ALLIANCE TEXAS

Mobility Innovation Zone

Christian Childs, Hillwood

January 28, 2020

Today's Discussion

- Forces Driving Mobility Innovation
- AllianceTexas: A Unique Platform
- Creating a Mobility Innovation Zone

ALLIANCE TEXAS

Why mobility innovation?

- Rapid Growth and Change across the Transportation Industry
- Need for Partnership and Integration

$3.6 Billion+

Truck Technology

Investment in Trucking Technology Reached a New Peak in 2018

$14.1 Billion+

Drone Technology

Market Size in 2020

100 Billion+

Parcel Shipments

Expected Shipments in 2020

Source: Deloitte

ALLIANCE TEXAS

Challenges to Commercialization

Vision:

Finding ONE test bed location to represent a variety of real-world situations

Reality:

Testing in multiple environments is costly and impractical

AIRSPACE

Aerial testing requires:

1. A variety of airspace types
2. Regulatory relationships
3. Population density variations

AUTONOMOUS VEHICLE

Testing autonomous vehicles:

1. Private streets and public roads and highways
2. Partnerships with potential customers
3. Research facilities and university labs nearby

POPULATION DENSITY

Rural areas and urban areas are typically mutually exclusive in their locations:

1. Comprehensive UAV and UAS testing
2. Unmanned aerial and ground technology
3. Consumer adoption testing

PARTNERSHIPS

Interest and input from various industries is required:

1. Regulatory access and participation
2. Access to various industries for use and adoption testing
3. Ultimately, commercialization will require access from creators regulators, users, and customers

ALLIANCE TEXAS

ALLIANCE TEXAS

A Pioneering Vision

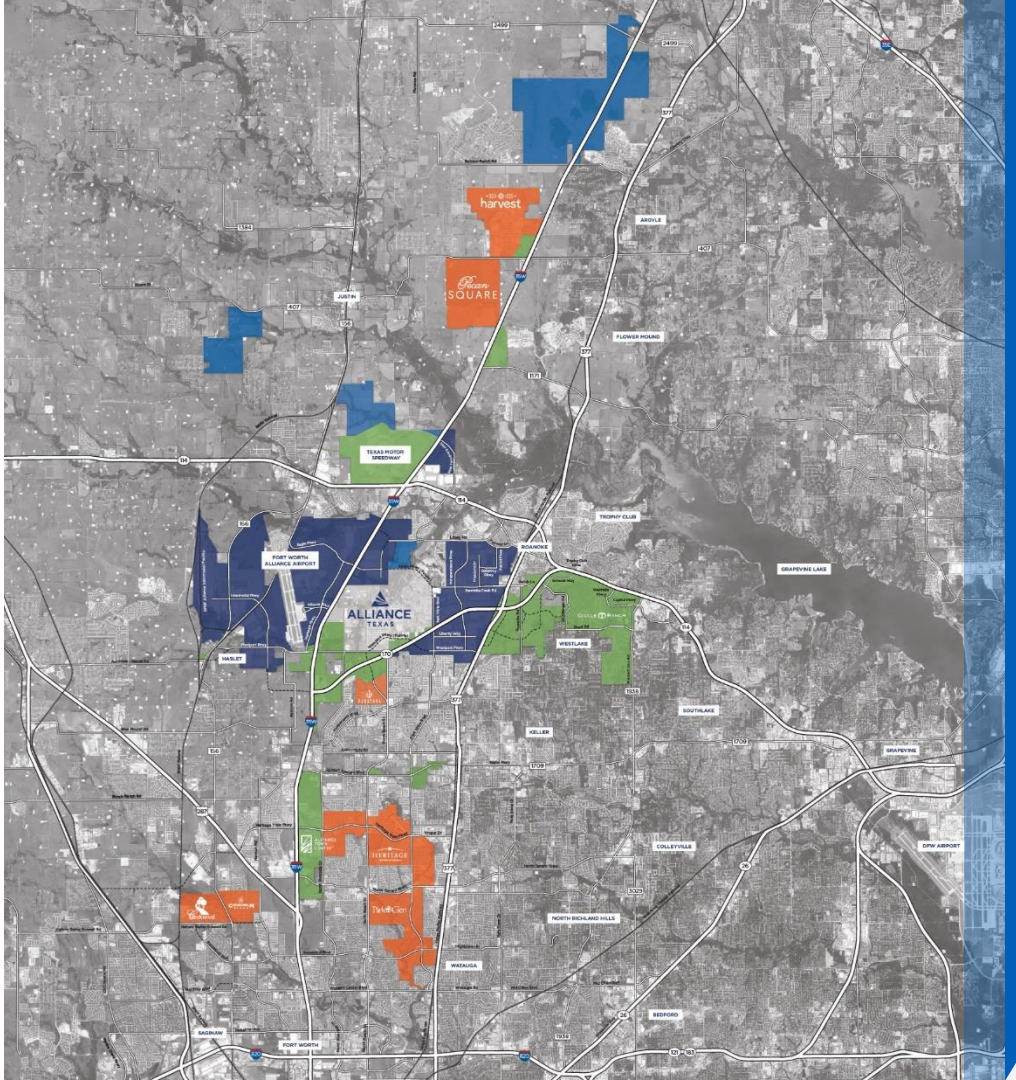
ALLIANCE TEXAS

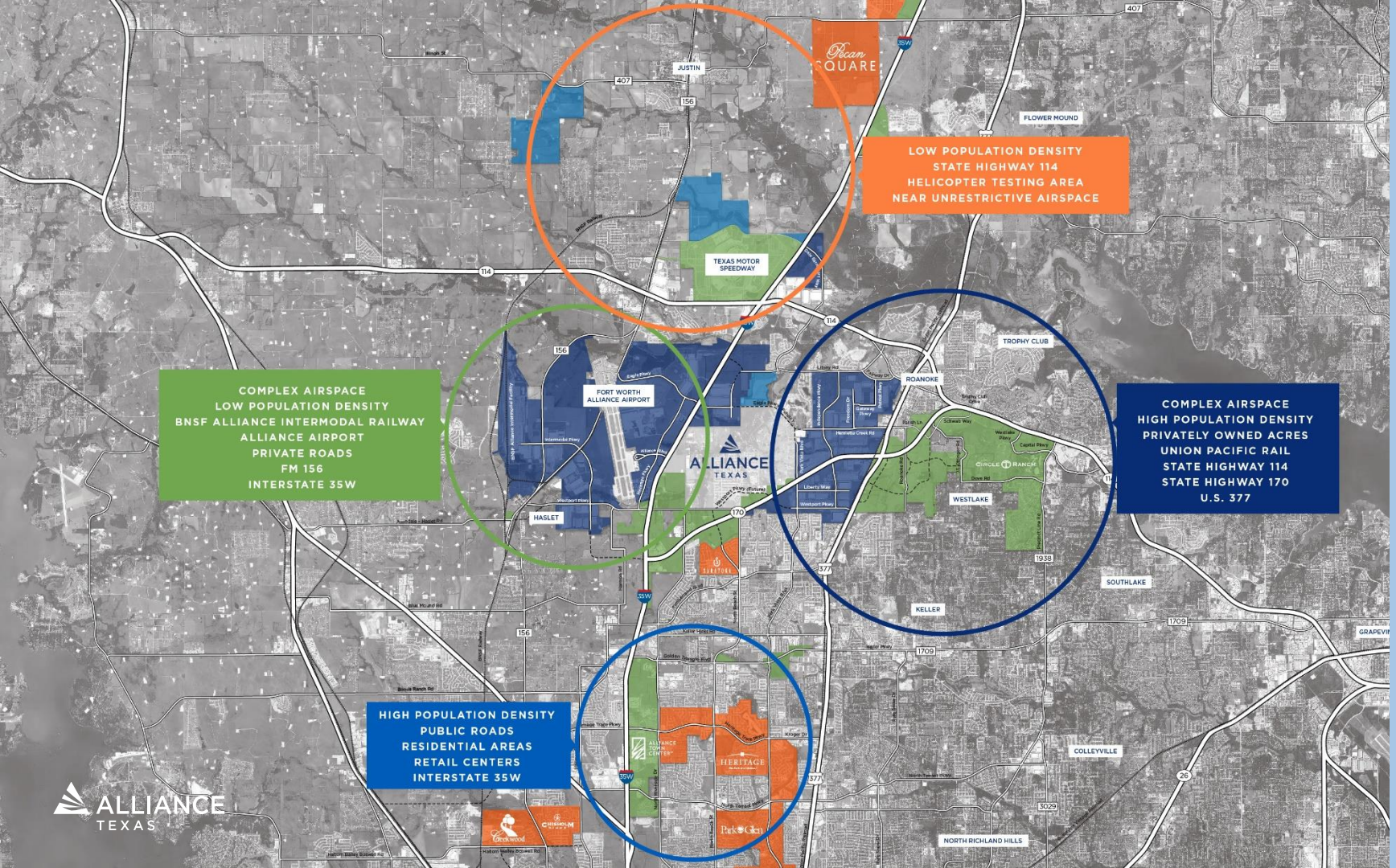
AllianceTexas is a 26,000-acre masterplan community developed by Hillwood

$9.8 billion invested
$76 billion economic impact
45 million SF developed

507 corporate residents
70 top ranked companies
61,602 total employees

Population of 2 million within 20 miles of the center of AllianceTexas





ALLIANCE TEXAS

Alliance Center

- Two 11,000 ft. Parallel All-Weather Runways
- FAA Air Traffic Control Tower 24/7/365
- On-site U.S. Customs
- Amazon Prime Air Freight Hub, FedEx Hubs, and UPS Ground
- Adjacent Hangar, Warehouse, and Office Space

Alliance Westport

- Two Class I Rail Lines
- BNSF Intermodal Hub – 1M Lifts/Year
- 3,500 Trucks/Day
- Interstate Highway 35 from Mexico to Canada
- Foreign Trade Zone #196

Alliance Gateway

- 19.4M SF developed
- Additional 4.1M SF of future build-out
- Frontage on SH-170 and US-377
- 400-acre dedicated data center campus
- Ability to deliver 400 megawatts at full build-out

Corporate Residents

AllianceTexas has attracted some of the world's most globally recognized brands, across an array of industries, that can be partners in the Mobility Innovation Zone.

AllianceTexas Mobility Innovation Zone

Leveraging the AllianceTexas Platform to Convene Corporates, Start-ups, Academics, Policy Makers to Create a Mobility Innovation "Do-Tank"

Uber Elevate

5G EVOLUTION

BNSF RAILWAY

ups

BOOSTER

Deloitte.

amazon

BELL

HILLWOOD A PEROT COMPANY

FedEx

A Unique Combination of Infrastructure Ecosystem

A comprehensive testing environment, AllianceTexas encompasses areas that represent multiple cities, regulatory environments, and industries to fully develop, from idea to commercialization, tools for tomorrow's market.

The Mobility Innovation Zone:

INTERGRATES INNOVATIVE SMART INFRASTRUCTURE

FOSTERS INNOVATION ACROSS SUPPLY CHAINS

PROVIDES VALIDATION GROUND FOR FUTURE AVIATION TECHNOLOGY

LEVERAGES NEW EMERGING TECHNOLOGY

CONVENES ECOSYSTEM STAKEHOLDERS

ALLIANCE TEXAS

Mobility Innovation Zone Roadmap

Activate

- Jump start initial use cases to demonstrate zone at AllianceTexas
- Outreach to regional stakeholders – regulators, policymakers, academic institutions and private sector

Formalize

- Expand on the initial use cases and introduce new ones
- Promote the Mobility Innovation Zone opportunity and success to stories to local and national stakeholders

Scale

- Facilitate growth into “living lab”, adjusting approach as needed
- Track & publicize economic development impact for the region

ALLIANCE
TEXAS

Thank you

UAS Workforce Steering Committee

Presentation to the UAS Safety & Integration Task Force

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

JANUARY 28, 2020

Overview

- Background
  -Government Use
  -Industry Use

- Demand
  - $89 Billion Projected Market Size
  - 100,000 jobs projected to be created
  - 80% public support for domestic use
  - 300+ identified commercial uses

ACCESS TO OCCUPATIONAL DATA

Transportation, Distribution, Logistics Sector

		Collin County	Dallas County	Denton County	Palo Pinto County	Tarrant County	Travis County	Harris County	El Paso County	Region 11 Education Service Center
Transportation, Distribution, Logistics and Warehousing Industry Sector	2014 Total Employment	5,712	81,024	8,060	213	67,600	13,717	128,281	15,762	86,818
	2018 Total Employment	8,446	111,729	15,408	284	84,917	19,436	138,176	18,299	109,771
	2014-2018 Employment Change (#)	2,734	30,705	7,348	71	17,317	5,719	9,895	2,537	22,954
	2014-2018 Employment Change (%)	47.9%	37.9%	91.2%	33.4%	25.6%	41.7%	7.7%	16.1%	26.4%
	Avg Annual Wages per Worker	$51,693	$52,978	$44,960	$66,758	$65,094	$50,089	$75,508	$46,680	$61,869
	Job Postings (Oct. 2019)	1,183	4,808	1,164	1,164	3,767	2,001	5,346	913	5,879

Critical Certification: Certified Logistics Technician (CLT)
National Provider: Manufacturing Skill Standards Council (MSSC)
Website: https://www.msscusa.org/

ACCESS TO OCCUPATIONAL DATA

Advanced Manufacturing Sector

		Collin County	Dallas County	Denton County	Palo Pinto County	Tarrant County	Travis County	Harris County	El Paso County	Region 11 Education Service Center
Advanced Manufacturing	2014 Total Employment	16,393	45,996	7,418	730	48,486	29,438	99,572	4,741	65,246
	2018 Total Employment	18,298	48,484	9,048	1,036	47,104	28,123	83,334	4,767	64,374
	2014-2018 Employment Change (#)	1,906	2,488	1,630	306	-1,382	-1,316	-16,238	27	-872
	2014-2018 Employment Change (%)	11.6%	5.4%	22.0%	41.9%	-2.9%	-4.5%	-16.3%	0.6%	-1.3%
	Avg Annual Wages per Worker	$121,944	$114,433	$77,394	$68,023	$97,237	$123,526	$115,665	$59,853	$90,917
	Job Postings (Oct. 2019)	2,345	5,378	393	2	1,552	3,590	8,846	570	2,031

Critical Certification: Certified Product Technician (CPT)
National Provider: Manufacturing Skill Standards Council (MSSC)
Website: https://www.msscusa.org/

UAS Workforce Steering Committee

- Partnership between FWISD, COG
- Supported by TEA Grant
- Integrated 2 Initiatives
  - -FWISD Grant Project
  - -COG Training Task Force

Fundamental Goal/Objective

Develop a strategic approach to ensure we can provide the skilled, trained, educated workers needed to support the UAS Sector.

Current Resource Support

- Council of Governments Taskforce
- Texas UASWERX
  a.Training Academy
  b.Test Center
- TEA Grant
- State & Federal Agencies
- University Research

Premise

- Identify what we have to meet the need
- Identify what we need and don’t have
- Develop what we don’t have to meet the need

Working Groups Established

- Public Education
- Higher Education
- Workforce System
- Industry

Sequential Action Steps

Phase 1 – Identify what is currently available – from public education, higher education, the workforce system, and vendor community

Phase 2 – Identify & define the scope of skills, competencies & knowledge the industry will need in the foreseeable future

Phase 3 – Identify what we need but don't have – certificates, certifications, courses, degrees, etc.

Phase 4 – Develop a plan to meet the demand

Informational Resources

Market Research

- Documenting current market research, relative to the UAS Sector.
- It will be made available for review in Google Documents

We have 6 reports currently available:

- 11 Facts on UAS Industry
- NDIA: $98 Billion Expected for Military Drone Market
- Accenture: It's Time for Flying Robots
- Goldman Sacs: Drones Flying into the Main Stream
- PwC: Drone Industry Clarity From Above
- ASTM International: The Promise of Urban Air Mobility

Next steps

A. Launch Working Groups – January 2020

B. Identify Available Resources – February 2020
   - Public Ed, Higher Ed, and Workforce Groups will identify the resources we have

C. Federal Research Assessed – February 2020

D. Industry Workgroup to identify Sector Needs – February 2020

2020
NCTX
Aerial Robotics Showcase

February 27, 2020
Wilkerson-Greines Activity Center
5201 C.A. Roberson Boulevard
Fort Worth, Texas 76119
9:30 – 12:00

Discussion

CONTACTS

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RoofFax For Tomorrow's Smart City

Alex Diaz | Mario Herrera

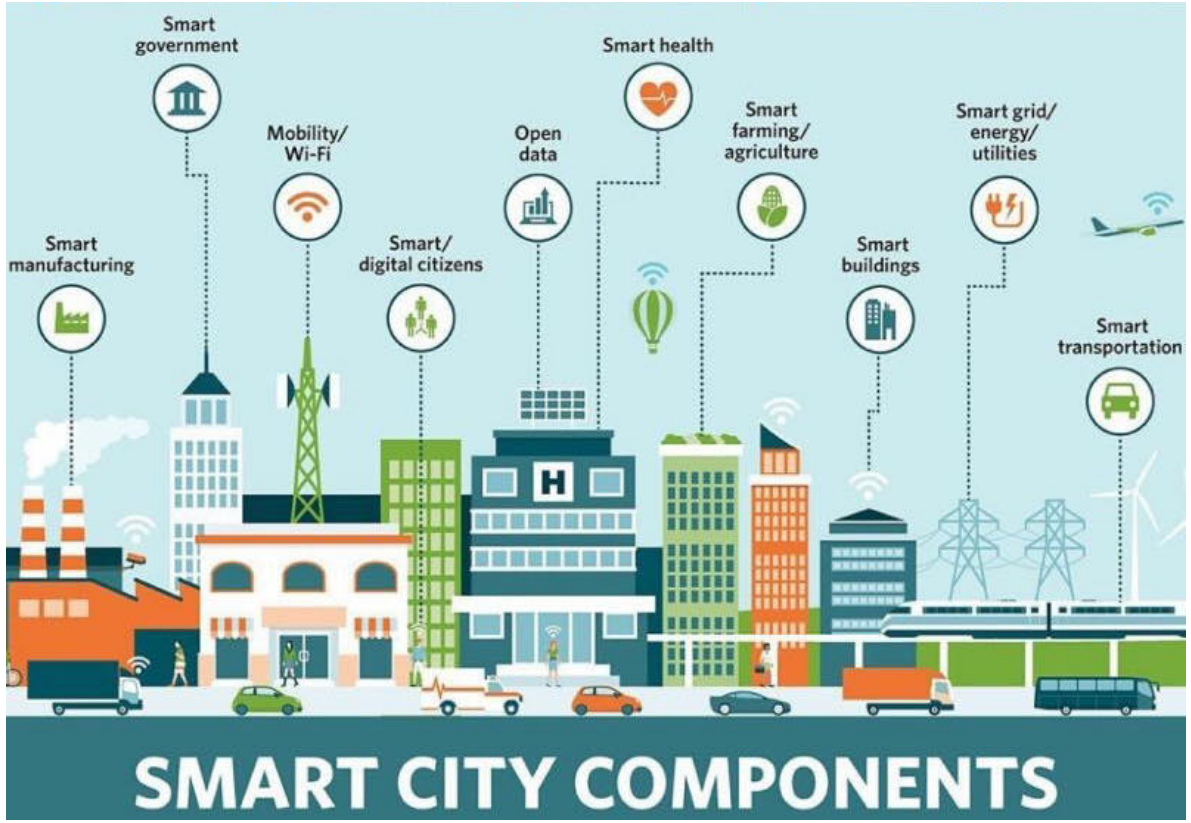
The RoofFax Story

What Is Infrared Thermography?

- Infrared Thermography is the process of using a Thermal Imager to detect radiation(heat) coming from an object, converting it to temperature and displaying an image of the temperature distribution.
- It's widely-used in predictive maintenance and condition monitoring.

Impact On Tomorrow's Smart City

- Singapore is striving to be the world's first smart city.
- Emerging trends such as automation, AI, and the Internet of things (IoT) are driving smart city adoption.
- Smart cities integrate water resources, health systems, transportation, smart building technologies, energy, sanitation and waste collections, and security technologies and services.
- Smart cities will help people lead a safe and technologically advanced life. In the past few years cities have migrated from analog to digital.
- A smart city uses digital technologies to reduce cost and resource consumption, enhance performance and quality of services, and to engage more effectively with its citizens.



RoofFax
Contact Information

HB2340 Study Committee Update

Travis Calendine

Michael Hill

January 28, 2020


TOWN OF LITTLE ELM
OFFICE OF EMERGENCY MANAGEMENT


Center for Robot-Assisted
Search and Rescue


CUMULUS TECHNOLOGIES, INC.


HAYS COUNTY
TEXAS


PUBLIC SAFETY
UNMANNED RESPONSE TEAM


BCOEM
BEXAR COUNTY
EMERGENCY MANAGEMENT


DEPARTMENT OF PUBLIC SAFETY
TEXAS
COURTESY · SERVICE · PROTECTION


TEXAS A&M FOREST SERVICE
1915


MANSFIELD
FIRE-RESCUE
ESTABLISHED
1901


TEXAS A&M
UNIVERSITY
CORPUS
CHRISTI
LONE STAR
UAS
CENTER OF
EXCELLENCE
& INNOVATION


CORPUS CHRISTI
FIRE DEPT.


PEDERNALES ELECTRIC COOPERATIVE


Reveille
PEAK RANCH


THE STATE OF TEXAS
COUNTY OF BASTROP


TEXAS A&M ENGINEERING
TEEX
EXTENSION SERVICE


INTEGRITY
POLICE
PRIDE
HONOR
PEARLAND, TEXAS


TEXAS DIVISION OF
EMERGENCY MANAGEMENT


GRANITE DEFENSE
Granite Defense Technologies


TEXAS
PARKS &
WILDLIFE


TEXAS
The University of Texas at Austin

HB2340

- Recommendations need to be approved by TDEM leadership.
- Hurricane Harvey (Recover Texas)
- (1) Strategies for coordinating and promoting the use of unmanned aircraft among state agencies, local governments, and private entities in the response and recovery; and
- (2) Recommended changes to state law that would allow state agencies, local governments, and private entities to more effectively use unmanned aircraft in the response and recovery.

(1) Strategies for coordinating and promoting the use of unmanned aircraft among state agencies, local governments, and private entities in the response and recovery; and

- Provide a UAS program template to local jurisdictions.
- Statewide PSURT organized and equipped through the regions.
- Regional PSURT teams will evaluate local public safety pilots to be rostered for the State team.
- Pilot training, currency, and equipment will be tracked.

(2) recommended changes to state law that would allow state agencies, local governments, and private entities to more effectively use unmanned aircraft in the response and recovery.

- Chapter 423, USE OF UNMANNED AIRCRAFT
- Michael Hill

Questions

Lone Star UAS Center of Excellence & Innovation

NCTCOG UAS TF Update
January 28, 2020

Leading Texas and the Nation to the Autonomous Aviation Future

NASA UAM GC Update

LS UAS was awarded the UAM GC Study!

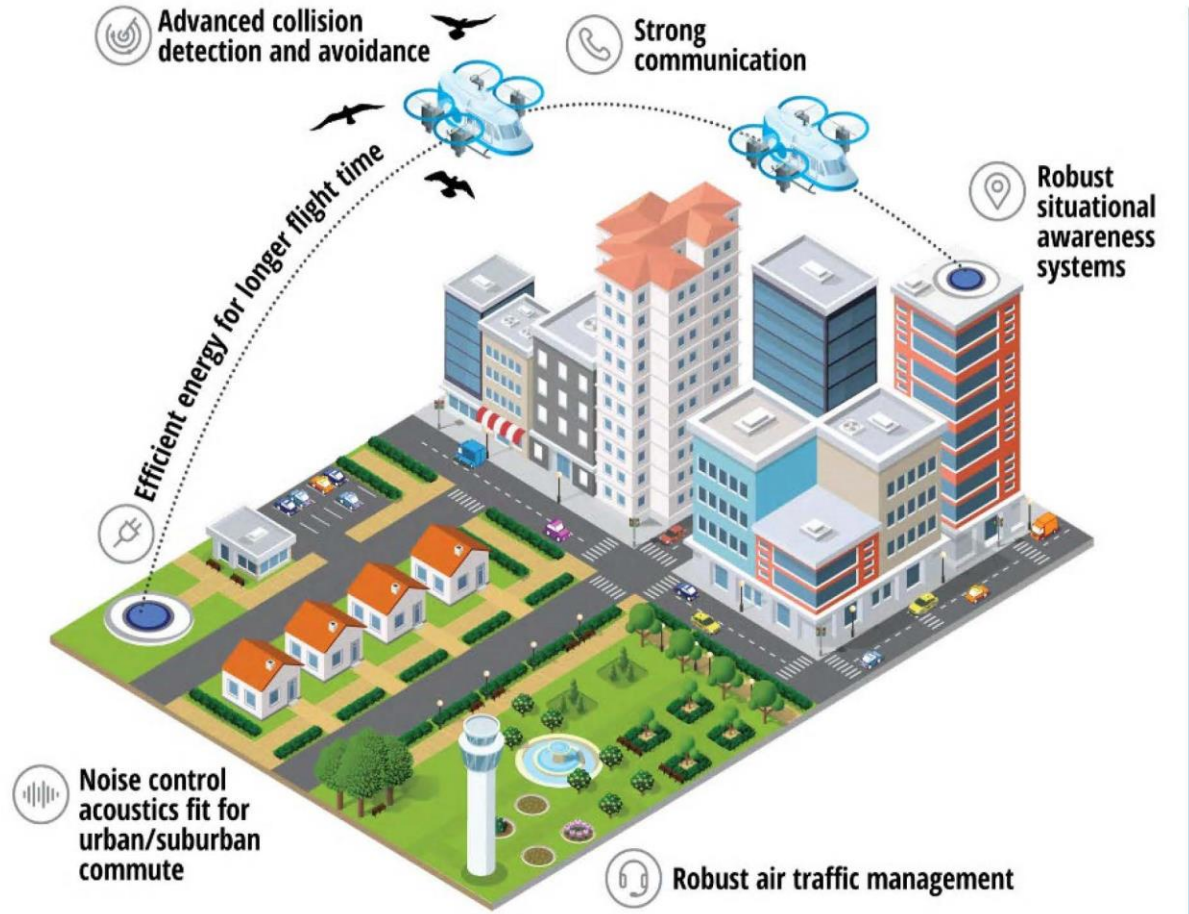
- Task 1: Conduct a State-Wide UAS & UAM Use Case Market Study.
- Task 2: Develop CONOPS to support all 7 NASA UAM Test Scenarios and conduct a capability, tool & technology Gap Analysis for each scenario.
- Task 3: Compile all into a single requirements document.

Study Stakeholders: Office of the Governor, NCTCOG (UAS TF), Governor's Connected and Autonomous Vehicles Task Force (CAVTF), Energy Drone & Robotics Coalition, Industry Partners, Who Else??.

UAM ConOps

Summary

- **Hundreds of passenger-carrying UAM operations**
- **Primarily in areas where passenger demand is high and there is existing transportation infrastructure already in place**
- **Use high performance vehicles including Electric Vertical Take Off Landing (EVTOL)**
- **High levels of automation in vehicles and air traffic management.**



Illustrative

The Promise of Urban Air Mobility

-Airport Shuttle and Air Taxi markets are **viable markets** with a significant total available market value of **$500B** at the market entry price points in the best-case unconstrained scenario.

-Significant legal/regulatory, certification, public perception, infrastructure, and weather constraints exist which reduce market potential in near term for UAM

-After applying operational constraints/barriers, **0.5% of the total** available market worth **$2.5B** can be captured in the near term.

-BAH UAM Market Study
October 19, 2018

Today's "Ask"

Request all interested UAS TF Members participate in the State-Wide Study via Use Case Survey* that will go live in the next 5-7 working days.

All input should be non-proprietary and releasable to the public domain. We have summarized ***29 Use Case*** examples, which is not an all-inclusive list of potential capabilities. Any additional information and detail you can provide on these and other Use Cases will greatly enhance our efforts to inform State of Texas UAS and Urban Air Mobility Vision for the future.

1. Is your organization currently pursuing any of these UAS use cases? If so, which ones?
2. How soon do you require these Use Case capabilities to better accomplish your organization's mission?
3. What are the barriers that you see for implementing the Use Cases that you require?
4. If your primary or projected Use Case is not listed, please insert where appropriate.

Request Survey Responses by February 15, 2020.

Note: All Use Cases are assumed to be Beyond Visual Line of Sight (BVLOS) and greatly enhanced by autonomy unless noted. Thank you for your support and we look forward to working with you and sharing the results of this survey once complete.

*Survey currently undergoing Institutional Review.

Sample Survey Categories

Energy (Oil & Gas and Commercial Utilities)

Mission	Weight	Duration	Altitude	Use Case Context
Linear Asset Inspection	>55lb	As required	>400’ AGL	Heavy Payload Required-Change Detection-Asset Inventory and Inspection-Security Inspection
Linear Asset Inspection	<55lb	As required	<400’ AGL	Asset Integrity-Corrosion Inspection-Leak Detection
Fixed Asset Inspection	<55lb	As required	400-600’	Tower and Bridge Inspection; Fixed Site Integrity; Spectrum Analysis
Off-Shore Cargo Delivery	>55lb	~1-n Hours	<400’ AGL	Priority Repair Part & Cargo Transit; Shore-to-Rig, Rig-to-Rig, Ship-to-Rig

Public Utilities & Transportation Infrastructure

Mission	Weight	Duration	Altitude	Use Case Context
Public Utility Inspection	<55lb	1-3 Hours	<400’ AGL	Swarm-Single Control, Integrity-Corrosion
Transportation Infrastructure	<55lb	1-3 Hour	<400’ AGL	Bridges, Hi-Ways, Integrity-Corrosion
Transportation Infrastructure	>55lb	1-3 Hour	<400’ AGL	Pavement Forensics
Port Infrastructure	<55lb	1-3 Hour	<400’ AGL	Cranes-Docks-Locks & Buoys Integrity

Sample Survey Categories

Commercial Mobility-Lift as a Service

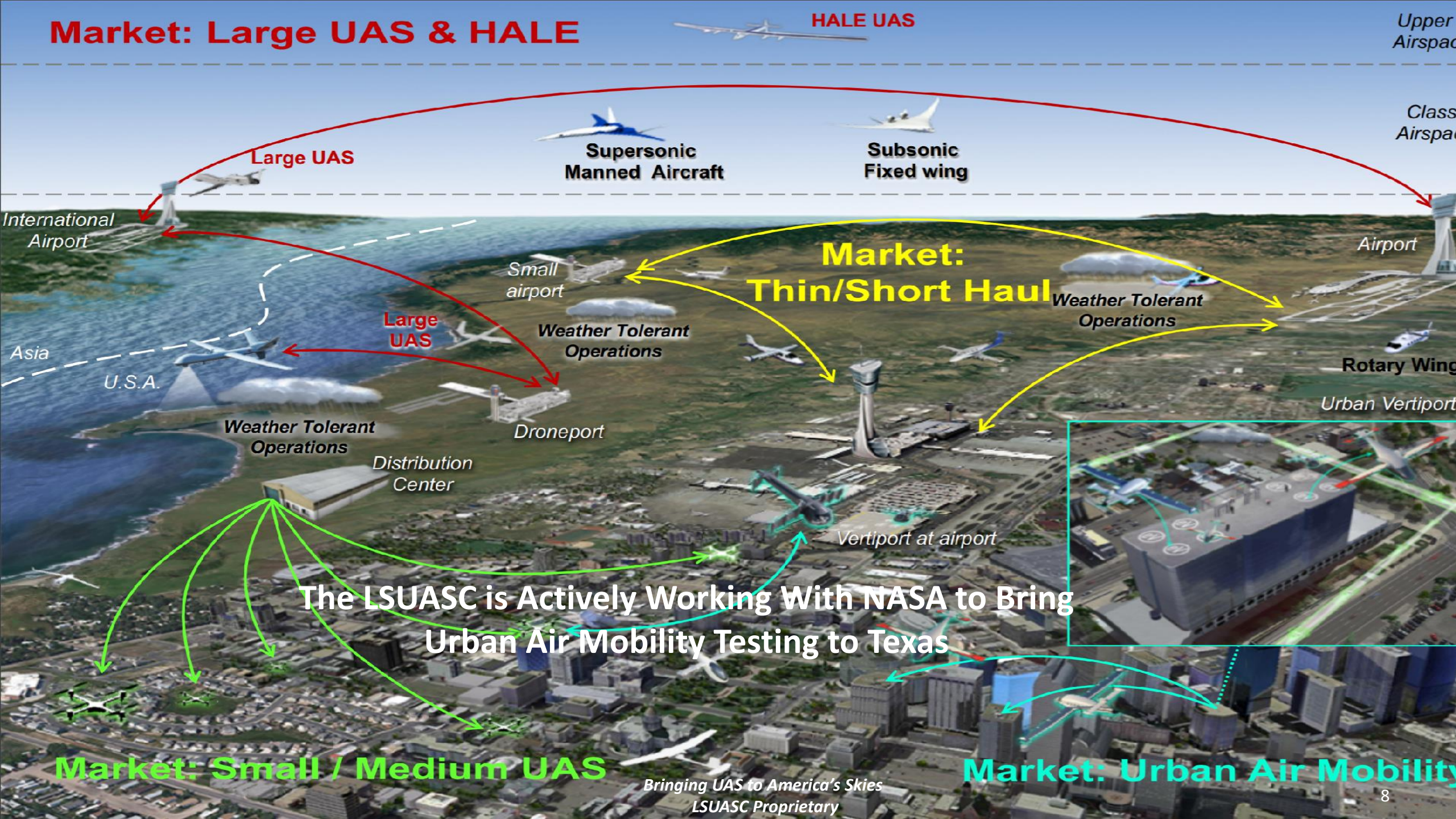
Mission	Weight	Duration	Altitude	Use Case Context
Last Mile Package Delivery	<55lb	~1 Hour	<400’ AGL	Medical & Other Supplies
Last Mile Package Delivery	<55lb	~1 Hour	<400’ AGL	Retail Package Delivery
Last Mile Cargo Delivery	>55lb	~1 Hour	<400’ AGL	On-Shore Cargo Transit
Off-Shore Cargo Delivery	>55lb	1-n Hours	<400’ AGL	Off-Shore Cargo Transit
Urban Air Passenger Mobility	>55lb	~1 Hour	>400’ AGL	Passenger Transit
Urban Air Ambulance Mobility	>55lb	~1 Hour	>400’ AGL	MEDEVAC Transit
Urban Air Cargo Mobility	>55lb	1-n Hours	>400’ AGL	Logistics-Cargo Transit (LOS)

Additional Use Case Categories:

Science & High Altitude Research (1)

Public Safety & Disaster Response (6)

Agriculture-Forestry-Wildlife & Land Management (7)


Market: Large UAS & HALE
HALE UAS
Upper Airspac
Class Airspac
Large UAS
Supersonic Manned Aircraft
Subsonic Fixed wing
International Airport
Asia
U.S.A.
Small airport
Large UAS
Weather Tolerant Operations
Droneport
Weather Tolerant Operations
Distribution Center
Market: Thin/Short Haul
Weather Tolerant Operations
Airport
Rotary Wing
Urban Vertiport
Vertiport at airport
The LSUASC is Actively Working With NASA to Bring Urban Air Mobility Testing to Texas
Market: Small / Medium UAS
Market: Urban Air Mobility

Way Ahead

- Will notify Ernest Huffman when the Survey is Live and provide the link.
- Task 1 (Market Survey) status during the February UAS TF meeting.
- Task 2 & 3 (CONOPS-Gap Analysis) update during the February UAS TF Meeting.
- Contact me at joe.henry@tamucc.edu if you have any questions.

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The Urban Air Mobility Vision

North Texas UAS Safety and Integration Task Force presents

Know Before You Fly Your Drone

January 28, 2020

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CHARIOT

SPEAKERS

Adrian Doko - President, AUVSI Lone Star

AUVSI
LONE STAR

SPEAKERS

Al Brunner - Aviation Safety Inspector, FAA

SPEAKERS

Sharon Rossmark – CEO, Women and Drones

SPEAKERS

Evan Merelli – Owner / Operator at ELM Aerial Services

January 18, 2020

creation: Dimensional Matrix Multimedia 20JAN28

January 18, 2020

January 18, 2020

Survey Results

Attendance:

49 registered on Eventbrite.

4-woman

45-men

Attendee's county

Dallas-5

Tarrant-20

Collin-1

Denton-3

Rockwall-1

Grayson-1

Lavaca-1

Where did they here about the event:

6-social media

8-word of mouth

6-NCTCOG

3=Workforce Commission

3-NorthTX Drone Group

4-AUVSI

5-FTW City News

1-google search

2-College Poster

10-no comment

1-AD

Survey Results

What was their primary reason for attending?

11-Recreational

14-Professional

0-Student:

3-Other:

21-No Comment

Would you recommend this workshop?

28-yes

0-no

21-no comment

Was the workshop of value:

28-yes

0-no

21-no comment

Attendee's Suggested Locations

1.Lewisville

2. Flower Mound

3. Location was good

Survey Results

Attendee's Comments

1. Very Well Done!
2. more time for lunch & defined time for lunch.
3. reach out to libraries, local flying clubs, schools, hobby shops, local colleges.
4. Exceptional workshop!
5. keep up the good work!
6. Liked the meeting!
7. Workshop geared towards "newbies "Liked this one!
8. Post presenter's slides on website to download.
9. Background Noise from Venders were distracting. Put tables in hallway or separate.
10. Thank You for Workshop.
11. A location were presenters can fly/demonstrate
12. Best part was the FAA Speaker.
13. Women & Drones is a good idea, but the presentation is all over the place and needs to be focused on synchronizing the fields/ideas into less pages.
14. I enjoyed meeting with the diverse group of drone minded people just keep up to date on what is going on in the community.
15. I would like to potentially find an easier way to find safe places in local cities to fly for recreational. It's hard to find info in general from local cities themselves.
16. I am an AMA member but would like non club fields to fly for recreation.
17. More real-life examples vs hypothetical examples
18. Lunch should have been explained.
19. Vendors and Sponsors in back need to be out in the hall or quiet.
20. More 5 min. Breaks between speakers.
21. Local Club representation.

Survey Results

Attendee's Suggested Topics

1. Commercial fields: cinematography, photography, real estate
2. Education/stem
3. Mapping, surveying
4. Types of drones
5. Demonstration of varies tools
6. More on Rules and Regulations
7.More specialized sessions for aerial photograpy, 107 prep, FPV, Fixed wing. Since many people that participate don't have interest in any others.
8. Recreational/Hobbyist Flying
9. Photography
10. Educational Programs
11. Career Requirements for Drone Pilots beyond part 107/FAA license. Especially for career transition.
12.I think information regarding what is next after you get your 107 license for brand new pilots. Resources such as potential jobs, in depth discussions on new laws or proposed laws that will affect the industry.
13. Flight Stanard District Office
14. More Specialized Info for each workshop.
15. "Pilots in the Field" Speakers

Proposed Next Location and Topic Ideas

Location

March 28th, Dallas County Community College
May 30th, University of Texas at Arlington
July 25 or Aug 1st,

Topic

Mapping/surveying for city planners
Educational programs
101 on how to make a career after the 107
Panel of Drone Club representatives.
Topic Specialized Workshops
Demonstration with the drone and safety procedures.
Al Brunner suggested to have a Waiver and Airspace step by step demonstration.
FAA webinar “Where is my waiver”
“Night Waiver” . Demonstrate how to use Airmap and LAANC

January 18, 2020

January 18, 2020


North Texas UAS Safety and Integration Task Force presents
Know Before You Fly Your Drone
<< UAS Workshops >>
THANK YOU!