

May 13, 2022

# HOW I LEARNED TO LOVE THE RPAS

OR, FLYING DRONES SAFELY AND LEGALLY IN CANADA

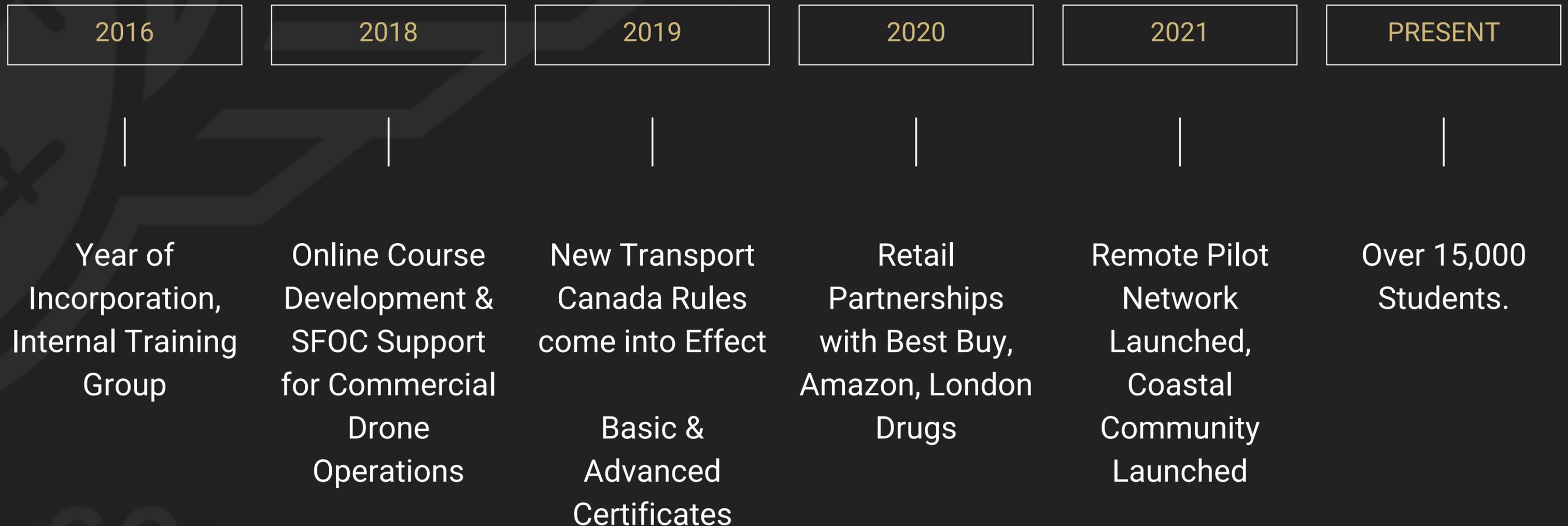


DRONE CO.

# Who the heck is Ian?



# Our Story in a Timeline





● OUR COMPANY'S MISSION:

1

make the skies as safe and efficient as possible by providing the best online and in-person drone training.

2

broker customer demand with professional drone pilots like you across Canada.

3

support and serve the industry through consulting and guidance for Advanced operations.

1

June 2019 - New Rules  
- TC Self Declared  
Training Organizations  
- now over 100!

2

Over 66,000 Certified  
Drone Pilots, 6000 of  
them with Advanced  
Certification

3

Over 63,000 Drones  
(RPAS) Registered in  
Canada

4

Global industry already  
valued at US \$23B in  
2021

# Industry Overview





Ornithopter / Flappy Birds



Multi-Rotors Bi / Tri / Quad / Hex / Octa  
VTOL / Blender Birds / "Drones"



Fixed Wing Horizontal Takeoff / Planks

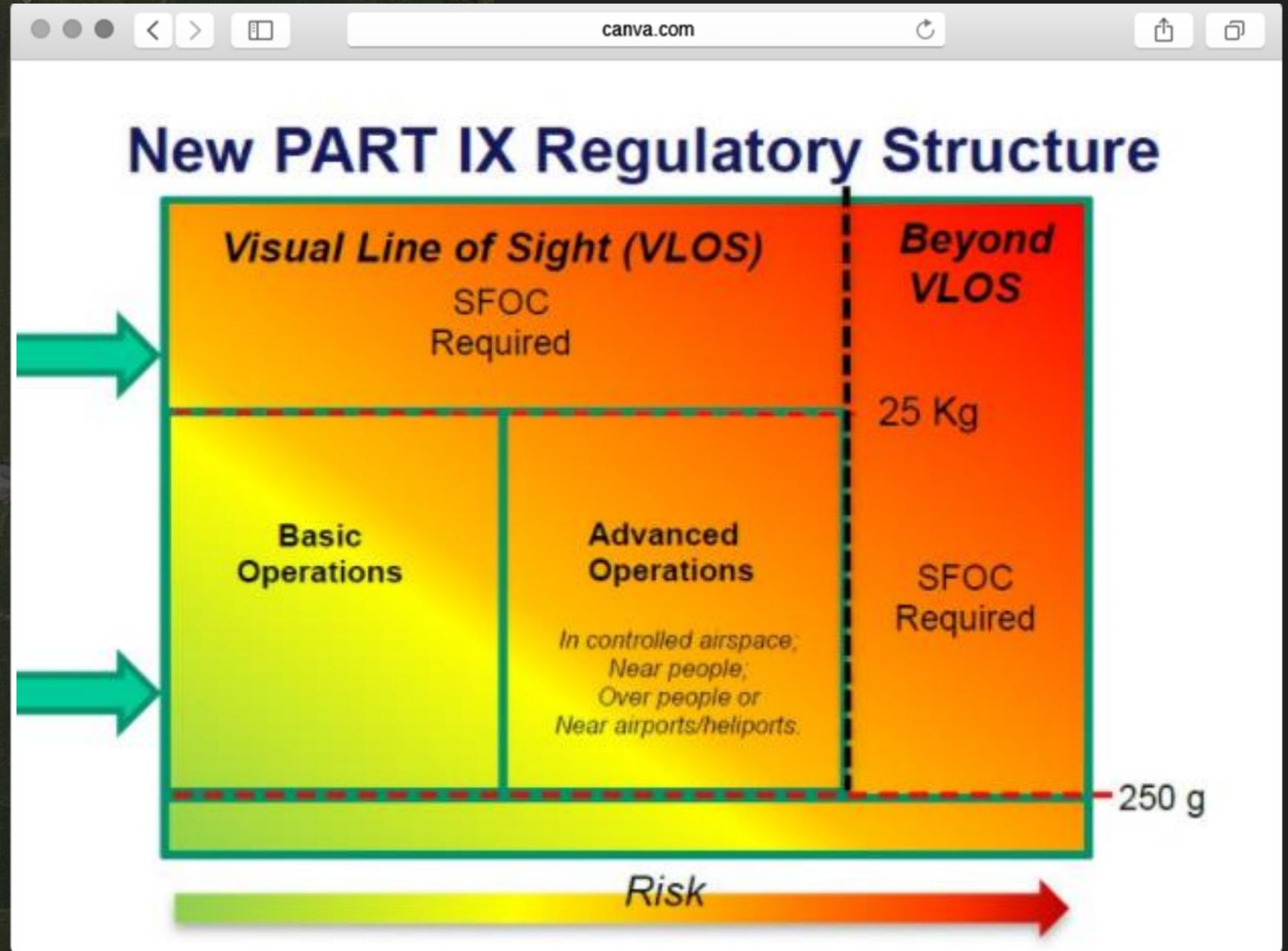


VTOL / Fixed Wing Hybrids / Magic &  
Wizardry

# Types

OF DRONES / RPAS

# Licensing & Regulatory Framework



# Weight Classes

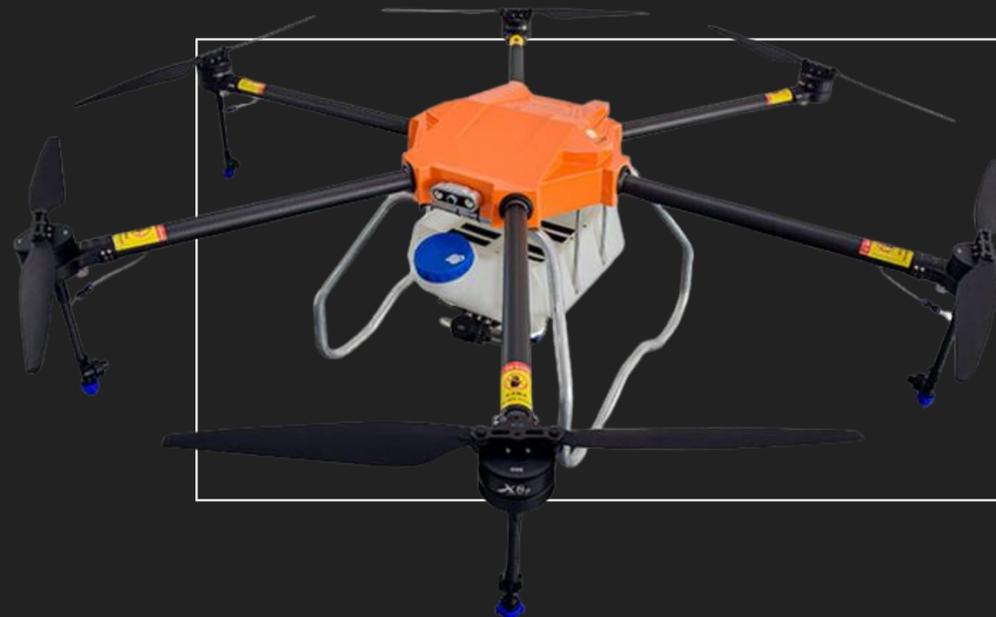
OF RPAS



**Micro Drones (uRPAS) up to 249g**  
"This feels so wrong but it's legal"  
Category



**Small Drones (250g to 25kg)**  
No Certificate, No Fly  
(Basic or Advanced Req'd)



**Heavy Lift Drones (25kg+)**  
Advanced + SFOC Time

# Operations Categories

Micro, Basic, or Advanced

**Micro**  
0-249G

CARS  
900.06

~~CYR~~

*Recommendation*  
TC AIM<sup>s</sup>RPA 2.0

**Basic**  
250G-25KG VLOS

CARS  
900.06

~~CY~~

~~CA~~

~~<100'  
from  
People~~

~~<3NM  
Airports~~

~~<1NM  
Heliports~~

**Advanced**  
250G-25KG+, VLOS, BVLOS

CARS  
900.06

~~CYR~~

CA

OVER  
PEOPLE\*

SFO  
C

# The micro RPAS Category

0-249G WEIGHT CLASS

CARS  
900.0

6

The "Golden RPAS Rule" CARS 900.06 - "No person shall operate a remotely piloted aircraft system in such a reckless or negligent manner as to endanger or be likely to endanger aviation safety or the safety of any person. " - aka "don't be an idiot."



CARS 601.04 (2) - "No person shall operate an aircraft in Class F Special Use Restricted airspace unless authorized to do so by the person specified for that purpose in the Designated Airspace Handbook."

TC AIM  
RPA 2.0

Transport Canada Aviation Information Manual - RPA Chapter Section 2.0 - (p. 429)  
"Rules of Thumb" - **Maintain VLOS, <400' AGL, Avoid People, Infrastructure, Aerodromes, Avoid Aircraft, Inspect your mRPAS.**

# Where can you Fly?

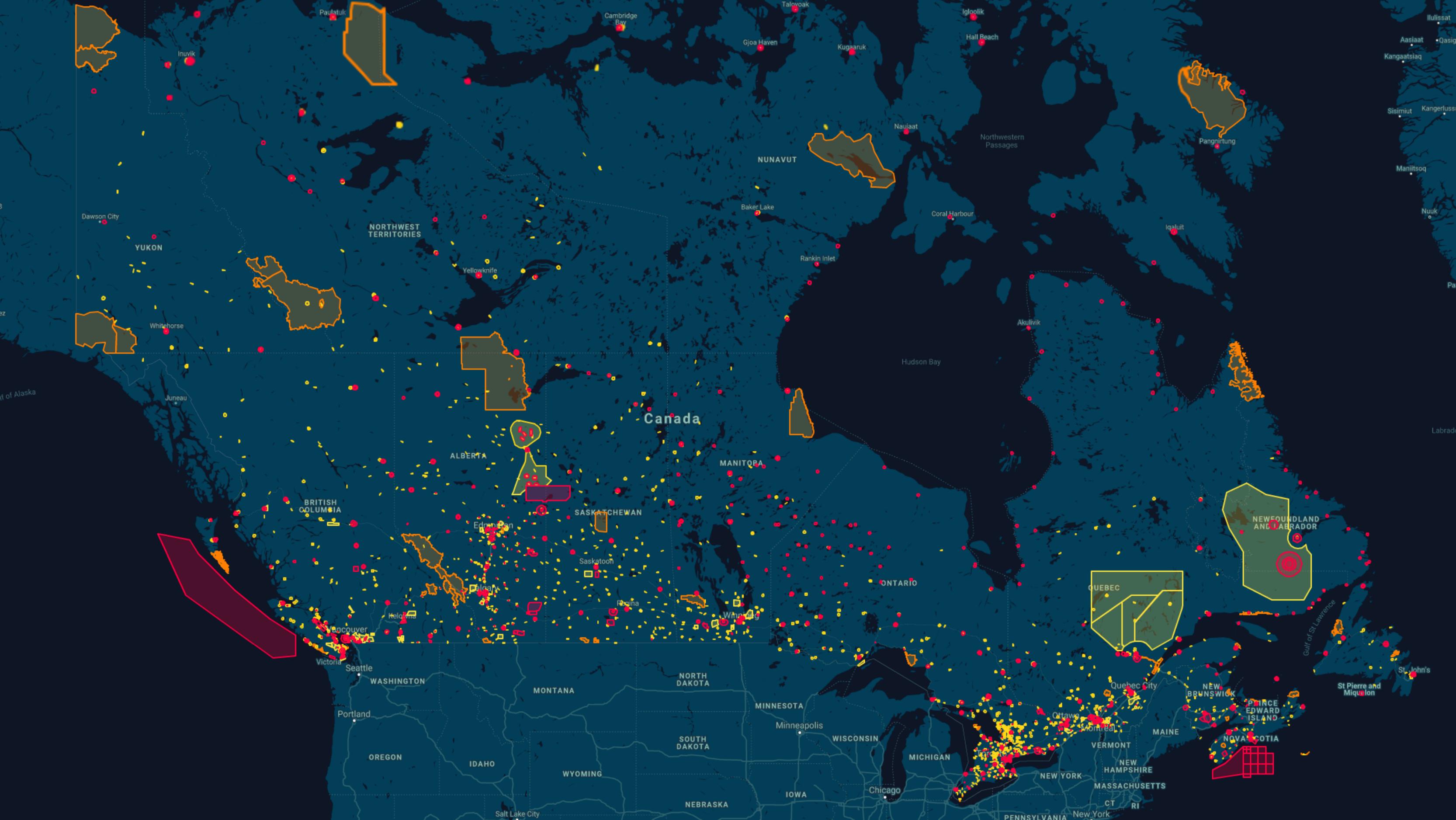
## BASIC VS. ADVANCED OPERATIONS

### **Basic Operations**

- Near Aerodromes
- >3NM from Airports
- >1NM from Heliports
- Outside Controlled  
Airspace
- >100' from Bystanders

### **Advanced Operations**

- In Controlled Airspace
- Near Airports
- Near Heliports
- >16.5' from Bystanders
- Over People (with Approval)
- SFOC Applications



Canada

NEWFOUNDLAND AND LABRADOR

QUEBEC

NOVA SCOTIA

PRINCE EDWARD ISLAND

NEW BRUNSWICK

MAINE

VERMONT

NEW HAMPSHIRE

MASSACHUSETTS

CT RI

PENNSYLVANIA

New York

Montreal

Quebec City

Ottawa

CHICAGO

MINNEAPOLIS

MINNESOTA

SOUTH DAKOTA

NEBRASKA

NORTH DAKOTA

WISCONSIN

MICHIGAN

IOWA

WYOMING

MONTANA

IDAHO

OREGON

WASHINGTON

SEATTLE

VICTORIA

KELOWNA

VANCOUVER

EDMONTON

CALGARY

REGINA

SASKATOON

WINNIPEG

ALBERTA

SASKATCHEWAN

MANITOBA

ONTARIO

YUKON

NORTHWEST TERRITORIES

NUNAVUT

IGLOOLIK

HALL BEACH

NAUJAAT

KUGAARUK

GJOA HAVEN

TALOVOAK

CORAL HARBOUR

BAKER LAKE

RANKIN INLET

AKULIVIK

HUDSON BAY

YELLOWKNIFE

PAULATUK

INUVIK

DAWSON CITY

WHITEHORSE

JUNEAU

ST. JOHN'S

ST. PIERRE AND MIQUELON

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KANGERLUSSUAQ

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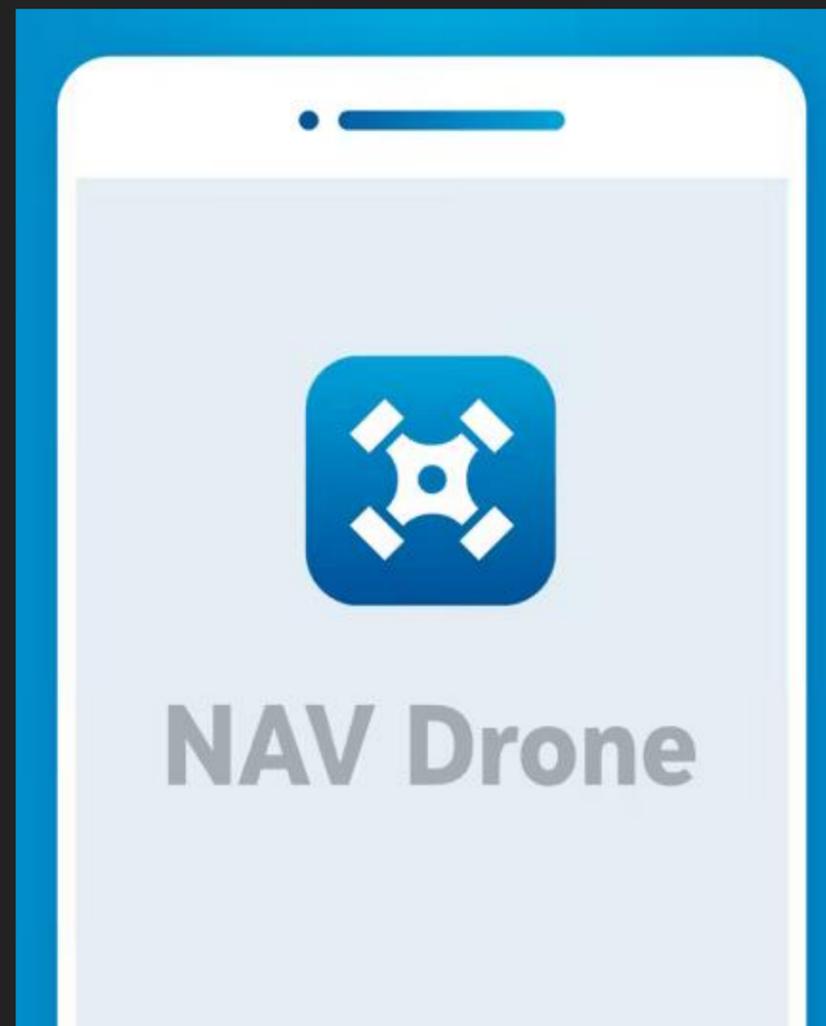
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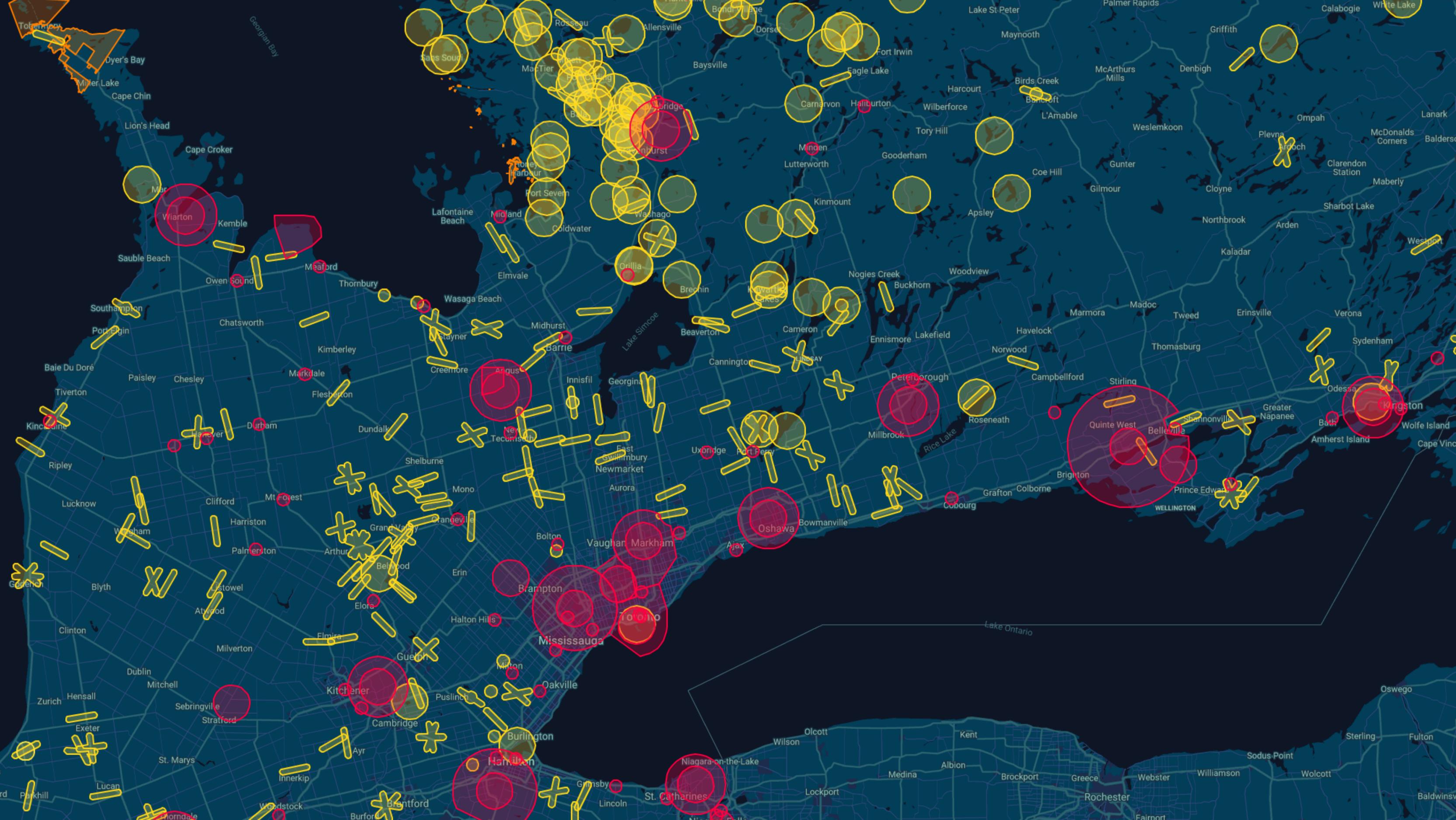
# Obtaining Authorization To Fly

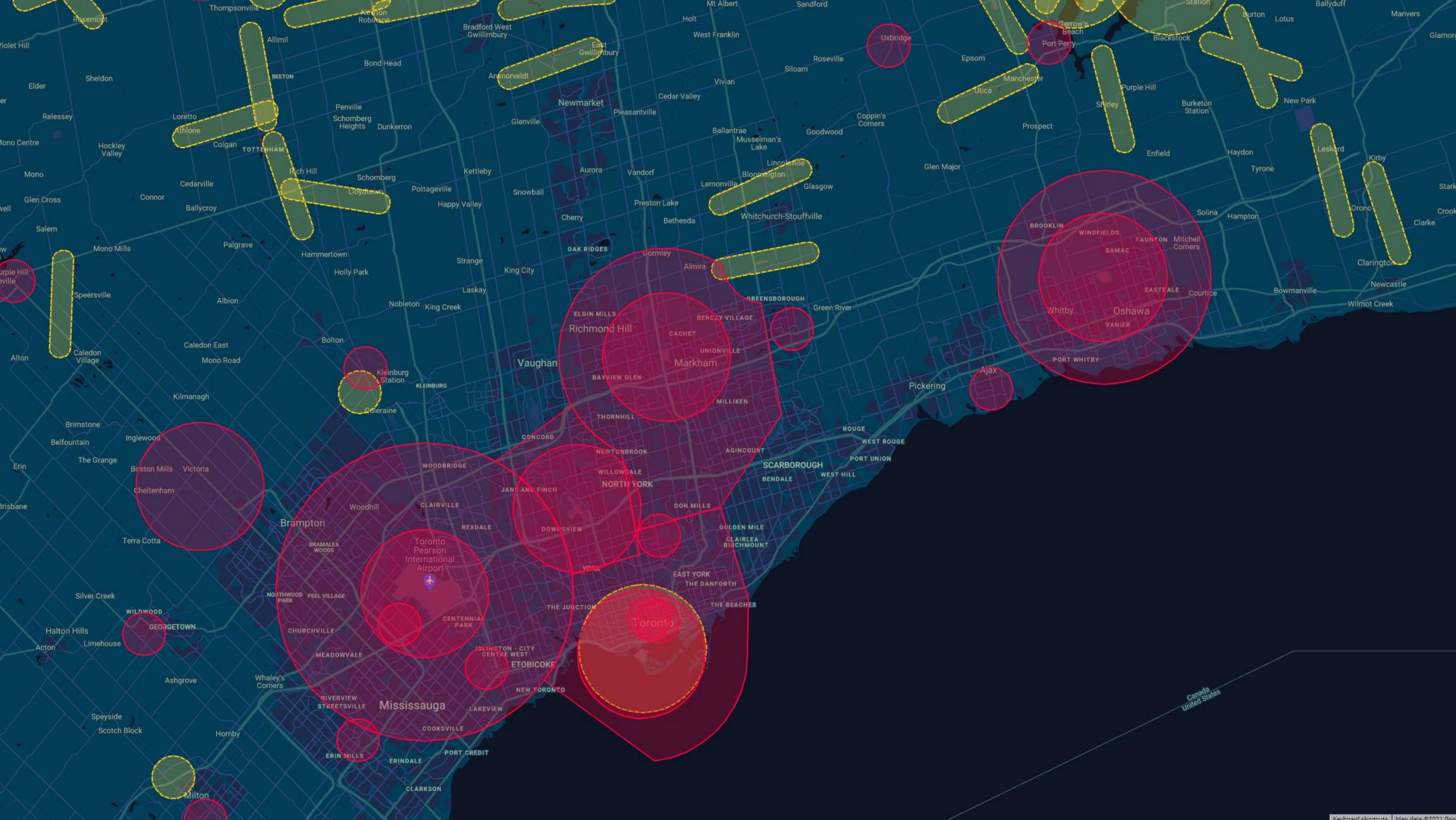
CONTROLLED AIRSPACE OPERATIONS ARE MANAGED BY NAV CANADA



## NAV Canada - Nav Drone

- RPAS Traffic Management
- Authorization
- Web Management Platform
- Mobile App (iOS/Android)





Rosemont

Violet Hill

Elder

Sheldon

Relessey

Thompsonville

Allimil

BEETON

Bond Head

Penville

Schomberg Heights

Dunkerron

Loretto

Athlone

Colgan

TOTTENHAM

Rich Hill

Schomberg

Loydton

Hammertown

Holly Park

Albion

Palgrave

Albion

Bradford West Gwillimbury

Bond Head

Penville

Schomberg Heights

Dunkerron

Loretto

Athlone

Colgan

TOTTENHAM

Rich Hill

Schomberg

Loydton

Hammertown

Holly Park

Albion

Palgrave

Albion

East Gwillimbury

Ananorveldt

Glenville

Newmarket

Pleasantville

Cedar Valley

Vivian

Siloam

Roseville

Ballantrae

Muselman's Lake

Goodwood

Coppin's Corners

Prospect

Glen Major

Enfield

Haydon

Tyrone

Leskard

Kirby

Orono

Clarington

Newcastle

Wilmot Creek

Holt

West Franklin

Vivian

Siloam

Roseville

Ballantrae

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Leskard

Kirby

Orono

Clarington

Newcastle

Wilmot Creek

Uxbridge

Port Perry

Utica

Manchester

Shirley

Purple Hill

Burketon Station

New Park

Enfield

Haydon

Tyrone

Leskard

Kirby

Orono

Clarington

Newcastle

Wilmot Creek

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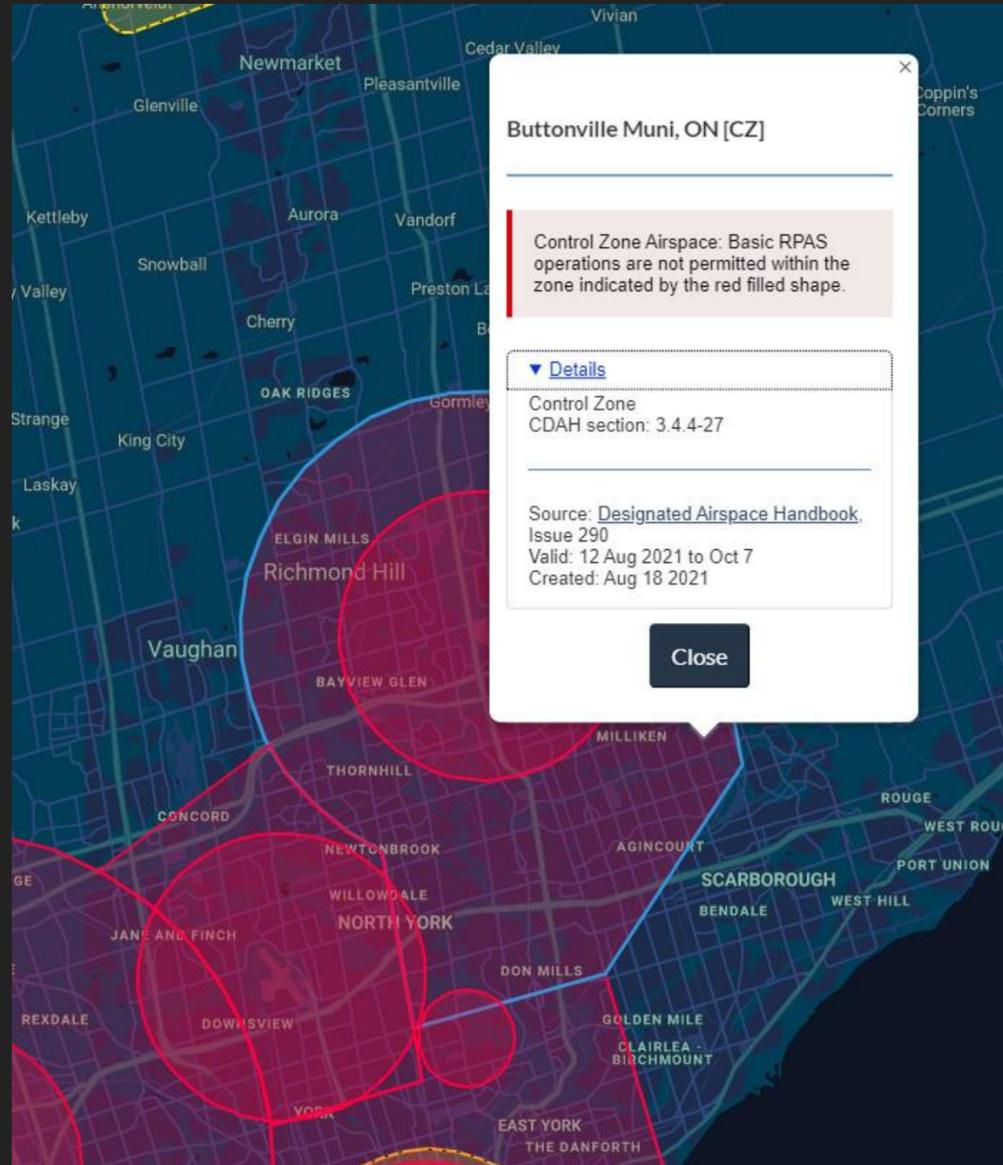
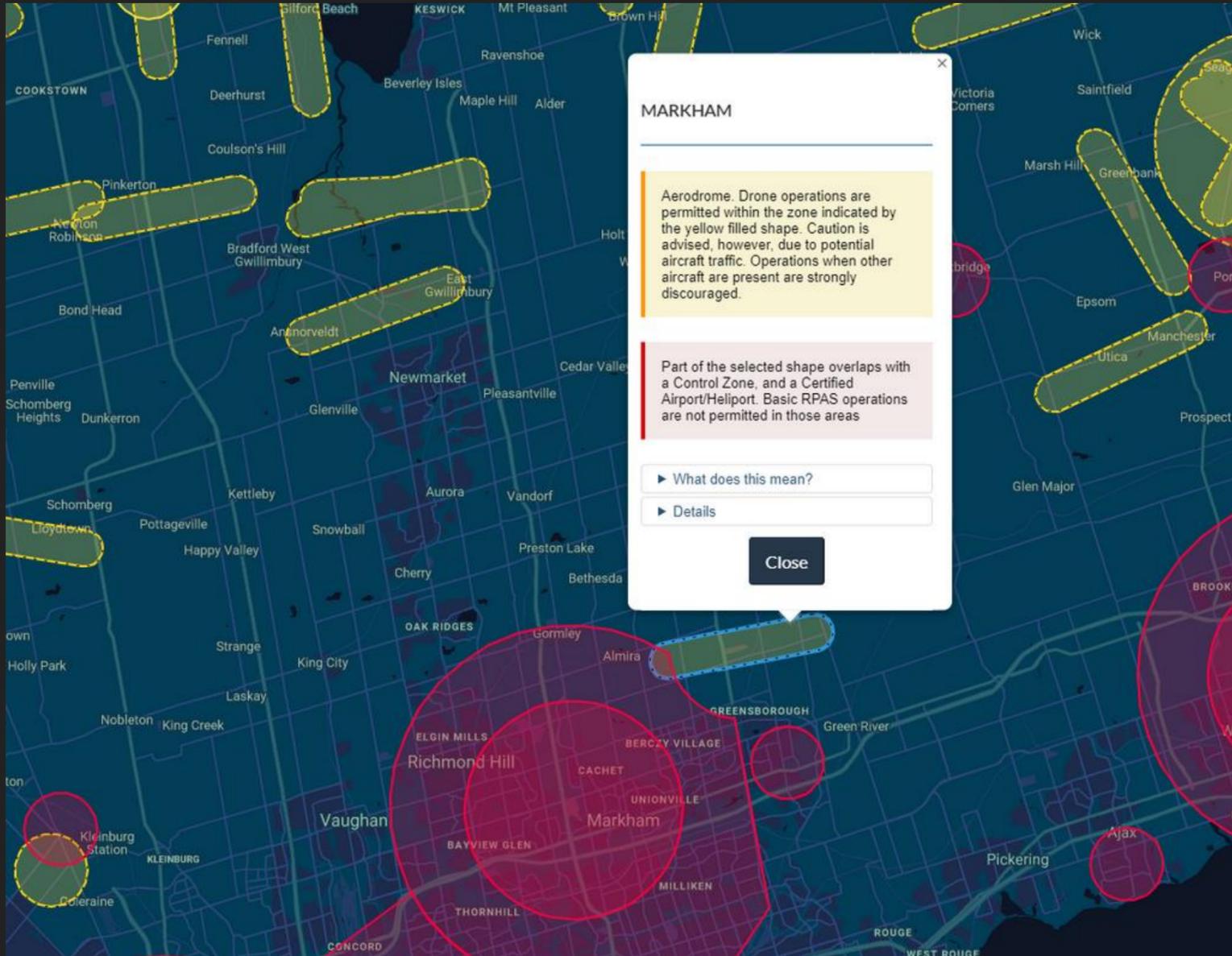
Kirby

Orono

Clarington

Newcastle

Wilmot Creek



# Who Enforces?

## The Air

Transport Canada, NAV Canada, RCMP, LEOs

## Privacy

Privacy Commissioner of Canada (PIPEDA)  
Alberta OIPC  
BC OIPC  
Quebec CAI

## The Ground

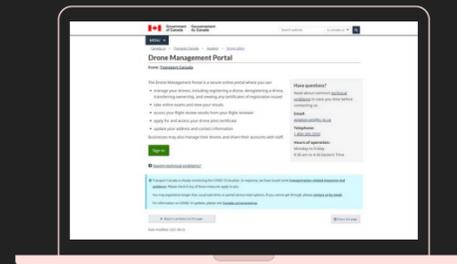
Provincial & Municipal Bylaw Enforcement  
Federal Parks  
Provincial & Regional Parks  
Municipal Properties

# Getting Licensed - Basic Certificate



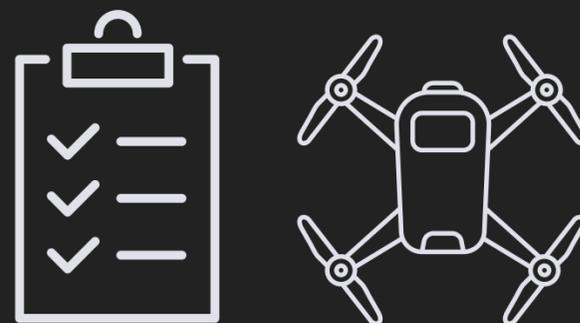
**01**

STUDY AND PREPARE FOR  
ONLINE EXAM W/ COASTAL



**02**

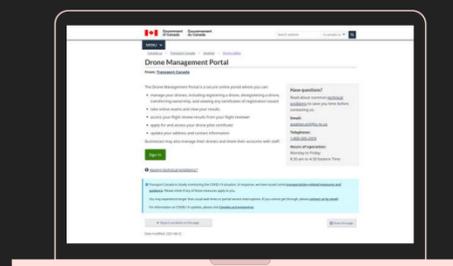
WRITE & PASS TRANSPORT  
CANADA BASIC EXAM (60%)



**03**

FOLLOW SOPS & FLY WITHIN  
RESTRICTIONS

# Getting Licensed - Advanced Certificate



**01**

STUDY AND PREPARE FOR ONLINE  
EXAM W/COASTAL

**02**

WRITE & PASS TRANSPORT CANADA  
ADV EXAM (80%)

**03**

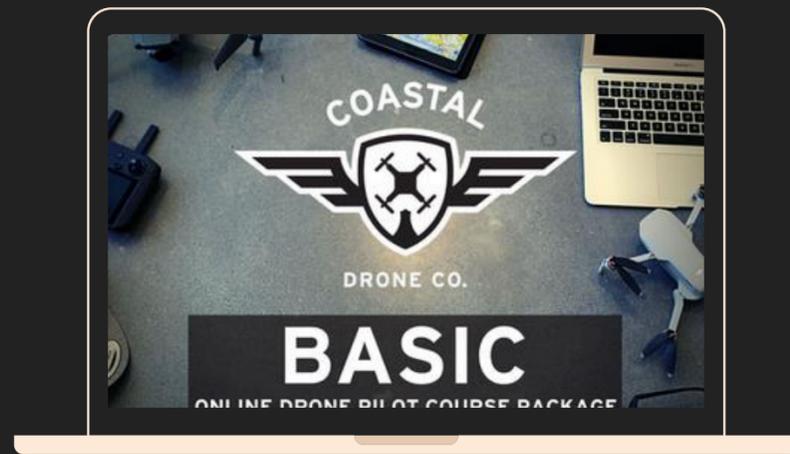
FOLLOW SOPS, FLY BASIC & PREPARE  
FOR FLIGHT REVIEW

**04**

CONDUCT FLIGHT REVIEW

# Coastal Drone Co Online Training

BASIC & ADVANCED CERTIFICATION COURSE BUNDLES



## Basic Online Bundle

- 3 Hours Online Groundschool
- Sample Test Questions
- SOP Guide

*Bulk Training Discounts  
Available*



## Advanced Pilot Bundle

- 20 Hours Online Groundschool
- Sample Test Questions
- SOP Guide
- Flight Review Prep Course
- In-Person Flight Review

# Choosing the right Drone

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## Weight & Performance

- Regulations
- Range
- Endurance
- Wind Resistance
- Accuracy

---

## Safety Assurance Declaration

- Controlled Airspace
- Near People
- Over People

---

## Sensor Capabilities

- Size
- Resolution
- Spectrum (RGB, IR, Radiometric)
- Field of View (Tele, Wide)

# Micro Category: DJI Mini SE, 2, 3 Pro\* Autel Nano

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\$499-1500 CAD

---

249g  
4K 60FPS RGB  
48MP Camera  
37 min Flight Time



# Small Prosumer Category: Skydio 2, DJI Air, Mavic 1/2/3 Pro, Phantom, Autel Evo

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\$1500-6000 CAD

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750-900g  
4K 60FPS RGB HDR  
12-20MP Camera  
30-46 min Flight  
Time





# Compact Industrial: Mavic 2 Enterprise, Matrice M30

\$8000 CAD

640x512 Radiometric  
Thermal  
48MP RGB  
~2C Sensitivity



# Enterprise Multirole: DJI Matrice 30, 300, 600, FreeFly AltaX,

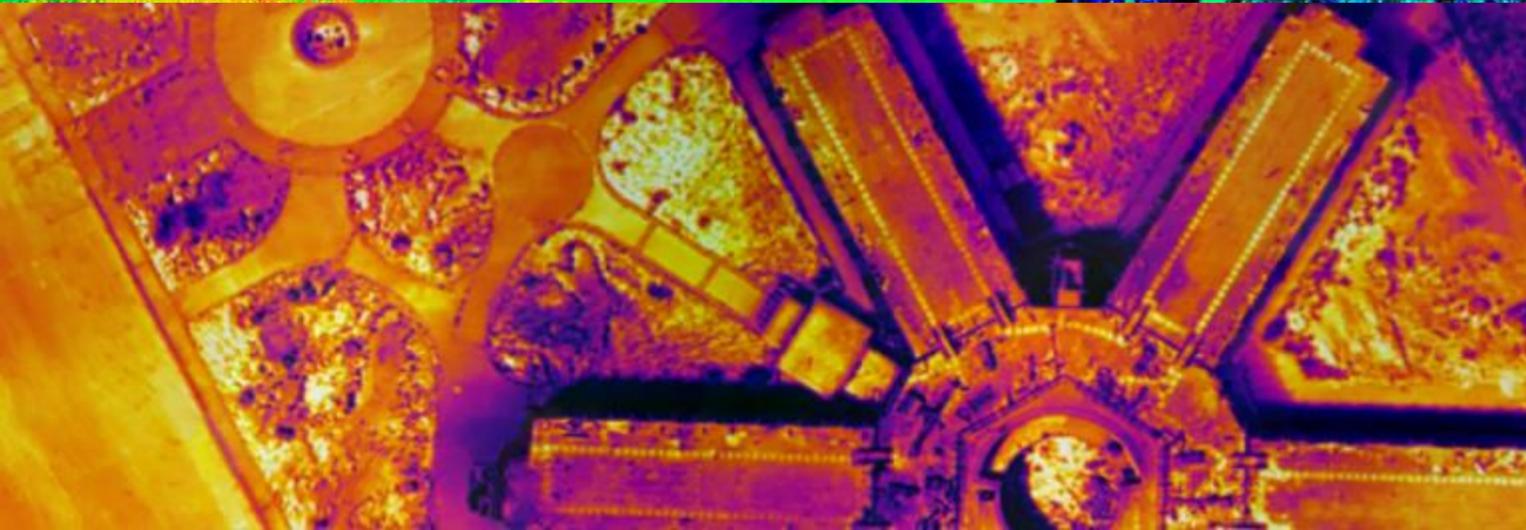
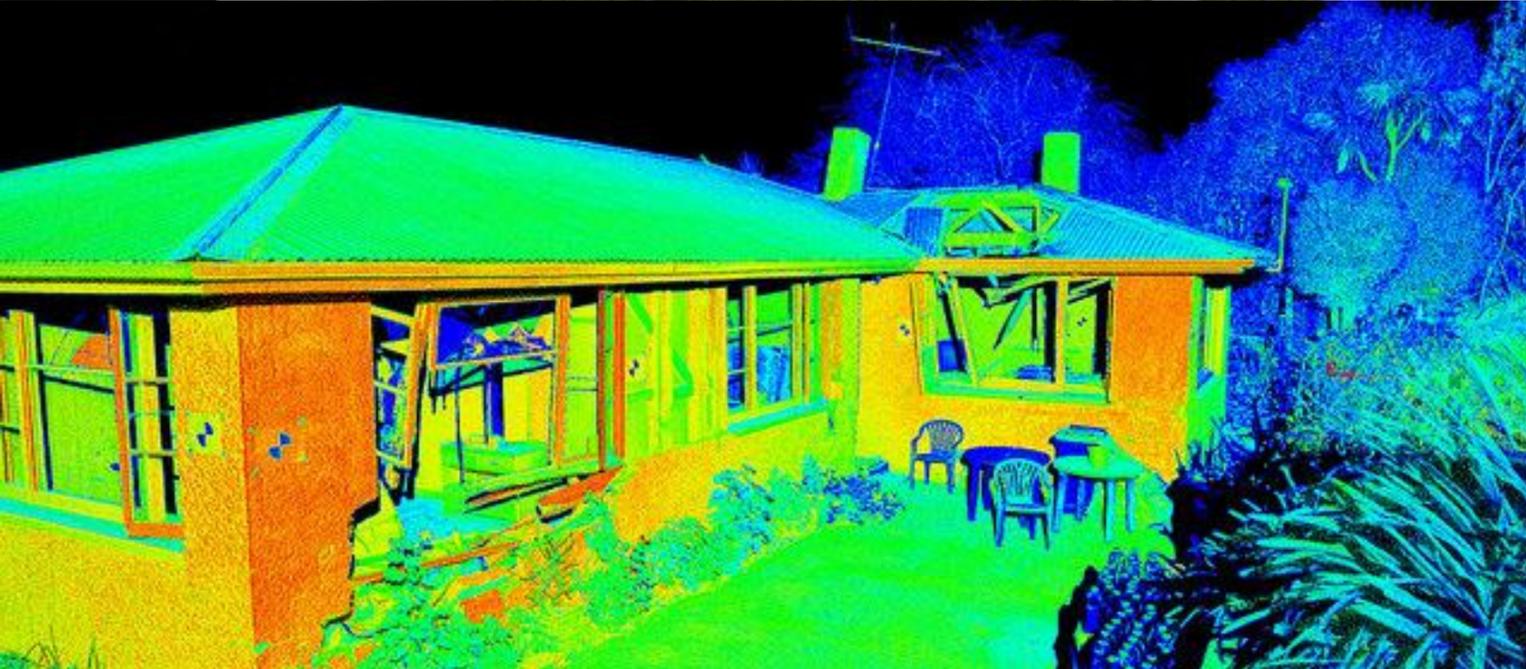
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\$ Yes.

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Fixed or Replaceable  
Payloads  
25kg+ max weight  
Open Source API

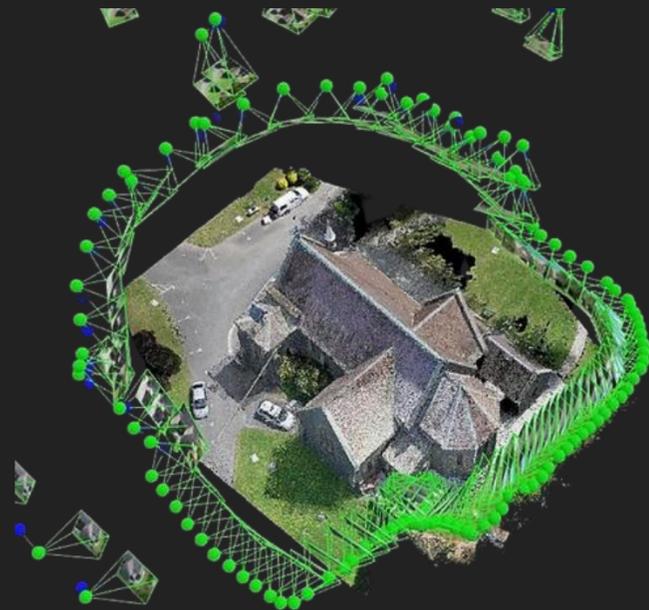
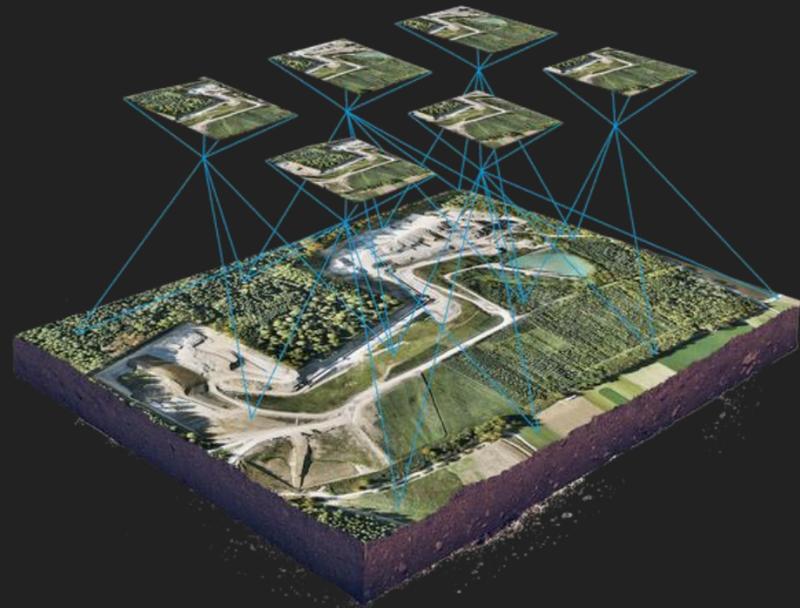




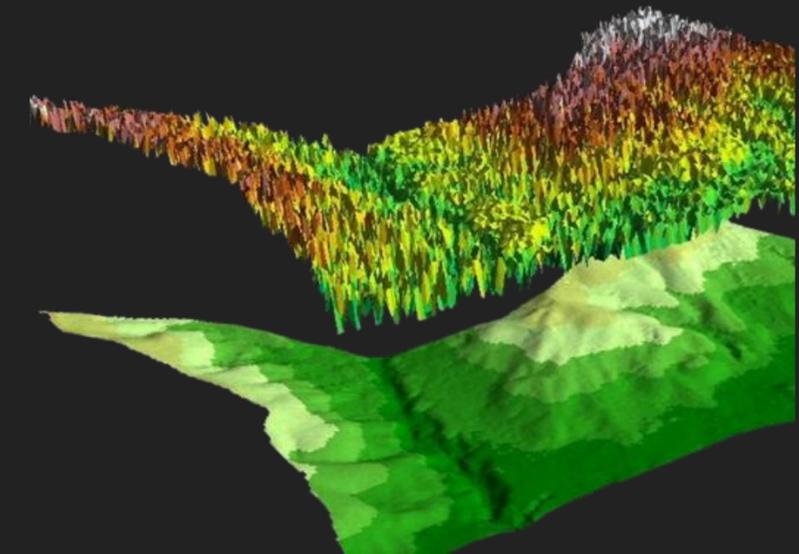
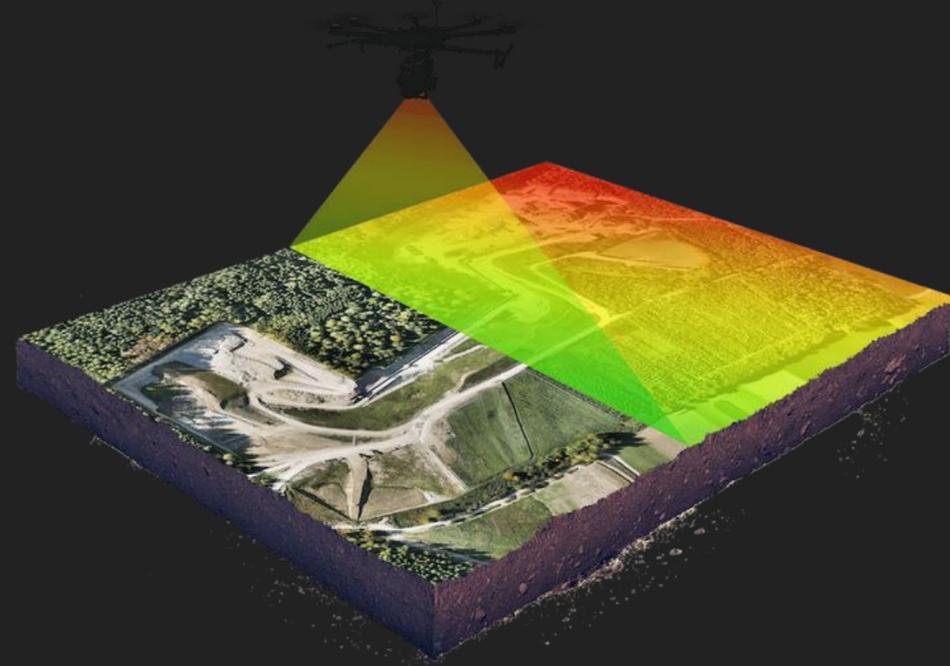
# APPLICATIONS

TYPICAL USE CASES FOR QUADCOPTERS

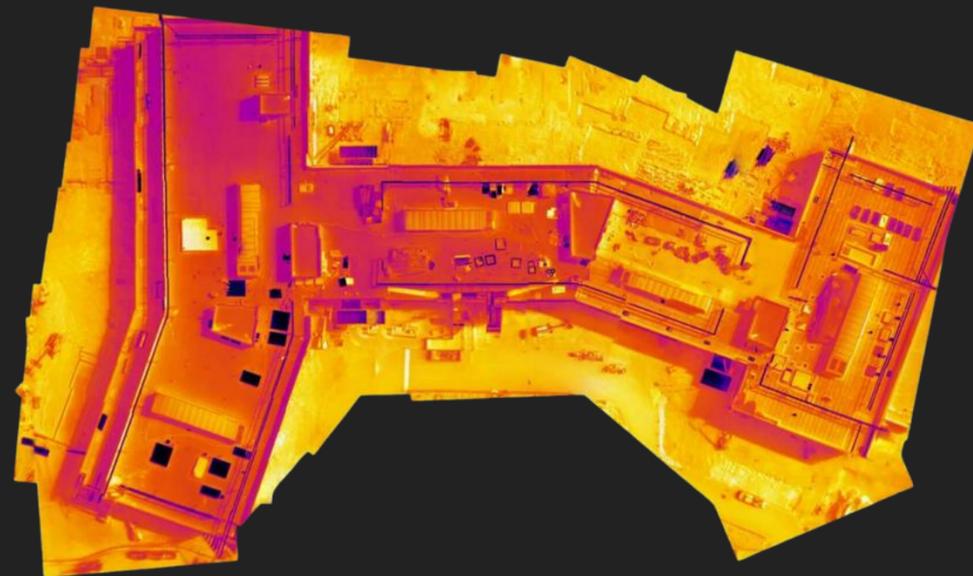
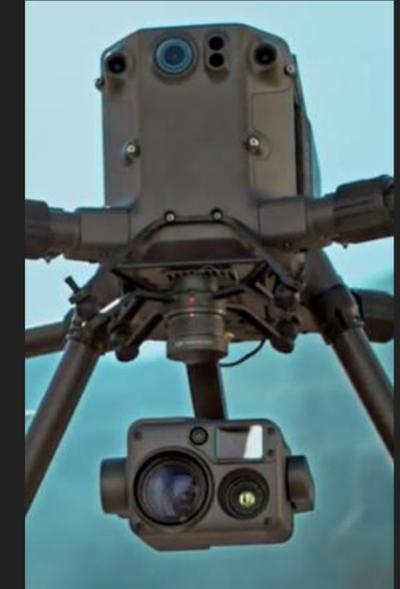
# Photogrammetry



# LiDAR (Light Detection and Ranging)



# Thermal Imaging



# Startup Checklist

Adding a drone to your inspection business, summarized.

**BUSINESS CASE ANALYSIS**

**PREPARE FOR & WRITE THE EXAM**

**PURCHASE DRONE & REGISTER IT**

**OBTAIN CERTIFICATE (BASIC, ADVANCED)**

**FOLLOW SOPS & FLY SAFE**

Questions?

Feel free to reach out!



Ian Wills

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