

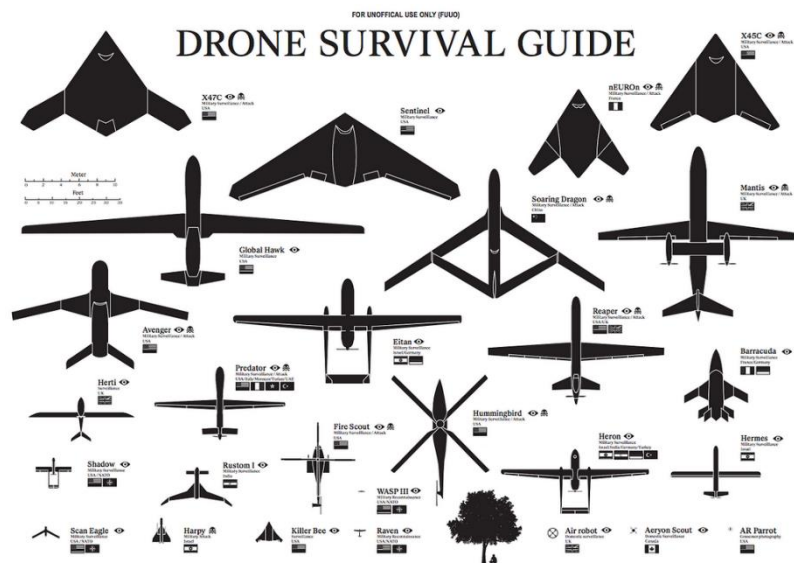
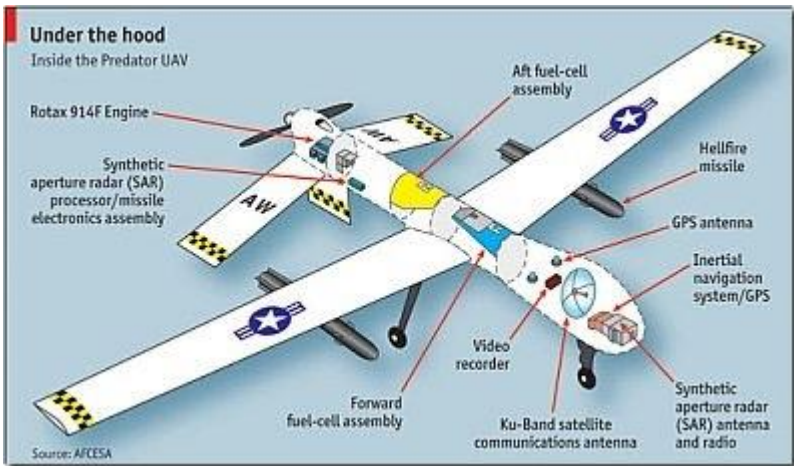


Fairfax County Public Safety Unmanned Aircraft Systems (UAS) Program

The Program

January 16, 2020

Types of Drones



Guide to Military Drones

<p>Reaper MQ-9 Wingspan: 20 meters Weight: 2,220 kg Max flight time: 14 hours Unit cost (without infrastructure): \$16.9 million</p>	<p>Global Hawk RQ-4 Wingspan: 40 meters Weight: 6,800 kg Max flight time: 32+ hours Unit cost (without infrastructure): \$131.4 million</p>
<p>LUNA Wingspan: 4.2 meters Weight: 40 kg Max flight time: 8 hours Unit cost (without infrastructure): \$310,000</p>	<p>FULMAR Wingspan: 3 meters Weight: 20 kg Max flight time: 8 hours Unit cost (without infrastructure): \$1.1 million</p>
<p>Black Hornet Rotor span: 120 mm Weight: 18 grams Max flight time: 25 minutes Unit cost (without infrastructure): \$40,000</p>	

Source: Sources: Thales, General Atomics, Northrop Grumman, EMT Penzberg, Prox Dynamics © DW

Natural Disasters



Structure Fire



Fire Investigations



Fairfax County Park Prescribed Burns



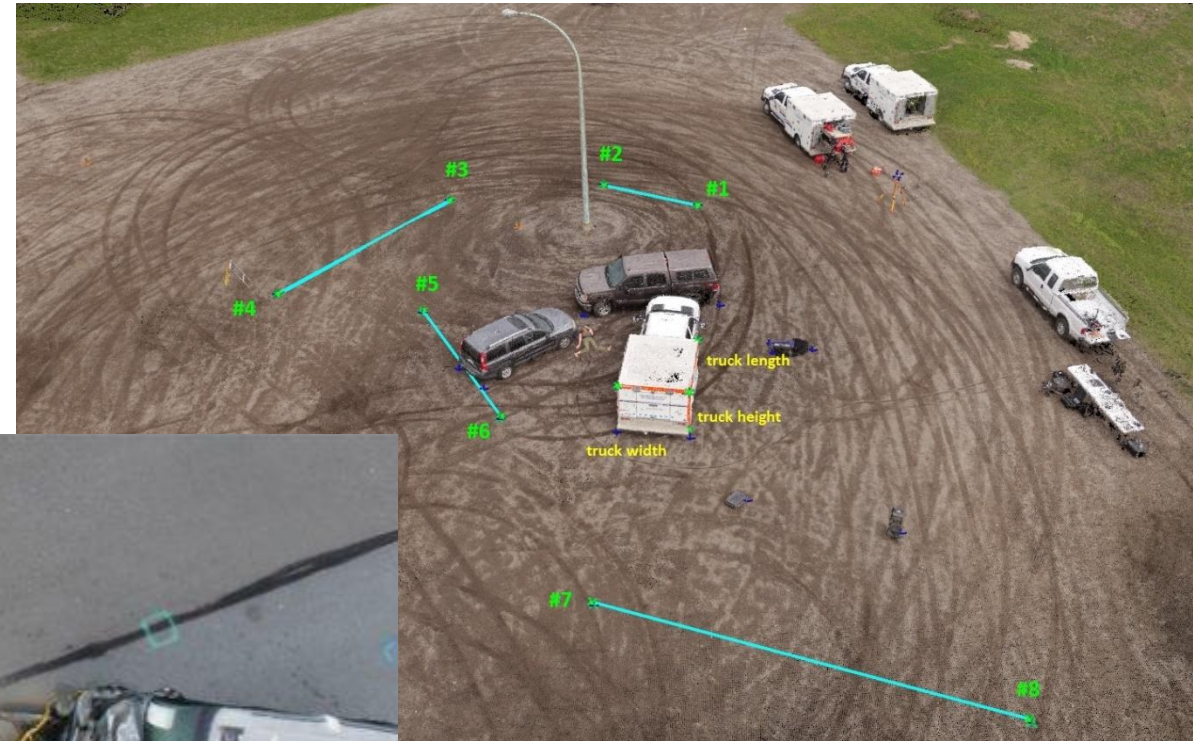
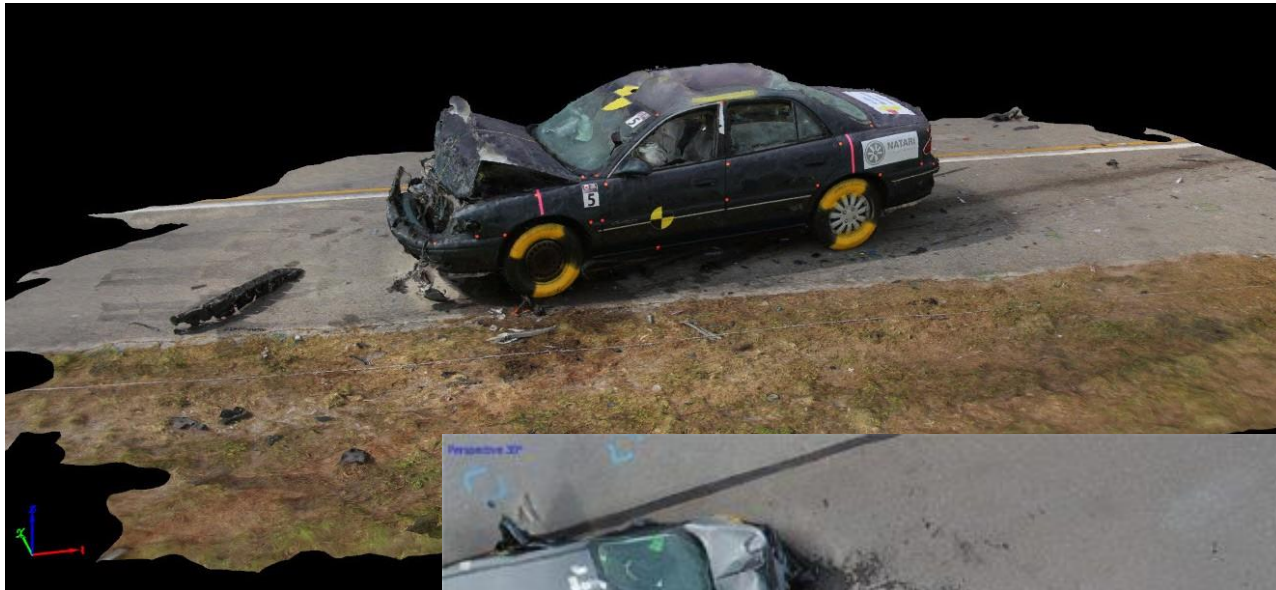
Infrastructure Inspection



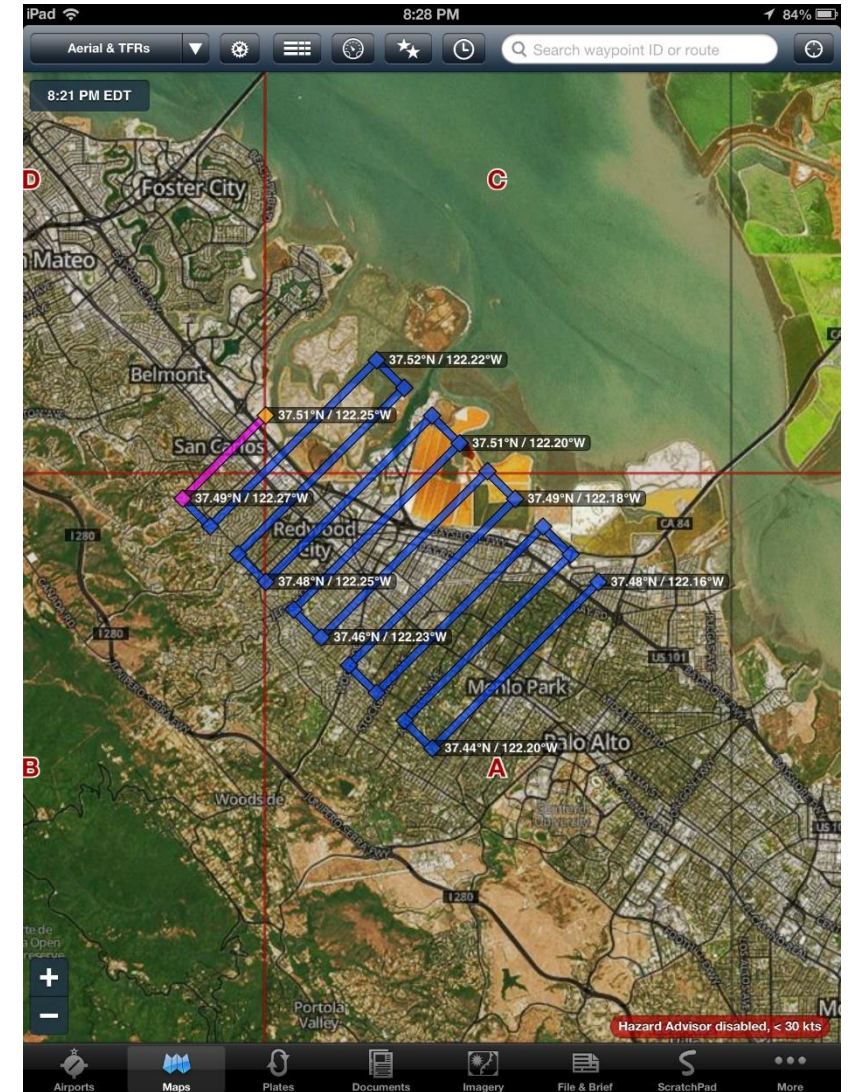
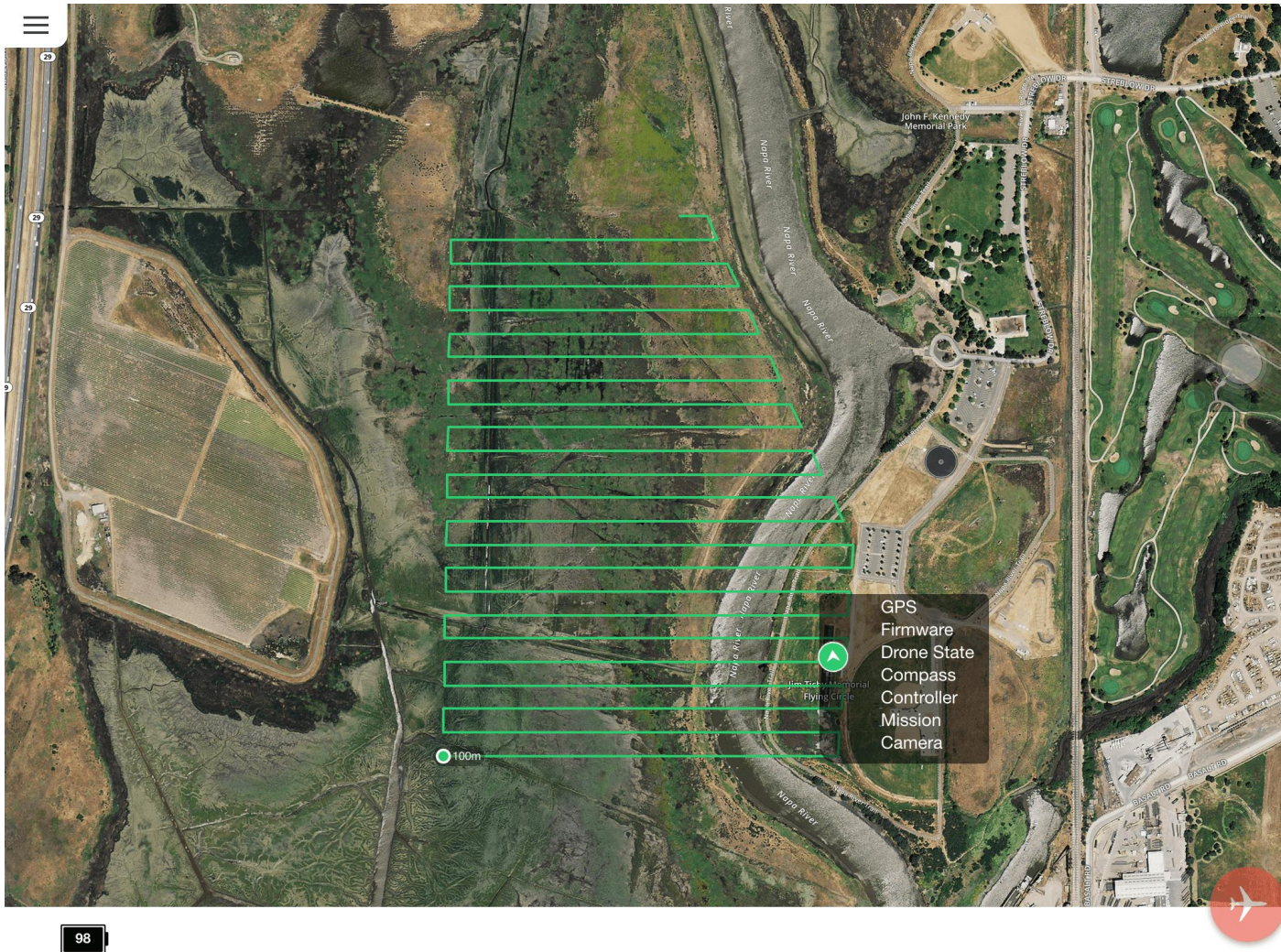
Hazardous Materials / Highway Management



Crash Reconstruction / 3D Modeling



Search / Mapping



First Step

- UAS Program workgroup formed in May 2017
 - Focus: How to effectively and safely implement a UAS program in Fairfax County.
 - Membership: Emergency Management, County Attorney, Risk Management, Public Affairs, Park Authority, Fire & Rescue, Police (Dive team and Search and Rescue), Sheriff's Office and the Urban Search and Rescue Team (VA-TF1).
 - Best practices
 - Develop mission profiles
 - Site visits / Workshops:
 - Air Traffic Control Facilities (Potomac TRACON, Dulles Airport)
 - FAA Symposium, PVCC UAS Public Safety Workshop
 - Standing regional programs (Loudoun, Stafford, Fauquier County,, VDEM)



Emergency Management Mission Profiles

- Damage Assessment (Pre-and Post-Disaster Surveys)
- Situational Awareness (EOC Operational Information)
- Response Priority (Resource Management)
- Enhanced 3D mapping
- Training and Exercise



Fire and Rescue Mission Profiles

- Enhanced situational awareness over fire ground operations
 - Public safety
 - Evaluate additional exposures
- Personnel accountability
- Fire, post-blast investigations
- Blasting site inspections
- Fireworks shoots
- Search & Rescue / Swift water operations / Rescues
- Hazardous materials response / Identification
- Preplans



Law Enforcement Mission Profiles

- Locating critical missing persons
- Forensics documentation
- Enhancing safety during water operations
- Crash reconstruction
- Enhancing safety during critical incidents
- Necessary to alleviate an immediate danger to any person



** Any law enforcement or regulatory agency operations will be in strict compliance of Virginia Code § 19.2-60.1*

Additional Mission Profiles

- Wildlife population estimates / terrain mapping / movement corridors
- Assessment of critical infrastructure (pipelines, bridges, storm drain systems, antenna towers)
- Stream and water management
- Facility, ditch, building inspections
- Marketing (Parks, Golf Courses, Historic properties)
- Footage to support Channel 16 programming
- County facilities, landscapes and nature
- Inspection of buildings during construction, alterations
- Family programs, ecology projects
- Fire watch for prescribed burns



Program Elements

- Program Manual / Agency SOP / General Orders
- Operator training and certification – Part 107
- Flight and maintenance logs
- Transparency
- Data Management
- Privacy Protection
- Legislation Review / Law Enforcement Use
 - Va. Code Ann. §19.2-60.1 (2015). This section provides that a local government agency having jurisdiction over criminal law enforcement or regulatory violations may not use an unmanned aircraft system except during the execution of a search warrant or an administrative or inspection warrant, unless certain exceptions apply
- Public information



UAS Public Safety Program Manual

- Provides a complete summary of the proposed UAS program
 - Mission Statement
 - Overview of the program
 - Regulatory
 - Administration
 - Protection of Privacy, Civil Rights and Civil Liberties
 - Data Management
 - Operations Positions
 - Safety
 - Operational Training
 - General Operating Procedures
 - Glossary of Terms, Acronyms, Retention Schedules

Next Steps

- Public Safety Committee Presentation (January 30, 2018)
 - Board of Supervisors
- Board of Supervisors Meeting (July 31, 2018)
 - Final decision was deferred
 - Create UAS Task Force
 - Public outreach and opportunities to comment

UAS Task Force

Established UAS Task Force

- Invited community representatives and subject matter experts
- Public meetings: October 17, 30, December 11, 2018 and February 11, 2019
- Discussions on purpose, operations, mission profiles, safety, equipment, training, privacy, data collection and retention, wildlife, program evaluation strategy
- Reviewed and revised the Draft UAS Program Manual
- Developed the Community Engagement Strategy

UAS Task Force Participation

- ACLU
- NAACP
- FAA
- Fairfax Federation
- Leadership Fairfax
- Fairfax Area Disability Services Board
- Greater Reston Chamber of Commerce
- Dulles Regional Chamber of Commerce
- Asian American Chamber of Commerce
- Communities of Trust
- George Mason University
- McLean Citizens Association
- Planning Commission
- Park Authority
- Emergency Management
- Police
- Fire & Rescue
- Public Affairs
- Office of Public Private Partnerships
- Wildlife Biologist
- Audubon Society
- County Attorney's Office
- Commonwealth of Virginia – Assistant Secretary for public safety – Shawn Talmadge
- Other individual subject matter experts

Community Engagement

- Community Engagement Strategy
 - County webpage: www.fairfaxcounty.gov/uas/
 - County email: uas@fairfaxcounty.gov
 - 30 Day Comment period (January 7 – February 8)
 - Social Media (Twitter, Facebook, Nextdoor)
 - Media: On Camera (e.g., Fox5, NBC4, ABC7)
 - Other Media: (e.g., Fort Hunt Herald, WTOP, Insidenova, Tysons Reports, AUVSI Unmanned system magazine, VDEM Daily Briefing)
 - BOS newsletters
 - Fairfax County: NewsCenter article, Emergency Blog
- Community Presentations / Comment Sessions (6)

Community Engagement - Outreach

- 176 attendees for the 6 outreach sessions
 - 133 questions and 29 comments
 - Comments/Questions were diverse in terms of topics
 - operations, equipment, budget/staffing, restricted airspace, best practices, partnerships, volunteers, wildlife, privacy, laws, procedures

Community Engagement – 30 Day Comment Period

- 118 responses received via email or Nextdoor
 - Participants were asked to provide feedback or ask questions
 - Comments/Questions were also diverse in terms of topics
 - operations, equipment and technology, budget/staffing, restricted airspace, best practices, cyber, vendor opportunities, partnerships, volunteers, wildlife, privacy, laws, safety and procedures

Public / Media Awareness Strategy

- Media event (program overview, talk with officials, equipment)
- Fairfax Alerts UAS group for notifications of UAS operations
- County web page for UAS (video clips, equipment information, operational missions, Q&A)
- UAS Summit – ½ day
 - Board Auditorium
 - Focus on public and commercial users
 - Presentations by County officials, FAA, airport operations
 - Training, certifications
 - Places to fly (Fairfax County Parks, airspace restrictions)



Final Steps

- Public Safety Committee Presentation (March 12, 2019)
 - Approval as presented – Action item at the next BOS meeting
- Board of Supervisors Meeting (May 21, 2019)
 - Public Safety Program Approved
 - Directed to come back with guidance on other county agency use
- Board of Supervisors Meeting (June 25, 2019)
 - Approval for other county use

Privacy

- No UAS flights beyond visual line of sight (BVLOS).
- No unauthorized surveillance activities.
- When a search warrant is required by law, and no warrant exception exists, flight is prohibited unless authorized by a search warrant signed by a magistrate.
- All UAS users, regardless of agency, shall adopt a posture of minimal data collection, limited to only that data, including images or video recordings, which are essential to complete the objective of the UAS mission.
- To the maximum extent possible, onboard cameras shall be directed toward the area of interest and away from uninvolved individuals or properties.
- UA live feed only transmit capability will be the normal, preferred UAS use.

Today

- Equipment purchase
- Steering Committee
- Webpage
- Notification
- Training
- Program Manual updates
- Regional partnerships
- Annual Report / Executive Summary
- GIS mapping application
- Other agency integration

Training Requirements

- Commitment letter (Agency Head or Supervisor)
- 2 Day 107 Prep Course (In house)
 - Take FAA 107 Exam \$150
 - Valid for 2 years
- 1 Hour Orientation class
- 2 Hour Initial flight training (Lake Fairfax Park)
- 3-4 Hours of classroom (program manual, procedures, privacy – written test)
- 4-5 Hours of additional flight training
 - Agency and mission specific
 - Various sites (Popes Head Range, Lorton, Bull Run Regional Park)

Training



Training



Training



Training



Fairfax County Fire Training / Helicopter



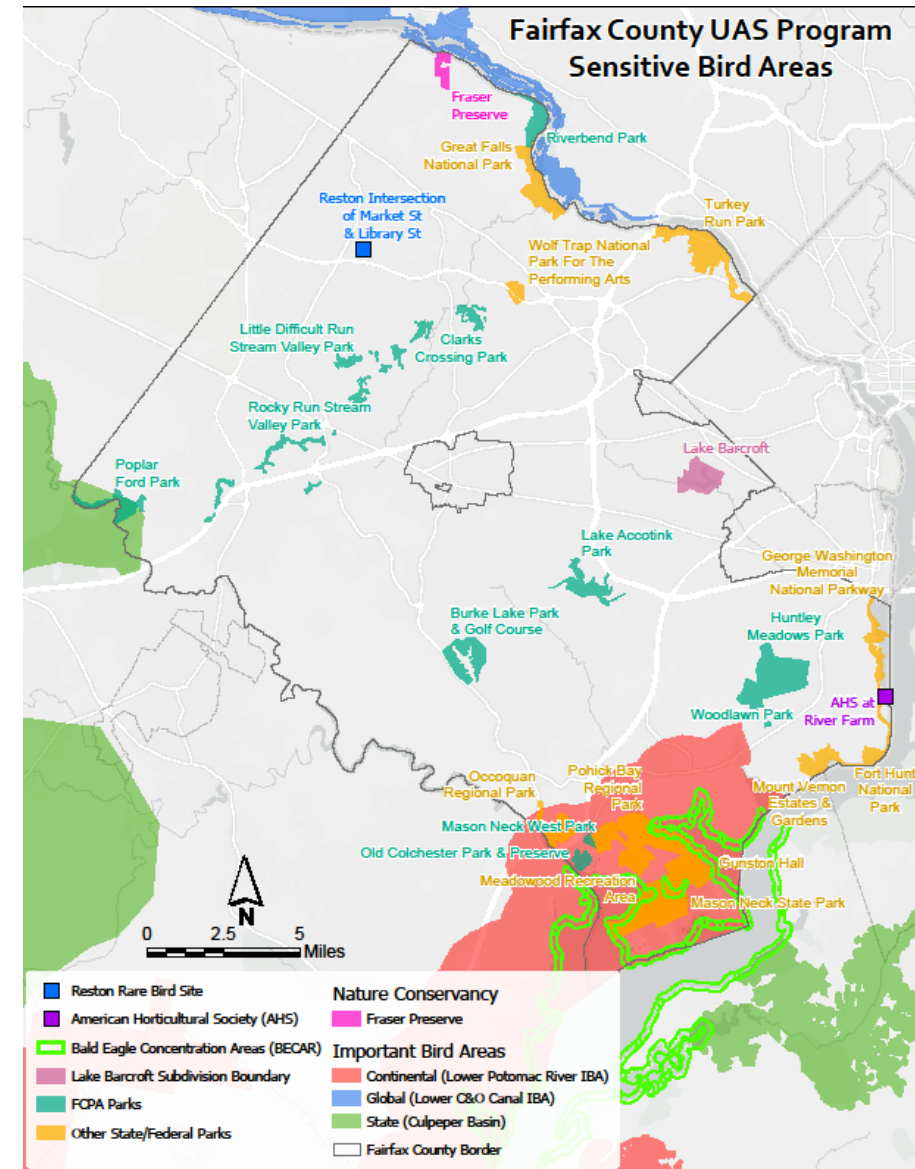
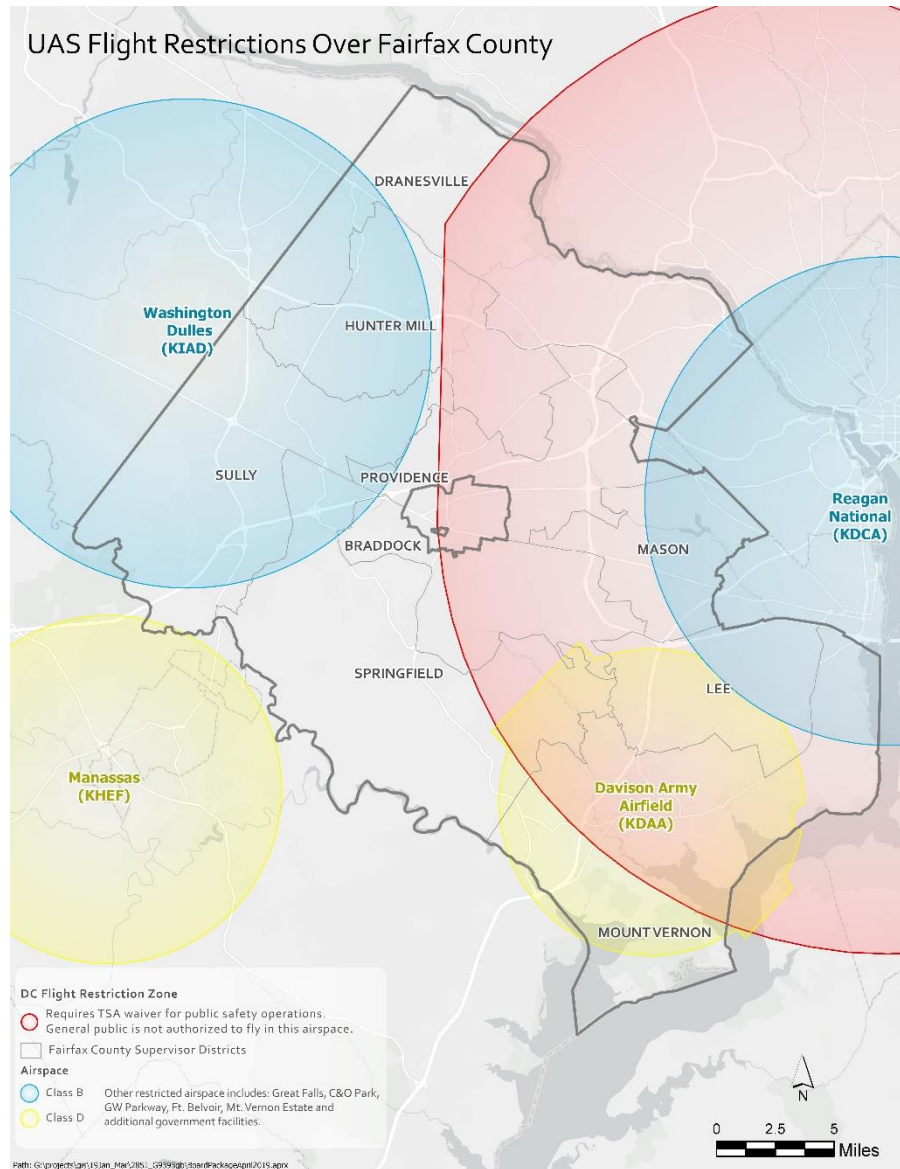
I66 Transfer Station / Bus Operations / VDOT / VSP



Fairfax County Fire Training Academy



National Capital Region Airspace



Equipment

- DJI Mavic Zoom
 - \$1,499 – Aircraft
 - \$1,500 - Accessories



Equipment

- DJI Mavic 2 Dual Enterprise
 - \$3,000 – Aircraft
 - \$1,500 – Accessories



LEAD WITHOUT LIMITS. WORK BEYOND YOUR BOUNDARIES.

Unlock the possibilities of flight with an extended port that allows you to connect additional devices onto the drone, helping you perform at your best in a variety of daily and critical missions.



M2 SPOTLIGHT

Direct lost persons with greater ease using a dual spotlight that enhances your vision in low-light areas.



M2 SPEAKER

Communicate with ground teams during emergency situations, effectively guiding pilots and workers across the operation.

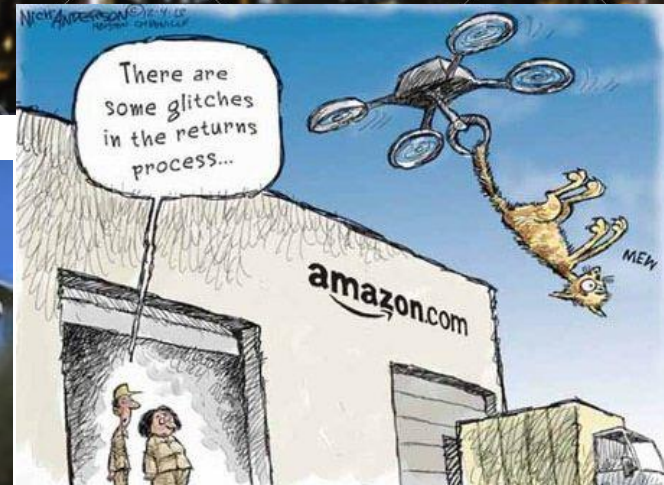
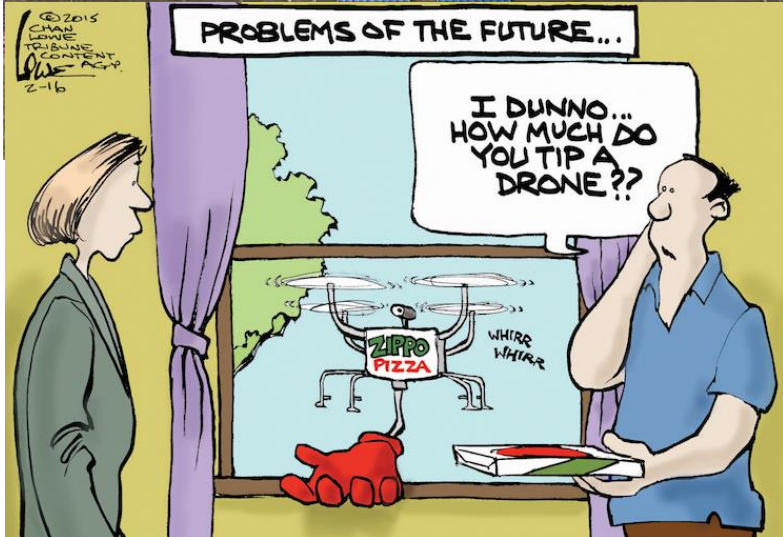
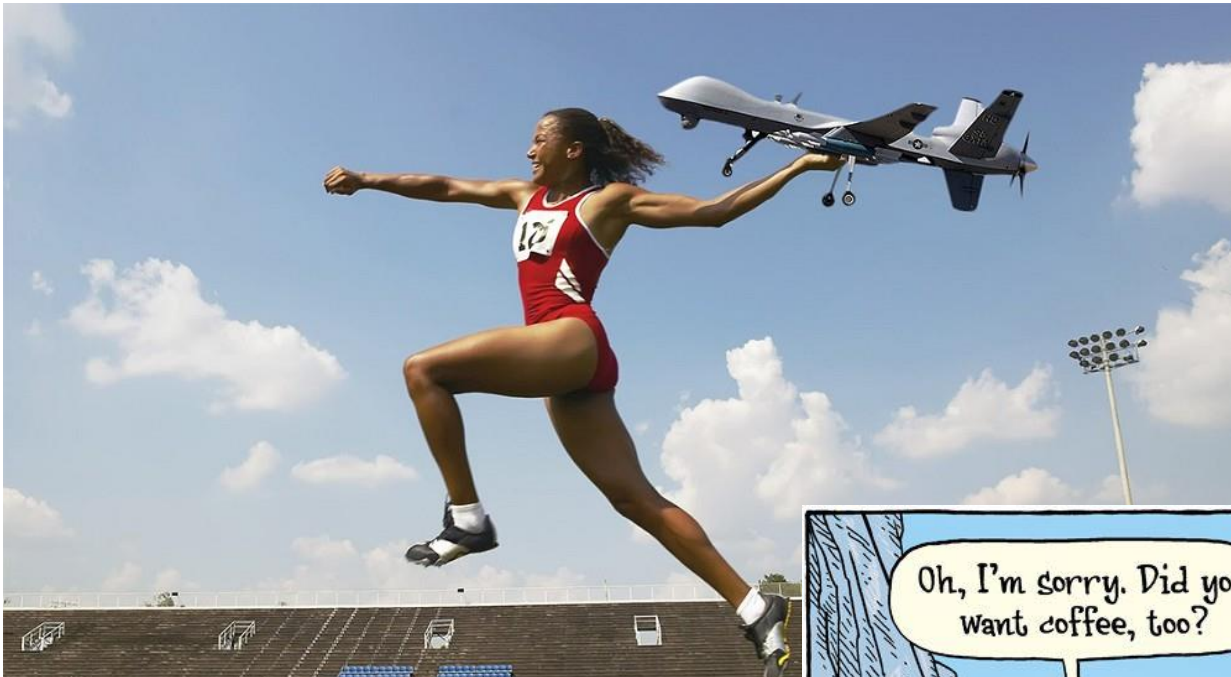


M2 BEACON

Conduct night missions with absolute safety, allowing other pilots to easily spot you from a distance while you're operating on site.



Questions ?



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