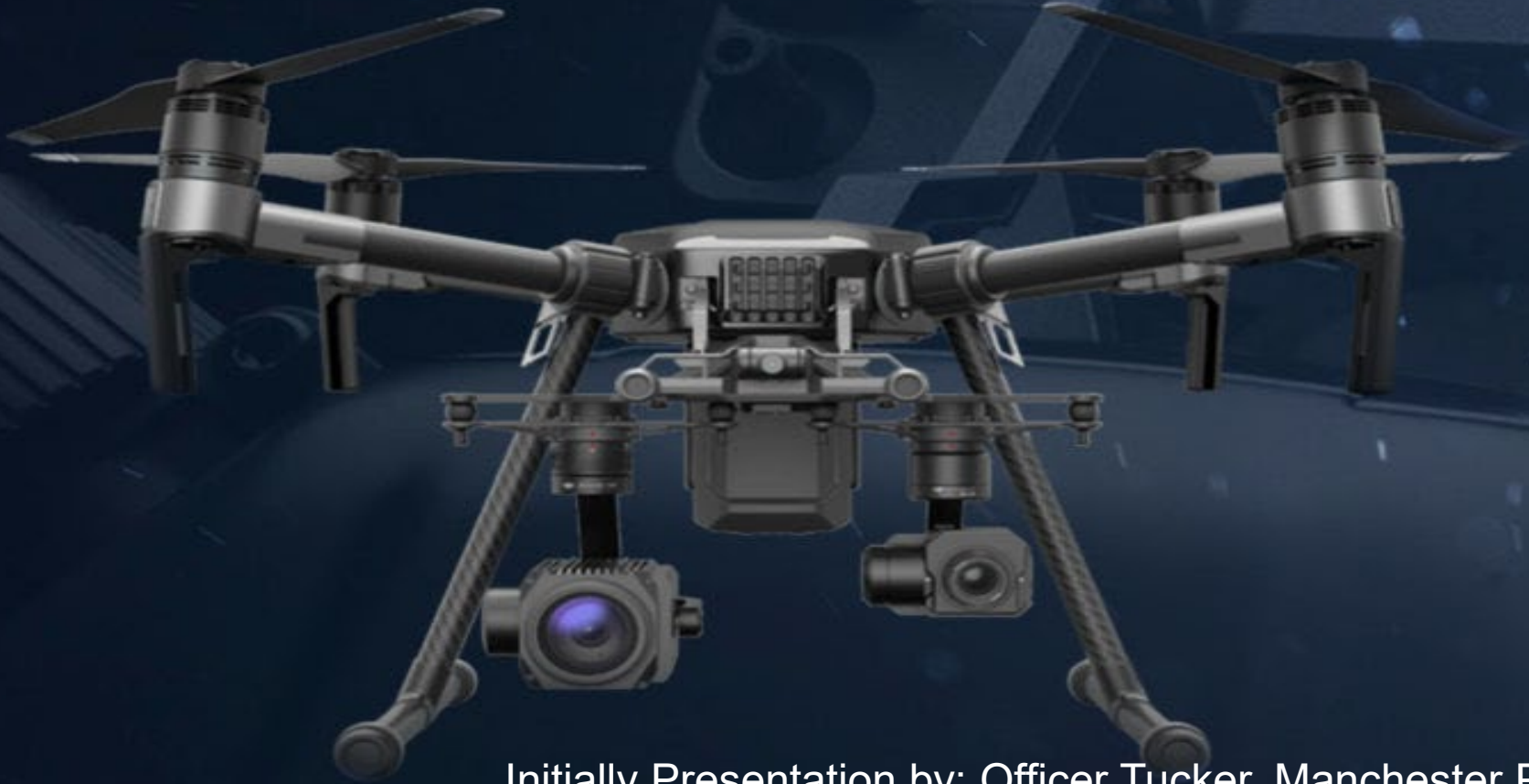


DRONES IN THE FIELD

POLICE AND LAW ENFORCEMENT DRONES



Initially Presentation by: Officer Tucker, Manchester Police Department
Revised by: Chief CD Moore, Weare Police Department

What is a drone?

sUAS (small unmanned aircraft systems)

- **Public Aircraft Operator:** Rather than certify pilots and register aircraft under Part 107, your agency may choose instead to request a COA from the FAA to become a public aircraft operator. This would allow your agency to self-certify your drone pilots and drones for flights to perform governmental functions. The first step is to ask your legal department to draft a Public Declaration Letter that certifies your agency as a governmental entity and send it to the FAA. The FAA will send you a user ID and password to the UAS COA Online Application System, where you can complete your application. This process can take up to 60 days.

DRONES IN PUBLIC SAFETY: A GUIDE TO STARTING OPERATIONS

Law enforcement and public safety agencies are realizing the potential of using drones to enhance their missions. Some agencies choose to hire drone pilots certified by the Federal Aviation Administration to conduct operations for them. But if your agency wants to conduct its own drone operations or create a program with multiple pilots and drones, this primer will help get you started.

Your agency has two options to operate drones:

- **Designate** individual members of your team to earn FAA drone pilot certificates and fly under the rules for small unmanned aircraft systems (sUAS).
- **Receive** an FAA certificate of authorization (COA) to function as a “public aircraft operator” that can self-certify its drone pilots and drones.

The sUAS Rule

Most drone pilots operate under the sUAS rule, which is commonly known as Part 107 after the designated section of the federal code. Part 107 defines requirements for drone pilots and drones, and it sets operational limits for drone usage.

Pilot certification and responsibilities

- Members of your team may choose to take the FAA Airman Knowledge Test to become drone pilots. Those who pass the test receive remote pilot airman certificates, giving them the right to operate qualified sUAS.


Operational limitations

- Drones flown by remote pilots must weigh less than 55 lbs. This limitation includes any attached equipment or cargo, such as emergency aid in search-and-rescue operations.
- Remote pilots cannot fly their drones more than 400 feet above ground level (or more than 400 feet above the top of structures like communications towers).

- Remote pilots must receive FAA authorization to fly in airspace near airports. They may use an automated system called Low Altitude Authorization and Notification Capability (LAANC).
- Other limitations include not flying over people or at night. Your agency may apply for waivers to certain rules. To request a waiver, visit faa.gov/uas/request_waiver.

Aircraft requirements

- No FAA airworthiness certificate is required to fly sUAS under Part 107, but your team must register each aircraft with the FAA. The remote pilot must confirm that an aircraft is in condition for safe operation before each flight.



So why do we need sUAS?

Drones provide an invaluable resource that can be used to **search areas of ground terrain too dangerous or difficult to access on foot**. They also can search large open areas more quickly than ground searchers, and thermal optics can help identify and locate heat signatures of people during both day and night operations.

- Search & Rescue of missing/endangered/wanted persons
- Over-watch for high-risk incidents
- Ariel photography/video for mapping of crime scenes
- Motor vehicle crash scenes
- Fire scenes
- Hazmat Scenes
- Natural Disasters
- Training Missions

2022 Tactical Use of a Drone in Weare

Officers were dispatched to a person in crisis who had barricaded himself in a residence. Officers established a perimeter and attempted to contact the victim which was unsuccessful. Officers were unable to safely approach the scene so a personal drone of one of the officers (trained and certified while at Manchester PD) was used to view inside of the barricaded area. The victim was observed by the drone operator approaching a window while armed. The drone operator was able to give verbal warning to perimeter units to take cover. The victim fired two rounds, officers did not return fire. The victim surrendered without incident.



Victim approaching window while armed



Victim firing weapon

Recent Incidents in Weare Where a Drone Could Have Been Utilized

- Runaway horse in Clough State Park
- Runaway Juveniles
- Brush Fire at Clough State Park
- Fatality Scene on Route 114
- Lost UTV Riders in Clough State Park
- Barricaded Subject
- Missing Persons

What do we need so that we can use drones?

- 14 C.F.R. Part 107 (Drone License) for each Pilot.

AND

- A Certificate of Authorization (COA) to have a Public Aircraft Operator that can certify Pilots in house. This also removes all restrictions for flight within the Town (we would not need to contact the ATC for each flight though due to Class G airspace).
- Insurance for Liability (Drone crash).
- Standard Operating Procedure.
- Documentation (detailed reports each time the drone is used. Copy of the flight path and video taken placed onto a DVD and submitted into evidence). This will prevent the “Weare Police had a drone looking in my window” statement.

How do we
get a
License?

Professional Development & Training

[Professional Development](#)

[Boot Camps](#)

[Training Solutions](#)

[UNH Violin Craftsmanship Institute](#)

[Calendars](#)

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UNH Drone Academy



Online training available for Part 107 License through FAA, FREE!!

Additional training available through UNH, training fees can be included in grant.

Being trained as a drone operator at WPD would be an ancillary duty for officers so staffing the program would not be a deterrent.

Basic Legal Concerns



Drone usage is no different than a Pole Cam and a Warrant should still be applied for when direct surveillance is needed.



Police can follow vehicles and attempt to ID occupants if we are investigating a particular violation, misdemeanor, or felony.



The 4th Amendment still applies but airspace is not owned by a private citizen so hovering over a house/business is legal. The United States Code (49 U.S. Code § 40103) states that the United States Government has exclusive sovereignty of airspace of the United States.



Education campaign is key. WPD should inform the public that we will be utilizing sUAS for certain situations. I.E. M/V accident with death in a residential area; we should also knock on doors and advise residents that we will be deploying a sUAS to document the scene.

Case Law



(SCOTUS) *California V. Ciraolo* (May 19, 1986) 4th Amendment was not violated by aerial observation without a warrant from 1,000 feet of a fenced in backyard.



(SCOTUS) *Florida V. Riley* (Jan 23, 1989) 4th Amendment not violated by Helicopter flying at 400 feet above house to investigate Marijuana grow.



(SCONH) *State of NH V. Johnson* (July 23, 2009) Have not had the occasion to address whether, or under what circumstances, aerial observation may constitute a search under the NH Constitution, and we need not do so here.

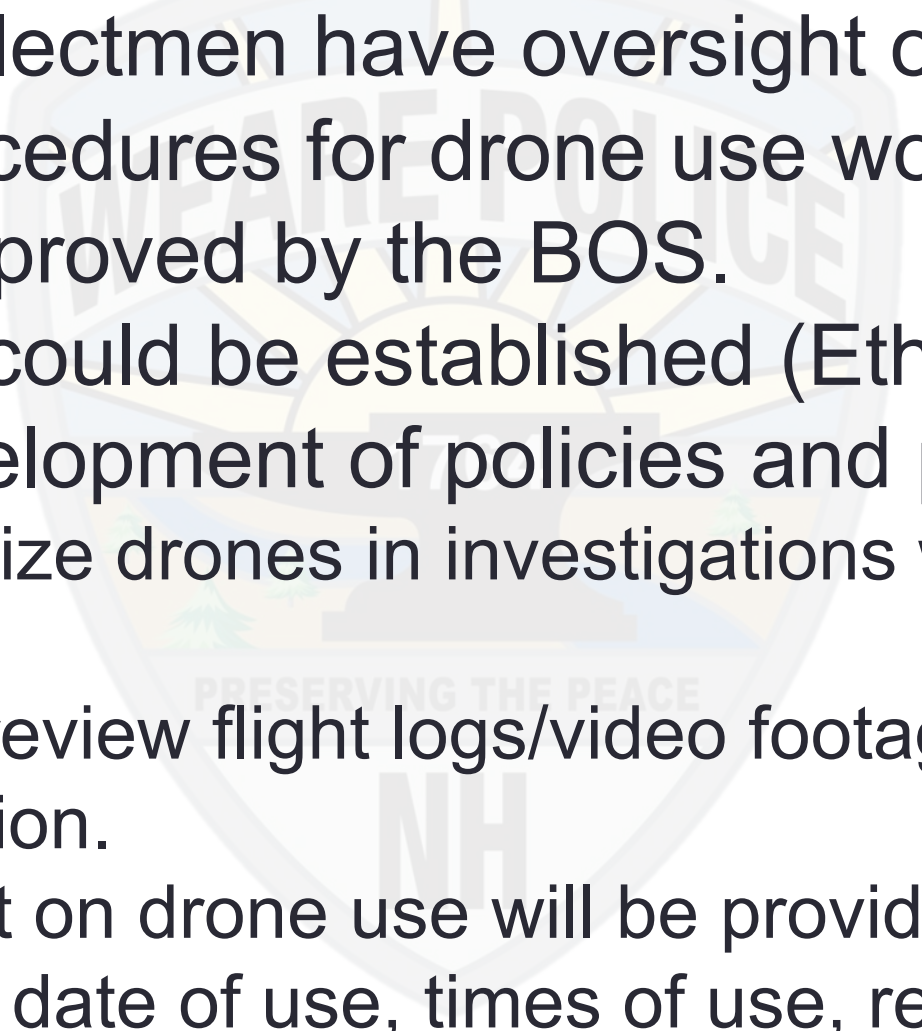


(SCOTUS) In *Kyllo v. United States* (2001), the Supreme Court ruled that the warrantless use of a thermal imaging device on a suspected marijuana grower's home violated the Fourth Amendment.

Legality Concerns Addressed

- The 4th Amendment protects American citizens from unreasonable searches and seizures. A drone's eye-in-the-sky perspective is not considered a search or seizure because it's not physically entering your property or body, and it doesn't require you to reveal any information about yourself.
- Using what was viewed with the drone's camera's, could Police then reasonably enter a citizen's property and seize evidence of a crime or contraband if it observed while in "plain view"?
 - A search warrant would need to be obtained prior to police entering a citizen's property.
 - An example: Weare Police observe plants which appear to be marijuana in a back yard. In small amounts, marijuana has been decriminalized in New Hampshire, meaning offenders would receive a violation. Hemp plants have a similar appearance and are legal. While scanning an area if a drone operator observes plants which are suspected of being marijuana, it creates reasonable suspicion but not probable cause because hemp plants are similar. Police would therefore need to make an application to the court for a search warrant through the court to investigate further.

How would WPD address citizen concerns of drone use?

- 
- The seal of the Waterbury Police Department is visible in the background. It features a shield with a sunburst at the top, a star in the center, and the words "WE ARE POLICE" and "PRESERVING THE PEACE" around the perimeter. The letters "NH" are at the bottom.
- The Board of Selectmen have oversight of WPD
 - Policies and Procedures for drone use would have to be reviewed and approved by the BOS.
 - A citizens panel could be established (Ethic's Committee?) to assist in the development of policies and procedures.
 - WPD will not utilize drones in investigations without obtaining a search warrant.
 - The panel may review flight logs/video footage not related to an active investigation.
 - An annual report on drone use will be provided for citizens including; costs, date of use, times of use, reasons for use, outcomes

Flight Log Example



WPD UAS Flight Log

Event/Case #

Mission/Flight Plan

Pilot Name:

RP Cert. #:

Visual Observer(s):

Location:

Date:

Aircraft Type/Name:

Mission Description/Route:

Mission/Flight Record

Flight 1	Takeoff Loc:	Launch Time:	Flight Notes:
	Landing Loc:	Landing Time:	
Flight 2	Takeoff Loc:	Launch Time:	Flight Notes:
	Landing Loc:	Landing Time:	
Flight 3	Takeoff Loc:	Launch Time:	Flight Notes:
	Landing Loc:	Landing Time:	
Flight 4	Takeoff Loc:	Launch Time:	Flight Notes:
	Landing Loc:	Landing Time:	

Prep : Before you leave for incident



BATTERY STATUS:

☐ Controller % ☐ Thermal Display %

AIRCRAFT BATTERIES: CHARGED AND AVAILABLE

1 2 3 4 5 6 7 8 9 10

☐ CHECK FIRMWARE FOR UPDATES

☐ CHECK WEATHER: WINDSPEED / VISIBILITY TEMP

☐ CALL CONTROL TOWER IF REQUIRED OR APPLY FOR LANNAC APPROVAL

PIC: 2ND OPERATOR VO

Pre-Flight: Controller



☐ ATTACH / POSITION ANTENNAS

☐ CONNECT DISPLAY TO CONTROLLER

☐ POWER ON CONTROLLER

☐ VERIFY NO UPDATES NEEDED.

Pre-Flight Safety Checks: Aircraft



☐ PROPS TIGHT AND FREE OF ANY DAMAGE

BATTERIES % 1ST FLIGHT 2ND FLIGHT 3RD FLIGHT 4TH FLIGHT

☐ CONFIRM BATTERY FULL INSERTED AND LOCKED IN 1ST 2ND 3RD 4TH

☐ GIMBAL LOCKS AND COVERS REMOVED

☐ SD CARD INSTALLED AND RECOGNIZED

Pre-Flight: SYSTEM



☐ POWER ON AIRCRAFT

☐ ALLOW GPS TO CALIBRATE

☐ CHECK GPS SATELLITE CONNECTION STRENGTH

☐ CHECK IMU STATUS/ CALIBRATE IF NEEDED

☐ SET MAXIMUM HEIGHT, RTH ALTITUDE, AND SET HOME POINT

TAKE OFF



☐ CLEAR TAKE OFF AREA / PROPS

☐ START VIDEO RECORDING

☐ START ROTORS

☐ TAKE OFF AND HOVER 10 SECONDS - LOOK / LISTEN FOR DEFECTS OR ISSUES

LANDING



☐ CLEAR LANDING AREA

☐ LAND

☐ POWER DOWN EQUIPMENT - REPLACE BATTERY AND PREFLIGHT IF CONTINUING MISSION
RESTART PREFLIGHT AIRCRAFT CHECKS.

☐ REINSTALL GIMBAL LOCK

☐ DOWNLOAD SD CARD

☐ REMOVE AND SERVICE BATTERIES

☐ CHECK FOR ANY OBVIOUS DAMAGE OR ISSUES

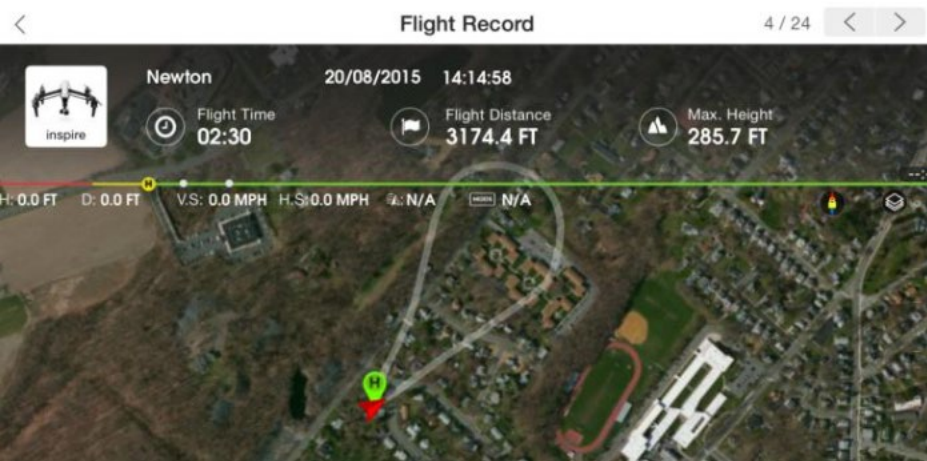
☐ STORE IN PROTECTIVE CASE

INCIDENT ADDRESS

INCIDENT NUMBER DATE OF INCIDENT

RPIC SIGNATURE LOG ENTRIES COMPLETE DATE

Examples of flight maps



How will the program be funded?

- The initial purchase of equipment, supplies, and training costs will be included in the grant proposal. The grant is funded through the American Rescue Plan Act and is managed by the state. Grant applications are due ASAP as the funding expires June 30, 2023.
- Future funding needs (maintenance, repairs) can be paid with funds earned (and BOS approval) while completing Everett Dam Patrols. WPD is contracted with the US Army Corps of Engineers to complete these patrols which earns \$6-8k annually.



MATRICE 30

Proposal for Weare Police Department



Enterprise Dealer

Created by:

Chris Williams
Cloud City Drones - New England

Prepared for:

Brandon, Montplaisir Sergeant
Weare Police Department



Cloud City Drones
Warwick, Rhode Island 02889 United States
New England Enterprise UAS/UAV Dealer
hi@cloudcitydrones.com
+ 401.681.4112

DJI Matrice M30T Thermal SAR

QUOTE

Reference: Q- 502973

Quote created: 03 / 07 / 2023

Quote expires: 04 / 06 / 2023

Prepared by: Chris Williams


Weare Police Department
144 North Stark Highway
Weare, NH 03281

BILLING ADDRESS:
Weare Police Department
144 North Stark Highway
attn. Brandon Montplaisir Sergeant
Weare, NH 03281

SHIPPING ADDRESS:
Weare Police Department
144 North Stark Highway
attn. Brandon Montplaisir Sergeant
Weare, NH 03281

Accepting this quote

By signing and dating this quote you're simply agreeing to its contents. Nothing will be shipped without payment or qualifying purchase order.

Products and Services		QTY	Price	Line Total
Matrice 30T Worry-Free Basic Combo (SP) Up to two paid replacements can be offered within one year after the product is activated. In addition, it also comes with 1 standard maintenance service. - Matrice 30T - Matrice 30 Series TB30 Intelligent Flight Battery (2) - Matrice 30 Series BS30 Intelligent Battery Station - Enterprise Shield Basic (M30)	M30T-SP	1	\$13,340.00	\$13,340.00
				
DJI Care Enterprise Basic Renew (M30T) Year Two Service Care, \$900 Replacement Fee	CP.QT.00005768.01	1	\$1,050.00	\$1,050.00
Matrice 30 Series - TB30 Intelligent Flight Battery	CP.EN.00000369.02	4	\$329.00	\$1,316.00

Did you know?




Cloud City Drones was the first Authorized DJI Dealer in Rhode Island.

Trade in in

We can apply your qualifying equipment towards a new purchase. We can also take in your trades towards Cloud City Gift Cards.

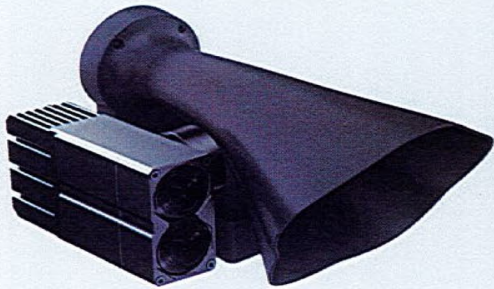
Learn More

cloudcitydrones.com/pages/trade-in

Products and Services		QTY	Price	Line Total
DJI WB37 Battery	CP.BX.000229	1	\$59.00	\$59.00
This 2S 4920mAh battery has excellent discharge performance at low temperatures and charges quickly.				
				
RC Plus Strap Bracket Kit	CP.RC.00000002.01	1	\$39.00	\$39.00
The DJI RC Plus Strap Bracket Kit allows you to effortlessly carry your RC Plus controller via the use of a strap.				
Optional Accessories				
CZI LP12 Searchlight & Broadcasting System for the DJI Matrice M30 Series.	LP12	1	\$1,795.00	\$1,795.00
LP12 is a searchlight and broadcasting integrated payload designed specifically for the DJI Matrice 30 drone model. With its streamline design, it pushes the limits of product performance while taking characterized appearance into account, and effectively reduces wind resistance and improves the duration of flight.				
				
Matrice 30 Series - 1671 Propeller	CP.EN.00000379.01	1	\$49.00	\$49.00
Hoodman Weighted Drone Landing Pad (5 Feet)	HDLP	0	\$119.00	\$0.00
Five Feet				
				
Promotions				
Free! Cloud City Phone Support	CCDPSUP3M	1	\$0.00	\$0.00
Free! Cloud City Drones priority white-glove phone support. (3 Month)				

Products and Services		QTY	Price	Line Total
Free! Cloud City - Enterprise Setup Service	CCDENTSETUP	1	\$0.00	\$0.00
Preflight setup of airframe and gimbals includes account setup, all software and firmware updates to the latest version and warranty activation if needed. All batteries will be tested and charged prior to shipping.				
		Subtotal		\$17,648.00
		Discount		\$0.00
		Tax		\$0.00
		Trade In Discount		\$0.00
		Total		\$17,648.00

M30 SERIES



CZI
LP12 Serach and Broadcast System



GPC
DJI Matrice 30 Backpack



Raise Efficiency
Complete aircraft tasks efficiently and continuously.



Ensure Safety
Ensure stable aircraft performance, reducing unnecessary expenses.



Improve Recordkeeping
Keep track of your aircraft status, and check maintenance records online.

Keep your aircraft at peak performance

Maintenance	Basic	Standard	Premium
Cleaning	✓	✓	✓
Parts Inspection	✓	✓	✓
Update & Calibrate	✓	✓	✓
Easily Worn Parts Replacement		✓	✓
Core Components Replacement			✓

DJI Maintenance Service

Contact us if you have any questions at cloudcitydrones.com or email us at hi@cloudcitydrones.com