

# Civil Air Patrol



## sUAS OPLAN to Support FEMA & States for a Major National / Regional All Hazards Event

Austin Worcester

13 June 2019

ONE CIVIL AIR PATROL, EXCELLING IN SERVICE TO OUR NATION AND OUR MEMBERS!



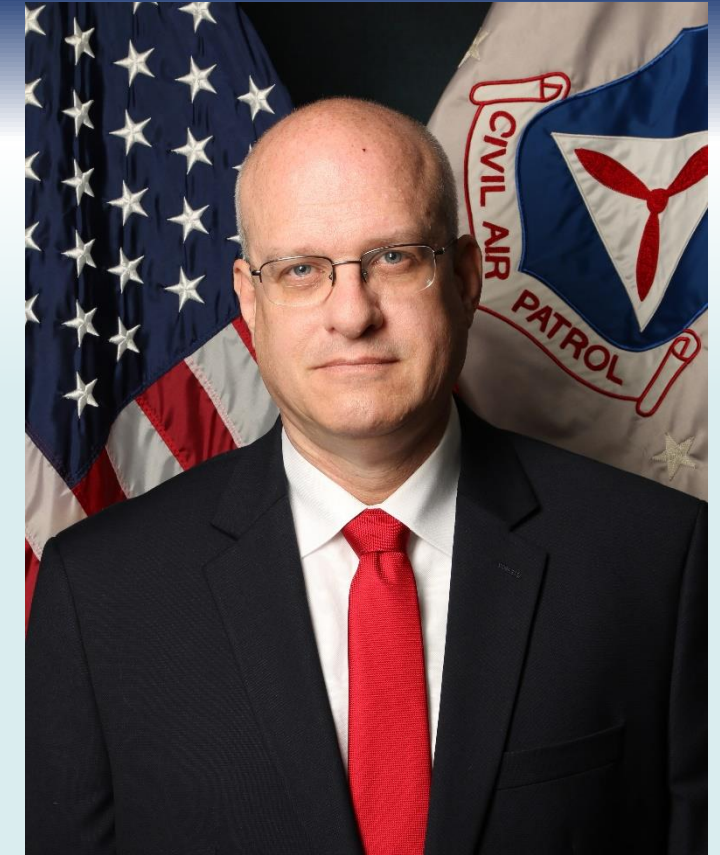
# Facilitator & Presenters



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# Rules of Engagement

- **Members in the field will be in listen only mode. We have several hundred members signed up, so having everyone with an open microphone is not supportable.**
- **We will try to answer questions throughout the webinar though. Just type your questions, and we will either answer you directly via text or provide a voice answer to your question.**
- **The webinar itself, questions, and chat log are being recorded, so please remain respectful.**
- **Time is limited...focus on the topic 😊**



# Overall Concept

- **CAP has a burgeoning sUAS program nationally**
- **CAP and FEMA see a benefit to having an sUAS response capability during its response.**
- **It is the intent of this OPLAN to support a regional or national level all hazards event.**



# Planned Operations

- **One large scale training annually (likely during NESAs) to work this OPLAN and exercise it using the push pack equipment.**
- **Local training within the Wings, using the Wing's issued equipment and software, to exercise the operational, product delivery portion of this OPLAN.**



# Unplanned Operations

- **DSCA responses to support state or federal level response efforts to a catastrophic event. It is anticipated that these regional and national responses will be at the request of 1AF to support FEMA, under a FEMA MA.**
- **1<sup>st</sup> CAP sUAS response occurred in April of 2019 as a corporate mission to support the State of Nebraska EMA.**





# Nebraska Post Flood sUAS Flight



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# OPLAN Personnel / Training

- **CAP is responsible for the mission training/certification of its sUAS crews supporting these DSCA missions. It is essential that only qualified CAP sUAS crews, properly supervised trainees, and authorized trainers (DHS, DoD, or contracted staff as authorized by CAP/DO) be allowed to support this OPLAN. At no time will other personnel operate sUAS in support of this OPLAN.**
- **sUAS Mission Pilots must hold FAA Part 107 and be qualified as a CAP sUAS Mission Pilot (or be a member in trainee status, supervised by an sUAS Mission Pilot).**
- **A minimum of 2 persons (Pilot / Technician) are required for flight operations at any site.**





# DSCA Mission Approvals

- **Mission approval of DSCA responses will be documented within WMIRS and on the daily 1AF ATO;**
- **CAP internal training will only be documented within WMIRS, in a corporate mission.**
- **If a mission or non-CAP passenger is requested after publication of the ATO, requests need to be made directly to the CAP-USAF 1AF/LNO prior to sortie execution.**
- **If a passenger name changes after approval but the passenger's organization/function remains the same, no further approval is required.**



# FAA Authorizations / Waivers

- Operations conducted in Class G airspace and conducted within the requirements of 14 CFR 107 require no special FAA approvals for operation.
- Operations within Class B, C, D, or Surface E airspace require an airspace waiver from the FAA. Operations conducted outside of the requirements of 14 CFR 107 require a COA from the FAA.
- Operations within the National Capital Region's FRZ require special coordination with the TSA.



# SGI Requests

- Emergency requests for FAA airspace waivers and COAs to support DSCA responses will be filed as an Special Government Interest (SGI) request.
- HQ CAP & NOC can get Verbal SGI approvals from the FAA SOSC providing the paper filing is done as soon as the situation allows for urgent life saving, suffering reduction, and property conservation missions.
- **ONLY** HQ CAP and/or the NOC may file waivers, COAs, and SGI requests with the FAA on behalf of CAP.



# Manpower Requirements

- A 22 person sUAS response team is expected to support this level of response.
- Each DSCA regional or national level response will require at least eight (8) trained sUAS flight crews with standby crews as necessary to be able to simultaneously operate up to six (6) rotary wing sUAS and two (2) fixed wing sUAS at the incident.
- It is the intent of this OPLAN to provide four (4) of these rotary wing sUAS flight crews to support FEMA US&R and/or state and local public safety entities to aid in IAA and SAR as needed using the Mavic 2 Enterprise Duo (EO/IR) and P4P (EO only).





# Manpower Requirements

- **1 sUAS Team Leader (CAP IC qualified – preferably IC1 or 2)**
- **1 sUAS Safety Officer (CAP MSO qualified)**
- **4 Mission Staff Assistants**
- **8 sUAS Mission Pilots (2 need to be Fixed Wing Qualified)**
- **8 sUAS Technicians**



# Equipment Push Pack – sUAS Equipment

- 1 – DJI Matrice 210 RTK (EO (5K-20MP) /IR (640) equipped)
- 2 – DJI Inspire 2 (EO (5K-20MP) equipped)
- 2 – Event 38 E384 Fixed Wing (EO (20MP) equipped)
- 4 – DJI Mavic 2 Enterprise Duo (EO (4K-12MP) /IR equipped)
- 6 – DJI Phantom 4 Professional (EO (4K-12MP) equipped)
  - 1 of which will be Multispectral (R,G,B,O,C,NIR spectrums (20MP))
- 1 – DJI Mavic 2 Professional (EO (5K-20MP) equipped)
- 1 – iGage iG3s stand alone surveyor quality GPS unit
- 1 – Ground Control Point Kit with 10 individual GCPs



# Matrice 210 RTK (Real Time Kinematics)



- Up to 35 minutes of flight
- GPS accuracy to 2 cm
- 2 downward sensors or
- 1 upward sensor
- Z30 Camera is 5K+ FMV, 20 MP still, x30 Optical Zoom, x6 Digital Zoom for up to x180 zoom.
- ZXT2 is a 4K/12 MP camera teamed with a 640x480 IR camera.



# Inspire 2



- Up to 30 min of flight
- 1 downward sensor
- Zenmuse X5S Camera (5.6K, 20MP camera)
- Images are georeferenced





# Phantom 4 Professional



- Up to 25 min of flight
- 4K / 12 MP camera
- 1 unit equipped with multi-spectral cameras (R,G,B, O, Cy, NIR) – 20MP MAPIR Survey 3 cameras



# Skylark Endurance Quadcopter



- 35-40 min flight time
- MAPIR Survey 3, 20MP (R,G,B) camera which can be interchanged to multispectral.
- Not covered by DoD COTs/GOTs concerns (UAS is Cyber-isolated)



# Event 38 E384



- Fixed Wing UAV
- 90 min flight time
- Sony R10C 20MP mapping camera
- Size and flight characteristic similar to RQ-11 Raven
- Also not covered by COTS/GOTS concerns.



# DJI Mavic 2 Enterprise Dual



- 30 min flight time
- Dual 4K/12MP EO camera with 160x120 IR sensor
- Has mountable speaker, spotlight.





# Equipment Push Pack - Communications

- **12 – CAP VHF Handhelds**
- **1 – VHF portable base station w/ power supply**
- **1 – VHF portable antenna for base station**
- **1 – Portable gasoline powered generator**



# Equipment Push Pack - IT

- **4 – Windows Based Laptop Computers (deploy with the EQ & E384)**
- **1 – portable Scanner / Printer**
- **5 – Cellular Wifi Data Hotspots**
- **Each Laptop has ESRI ArcGIS Pro, Pix4D Mapper, Agisoft Metashape, Irfranview, and QGIS Software Packages.**



# Logistics

- **3 CAP COVs (preferably sourced locally) will be needed to support this team**
- **Travel, Lodging, and Administration of the Team will be handled by the NOC staff, in cooperation with the Mission IC and sUAS Team Leader.**
- **sUAS personnel are expected to be able to deploy, in support of this OPLAN, for a minimum of 7 days.**
- **To the extent possible sUAS flight crews will be sourced from the affected region first, then adjacent regions, then CONUS as needed.**



# Logistics Continued

- Entire system is built upon 3 standard pallet sized containers and one open standard sized pallet
- All four pallets will fit upon a standard sized USAF cargo pallet for shipping OR
- Can be shipped by standard freight (FedEX Freight, Ground, or Custom Critical)



# Packed Push Package



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# Questions?



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