

# Drone Surveying (RPAS) (Steps to Completion)

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- CALGARY AIRPORT AUTHORITY



# Steps to Completions

## 1. Planning and Preparation ( YYC & Aerium )

- i. Hazard Identification & Risk Assessment (HIRA)
- ii. Maps and Timelines for Data Capture
- iii. Communication & Coordination between TC, NAV, ATC, and Various Divisions
- iv. Scheduling and Shutdown Timing
- v. Media Preparation and Informing Local Spotters Clubs & Authorities

## 2. Communication, Coordination & Execution

- i. Safety Meeting, Communication and Methodology Review
- ii. Ground GPS, Aerial Photogrammetry, and LiDAR Data Collection and Verification

## 3. Results and Deliverables

## 4. Lessons Learned





# YYC Planning and Preparation

## Data Capture and Area Shutdowns

Media, Authorities, Local Notices, Stakeholders, Spotters Club, etc. Communication Plan

Communication Plans to supplement Operational Plans with YYC, ATC and AERIUM

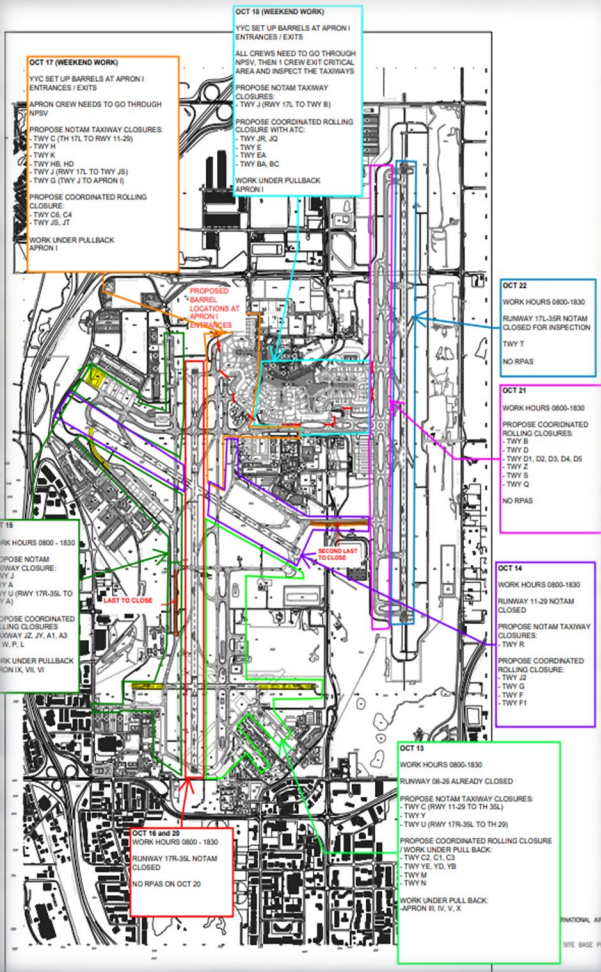
Coordination and approval from Stakeholders

# AERIUM Planning and Preparation

HIRA and Safety Planning

Creating Maps and Timelines for Data Capture

Operational Plans with Proposed NOTAM/Shutdown Timings  
Advanced RPAS Pilots with RAICs



YYC-02-A-1	
YYC-02-A-1	
FID	17
Id	0
Name	YYC-02-A-1
DATE	02
ZONE	A
FLIGHT_NUM	1
ORIG_FID	16
FLIGHTTIME	15:15
Label	Flight Time:14:56
FID	15
Id	0
Name	YYC-02-A-1
DATE	02
ZONE	A
FLIGHT_NUM	1
FlightTime	14:56
Time_Label	Flight Time:14:56
Direction	

# Communication and Coordination

## COMMUNICATION RISKS AND MITIGATION

### COMMUNICATION RISKS

#### Perceptions of security/safety

Drones are not allowed in controlled airspace or near airport/heliports. They must be flown at least 5.6 km away from airports. There are fines to individual and corporations if they've put aircraft or people at risk. If stakeholders are not informed, they may perceive the survey as a threat to aviation.

### COMMUNICATION MITIGATION

- This communications plan will help inform primary stakeholders who can also help mitigate guest concerns (in-terminal)
- Reception, Communications, IOC, Operations, Safety and Security are all aware of the upcoming event and can respond to guest or Team YYC inquiries.

You may see a drone above our west runway.  
It's safe and been authorized.



- Meetings and Strategy Sessions between YYC, NAV, ATC and AERIUM
- Building trust in Stakeholders to allow Drone Operations
- Coordination of NOTAMs and shutdowns with ongoing weather restrictions
- Full Communications Plan involving Internal Stakeholders, YYC Crew, Social Followers, Media, Plane Spotters, Guests, etc.

From: Edmonton RPAS <[EdmontonRPAS@navcanada.ca](mailto:EdmontonRPAS@navcanada.ca)>

Sent: October 15, 2020 12:15 PM

To: Info <[info@aeriumanalytics.com](mailto:info@aeriumanalytics.com)>

Subject: RE: RPAS Flight Authorization Request / Demande d'autorisation de vol SATP – EG20201015-WVJ

EG20201015-WVJ RPAS Flight Authorization Request is **APPROVED** in accordance with the information you have provided.

You are responsible to abide by the *Canadian Aviation Regulations* (CARs) as well as the NAV CANADA restrictions applicable to EG20201015-WVJ

Immediately report a fly away or an emergency to the NAV CANADA **Calgary Control Tower** at 403 216 7116, and provide the following information:

- last observed position and altitude
- direction of flight and battery life

If you are unable to reach the unit, contact the NAV CANADA Area Control Center Shift Manager 780 890 8397.

Always ensure communication capability during the mission.

Please ensure any RPAS transponder is turned off. We suggest you keep your proof of authorization with you when you fly.

Edmonton RPAS Coordination Office

Edmonton Flight Information Region



# Results and Deliverables

Completed Ground GPS, Aerial Photogrammetry, and LiDAR Data Collection of Runway 17R/35L in 4 hours

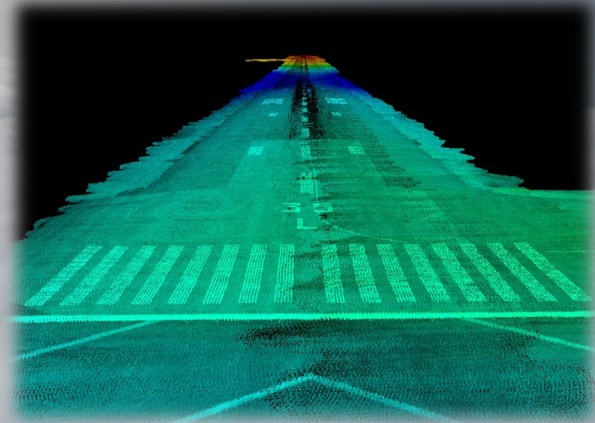
0.5m Resolution Imagery of West Airfield  
Georeferenced using Ground RTK Measurements tied into the Local Control Network

- 115 RPAS Flights
- 1,200,000 m<sup>2</sup> of Taxiways
- 1,000,000 m<sup>2</sup> of Aprons
- 300,000 m<sup>2</sup> of Runways
- 231 Total Hours
- Average 6.5 Hours/Person/Day



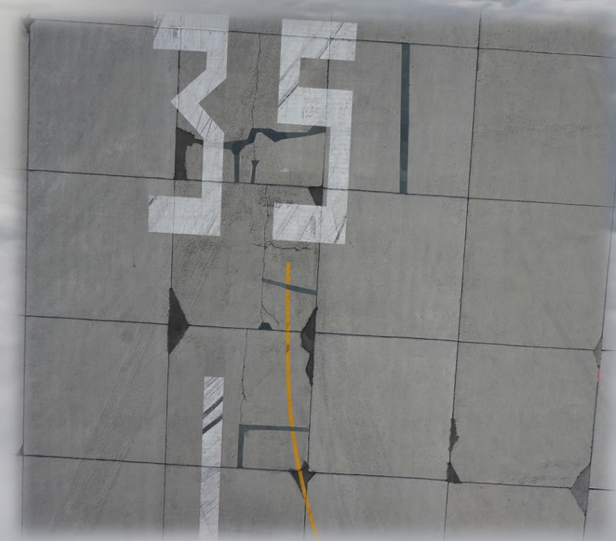
NO INCIDENTS, Safe Operations

- Information went to Tetra Tech (Consultants)
- RPAS high-resolution imaging was combined with Manual inspections
- Pavement Management Reports were produced and submitted to YYC



# Lessons Learned

- Ground GPS work took the longest time to complete compared to Aerial LiDAR and Photogrammetry Collection
- Communication and Operational Plans were successful
- Holdbacks vs Shutdowns
- Lessons Learned from West Airfield Project
- Timing of Operations and Weather Constraints (October vs July)
- Sun Angle  $> 20^\circ$  for 5 Hours/Day on Average
- AOS was excellent at relaying communications from AERIUM to ATC





Thank you  
Any Questions?

