

# ALTO MAXX

## The Advantages and Deliverables of Drones in the Roofing Sector



Conference 2023





**ALTO MAXX**

# About Us

Professional Drone Service Providers

# ALTO MAXX

AltoMaxx Technologies was founded as a drone service provider in 2018, offering data acquisition, integrated solutions, and capacity building to an international client-base. Since then, AltoMaxx has emerged as an industry leader, driving the drone industry forward with its team of world-class technical experts, dedication to continuous improvement, and unwavering commitment to its clients.



# Drones in the Roofing Industry



The Advantages and Deliverables of Drones in the Roofing Sector

**ALTO**MAXX

# DRONE ADVANTAGES

- Efficiency
- Enhanced Data Collection
- Risk Mitigation

# Efficiency

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- Inspect difficult or impossible to reach areas
- Eliminates need to transport and assemble ladders or scaffolding
- Inspections can be performed more frequently
- Requires less crew on site
- Large scale inspections (entire subdivision, large building, etc)





# Enhanced Data Collection

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- Visual & thermal
- 3D modelling
- Downloadable & transferrable data

# Risk Mitigation

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- Initial use of an RPAS reduces the risk of injury and/or property damage
- Avoid use of a ladder, as well steep, sloped, or weakened surfaces
- Roofers face a high workplace fatality rate among trades in North America





# CAPABILITIES

- Visual Inspections
- Thermal Inspections
- 3D Modelling

# Visual Inspections

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- Drones can be deployed to quickly identify issues in residential properties as pictured here
- Being able to diagnose a roofing concern such as this in less than 5 minutes results in improved efficiency



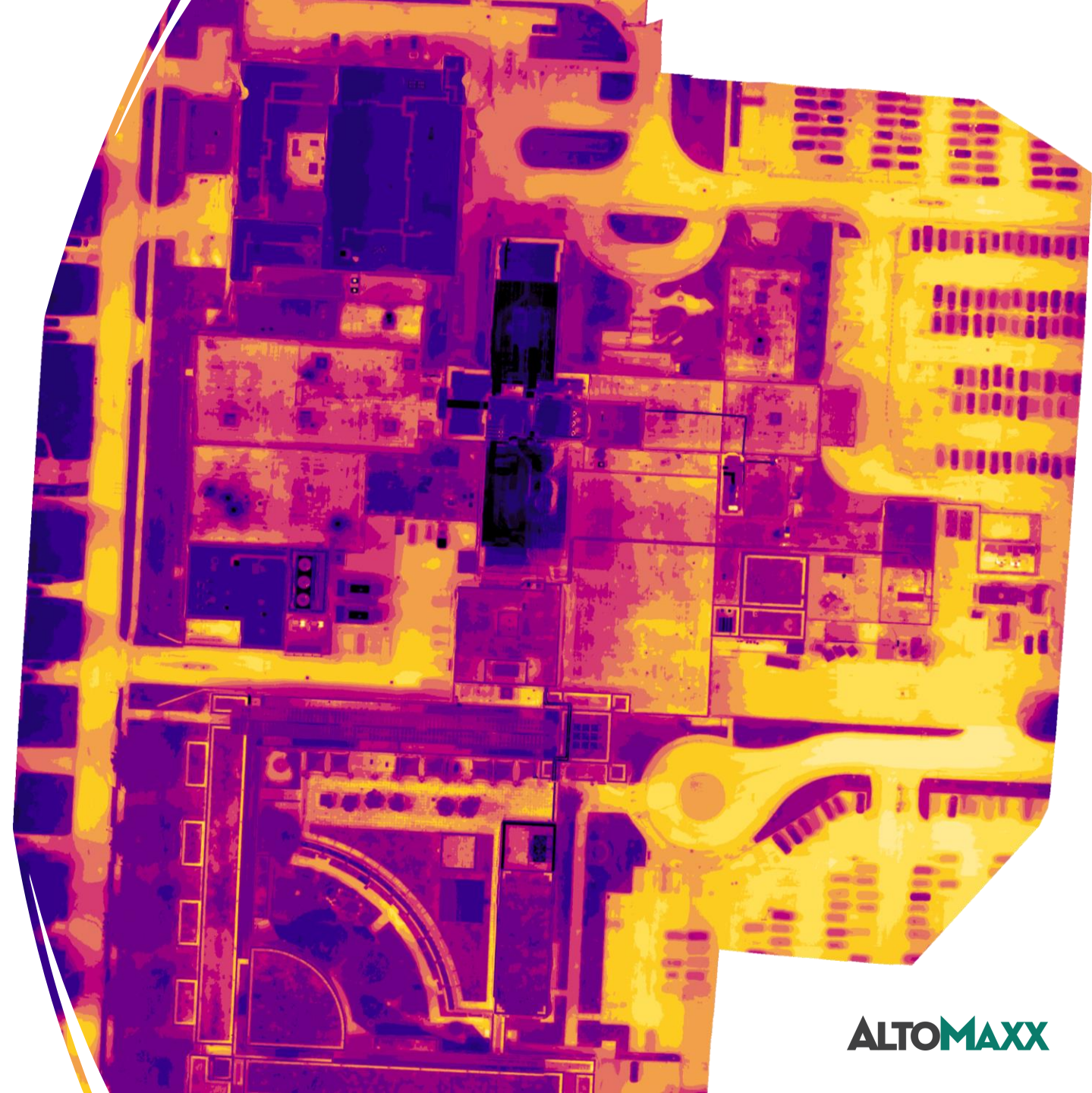


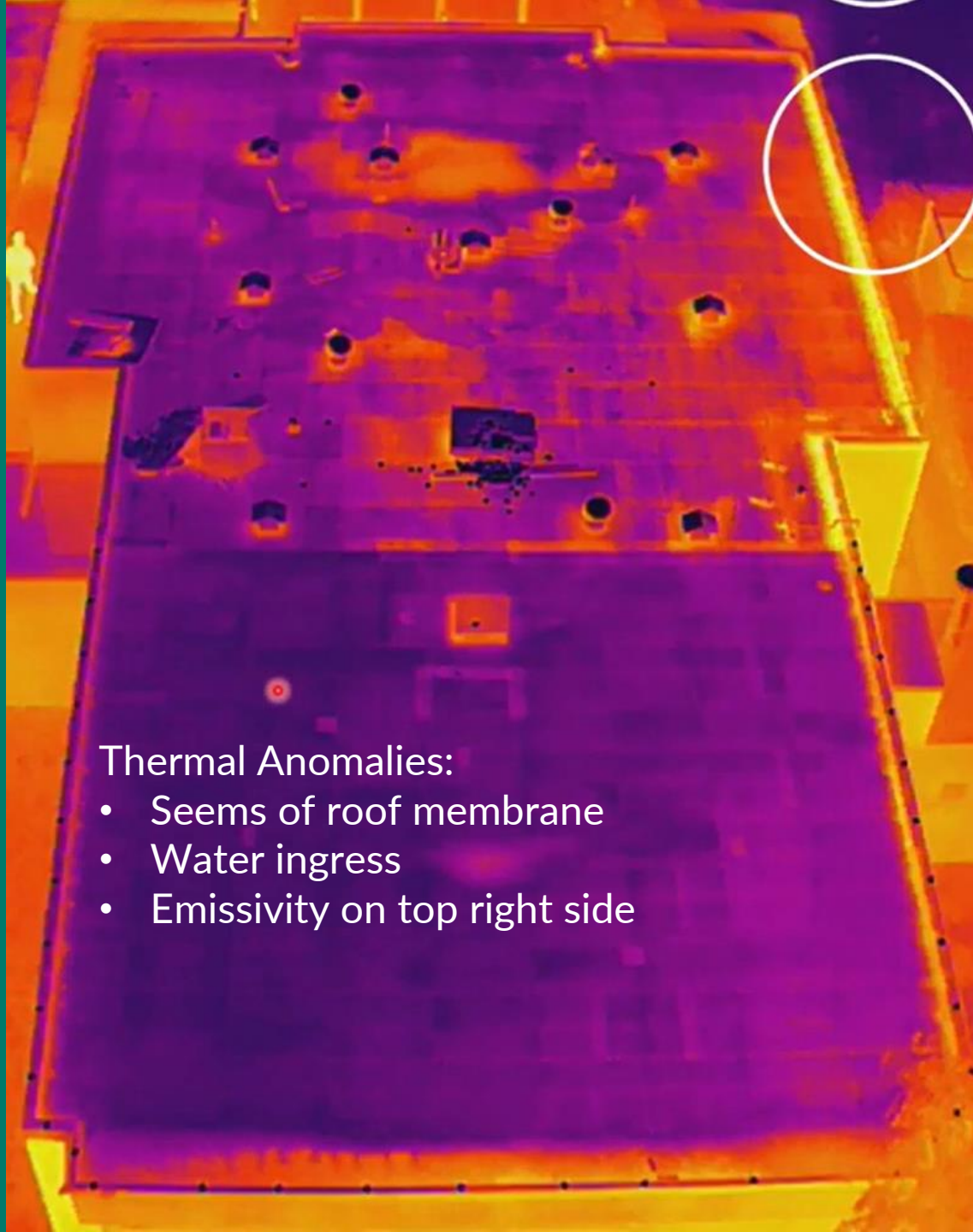
# Thermal Inspections

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- Locate faults invisible to the naked eye
- Detect heat loss and leaks
- Inspection take place at night for best results

[Thermal Inspections »](#)





Thermal Anomalies:

- Seems of roof membrane
- Water ingress
- Emissivity on top right side



# Photogrammetry

- Photogrammetry is a method of 3D modelling
- Uses a web of photos taken from different angles and orientations to make a model





# Photogrammetry

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- Accurate models
- Monitor change over time
- Automated drone flight collects data in minutes

[Photogrammetry »](#)

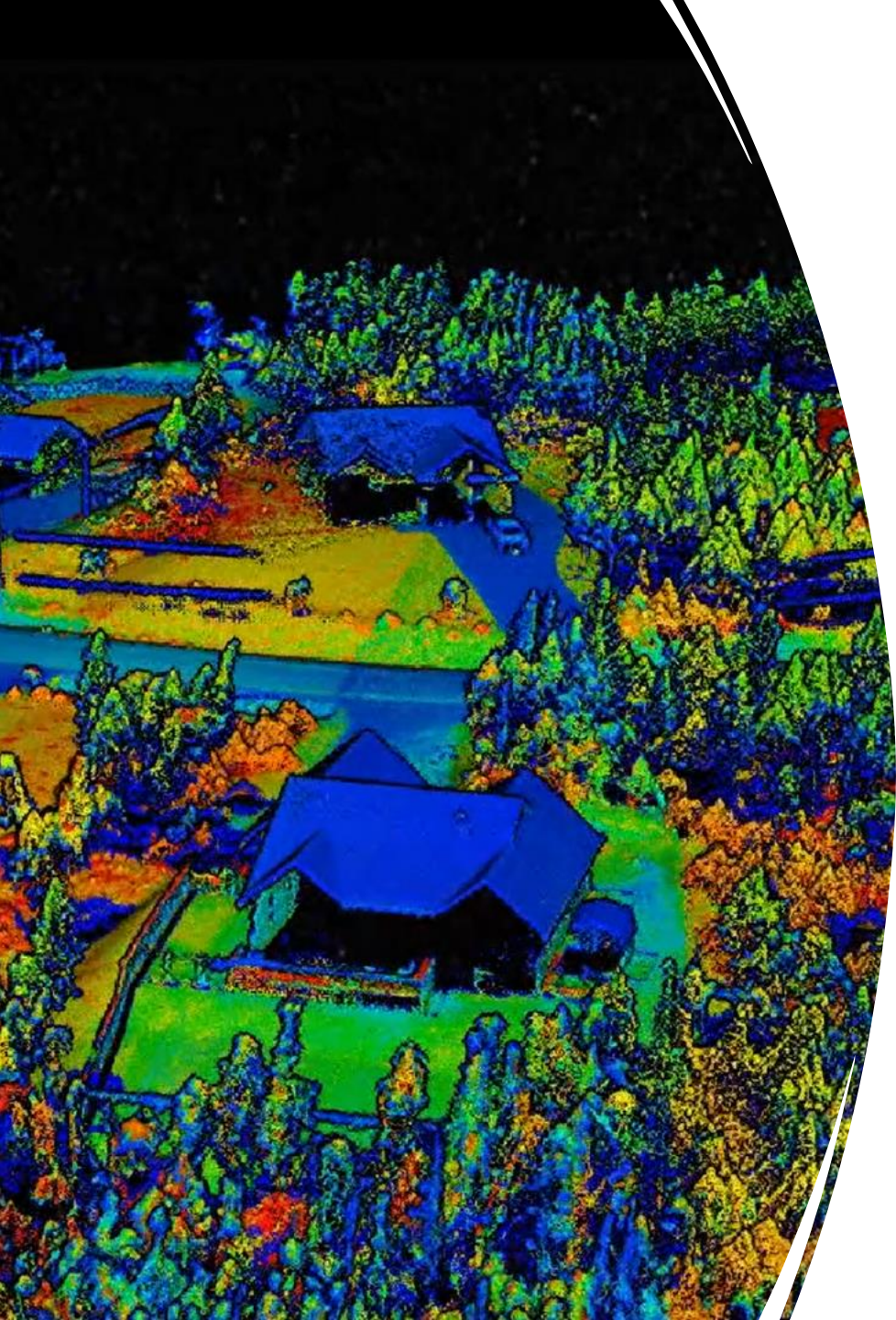
# LiDAR

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- Light Detection and Ranging
- Alternative method for creating 3D models
- Uses a laser scan instead of photography
- More accurate than photogrammetry







# LiDAR

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- Laser accurate models
- Fault monitoring
- Actionable data

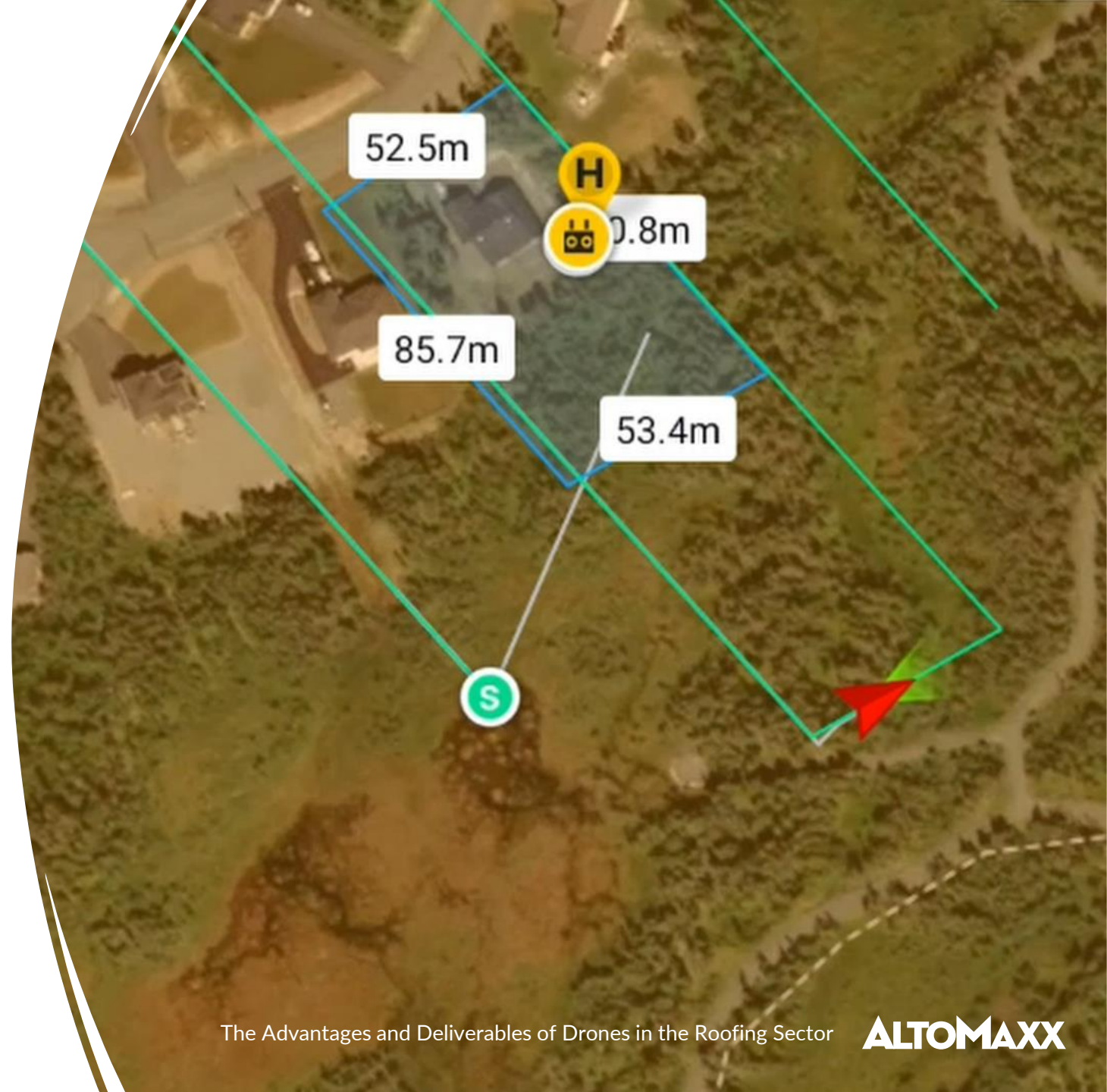
[LiDAR »](#)

# Deliverables & Implementing Drone Technology

# Planning

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- Roofing measurements and calculations
  - Accurate budget estimates
  - Efficient bids and proposals
- Worksite planning
- Documenting initial roofing conditions





# Building

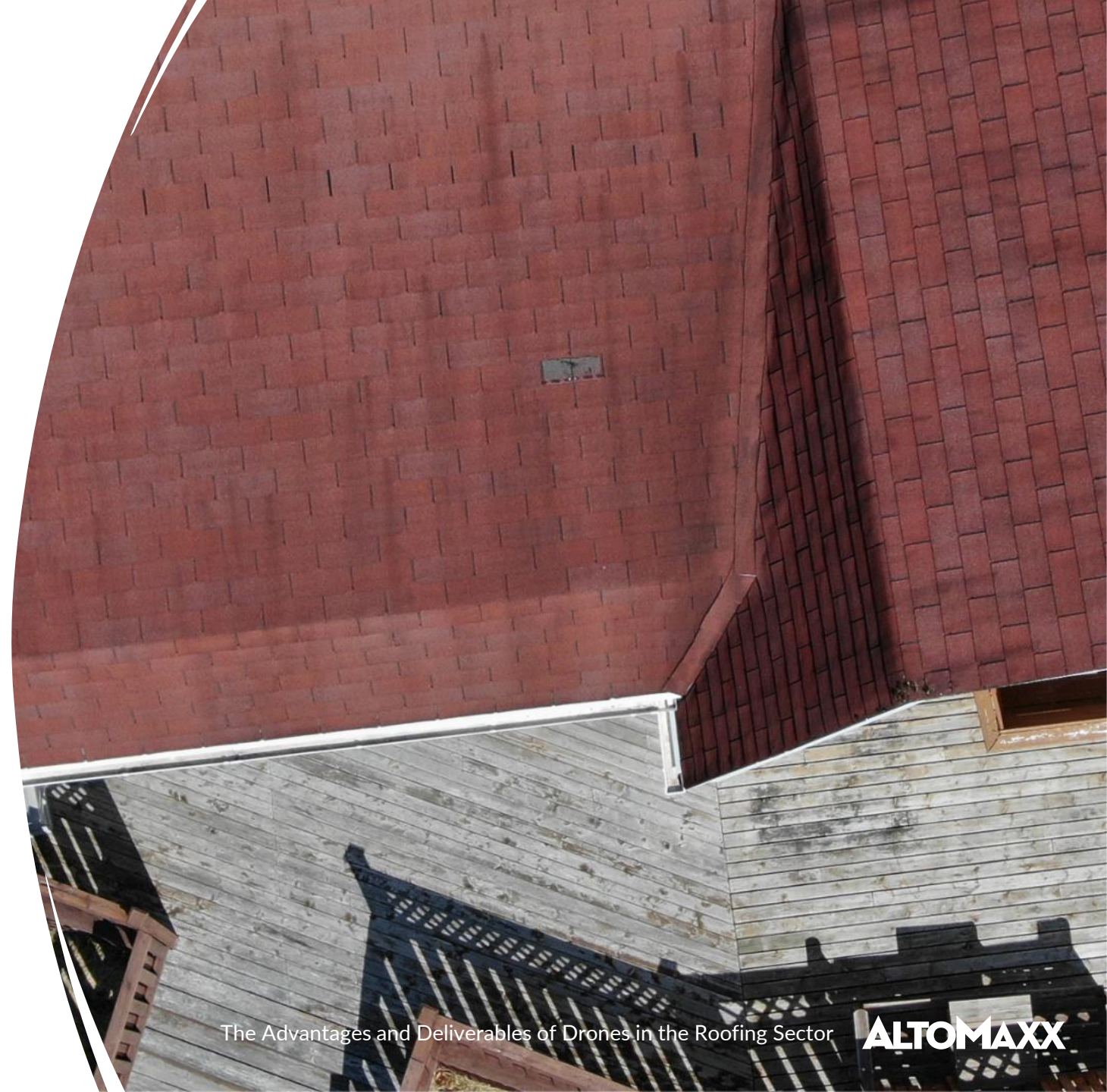
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- Building intelligence modelling
- Accurate progress reports
- Quality control checks
- Documenting final roofing condition

# Maintaining

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- Identifying defects
- Routine inspections
- Assessing hard to reach areas





# Repairing

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- Identifying hazards and safety concerns
- Warranty claims and investigations
- Natural disaster remediation
- Proving ROI



# Drone Platforms

# DJI MINI

- 249 grams – not subject to federal regulations
- 4x zoom
- 38 min flight time





# DJI MAVIC

- Up to 28x zoom
- Thermal
- Pre-planned missions



# DJI M300

- 200x zoom
- Advanced wind / weather resistance
- Variety of payload options
- Pre-planned missions



# Drone Platforms (Other)

Skydio X2



Skydio 2+



Parrot Anafi





# Training & Integration

# Federal Regulations

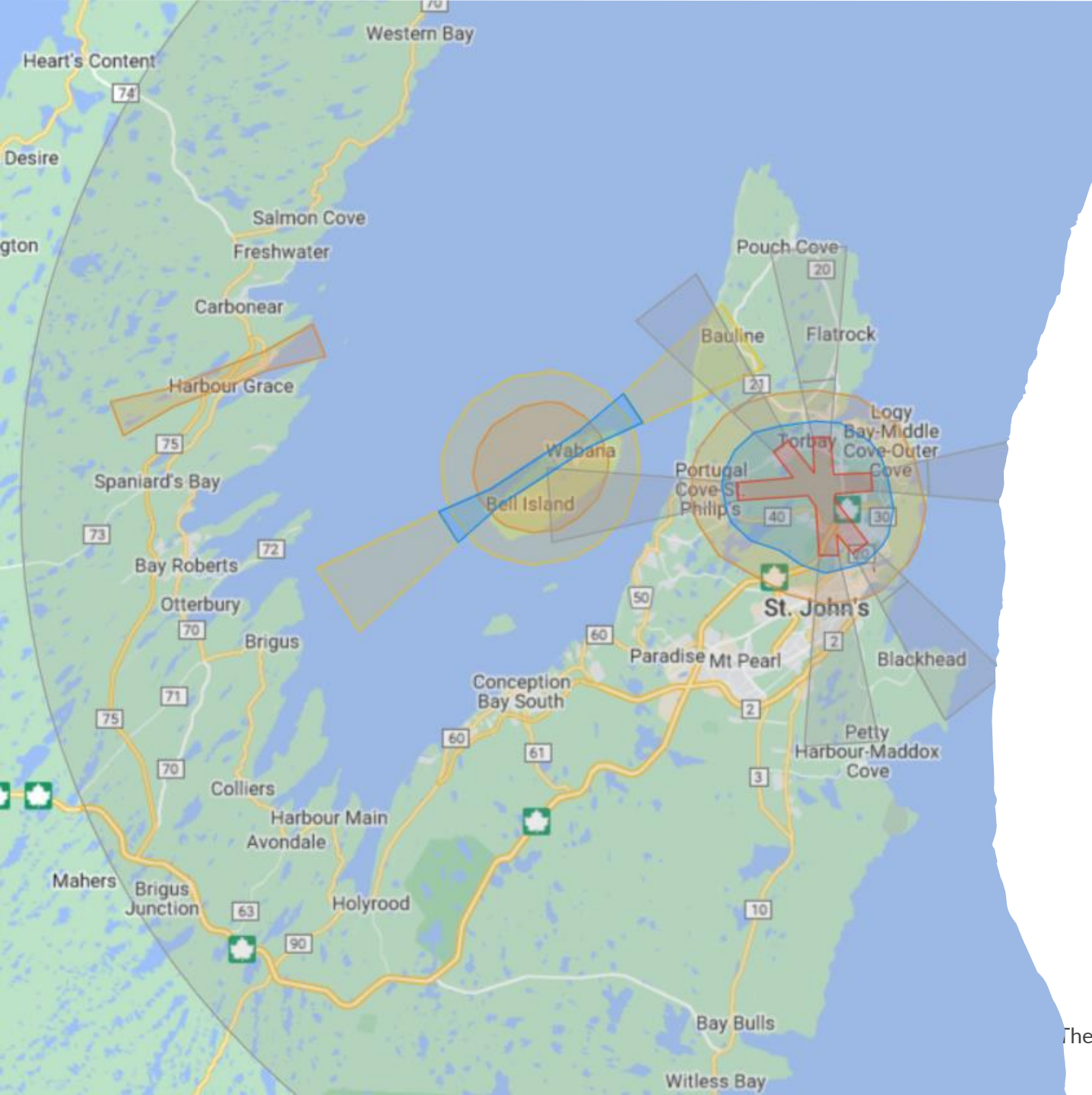


Transport  
Canada

Transports  
Canada

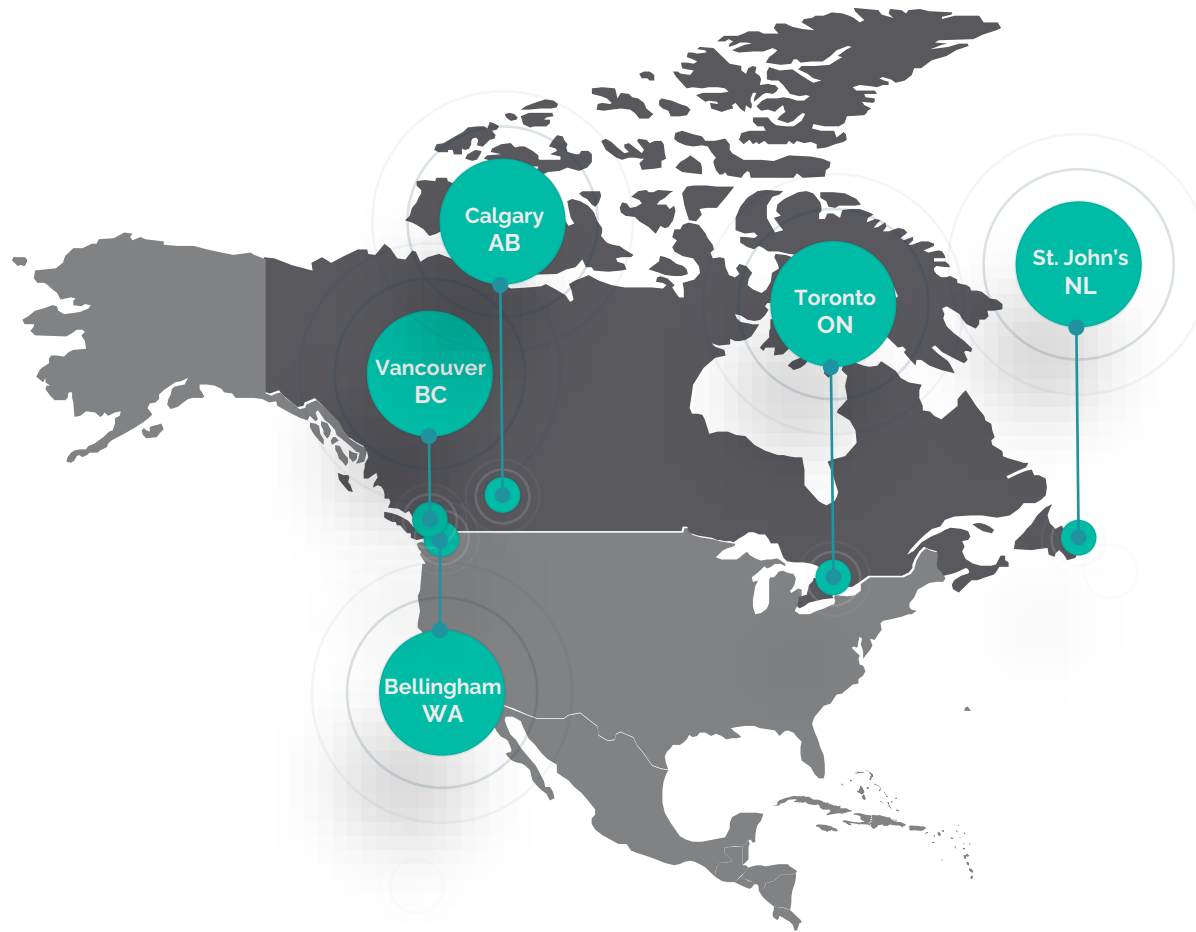
- Remotely piloted aircraft systems (RPAS) are subject to Part IX of the Aeronautics act, under the Canadian Aviation Regulations.
- RPAS weighing over 250 grams must be registered and are subject to airspace restrictions.
- Pilots require an advanced operations license from an accredited flight school.
- A parachute is required for operations over heavily populated or urban areas.
- AltoMaxx is a Transport Canada approved flight school.

[Pilot Certification »](#)



# Airspace

- Use of drone technology is heavily restricted near airstrips and heliports.
- Pilots must apply before conducting operations within certain zones.



AltoMaxx is a recognized flight school and an accredited certification body for ISO-21384 (Drone Operations).

AltoMaxx teaches companies how to integrate drones into their operation.

[Enterprise Drone Program »](#)





# Contact Us



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