoning laws
- Supports a fast multi-center metro development at low infrastructure costs
- Commuting time savings for the riders, alleviates pressure on existing infrastructure and improve air quality for the non riders
- Increase access to airports
- Complements fleet electrification
- Attractiveness for new and existing businesses
- Revolution in aerospace at an unprecedented scale that will:
  - Revitalize underutilized aviation infrastructure
  - Leverage existing parking infrastructure in this car centric city
  - Foster innovation and attract talent to Dallas.
  - Spur workforce development and education opportunities.
- eVTOLs can become a key tool for disaster relief efforts

AAM Supporting Existing Efforts

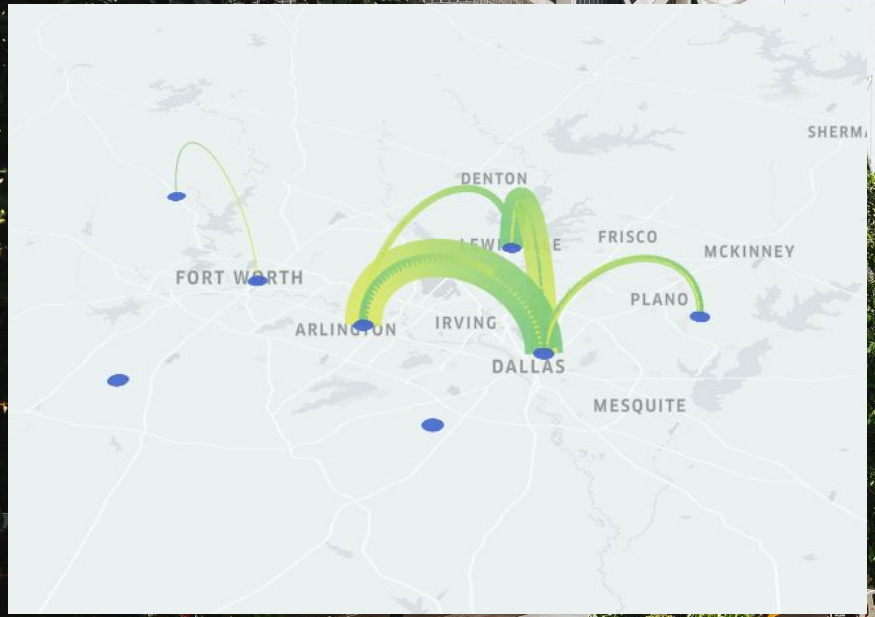






2030 Vision

*Dallas among the **first US Cities** flying **autonomous** AAM aircraft*



Multifaceted Vertiport Siting Constraints

- What are *our* vertiport constraints?
  - **Land use**
  - **Right-sized footprint**
  - **Noise**
  - **Existing infrastructure & communications networks**
  - **Siting accessibility**
  - **Multimodal connectivity**
  - **Sociodemographic characteristics**
  - **Community Engagement**
  - **Airspace integration**
  - **Electric grid and charging infrastructure**

- Infrastructure and standards key in shaping the future of autonomous flight

Thank you!

Contact:

Emilien Marchand
Director Ecosystem Partnerships
emilien.marchand@wisk.aero

HAAPE-CHAMP

Science, Technology, Engineering and Mathematics. (STEM)

HAAPE-CHAMP Introduction to Drone Pilot Program

INSTRUCTOR- BRETT CARPENTER (MR. BRETT)

OVERVIEW

This reason for this class is to give you information to help you decide if you want to become a pilot who flies drones. This in a DJI inspire drone.

OVERVIEW

When you see words in red, we will explain what the words in red mean.
The words in red are called terms.
Terms help people to use the same words to talk about new things so everyone understands each other.

In this class, we will discuss 5 different types of drones.
Three are just for fun. Two are used at a job.

1) Tiny Whoop Drones- FOR FUN
2) Racing Drones- FOR FUN
3) Freestyle Drones FOR FUN
4) Commercial Drones FOR A JOB
5) Industrial Drones FOR A JOB

ELIOS Drone

What is an ELIOS drone?

Why do they call it ELIOS?

It stands for Environmental Legal Information Observatory System

AGL= Above Ground Level.

MSL=Mean(average) Sea Level

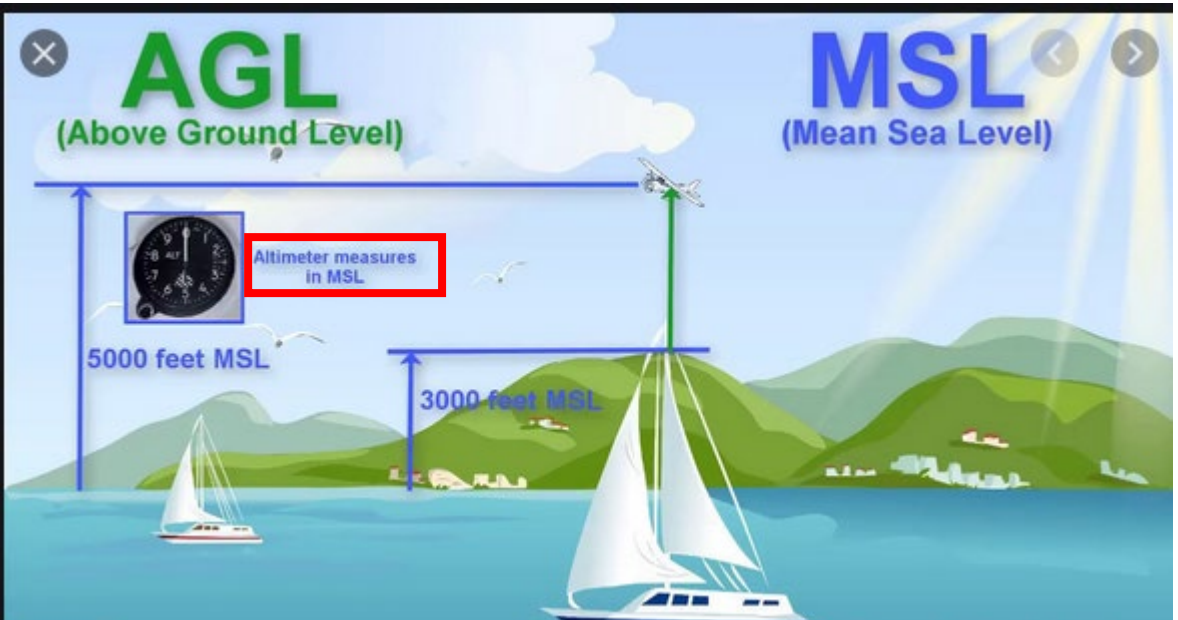
THIS DISCUSSION IS ALL ABOUT ALTITUDE

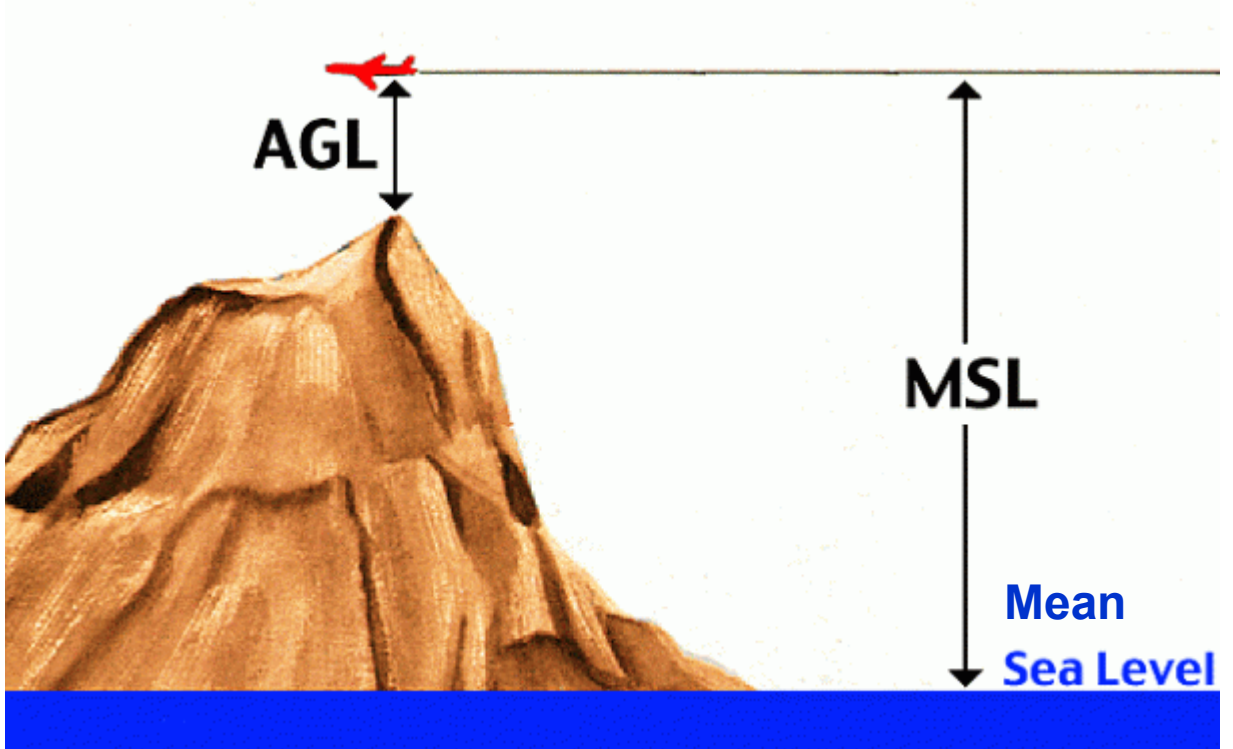
FAA AND DRONE TERMINOLOGY

A pilot must know the difference between AGL and MSL.

If the pilot is below AGL the pilot will crash the drone.

MSL is always equal to or larger than AGL.





Activity 1
How do you make a peanut butter and jelly sandwich?

JOB AID

CHECKLIST ON HOW TO MAKE A PEANUT BUTTER AND JELLY SANDWICH.

Name _____

Date _____

Class 1 OR 2

1-
2-
3-
4-
5-
6-
7-
8-
9-
10
11
12
13
14
15
16
18
19

WHAT WAS THE PICTURE SUPPOSED TO LOOK LIKE?

WHAT IS WRONG WITH THE PICTURE?

Reading Pictures

Directions: Study the pictures. Look beyond the obvious to see what you can learn by studying the background.

	What have you learned by studying the background?
[redacted]	

JOB AID

MAKING AND CARRYING OUT PLANS

GETTING READY FOR SCHOOL IN THE MORNING

Step #	Step Description	Comment
	Get dressed.	
	Make your bed.	
	Comb your hair.	
	Get backpack ready.	
	Decide what to wear	
	Get out of bed	
	Eat breakfast	
	Leave for school	
	Brush your teeth	
	Pack your lunch	

These are steps to get ready for school each morning. Assign (write down) a number by each step to tell the order in which you do them. Start with one and end with 10.

SECTIONAL AERONAUTICAL CHART

SCALE 1:500,000

LEGEND

Airports having Control Towers are shown in Blue, all others in Magenta. Consult Airport/Facility Directory (A/FD) for details involving airport lighting, navigation aids, and services. For additional symbol information refer to the Chart User's Guide.

AIRPORTS

Other than hard-surfaced runways

Seaplane Base

Hard-surfaced runways 1500 ft. to 8069 ft. in length

Hard-surfaced runways greater than 8069 ft., or same multiple runways less than 8069 ft.

Open dot within hard-surfaced runway configuration indicates approxmate VOR, VOR-DME, or VORTAC location.

All recognizable hard-surfaced runways, including those closed, are shown for visual identification. Airports may be public or private

ADDITIONAL AIRPORT INFORMATION

Private "(Pvt)" – Nos-public use having emergency or landmark valve.

Military – Other than hard-surfaced. All military airports are identified by abbreviations AFB, NAS, AAF, etc. For complets airport information consult DOD FLIP.

Heliport Selected

Unverified

Abandened–paved, having landmark value, 3000 ft. or greater

Ultralight Flight Park Selected

Services–fuel available and field attended during normal working hours depicted by use of ticks around basic airport symbol. (Normal working hours are Mon thru Fri 10:00 A.M. to 4:00 P.M. local tima. Consult A/FD for service availability at airports with hard-surfaced runways greater than 8069 ft.

Rotating airport beacon in operation Sunset to Sunrise

AIRPORT DATA

Box indicators FAR 93 Special Air Traffic Rules& Airport Traffic Patterns

FSS

FAR 91

NO SVFR

Location Identifier

NAME (NAM) (PNAM)

CT – 118.3 * ATIS 123.8

285 L 72 122.95

RP 23, 34

VFR Advsy 125.0

AOE

UNICOM

Runways with Right Traffic Patterns (public use)

RP Special conditions exist - see A/FD

Airport of Entry

ICAO Location Indicator shown outside contiguous U.S.

FSS – Flight Service Station

NO SVFR – Fixed wing special VFR flight is prohibited.

CT– 118.3 – Control Tower (CT) primary frequency

* – Star indicates operation part-time (see tower frequencies) tabulation for hours of operation).

C – Indicates Common Traffic Advisory Frequencies (CTAF)

ATIS 123.8 – Automatic Terminal Information Service

ASOS/AWOS 135.42 – Automated Surface Weather Observing Systems (shown where full-time ATIS is not available). Some ASOS/AWOS facilities may not be located at airports.

UNICOM – Aeronoutical advisory station

VFR Advsy – VFR Advisory Service shown where full-time ATIS not available and frequency is other than primary CT frequency.

285 – Elevation in feet

L – Lighting in operation sunset to sunrise

*L – Lighting limitations exist, refer to Airport/Facility Directory.

72 – Length of longest runway in hundreds of feet; usable length may be less.

When information is lacking, the respective charactor is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.

AIRPORT TRAFFIC SERVICE AND AIRSPACE INFORMATION

Only the controlled and reserved airspace effective below 18,000 ft. MSL are shown on this chart. All times are local.

Class B Airspace

Class C Airspace (mode C See FAR 91.215/AIM.)

Class D Airspace

40 Ceiling of Class D Airspace in hundreds of feet. (A minus ceiling value indicates surface up to but not including that value).

Class E (sfc) Airspace

Class E Airspace with floor 700 ft. above surface.

Class E Airspace with floor 1200 ft. or greater above surface that abuts Class G Airspace.

2400 MSL / 4500 MSL Differentiates floors of Class E Airspace greater than 700 ft. above surface.

Class E Airspace exists at 1200' AGL unless otherwise designated as shown above.

Class E Airspace low altitude Federal Airways are indicated by center line. Intersection - Arrows are directed towards facilities which establish intersection.

132° V 69

Total mileage 169 between NAVAID, on direct Airways

Class E Airspace low altitude RNAV routes are indicated by center line.

T319 TK313 (helicopter only) RNAV waypoint

Prohibited, Restricted, and Warning Areas; Canadian Advisory, Danger, and Restricted Areas.

Alert Area and MOA - Military Operations Area

Special Airport Traffic Area (See FAR Part 93 for details)

ADIZ - Air Defense Identification Zone

Mode C (See FAR 91.215/AIM).

National Security Area

Terminal Radar Service Area (TRSA)

IR211 MTR - Military Training Route

MISCELLANEOUS

-1° E- Isogonic Line (2010 VALUE)

U Ultralight Activity

H Hang Glider Activity

G Glider Operations

UA Unmanned Aircraft Activity

Parachute Jumping Area (See Airport/Facility Directory).

Marine Light

NAME (VPXYZ)

VFR Waypoints (See Airport/Facility Directory for latitude/longitude).

TOPOGRAPHIC INFORMATION

95 40 Roads & Road Markers

Railroad

Power Transmission Lines

Aerial Cable

Landmark Feature - stadium, factory, school, golf course, etc.

Outdoor Theatre

Lookout Tower 618 (Elevation Base of Tower)

CG Coast Guard Station

Race Track

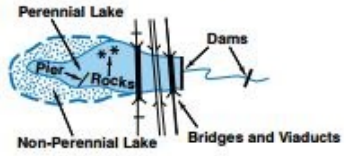
Tank-water, oil or gas

Oil Well • Water Well

Mine or Quarry

Mountain Pass 11823 (Elevation of Pass)

(Pass symbol does not indicate a recommended route or direction of flight and pass elevation does not indicate a recommended clearance altitude. Hazardous flight conditions may exist within and near mountain passes).



RADIO AIDS TO NAVIGATION

VHF OMNI RANGE (VOR)

VORTAC

VOR-DME

Non-Directional Radiobeacon (NDB)

NDB-DME

Other facilities. i.e., FSS Outlet, RCO, etc.

COMMUNICATION BOXES

122.1R 122.6 123.6

OAKDALE

382 * OAK H

Underline indicates no voice on this frequency. Crosshatch indicates Shutdown Status

* Operates less than continuous or On-Request.

A ASOS/AWOS

H HIWAS

122.1R

MIAMI

FSS radio providing voice communication

122.1R

CHICAGO CHI

Heavy line box indicates Flight Service Station (FSS). Frequencies 121.5, 122.2, 243.0 and 255.4 (Canada - 121.5, 126.7 and 243.0) are available at many FSSs and are not shown above boxes. All other frequenciesare shown.

Certain FSSs provide Airport Advisory Service, see A/FD.

R - Receive Only.

Frequencies above this line box are remoted to NAVAID site. Other FSS frequencies providing voice communication may be available as determined by altitude and terrain. Consult Airport/Facility Directory for complete information.

OBSTRUCTIONS

1000 ft. and higher AGL

below 1000 ft. AGL

or Group Obstruction

Obstruction with high-intensity lights May operate part-time

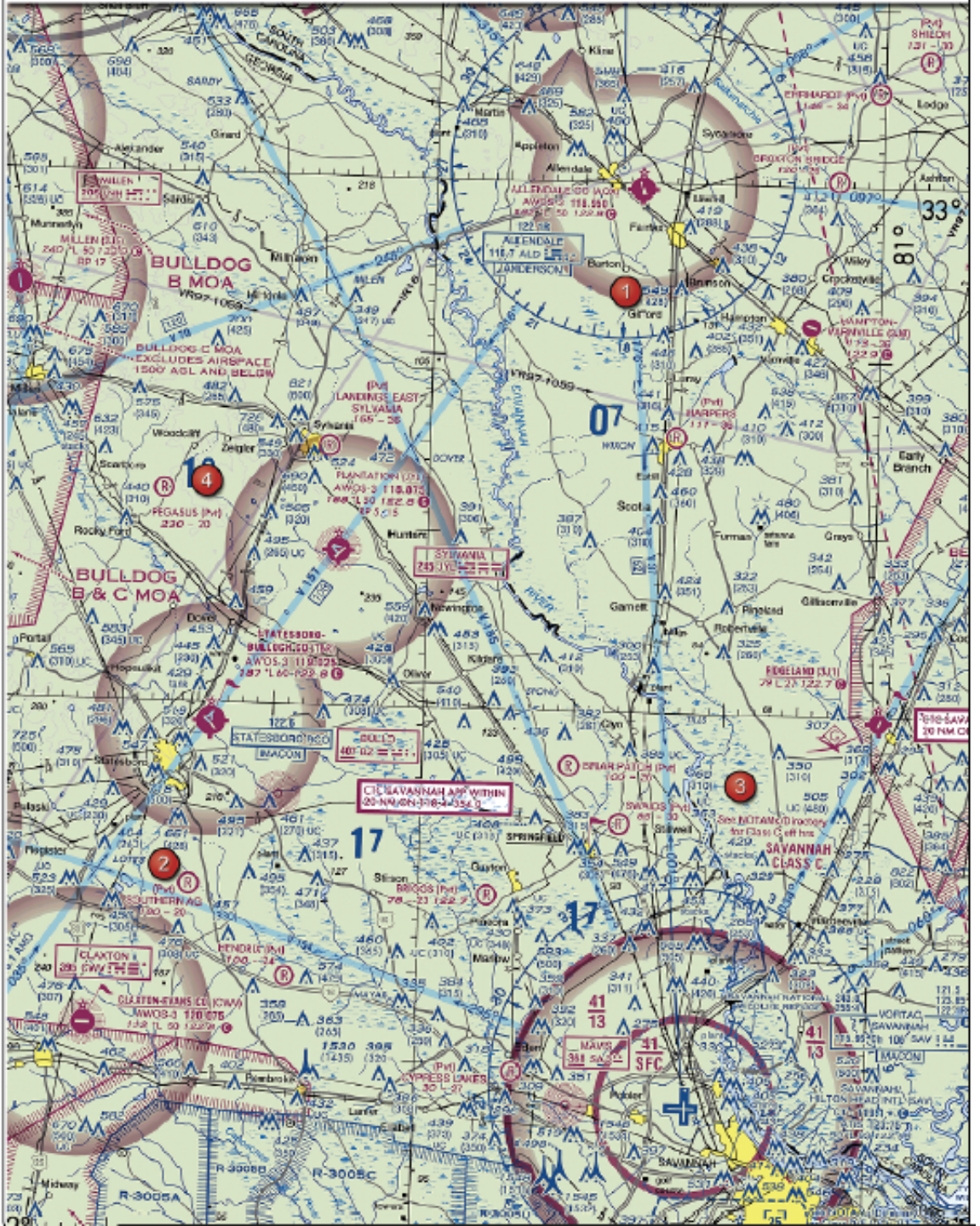
or

2049 Elevation of the top above mean sea level

(1149) Height above ground

UC Under construction or reported; position and elevation unverified.

NOTICE: Guy wires may extend outward from structures


BULLDOG
B MOA
BULLDOG C MOA
EXCLUDES AIRSPACE
1500' AGL AND BELOW
BULLDOG
B & C MOA
SAVANNAH
CLASS C
1
2
3
4


BULLDOG
B & C MOA
1
2
4

Drone Pilot Familiarization and FAA Certification Courses

Familiarization Class Details (Phase 1)

1-This class is **FREE** of charge.

2-Six (6) hours of on-line instruction on ZOOM. 3 days, 2 hours each day.

3-Instructor led class includes lecture, some animation, and short videos.

FAA Drone Certification Class Details (Phase 2)

1-This on-line class is the means for any person to obtain their commercial drone pilot license.

2-Class costs the student $225 using a referral for a 20% discount.

3-This class is self paced and includes a video lecture and a written transcript to accommodate different learning styles.

For questions call HAAPE-CHAMP at 561-308-3305 or e-mail HAAPE-CHAMP at brettc@myychamp.com

WHAT WE ARE GOING TO LEARN IN THE FAMILIARIZATION CLASS.

1) OVERVIEW
2) TYPES OF DRONES
3) FLIGHT BASICS
4) FAA AND DRONE TERMINOLOGY
5) DRONE PILOT JOB REQUIREMENTS
6) JOB AIDS TO USED IN CLASS
7) TYPES OF JOBS AS A DRONE PILOT
8) DRONE PILOT SALARIES
9) DRONE PILOT 107 LICENSE AND TEST

TODAY'S TOPICS:

- DRONE LITIGATION DATABASE
- UPDATE:

NATIONAL PRESS PHOTOGRAPHERS ASSN V. MCCRAW

- A LOOMING PROBLEM: THE AIRCRAFT TRUST
- DRONE DESIGN COMPETITIONS

TOPIC 1:

► DRONE LITIGATION DATABASE

HTTPS://JRUPPRECHTLAW.COM/DRONE-LAWSUITS-LITIGATION

HTTPS://JRUPPRECHTLAW.COM

~~Sample Page:~~

Rupprecht Law Firm Drone Litigation Case List

- United States v. Eric Lee Brown. Prosecuted for a drone drug drop but what is really interesting is one of the criminal charges was for failing to register the drone. There was a plea agreement.
- Autel Robotics USA LLC v. DJI -patent infringement action case in US District Court for the Southern District of New York. Complaint here.
- EPIC v. FAA, Drone Advisory Committee RTCA, & more. – Lawsuit under the Administrative Procedures Act and the Federal Advisory Committee Act to obtain records from the the Drone Advisory Committee.
- Robert Taylor v. FAA – Class action lawsuit over the registration regulations currently being litigated in the D.C. Circuit seeking around $840 million in damages and fees. Dismissed.
- Reichert v. FAA – Currently being litigated. Class action lawsuit against the FAA seeking to destroy the FAA registry and get the money back to all those who have registered.
- Singer v. City of Newton – Struck down the local drone law as illegal. Federal District Court of Massachusetts struck down the local drone ordinance as being unconstitutional. It was appealed by the City to the appeals court but the City asked for the case to be dismissed which the court granted.
- FAA v. Haughwout case (the kid with the gun and the drone) litigated a federal district court in Connecticut and the only order was that the FAA's subpoena powers were very broad.
- ~~Flores v. State of Texas~~ -Southern Federal District Court of Texas case on whether the Texas state drone law violates the Equal Protection Clause.
- FAA v. Skypan case in the federal North District Court of Illinois.
- Boggs v. Meredith case in the federal Western District Court of Kentucky which was dismissed. Boggs' drone was shot down by Meredith. Boggs sued in federal court claiming the drone was in navigable airspace (which means he was not trespassing in Meredith's airspace) and was entitled to compensation. The court dismissed the case because the court did not have the subject matter jurisdiction to decide the case and the case should be resolved in Kentucky state court.
- DJI v. Yuneec – DJI is suing Yuneec alleging patent infringement.
- DJI v. Autel – DJI files a patent infringment lawsuit.
- Garmin v. uAvionix- Garmin filed suit against uAvionix for patent infringement.

+

=

BAD NEWS FOR SEA WORLD

AND

DAVID O’NEAL

Former Drone Show Operator Indicted For Fraud Anc

On September 2, 2020, former drone show operator David J. Oneal was indicted by a grand jury in the Western District of Texas for wire fraud and aggravated identity theft.

Former drone show operator indicted for fraud and identity theft

TOPIC 2:

►UPDATE: *NATIONAL PRESS PHOTOGRAPHERS ASSN V. McCRAW*

(TEXAS PRIVACY ACT)

National Press Photographers et al *v. McCraw*

Filed: Sept 26, 2019 - U.S.Dist.- W.Dist. Tex.-Austin

Plaintiffs' Issues

- 423.0045 and 423.0046 (THE "NO FLY" PROVISIONS) MUST BE 400 FEET OR GREATER ABOVE STRUCTURES
- SURVEILLANCE EXEMPTIONS (FAILED TO EXCLUDE FREE SPEECH AND NEWSGATHERING ACTIVITIES)
- WHAT IS "SURVEILLANCE?"
- WHAT IS "COMMERCIAL PURPOSE?"
- SUPREMACY CLAUSE – RE: NATIONAL AIRSPACE AND AVIATION SAFETY
- CAPTURE, POSSESS, PUBLISH
- HELICOPTERS V. DRONES

National Press Photographers et al *v. McCraw*

Filed: Sept 26, 2019 - U.S.Dist.- W.Dist. Tex.-Austin

RESULT: SUMMARY JUDGMENT FOR PLAINTIFFS

National Press Photographers et al *v. McCraw*

Filed: Sept 26, 2019 - U.S.Dist.- W.Dist. Tex.-Austin

Defendants' Issues: Procedural

No Standing by Individual Journalist Plaintiff "Reasonably Fears" Prosecution
Insufficient - No Injury Never arrested, threatened with arrest etc

Did not hold a Part 107 license when he filed the lawsuit

Failed to show how planned activities would have violated Texas law;

Failed to show how injunction would solve his problem

because others have authority to enforce

No Standing by Association: Same reason plus no member issues

TOPIC 3:

- A LOOMING PROBLEM: AIRCRAFT TRUSTS

TOPIC 4:

- DRONE DESIGN COMPETITIONS


Team 22023
DF North Offset Drone Test Module (NODTM)
Sponsor: General Dynamics Mission Systems
Mentor: Huy Le
Team Members: Isela Burruel, Dylan Campbell, Charlie Charpentier, Osvaldo Estrella, Spencer Scher
Project Overview
Fabricate a small module that can be housed as an attachment to a drone such that the drone could fly around the Directional Finding tower at set locations and perform the North offset calibration test. The system needs to transmit a VHF signal at specific intervals, log its position, time and duration. This log would then be compared to the log created by the DF system in order to verify the North offset and to calibrate the system. The module would need to be small enough to be transported by a small drone and allow for onboard power and data retrieval.
Figure 1: Concept of Operations for NODTM
Methods
Software
Precise signal + positional data synchronization.
Hardware
Hamishield MINI
Arduino MEGA
SMA Antennia
ABS Housing
Analyses
Weight = 365.1 g
Max Breaking Pressure: 19.877 MPa
Tensile Modulus: 10.275 MPa
Free Space Path loss
System Block Diagram
Results
System Comparison
Design Goals
Use DJI Mavic Air Drone
Send VHF signals at specific intervals
Record position, time, and signal transmission.
Easy removable module data to be compared to the radio tower data.
Lightweight to reduce the time and labor needed to calibrate the radio tower.
Conclusions and Improvements