

YOW's Drone Detection Pilot Program



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SWIFT
SEPT 25-28 2023 WINNIPEG

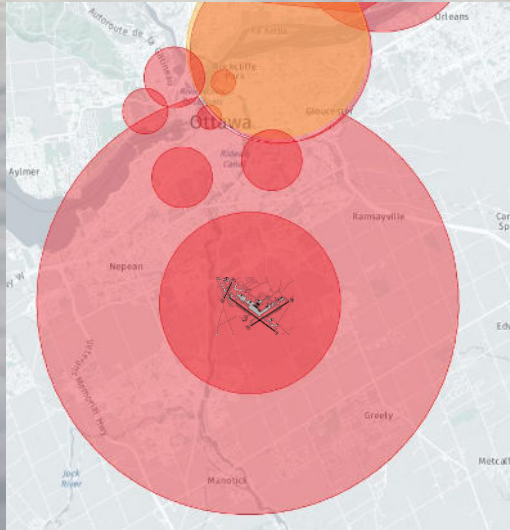
Drones – The Basics

Micro-drones under 250 grams

- No registration or drone pilot certificate required
- Not bound by CARs 900 subpart 1

Drones over 250 grams

- Must comply with CARs 900 subpart 1
- Basic Operations
- Advanced Operations
- Special Flight Operations Certificate



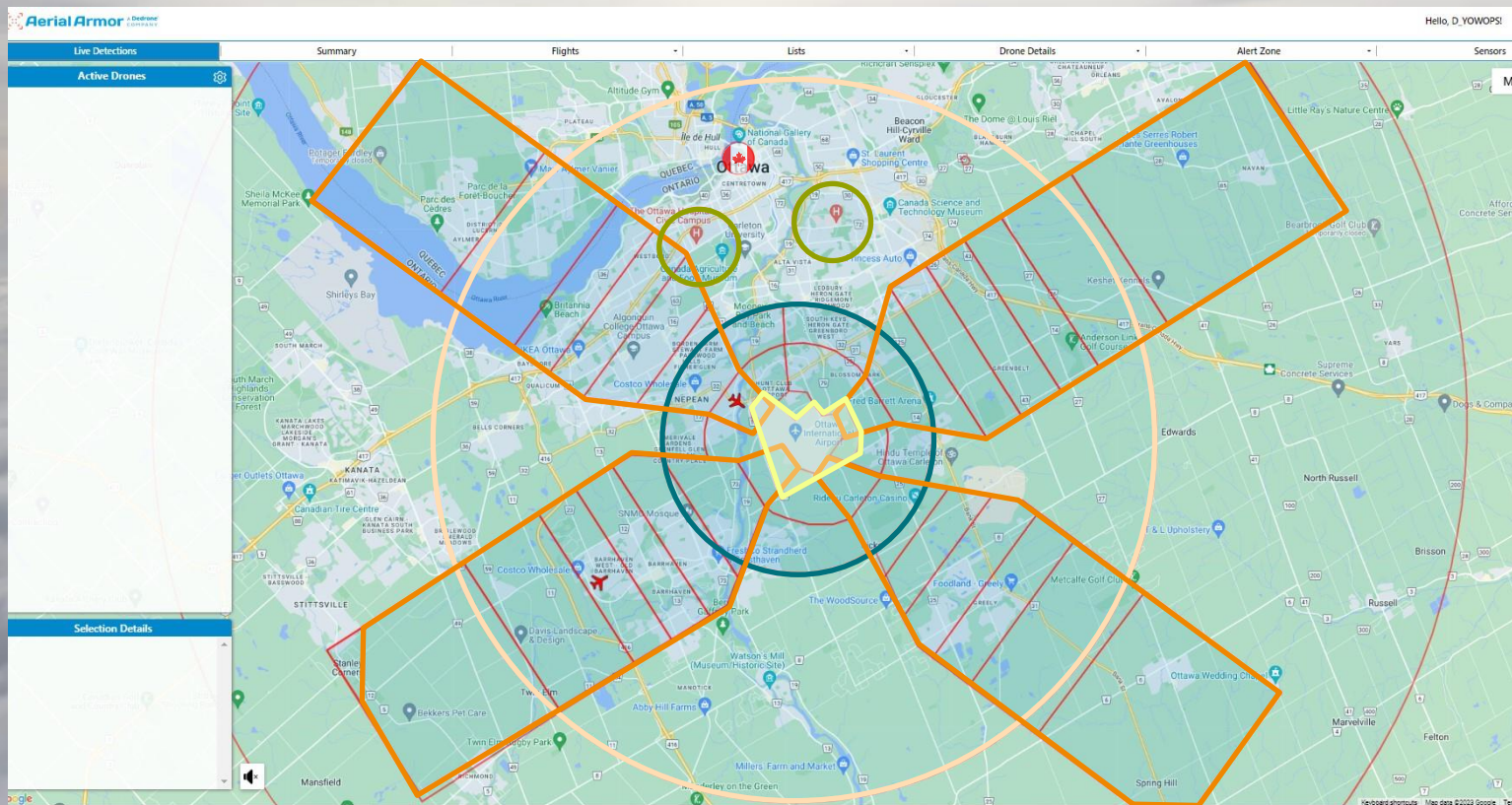
YOW Drone Detection Pilot Program



- ***Radio Frequency (RF) based detection***
- ***Began in November 2020***
- ***Objective to share findings with Transport Canada and various government stakeholders***
- ***Helped with TTX and FSX, and with the Canadian Drone Incursion Response Protocol (DIRP)***

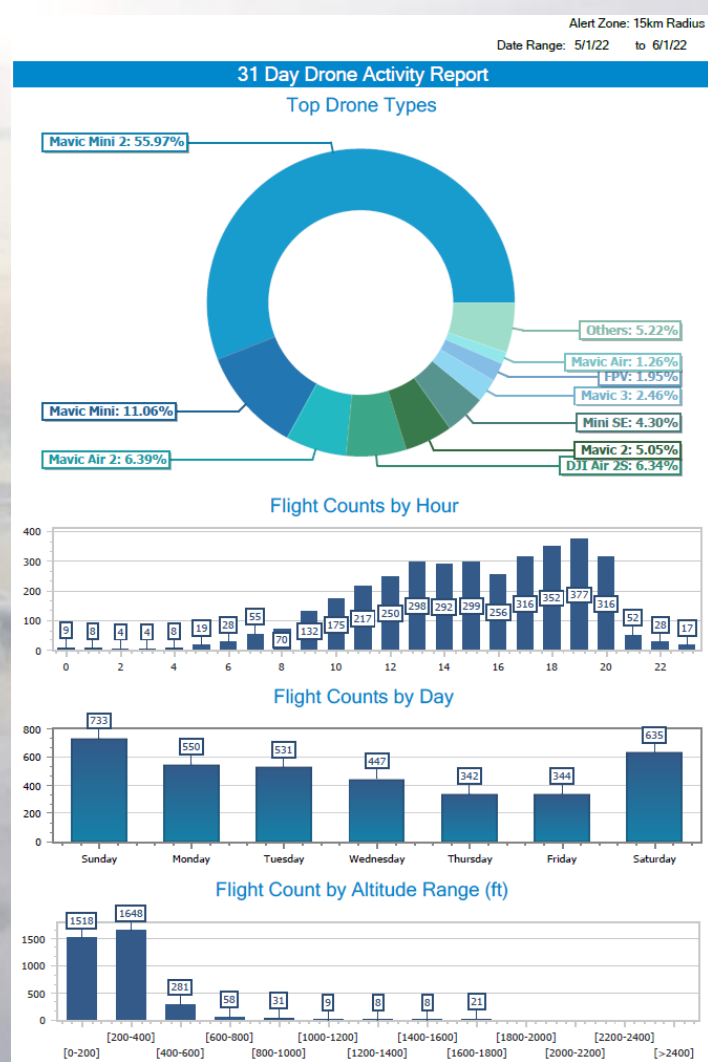


InDro Robotics Provided Hardware / Software

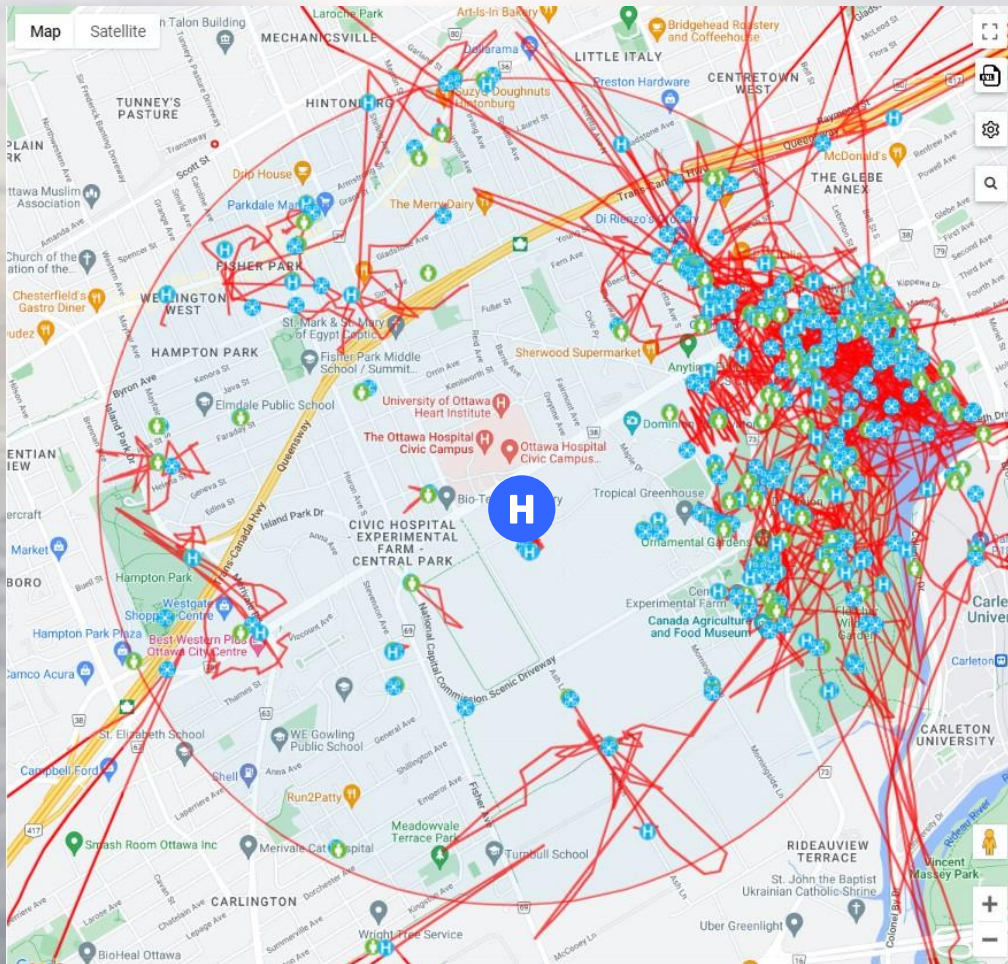


Data Analytics

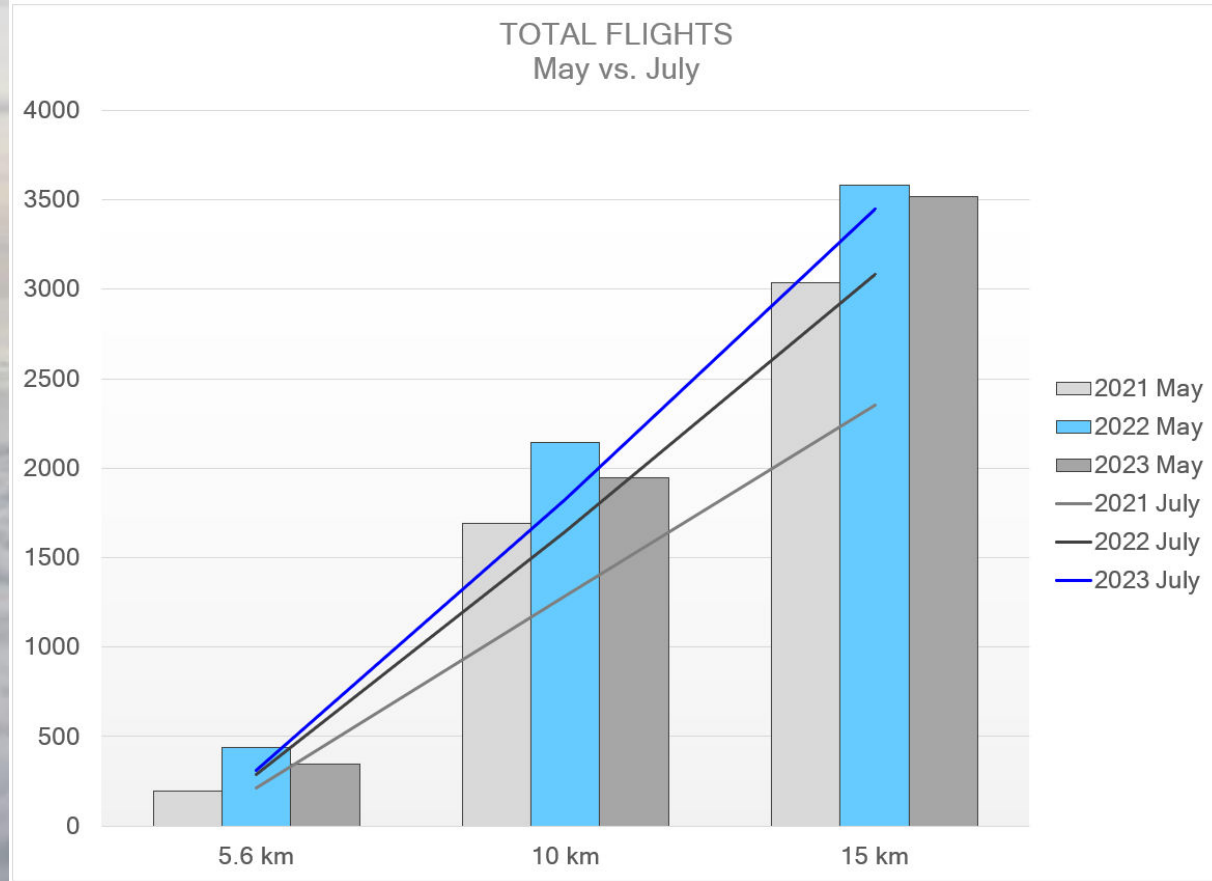
- *System Reports*
- *Defined Date Ranges*
- *Trending altitudes, times of day, days of the week, months, etc.*



Data Analytics



Data Analytics



Exercise Results

- *Proof of accuracy of the Drone Detection System for the Pilot Program*

The screenshot displays a software interface for drone detection. The top navigation bar includes tabs for 'Live Detections', 'Summary', 'Flights', 'Lists', 'Drone Details', and 'Alert Zone'. The main area is split into a left sidebar and a right map view.

Active Drones:

- Drone 1:** Type: Mavic 2, Serial: 163DF9D01W5LH, Sensor: Blueforce UAV Demo, Drone: 42,4114, ~7,930ft, Altitude: 77.91 ft, Time: 06-10-2021 12:05:06, 15km Zone.
- Drone 2:** Type: Mavic Mini 2, Serial: 0A7C27680194M5Y, Sensor: Blueforce UAV Demo, Drone: 42,3403, ~73,750ft, Altitude: 67.86 ft, Time: 06-10-2021 12:05:06, 15km Radius.
- Drone 3:** Type: Mavic Air 2, Serial: 2N3BH6501021D8, Sensor: Blueforce UAV Demo, Drone: 42,2207, ~73,950ft, Altitude: 211.61 ft, Time: 06-10-2021 12:05:06, 15km Radius.
- Drone 4:** Type: Mavic Pro, Serial: 0810C090010435, Sensor: Blueforce UAV Demo, Drone: 45,3271, ~75,650ft, Altitude: 176.18 ft, Time: 06-10-2021 12:05:06, Airport Proximity Alert.
- Drone 5:** Type: Mavic Pro, Serial: 093AF66001003P.

Quick Historical Stats:

- Flight Count Last 30 days: 2
- Max Altitude Last 30 days: 0 ft
- Risk Score: 0
- White Listed: False
- Watch Listed: False
- Comments: false
- Last Comment: -

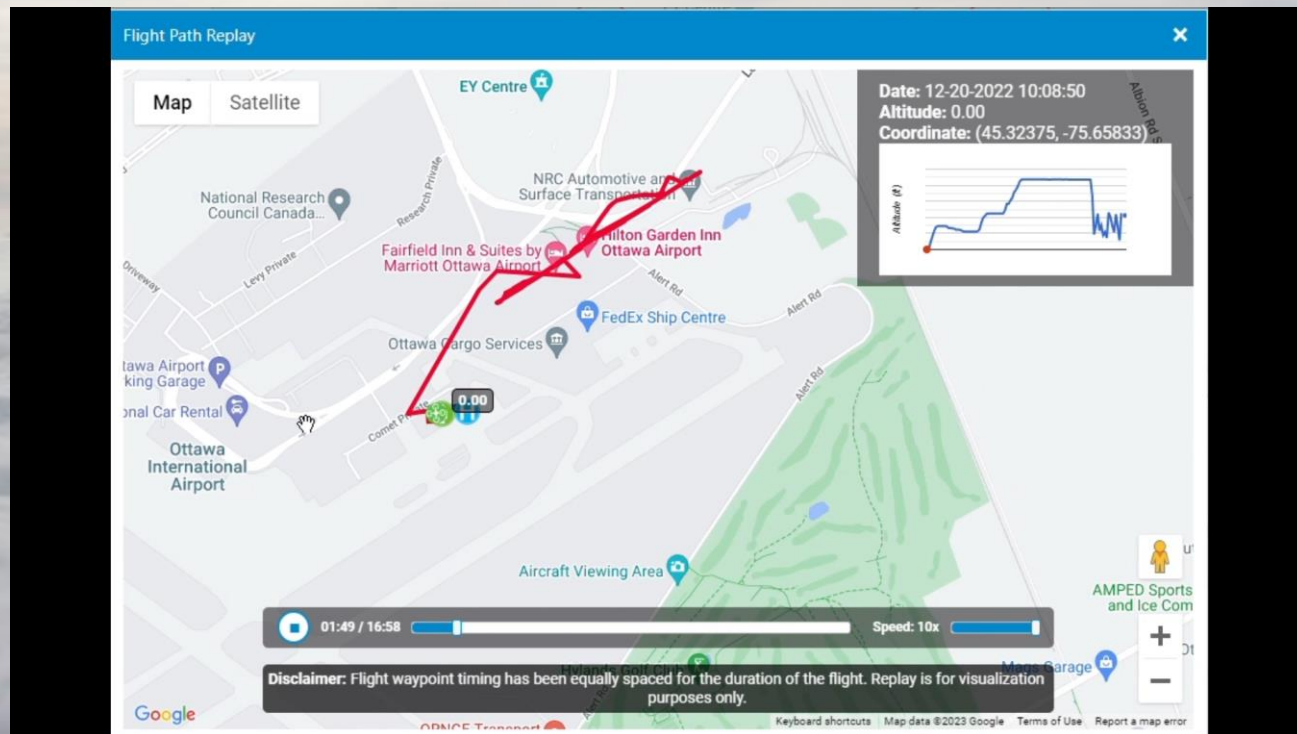
Flight Details:

- Drone Id: 0810C090010435
- Drone Type: Mavic Pro

The map view on the right shows an aerial view of an urban area with several red lines and orange circular markers indicating drone flight paths and detection zones. A blue 'H' icon is visible on the map.

Flight on Airport Property on December 20, 2022

- DJI Air 2S
(595 grams)
- FLIGHT # 1



Flight # 2

Flight Path Replay
✕

Map
Satellite

Date: 12-20-2022 11:35:39
Altitude: 144.69
Coordinate: (45.3278, -75.6533)

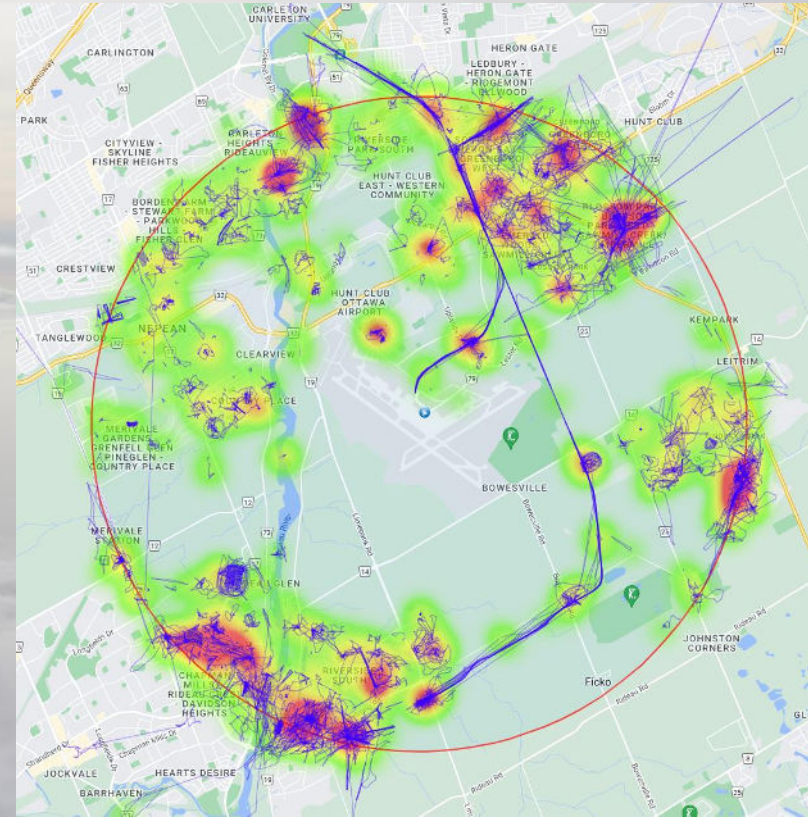
00:00 / 06:51
Speed: 10x

Disclaimer: Flight waypoint timing has been equally spaced for the duration of the flight. Replay is for visualization purposes only.

Google
Keyboard shortcuts | Map data ©2023 Google | Terms of Use | Report a map error

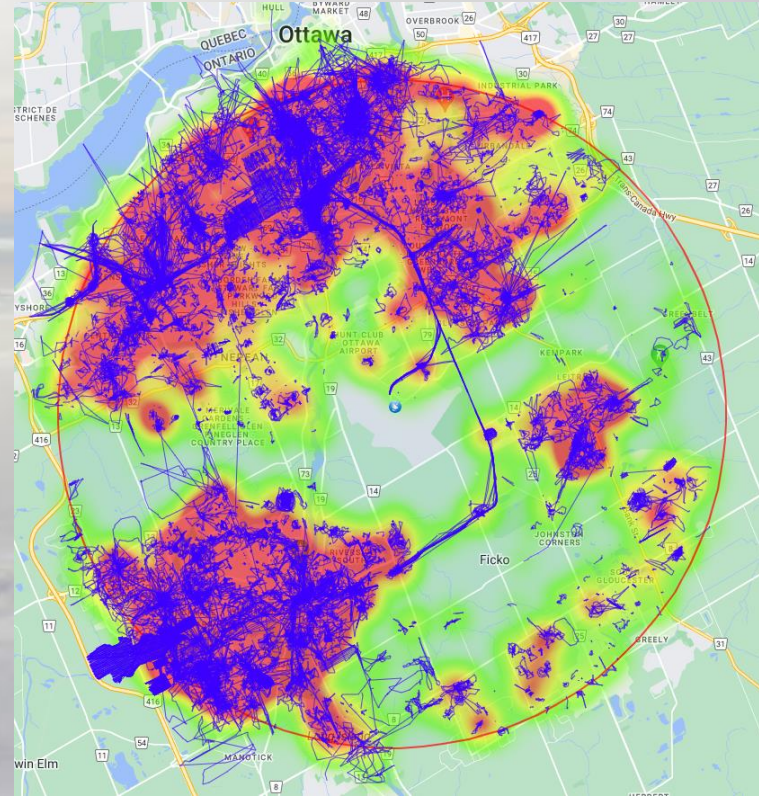
5.6 km SURROUNDING YOW

- ***36% increase in total flights from 2021 to 2022***
- ***Average % of flights over 400 ft. has gone up 1% each year (2021-2023)***



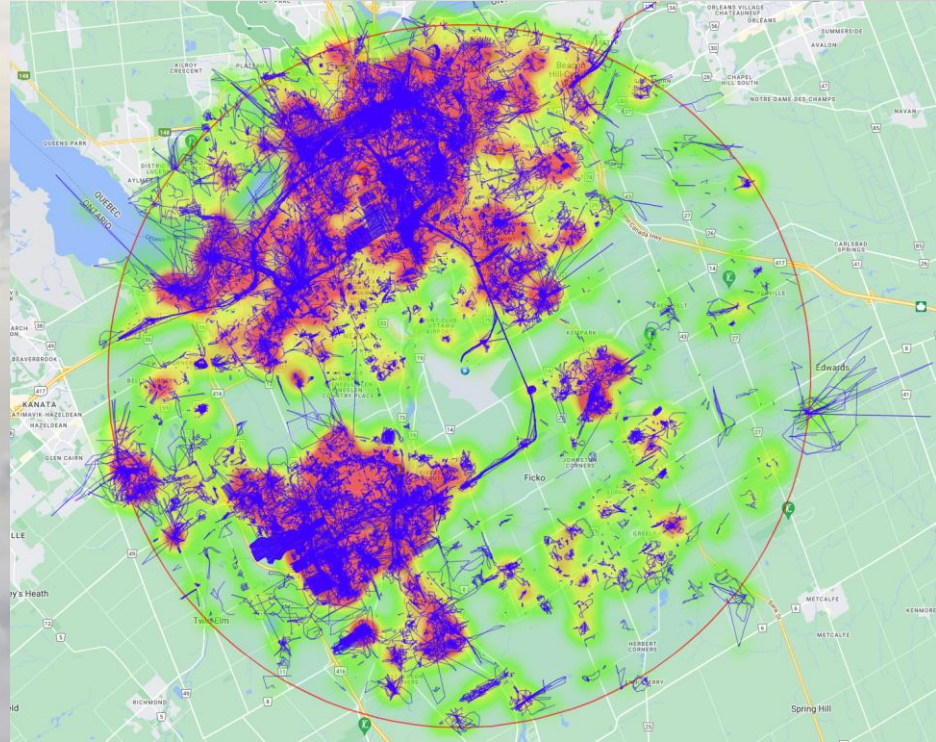
10 km SURROUNDING YOW

- **7% increase in total flights from 2021 to 2022**
- **13% increase in flights over 400 ft. from 2021 to 2022**



15 km SURROUNDING YOW

- ***6% increase in total flights from 2021 to 2022***
- ***14% increase in flights over 400 ft. from 2021 to 2022***



Total Drone Flights Surrounding YOW November 2020 – August 2023

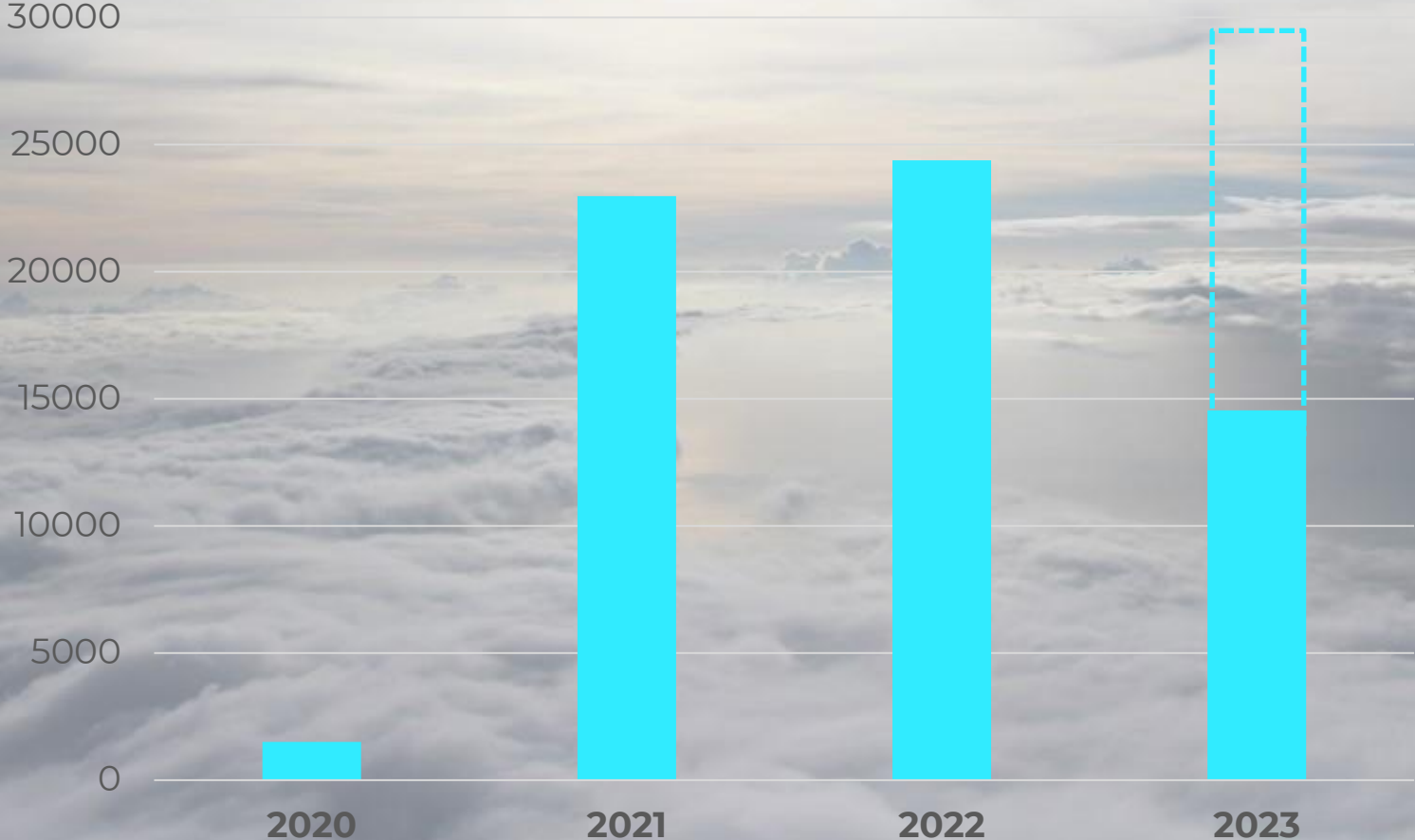
- **5.6 km (3 nm) = 5,434**
- **15 km (Class C) = 63,555**
- **25 km = 96,182**



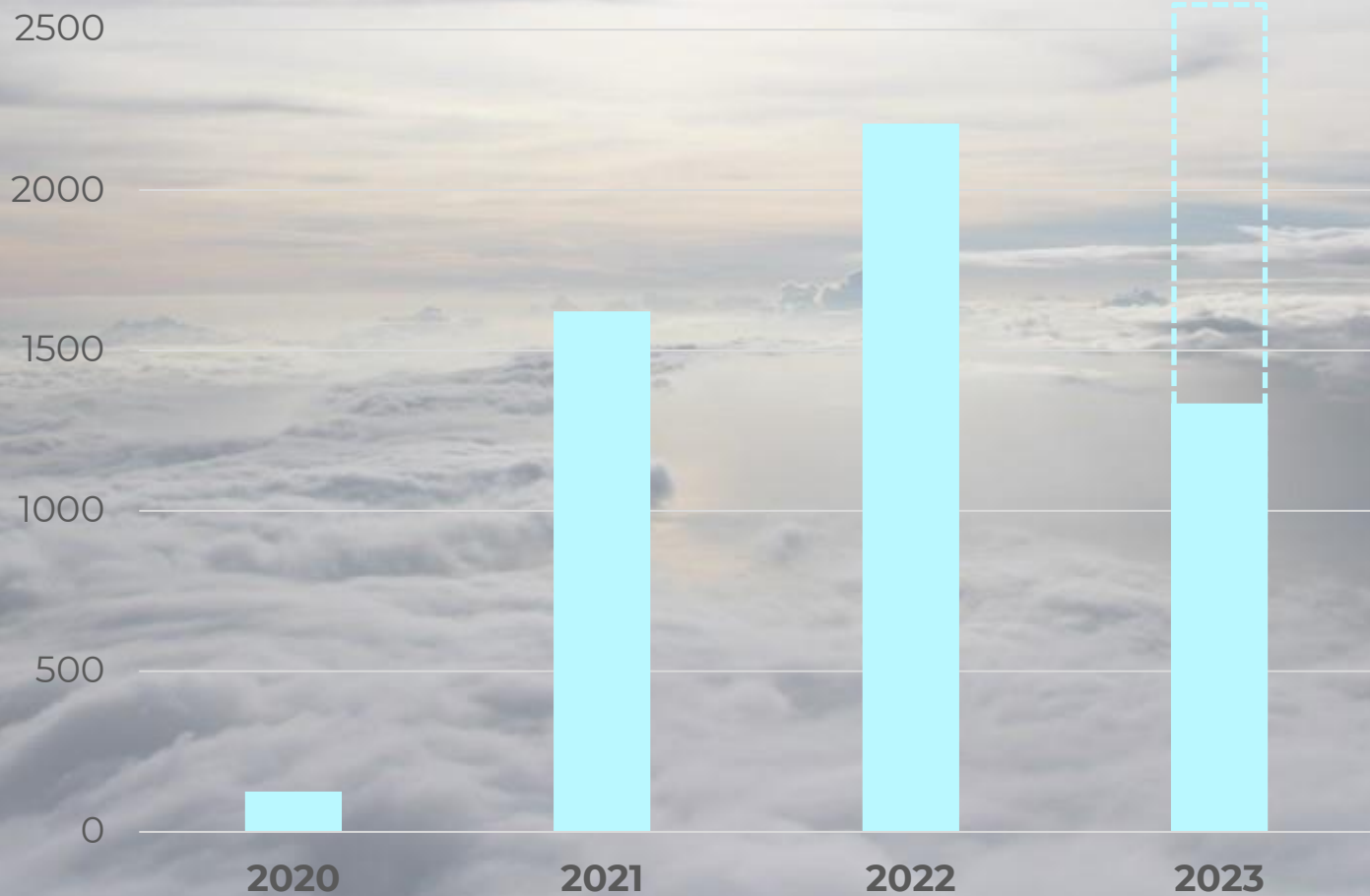
Drone Flights within 25 km of YOW



Drone Flights within 15 km of YOW



Drone Flights within 5.6 km of YOW

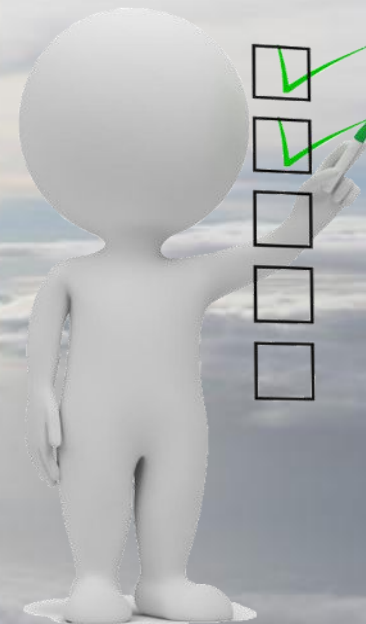


WHAT HAVE WE LEARNED?

- *Data and trends indicate rise in number of drones under 250 grams*
- *Tracking in real-time gives valuable information to perform a TRA and ensure continuity of operations (when safe to do so)*
- *Drone detection helps us to ensure the safety of passengers, crew, and the airport campus*

WAY FORWARD

- *Using Data to our advantage*
- *Gain full-spectrum view*
- *Educate the public*
- *Continue to help guide the legislation so that it meets the safety and security risks to airports*



QUESTIONS



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