
AUVSI LONE STAR

Bryan Archer

President
**AUVSI Lone Star Chapter**

AUVSI

T.O.P. OPERATOR AUVSI

AUVSI REMOTE PILOTS COUNCIL

Co-organizer
**North Texas Drone User Group**

Bryan Archer

president

**Galaxy Aviation Inc.**

**Galaxy UAV**

Over 20 years in FAA Part 145 aircraft flight instruments and avionics

Over 30 years of flying remote controlled model aircraft

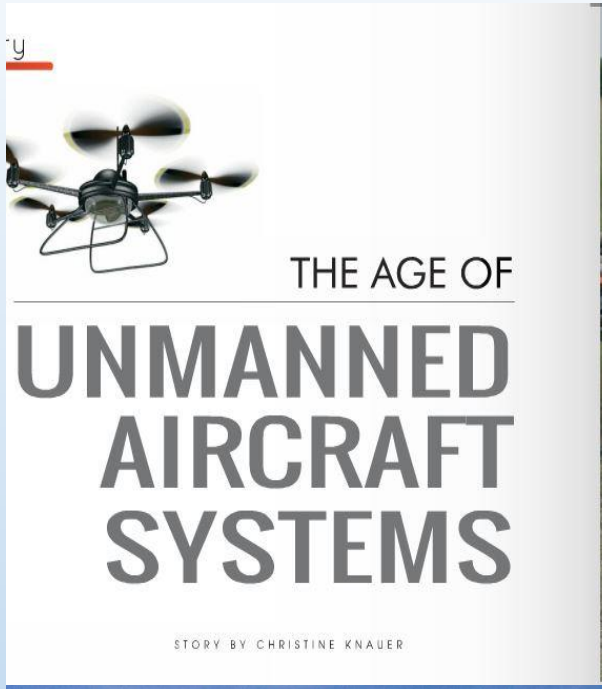
Received FAA 333 exemption in 2015

Commercial aerial data collection service by Drones

hold 2 FAA Certificates

**Part 145** Certified Repair Station

**Part 107** Remote Pilot





# WHO WE ARE

AUVSI is the **world's largest non-profit association** devoted exclusively to advancing unmanned systems and robotics.

We have a **diverse membership** from industry, government and academia.

AUVSI represents industry professionals from **500+ companies and organizations** from **60+ countries**.

# OUR MISSION

We provide our members with a unified voice in **advocacy** for policies and regulations that encourage growth and innovation;

We provide **education** within the industry, and to the public and media on the safe and beneficial uses of unmanned systems;

We enable **market growth** by providing our members with custom resources to collaborate with the community and realize their full potential within the industry;

We provide outstanding **member service** to the organizations and individuals that make up the AUVSI community.

# Events & Activities

AUVSI XPONENTIAL ALL THINGS UNMANNED

Chicago, IL | Apr 29-May 2, 2019

AUVSI UNMANNED SYSTEMS DEFENSE PROTECTION SECURITY

Washington, DC | August 2019

AUTOMATED VEHICLES SYMPOSIUM

Orlando, FL | July 15-18, 2019

AUVSI HILL DAY

Washington, DC | September 2019

FAA UAS SYMPOSIUM

Location TBD | March 2019

AUVSI Webinars

Every Month

# Collaboration benefits

- Advocacy at Washington DC
  strong partnership with Fed agencies
  such as DOT , FAA, DOD
- Education of robotics & related unmanned systems
- Public Drone educational demos
- UAS Related Seminars, symposiums and meetings

# Upcoming DFW  Local Events

- Next Lone Star chapter meeting mid- November

  AUVSI  TOP  certification info by Dr.Scott Burgess
  of Embry Riddle University

  Alliance  airport campus

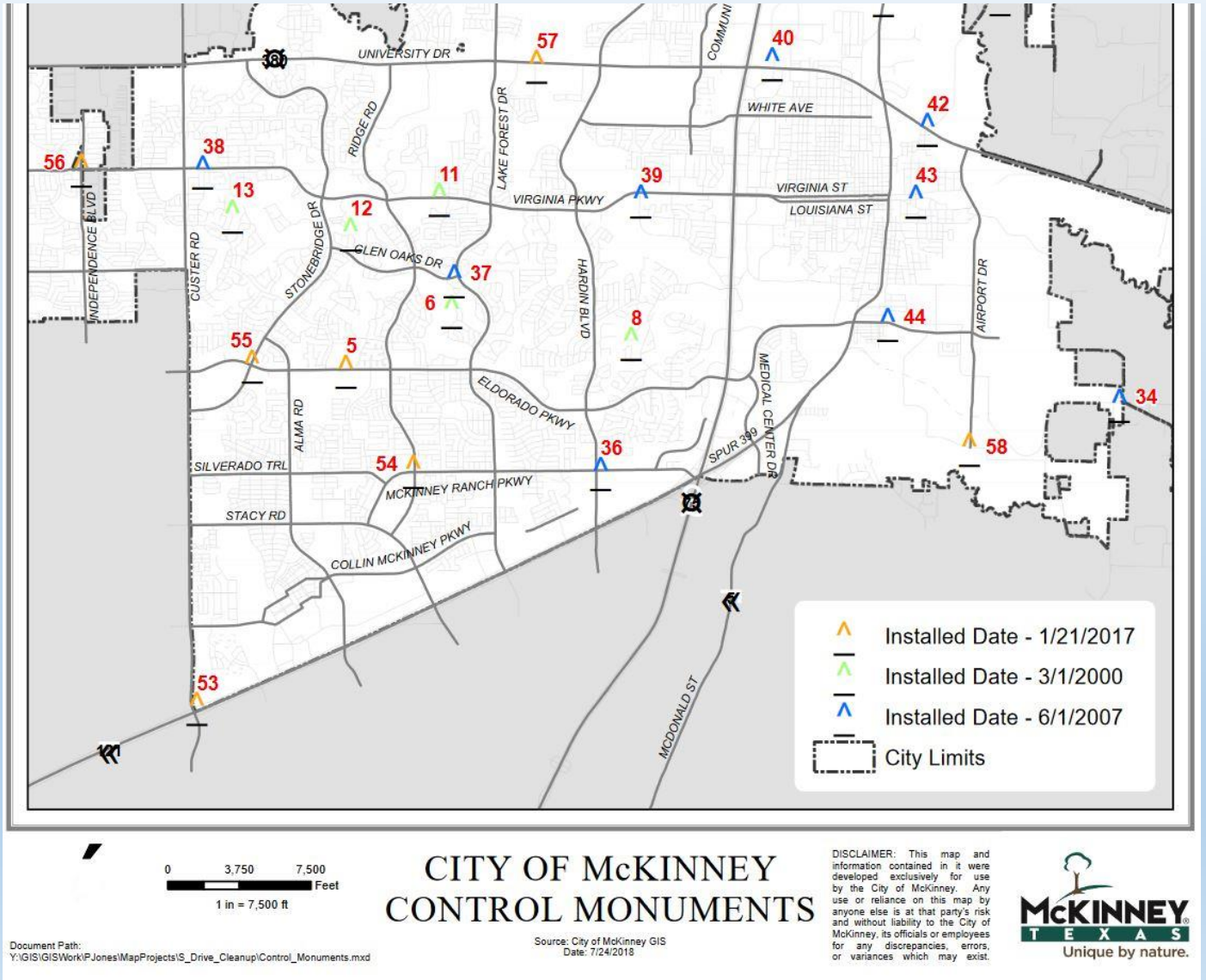
  open to public, registration required for non-members of AUVSI

- NTDUG  Monthly  Drone Flying events

# We seek

- GIS/UAS R & D partnerships with local Government & organizations

- partner organizations that can offer meeting space for events



# AUVSI TOP


T.O.P. OPERATOR
AUVSI
ASSOCIATION FOR UNMANNED VEHICLE SYSTEMS INTERNATIONAL
ASSOCIATION FOR UNMANNED VEHICLE SYSTEMS INTERNATIONAL
TM

# Questions ?

- bryan.archer@GalaxyUAV.com
- www.meetup.com/North-Texas-Drone-User-Group
- **Fly safe !**

# North Texas UAS Safety and Integration Initiative

## UAS Safety and Integration Task Force Meeting

Natalie Bettger

October 23, 2018

UAS
Unmanned Aircraft Systems
Safety + Integration

North Central Texas
Council of Governments

# Industries Impacted by UAS Technology

- Videography/Photography
- Real Estate
- Disaster Response
- City/Government
- Education
- Environment & Climate
- Insurance
- Transportation
- Meteorology
- Tourism
- Engineering
- Inspections
- Utilities
- Mining/Oil & Gas
- Agriculture
- Mapping
- Construction/Pre-construction
- Maritime

# By the Numbers

- Drone industry projected to be a $100 Billion market by 2020
- Registered commercial UAS users to increase from 110,000 to 450,000 by 2022
- Recreational UAS aircraft to increase from 1.7 Million to 3.17 Million by 2022
- DFW region has the 4th most Reckless UAS Sightings in the country

# Goals

## Establish a Task Force to:

- Mitigate reckless UAS operations
- Promote the integration of UAS into the DFW regional airspace
- Collaborate with regional partners for a coordinated comprehensive approach

# Task Force Members

- Airports
- Cities, Counties, TxDOT and FAA
- Military
- Public Safety
- UAS Industry Representatives (Training, Manufacturers, etc.)
- Universities
- NCTCOG Staff (Transportation, 911, and Emergency Preparedness)

# Programming

**UAS Safety and Integration Task Force**

**Safety**

**Integration**

**Education**

- Know Before You Fly Workshops
- Airport/Military Facility Risks

**Legislation**

- Regional Ordinance
- Statewide Legislation
- Permitting

**Training**

- Training Standards
- PSURT/Enforcement
- Promote UAS Training Industry Growth

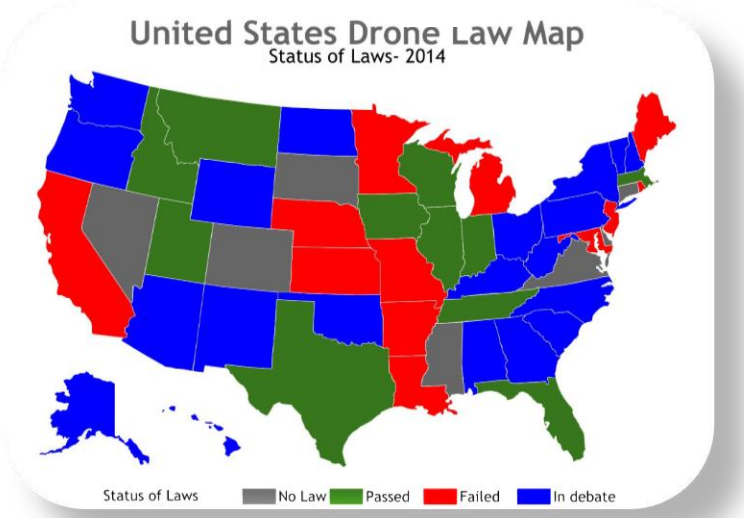
**Flight Testing**

- Various UAS Applications
- Airspace Integration

**Public Awareness**

- UAS Applications
- UAS Careers

# Safety


## Education

- Know Before You Fly Workshops
- Airport/Military Facility Risks

## Legislation

- Regional Ordinance
- Statewide Legislation
- Permitting

## Training

- Training Standards
- Public Safety
- Promote Training Growth

# Integration

HIRE
Drone Operators

**Flight Testing**

- Testing of Various UAS Applications
- Airspace Integration

**Public Awareness**

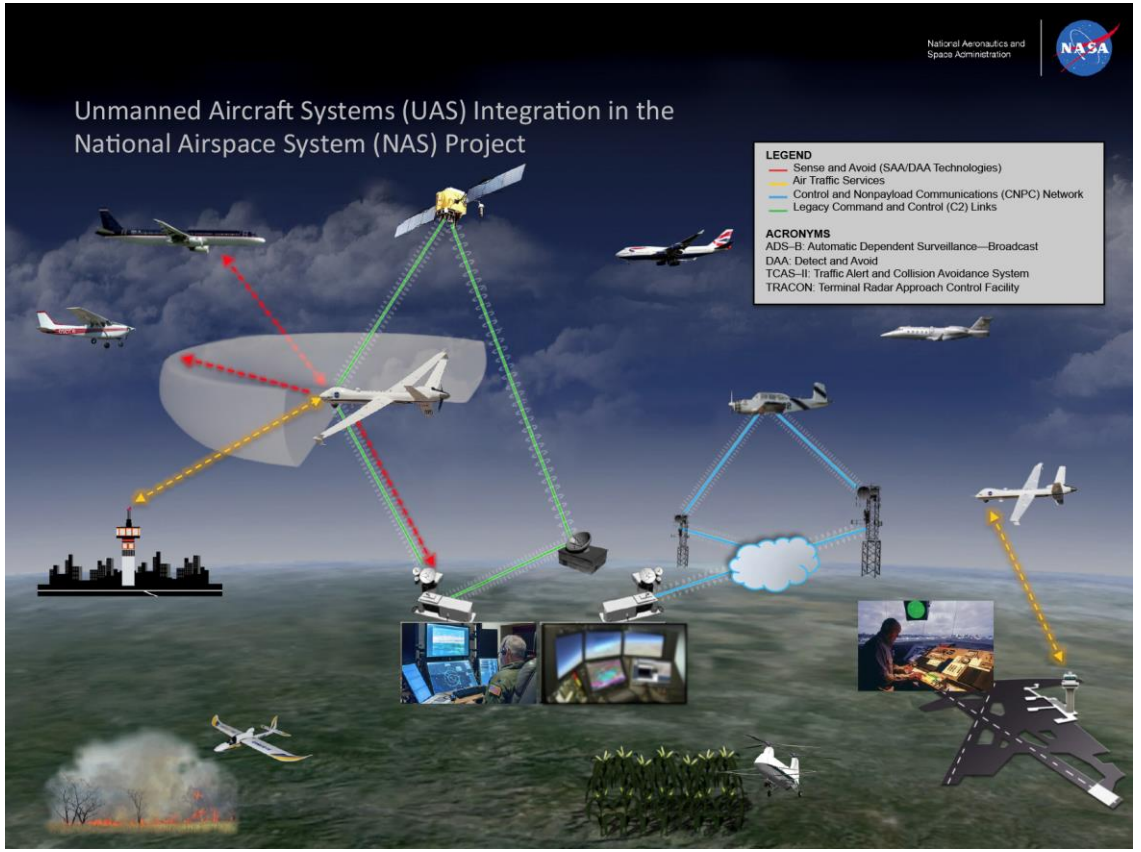
- Marketing Campaign
- UAS Talent Pipeline Creation
- UAS Career Outreach

# Existing UAS Groups

- Regional Coordination Committee
- Air Transportation Advisory Committee (ATAC) UAS Subcommittee
- Public Safety UAS Response Team and Committee
- North Texas UAS Works
- AUVSI LoneStar Chapter
- Regional Freight Advisory Committee
- DFW Aerospace Consortium
- Workforce Development

# Benefits to the Region

- Automated UAS Integration Ready
- Next Generation of Aviators
- Enhancing Public Safety
- Be at Forefront of UAS Industry



# Next Steps

- **UAS Apprenticeship Program**
- **Know Before You Fly Workshops**

# Contacts

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**Principal Transportation Planner**
**ehuffman@nctcog.org**
**(817) 704-5612**

UAS
Unmanned Aircraft Systems
Safety + Integration

North Central Texas
Council of Governments

# UAS Legislation

UAS SAFETY AND INTEGRATION TASK FORCE MEETING

OCTOBER 23, 2018

# UAS Topics in the 2017 Texas Legislature

## Restricting flights over certain facilities

- Correctional or detention facility
- Sports venue
- Telecommunications facilities
- Concentrated animal feeding operation
- Oil and gas facilities

## Images captured by UAS

- Newly allowed: telecommunications inspections/routing, border security, insurance policy/adjustment
- No longer allowed: real property or person within 25 miles of US border
- Addressed, but **not** passed: journalists covering matter of public interest

# UAS Topics in the 2017 Texas Legislature

## Local UAS Ordinance

Generally prohibited

Must first be approved by Federal Aviation Administration

Local government must hold public hearing

Ordinance an only address:

- Use of UAS during a special event
- The local government's use of UAS
- The use of UAS near a facility or infrastructure owned by the local government

# 2019 UAS Legislative Topics

## Regional Coordination Committee (approved)

- Add military installations and training areas and adjacent land to the list of restricted areas for UAS operation
- Support collaboration between local governments, the State, and the Federal Aviation Administration to advance regulations to ensure safe operations of UAS

## Regional Transportation Council (draft)

- Support collaboration between local governments, the State, the military, and the Federal Aviation Administration to advance regulations to ensure safe operations of UAS

# 2019 UAS Legislative Topics

## Texas House Transportation Committee Interim Charge

Study emerging issues in transportation related to technology and evaluate the state's preparedness for addressing challenges and opportunities posed by technological advances. Review the implementation of state and federal programs and legislation related to intelligent transportation systems, autonomous vehicles, **unmanned aircraft systems (i.e., drones)**, and other technological changes.

# UAS in FAA Reauthorization Act of 2018

## Government use of UAS

- Clarification of certificate of waiver or certificate of authorization for government agencies' use of UAS under certain conditions
- FAA special authority to permit UAS using a risk-based approach to determine safe operation of UAS in national airspace
- Pilot program to test integration of civil and public UAS operations into the low-altitude national airspace system
- Plan for UAS traffic management (UTM) to ensure safe operations up to 400 feet

## Commercial use of UAS

- FAA regulations to allow package delivery with UAS; requests privacy policies

# UAS in FAA Reauthorization Act of 2018

## Recreational use of UAS

- Rules for recreational use of UAS with several conditions, creates aeronautical knowledge and safety test
- Provides $1 million to Know Before You Fly educational safety campaign

## Law enforcement and emergency use of UAS

- Allows UAS use in response to an emergency by law enforcement
- Study on fire department and emergency service agency use of UAS
- Outreach to local law enforcement on how to identify and respond to threats from UAS; sharing of best practices for UAS use in law enforcement

# UAS in FAA Reauthorization Act of 2018

## Privacy and UAS

- UAS use must respect and protect personal privacy consistent with Constitution and federal, state and local laws

## Threats and UAS

- FAA to work with other federal agencies, particularly Department of Defense and Department of Homeland Security on interagency coordination for counter-UAS systems; ensure there is no adverse impacts to safety of airport operations
- Department of Justice and Department of Homeland Security can intercept UAS considered to be credible threats to covered facilities and assets (i.e., high-risk facilities, mass gathering events)

# UAS in FAA Reauthorization Act of 2018

## UAS criminal penalties

- Interfering with wildfire suppression or emergency response
- Interfering with manned aircraft or operating too close to a runway

## UAS Training

- Creates “Centers of Excellence” consortia of public, 2-year institutions to train students for careers in industry or government use of small UAS
- Establishes a collegiate training initiative program – new or renewed agreements to prepare students for UAS careers

# Questions

**Amanda Wilson**

Program Manager, NCTCOG

(817) 695-9284

awilson@nctcog.org

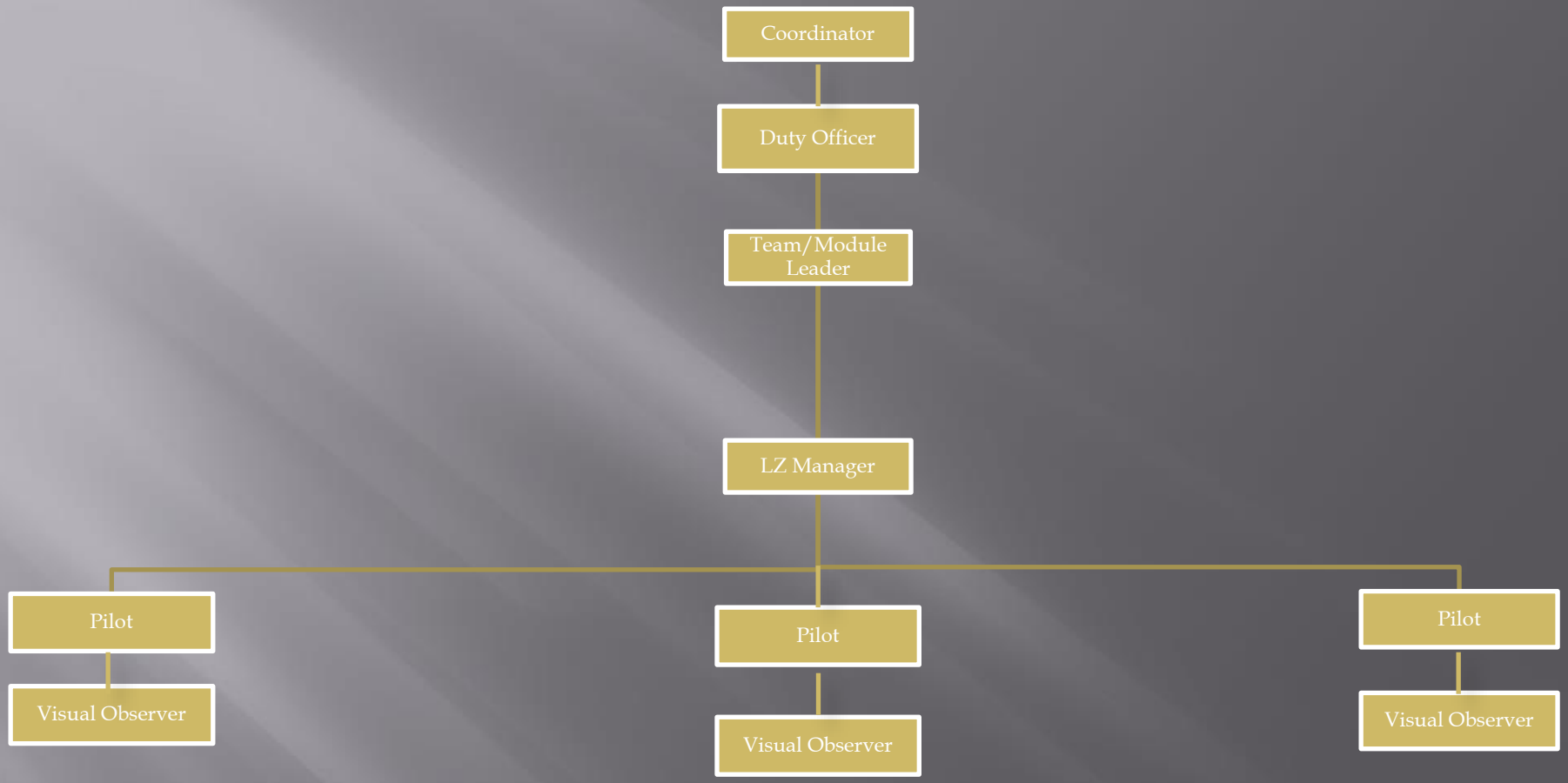

Public Safety
UAS Response Team


PUBLIC SAFETY
UAS RESPONSE TEAM

# What is PSURT ?

# Public Safety UAS Response Team

- The Public Safety UAS Response Team (PSURT) is a regional response team providing UAS support for public safety operations throughout the region/state .
- It is comprised of qualified Public Safety UAS Pilots from cities with FAA approved programs in North Texas.


Coordinator
Duty Officer
Team/Module Leader
LZ Manager
Pilot
Visual Observer
Pilot
Visual Observer
Pilot
Visual Observer

# PSURT Capabilities

- Aerial recon on wildland fires and structural fires
- 360º incident size-up
- Rapid flow path analysis on structure fires
- On-Scene personnel accountability
- Incident Safety Officer awareness
- Scene illumination with aerial spotlight
- Assess roof integrity
- Fire hydrant location
- Water discharge and effectiveness assessment
- Assessing effectiveness of attack line use in the attic space
- Identify unseen hotspots
- Water rescue via tagline / victim location / floatation device drops
- Flooding damage / infrastructure integrity
- Rapid storm damage assessment
- Missing person search
- Tornado Disaster Response
- Police suspect search and tracking
- Locate access to wildland fires
- Provide aerial imagery for arson fire investigation
- Fatality auto accident investigation
- Mapping of crime scenes
- Aerial surveillance of illegal narcotics production
- Post incident analysis and training
- Police perimeter aerial reinforcement
- SWAT over watch
- Bomb threat assessment
- Aerial recon of a HazMat incident
- Aerial recon of a train incident
- Emergency Management planning
- Municipality non-emergency support
- Hurricane Emergency Response
- Unprecedented situational awareness to Emergency Operations Center via live stream
- And MUCH more…

# The Big Issues

Basic Pilot Flight Skill Standards and Training

Credentialing

# Addressing the Issues

Best Practices Document covering 26 Counties

PSURT Handbook

NFPA 2400

NIST – National Institute of Standards and Technology

AUVSI ?

State of Texas

Develop Mission Critical Training Standards Handbook

# PSURT Hotline:

## 817-523-1549

psurtntx@gmail.com


PUBLIC SAFETY
UAS RESPONSE TEAM

# Types of Aircraft currently used by the Public Safety UAS Response Team (PSURT)

# Matrice 600 / Wind4

# M210

# Inspire 1

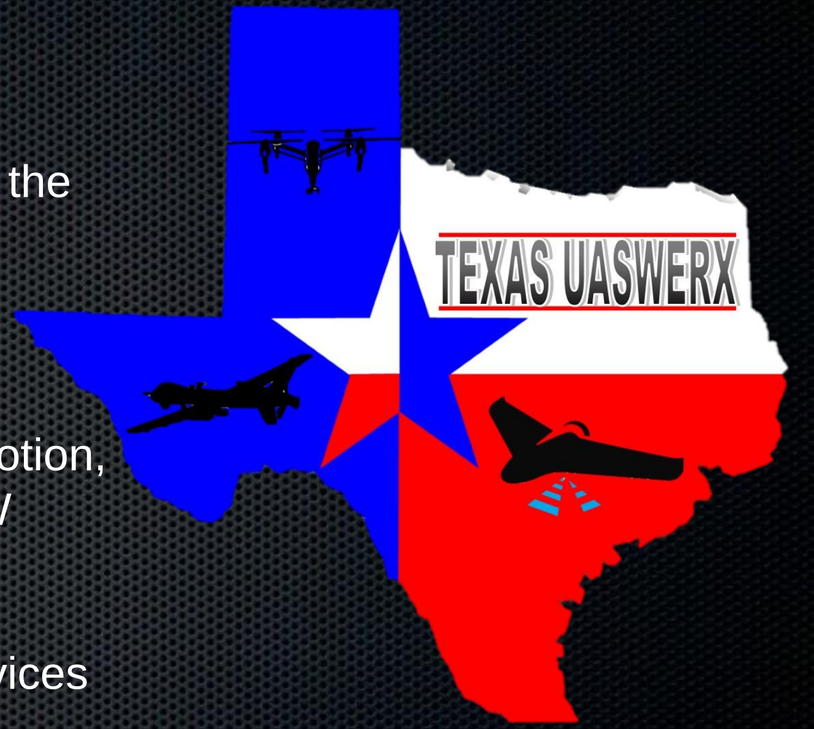
# Mavic Pro


MANSFIELD FIRE
UAS
600WATT
smart powercharge


MANSFIELD
MANSFIELD
TUFLOC

# Unmanned Aerial Systems Apprenticeship Program

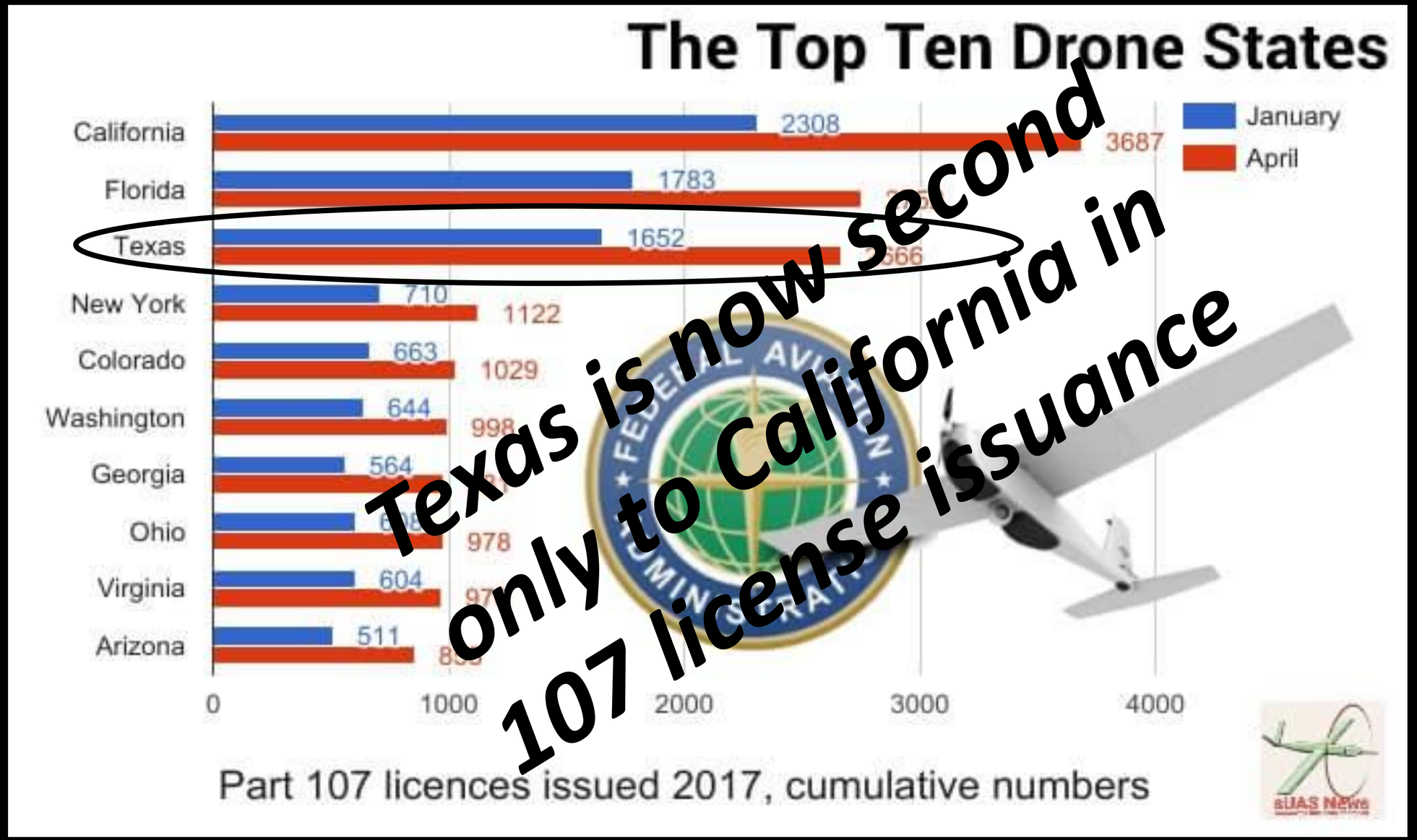
# *Texas UASWERX*




- Serves as an Industry Sector Accelerator with goal of establishing North Texas as the ***"Silicon Valley"*** of the UAS Industry
- Develop a highly skilled, safety focused and professional UAS Talent Pipeline
- Provides continuity of effort between Education, Industry and the FAA in the promotion, training and standardization of the current and emerging UAS Industry in the DFW Region
- Conduct Applied Research in addition to customized training and educational services


***If we do not get ahead of the industry in areas of Training and Safety, the consequences will be grave for the entire flying public***

# *There is considerable interest in UAS in North Texas*

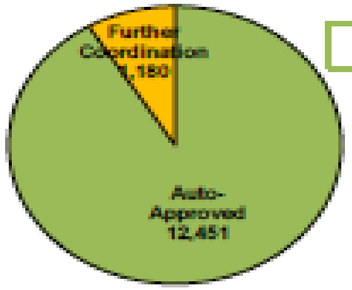


As of July 6, 2018

# UAS Metrics Update

## LAANC Airspace Requests

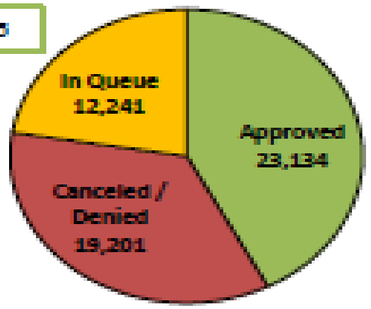
### Incoming Requests* (total)




Total: 13,631

## Manually Processed Airspace Waiver/Authorizations

Total: 11,163



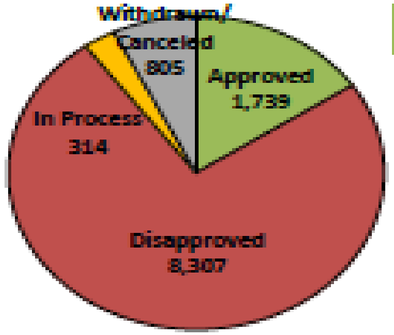

| Part 107 Provision (Top 5 Requested) | # Waivers Issued |
|---|---|
| Night Operations | 1,635 |
| Operations over People | 13 |
| BVLOS Operations | 18 |
| Operational Limitation: Altitude | 21 |
| Operations from a Moving Vehicle | 6 |

10 UAS Integration Pilot Program (IPP) Lead Participants

Remote Pilot Certificates Issued: 98,118
Knowledge Exam Success Rate: 92%

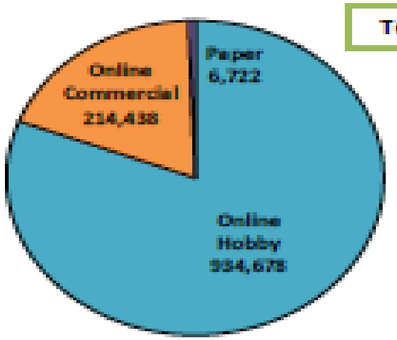
## Non-Airspace Waivers

Total: 55,608




## UAS Registrations

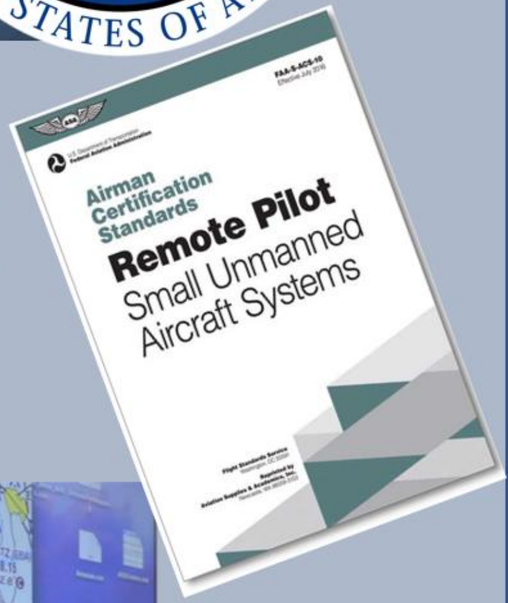
Total: 1,155,838




12 UAS Type Certification Projects Ongoing

4 Active Partnership for Safety Plans (PSP) Underway

# The Nations First and Only Federally Certified Unmanned Aerial Systems Apprenticeship Program



The United States Department of Labor

Office of Apprenticeship

Certificate of Registration of Apprenticeship Program

RMS Aerospace, LLC

Registered as part of the National Apprenticeship System in accordance with the basic standards of apprenticeship established by the Secretary of Labor

May 11, 2018

2017-TX-68620

The Apprenticeship is one component of a District Wide Initiative of North Texas UAS Center Excellence

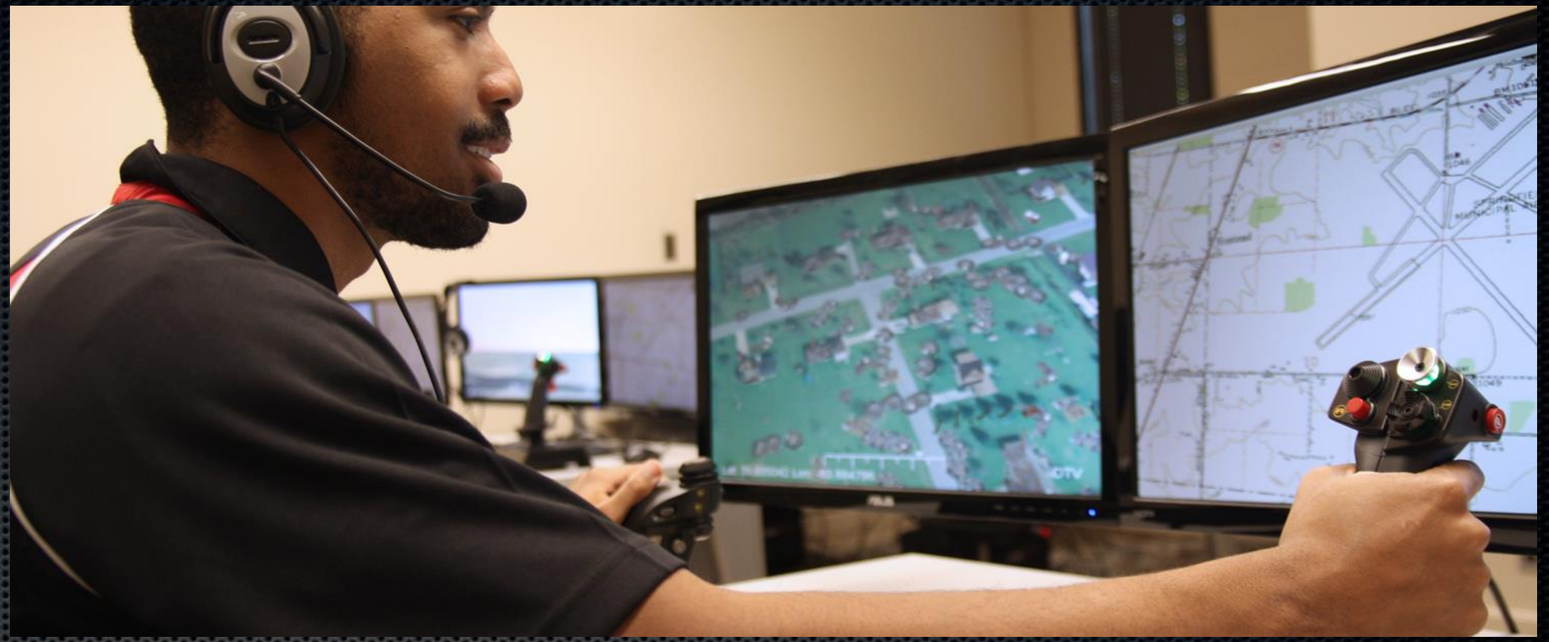
The mission of the center is to:

- Move the UAS Training and Operation Pendulum back in the direction of Part 61

- Elevate Operational Safety and Standardization

- Educate Public and Promote the UAS Industry

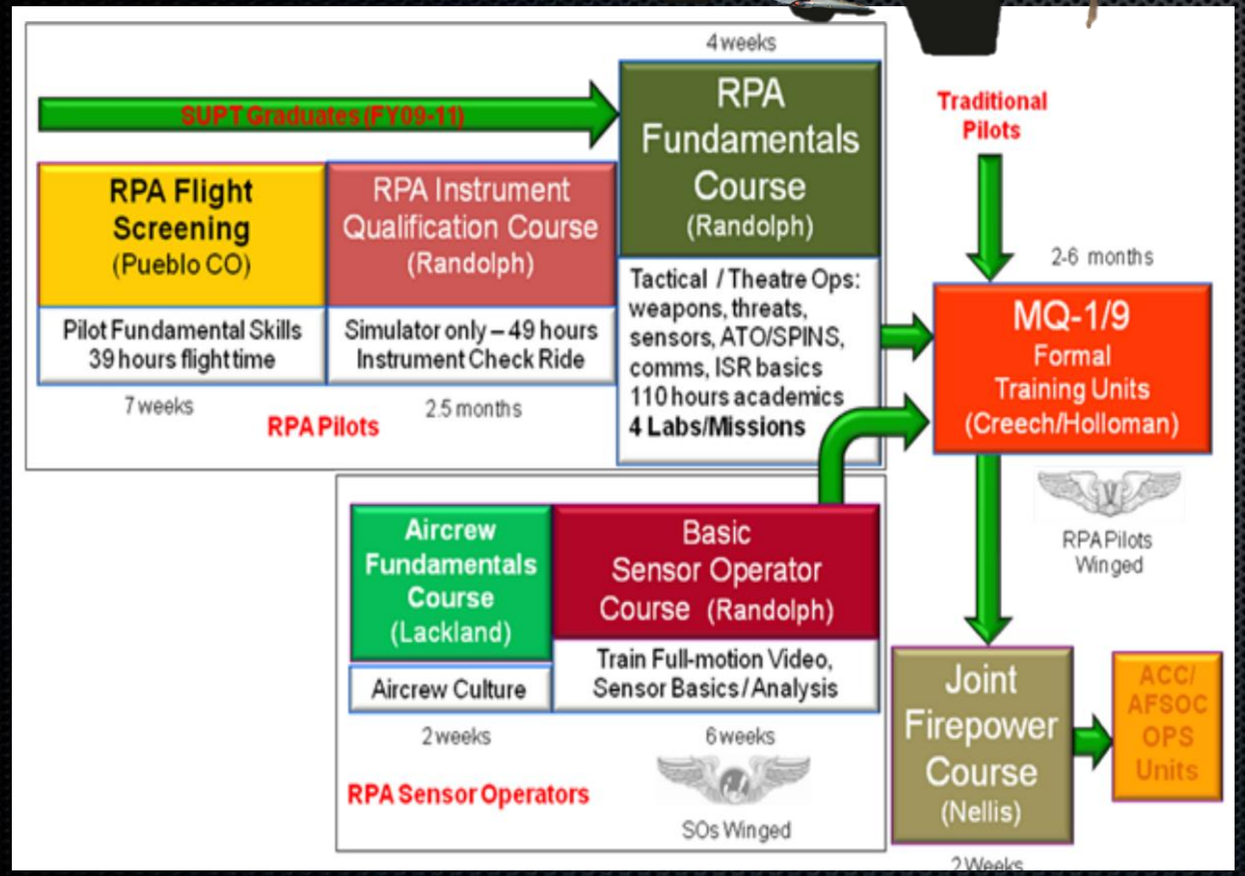
***The U.S. Military has been conducting Concurrent Manned Unmanned Flight Operations for over 25 years***

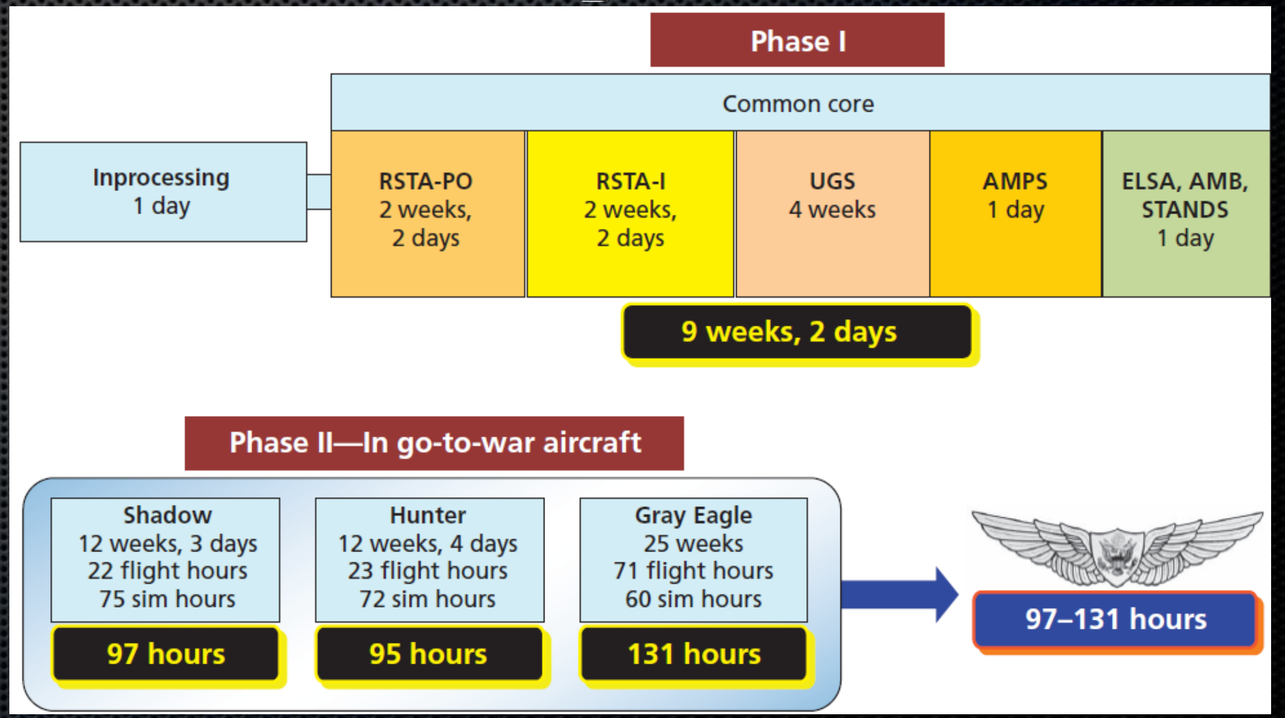

***We are training the most standardized, professional UAS Operators outside the U.S. Military***

***As in the U.S. Military, UAS Operators should first be trained as Professional Airman***

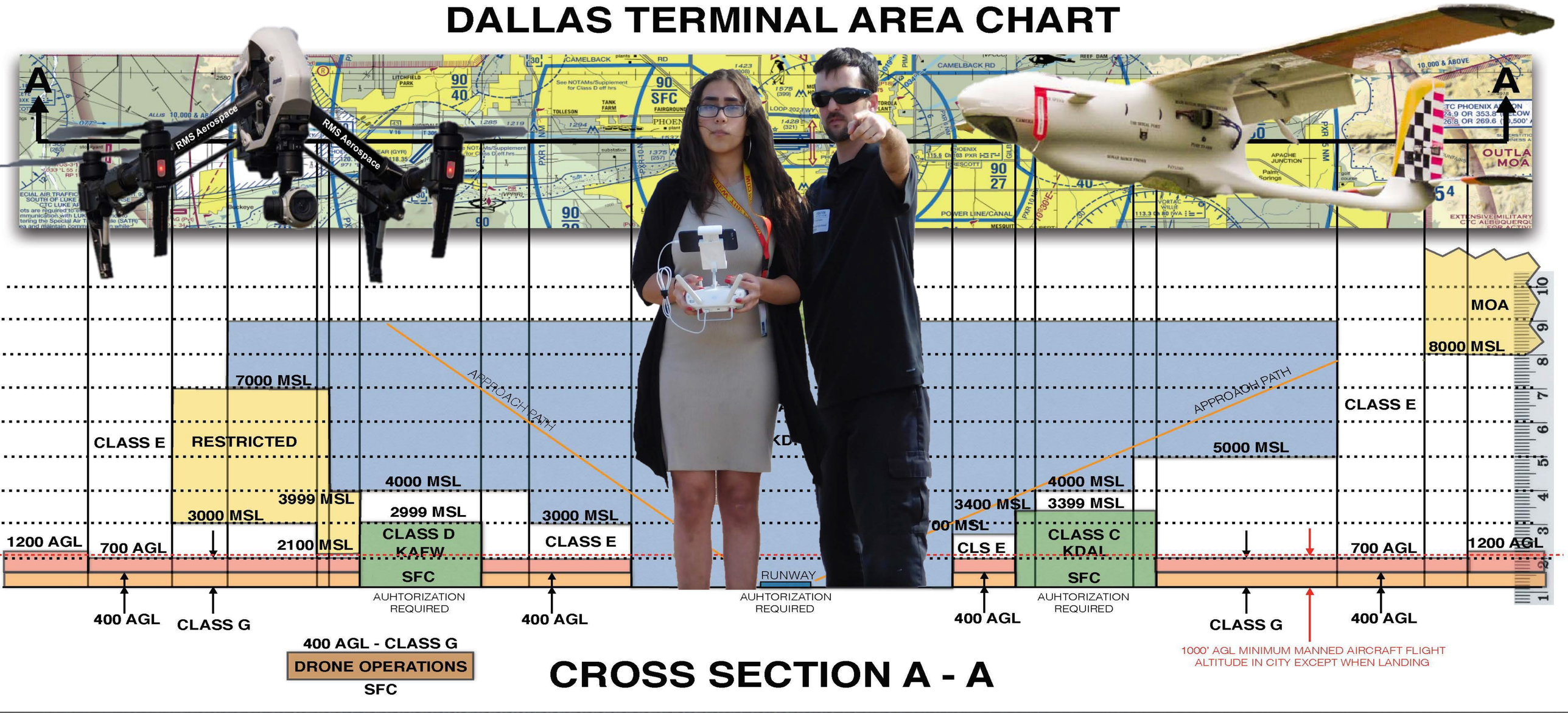
# Air Force




# Army



# The Center provides Professional Commercial UAS Training for both Fixed wing and Quadcopter Platforms



# *Apprentices receive a solid Aeronautical Foundation*

## Course Map

Dallas County Community College

| | | |
|---|---|---|
| WK 1&2 | Program Introduction and Expectations, IACRA and Introduction to FAA, UAS History and Operations, UAS Missions, Platforms and Operators, Commercial Airman Ground School | Aerospace |
| WK 3 & 4 | Nickel Flight, Instrument Ground School, Instrument Flight Simulator, Area Check Flight AGI Written Exam | |
| WK 5, 6,7 | Instrument Ground School, IGI Written | |
| WK 8&9 | Introduction to Unmanned Aerial Systems, UAS Missions and Platforms | |
| WK 10,11,12 | UAS Aerodynamics, Remote Sensing and Payloads | |
| WK 13 &14 | UAS Basic and Advanced Operations | |
| WK 15 | Remote Pilot Written Prep and Written Exam | |
| Wk 16,17,18 | UAS Support Equipment, UAS Software Packages, Geographical Information Systems, Spatial Analysis and Cyber Security | Technical |
| WK 20,21 | Intro to Telecommunications and Information Systems Data Flow Processing and Dissemination | |
| WK 21,22 | UAS Maintenance and Technical Support | |
| WK 23 | UAS Ethics, Project Management and Mission Planning | Flight |
| WK 25 &26 | Rotary Wing/Quadcopter and Fixed Wing Flight Operations | |
| WK 27&28 | Non Commercial UAS Operations Rotation | |
| WK 29 &30 | Precision Agriculture Rotation | SWE |
| WK 31&32 | Construction and Aggregate Rotation | |
| WK 33 &34 | Photography and Cinematography Rotation | |
| WK 35&36 | Survey and Mapping Rotation | |

# Apprentices depart with FAA Certificates

## Student Pilot


## IGI


## RTO


## AGI


## Remote Pilot

# *Apprentices receive 5 hours of FTD and 5 hours of actual manned aircraft time*

*2.5x Hour VFR Area Check*

*5x Hour IFR FTD*

*2.5 Hour IFR*

# The Center provides a venue for collaboration and proof of concept development for most UAS Operational Verticals

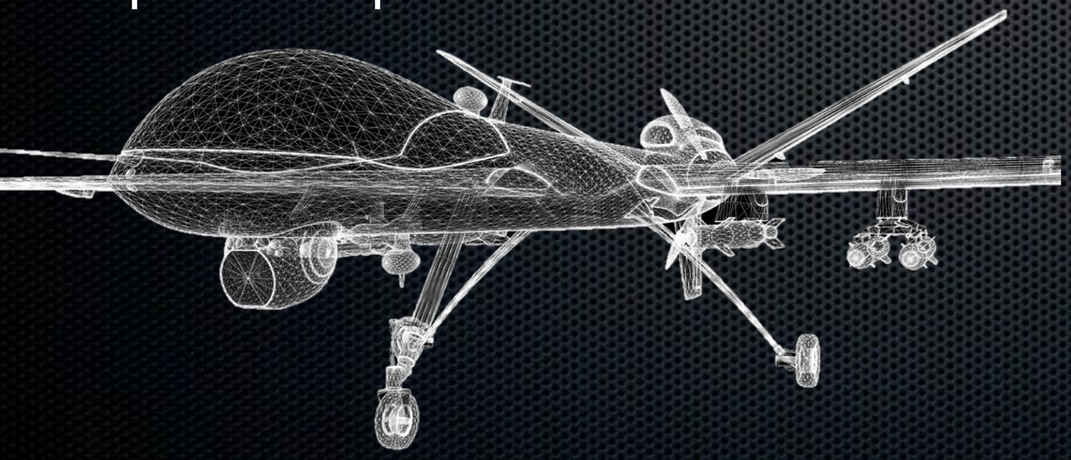





The Apprenticeship exceeds the spirit and the letter of FAA and ICAO Regulations for Professional UAS Operations in Segregated and NonSegregated Airspace

# Apprentices Depart Program DOD Tier 2 and 3 Certified

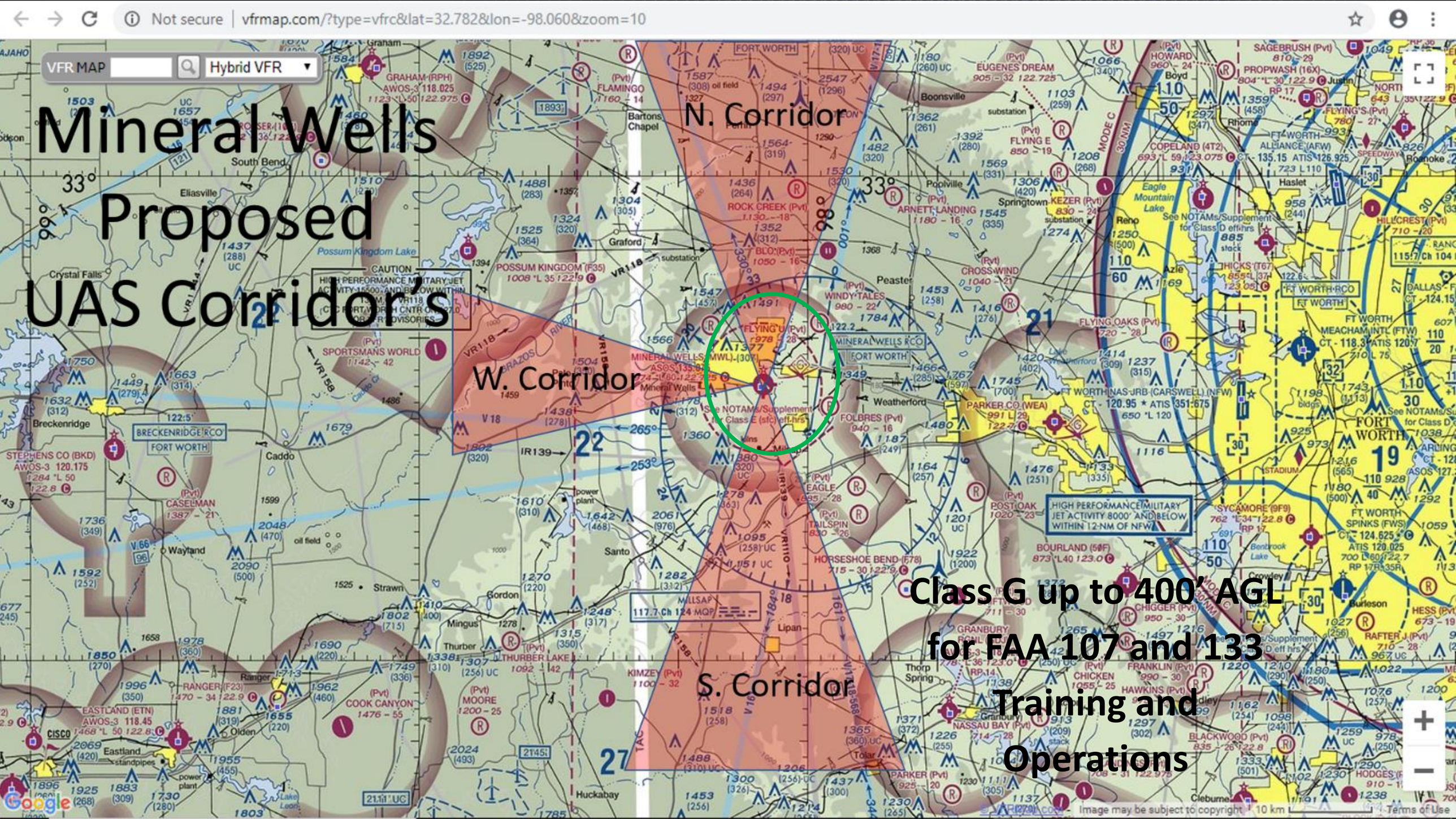
PMATS Block 16 Training in partnership with L-3 Link



# Training UAS Operators for the next level of Operations

- Non Line of Sight (NLOS)
- Night Operations
- >55ibs
- Flight over Crowds




Not secure | vfrmap.com/?type=vfrc&lat=32.782&lon=-98.060&zoom=10
VFR MAP
Hybrid VFR
Mineral Wells
Proposed
UAS Corridors
N. Corridor
W. Corridor
S. Corridor
Class G up to 400' AGL
for FAA 107 and 133
Training and
Operations

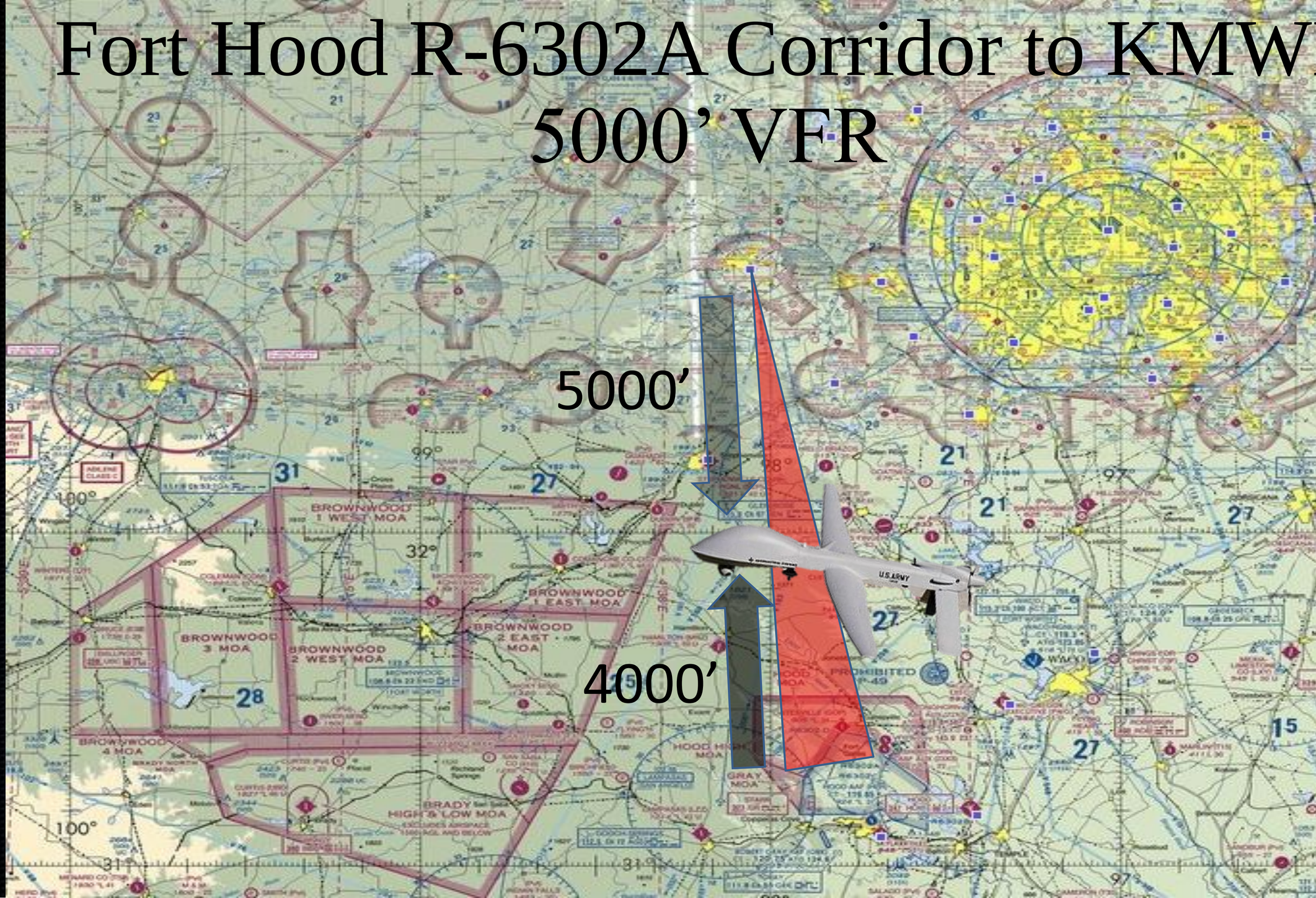
# KRBD/Dallas Executive Airport UAS Corridor

Route A

Route B

**Operations will be <2000 AGL within the Class D And will at no time penetrate Class B Airspace**

# Fort Hood R-6302A Corridor to KMWL 5000’ VFR



# The Public should hold the same level of trust and confidence in unmanned Aircraft and Pilot’s

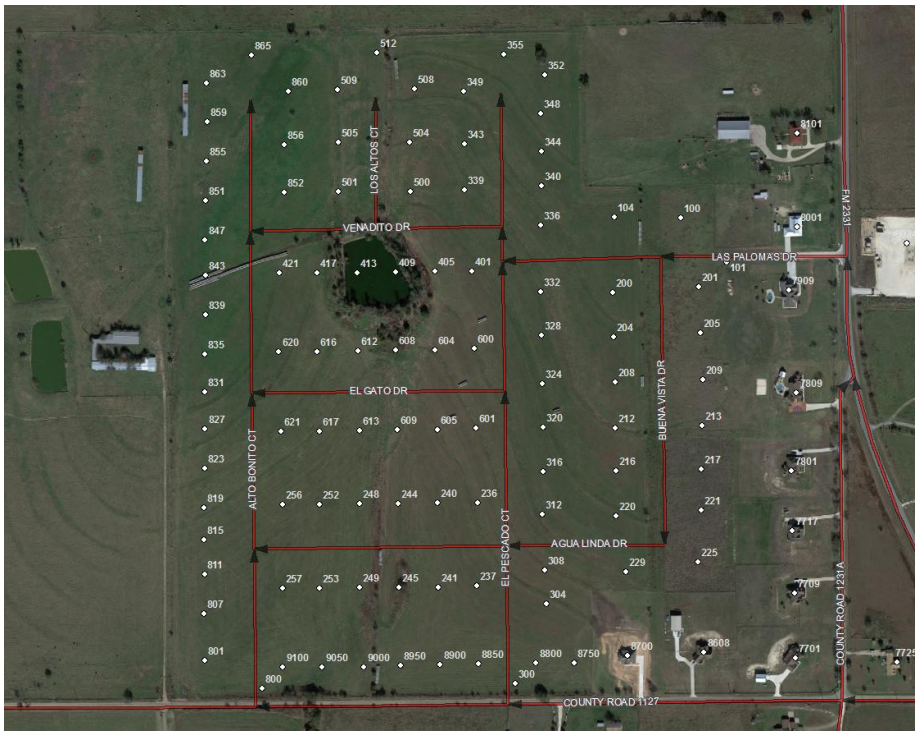

Join Us

# Using Drones to Collect 9-1-1 GIS Data


In an effort to maintain accurate GIS data that supports Next Generation 9-1-1 best practices, new tools are in always in development to make a 9-1-1 caller's location information as accurate as possible. We in the 9-1-1 industry are starting to see new opportunities in wireless location accuracy with RapidSOS (https://www.nct911.org/9-1-1-steps-into-the-future-with-supplemental-location/), and now new technology like the North Central Texas Council of Government 9-1-1 Program's UAS Program is changing the way 9-1-1 collects and uploads location data.

The ALI information provided by the carriers gives the exact address of a landline to dispatchers, and this addressing information is collected early on in the planning process when new neighborhoods and regions are in development. Unfortunately, the current process for collecting GIS information for new subdivision means it can take weeks before the data is available to PSAPs, especially in rural areas. The GIS team of the NCT9-1-1 Program has been working on utilizing drones to create a faster process for addressing streets within new neighborhoods, and their recent pilot flight demonstrated that this technology can cut down the planning process dramatically.

The images below demonstrate how an aerial view provided by drones can aid in mapping new regions so that the information can later be uploaded for 9-1-1 call takers.





The traditional addressing method involved driving new roads with GPS devices and then digitizing the information to be uploaded for PSAP use. The entire process can take anywhere from two to four weeks, which means residents could already be living in subdivision that have yet to be addressed. The use of drones to capture the data of new subdivisions cuts this time down to only a few hours, accelerating the planning process significantly and letting PSAPs get access to that data in a much shorter timeframe.

Geo eferencing with drones is just the first step for this new technology in the public safety ind try. Th potential this technology has to improve location accuracy starts with collecting addressing information, but has the potential to assist with subaddressing multistory buildings, and can be used to predict flood forecasting and for search and rescue.

The NCT9-1-1 GIS Team on their pilot flight

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