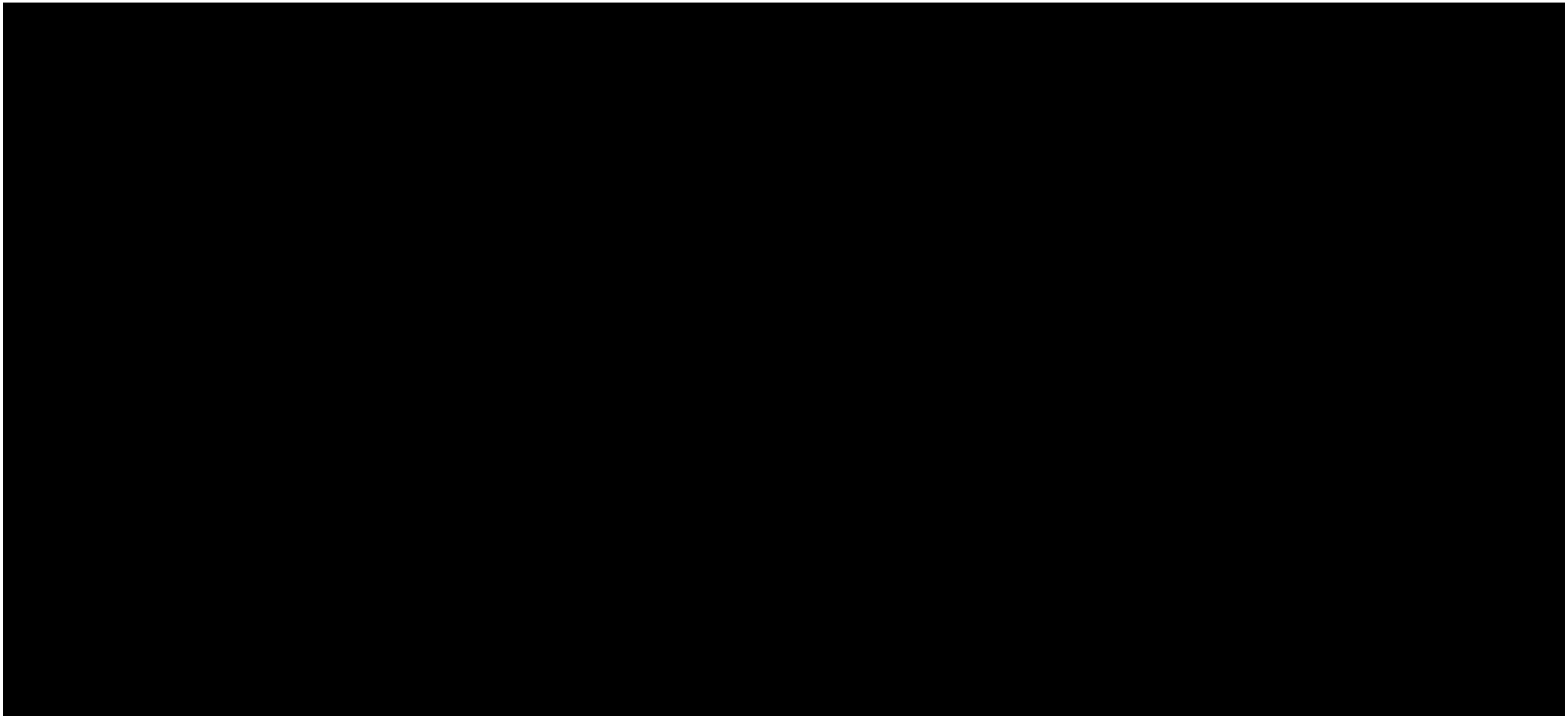
Drone Symposium May 30th 2019

Declan Collins- Head of Operational Safety
Dublin Airport

Nathan Wall- Safety and Training Manager
Cork Airport

Cork Airport March 2016



What Is A Drone?

1. Drone is the common term for;
   - UAV (unmanned aircraft vehicle)
   - UAS (unmanned aerial system),
   - RPAS (Remotely-Piloted Aircraft Systems)

2. Drones originated from military aircraft.

3. Now expanding into commercial and civil use.
   Can vary enormously in size, weight, distance and flying time.
4. Typical types of UAV:
   Fixed wing:
   High weight, long range, typically military application.
   Multi-Rotor drones:
   Large versions exist for military aircraft
   Wide range available for hobbyist and enthusiasts, typically sub 7 kg.

Airports are being affected by multi-rotor, small / medium drones

Impact On Airport Operations

1. Drones pose two key risks to airports and its operations:
    - SAFETY threat and SECURITY threat

2. Threat to aircraft:
    - Collision threat between aircraft and drones
    - Can be in-flight or on the ground
    - Can extend far beyond the airport boundary
    - Typically affects landing/departing traffic

3. Threat to airport and facilities:
    - Security threat to airport perimeter, passengers, staff and facilities
    - Typically centred around the airport boundary

Majority of “NEAR MISS” incidents are not malicious. While it's impossible to rule out the potential for certain bad actors attempting to collide drones with aircraft, the majority of incidents most likely can be chalked up to drone hobbyists. (Rogue Drone Operators)

Where Does The Threat Come From?

LIKELIHOOD

CONSEQUENCE

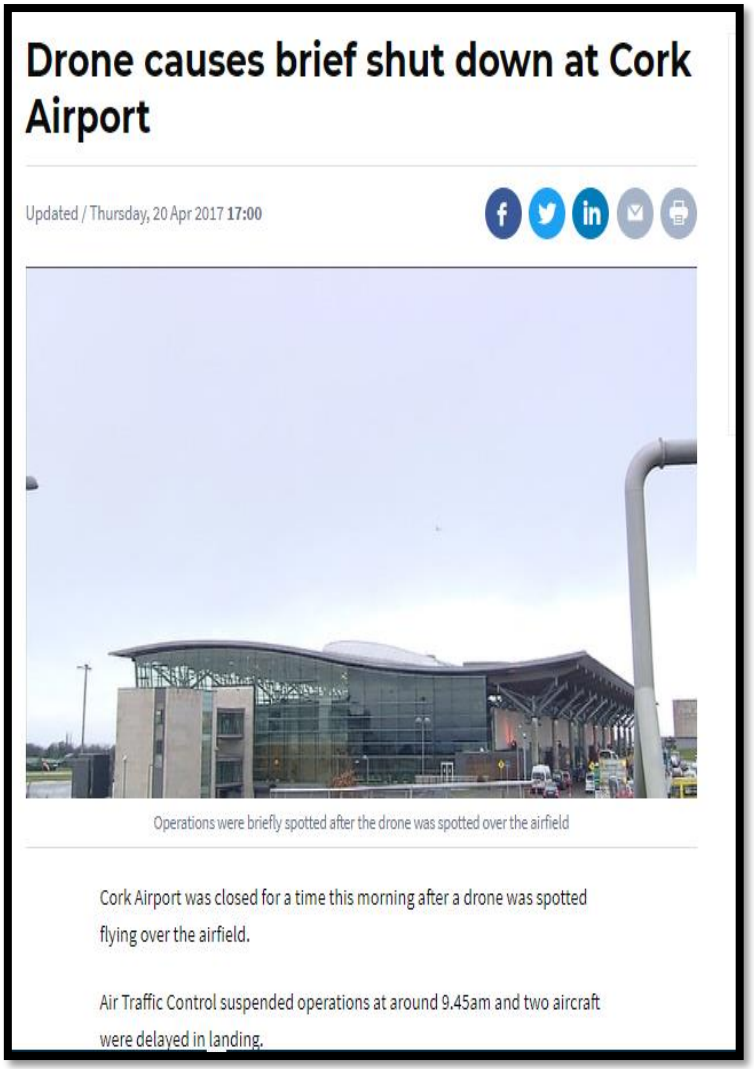
1. Hobbyist
2. Professionals
3. Protestors
4. Spying
5. Terrorism
6. Swarms

Cork Airport's / Dublin Airport's Initiatives To Date

2016/2017

1. No Drone Zone SOP
2. Risk Assessment Safety & Security
3. Continued engagement with state stakeholders
4. Support Dublin Airport in their role out of No Drone Zone
5. Continued media and on site campaigns
6. Educate local community on Drones
7. Attending Conferences globally speaking addressing the impact drones have on airports

And Then- April 2017



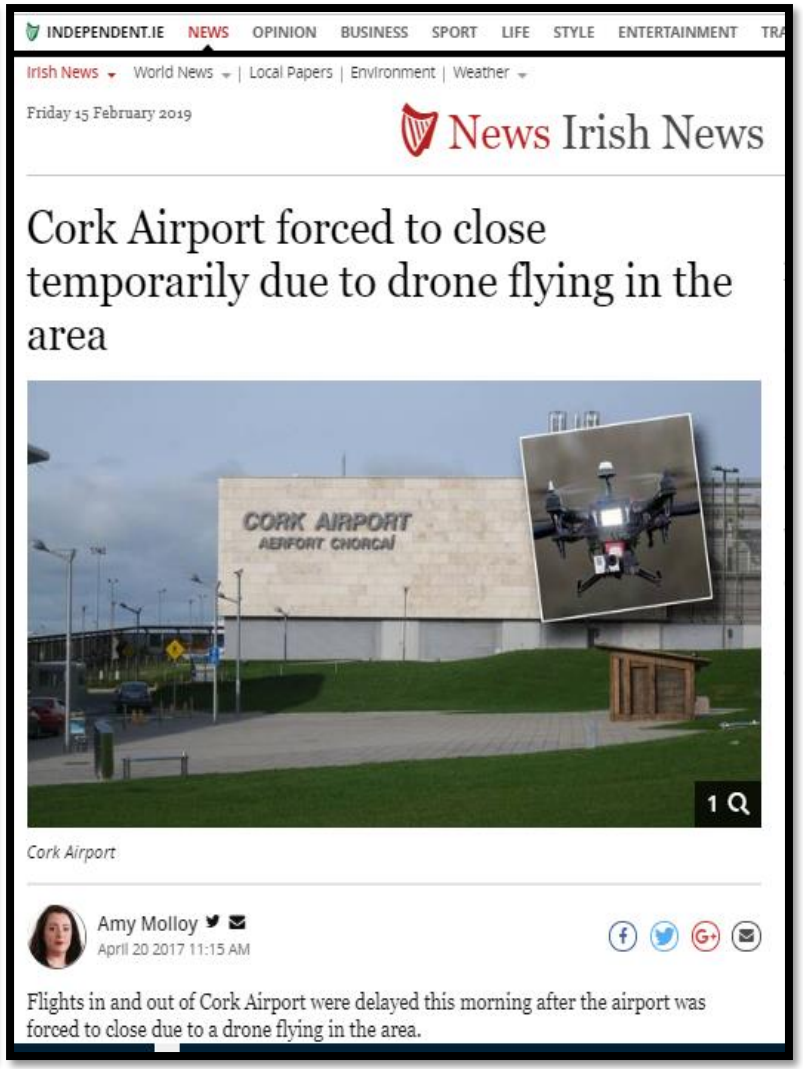
Drone causes brief shut down at Cork Airport

Updated / Thursday, 20 Apr 2017 17:00

Operations were briefly spotted after the drone was spotted over the airfield

Cork Airport was closed for a time this morning after a drone was spotted flying over the airfield.

Air Traffic Control suspended operations at around 9.45am and two aircraft were delayed in landing.



INDEPENDENT.IE NEWS OPINION BUSINESS SPORT LIFE STYLE ENTERTAINMENT TRA

Irish News | World News | Local Papers | Environment | Weather

Friday 15 February 2019

News Irish News

Cork Airport forced to close temporarily due to drone flying in the area

Cork Airport

Amy Molloy

April 20 2017 11:15 AM

Flights in and out of Cork Airport were delayed this morning after the airport was forced to close due to a drone flying in the area.

1. Two Drone incidents in April 2017.
2. 2 weeks apart.
3. First incident at night time and airport operations suspended for approx. 30mins.
4. Positive learnings from the first incident.
5. Second Incident during the morning at approx. 1000hrs and airport operations suspended for 45mins.
6. National media attraction.
7. New local procedures for Air Traffic Control.
8. Over the following 3 months we had 16 counter UAV companies attempt to sell counter UAV products.

Cork Airport's / Dublin Airport's Initiatives To Date

Unmanned Aircraft System (Drone) Activity Reporting

CORK AIRPORT

Standard Operation Procedure 01/2019 UAV

SOP Name:	Unmanned Aircraft System (Drone) Activity Reporting and follow up.	**SOP Ref No:**	01/2019 UAV
Prepared by:	Safety Department	**Issue**	1
Approved By:	Nathan Wall	**Date**	01/04/2019
Location:	This SOP is located on the Safety Department Shared Drive		

Document / Change Control:			
Issue No.	1	**Commentary**	Initial SOP created and reviewed by Safety Department

Record of Amendments			
Amendment No:	Date:	Details:	Section
V1.0	25/02/2019	New Procedure to include police deployment, 300m boundary extension and new ATC procedure	

Associated Documents		
Airport Direction(s)	**Associated SOPs**	**Other Documents**
C-A Occurrence Reporting	Occurrence Report Management & Administration.	Regulation (EU) 376 of 2014
	ECCAIRS Form Completion	Reg. (EU) Implementing Regulation 2015/1018
		Safety Management System Manual

A. Description

To describe how Unmanned Aircraft System (Drone) related safety occurrences are reported and reviewed at Cork Airport.

B. Aim of the SOP

The Purpose of this document is to outline the procedures for the reporting and follow up of Unmanned Aircraft System (Drone) related safety occurrences in controlled airspace and in close proximity to the aerodrome in line with EU Regulation No. 376 of 2014.

C. Introduction

No Fly Zone

- As per IAA Aeronautical Notice U.04; "Exemption from Controlled Airspace Permission Requirement for Certain Drone Operations", figure 1 below is a visual reference for the 5km controlled airspace for the DRONE NO FLY ZONE at Cork Airport.
- No Drone can be launched in this controlled airspace without permission from the IAA. The distance is 4500m (4.5k) from the centre point of the 16/34 runway as per IAA Aeronautical Notice U.04; "Exemption from Controlled Airspace Permission Requirement for Certain Drone Operations.
- Outside of this airspace Drones are allowed to fly up to 50ft without permission, heights in excess of this require specific permission from the IAA.

Figure 1: No Drone Fly Zone Cork Airport

JUST CULTURE

CORK AIRPORT

SN 01/2019 Safety Notice

Drone Awareness

Due to recent incidents in the UK, we are advising all staff to be extra vigilant regarding drones. Staff are reminded of the following if they observe a drone operating on the airport facility;

1. Immediately contact the Airport Police Fire Service watchroom on
   021-4329605
   or
   Via any yellow emergency phone airside
2. Please state the following to the APFS watchroom operator;
   i. **Exact Location of the Drone**
   ii. **Size of Drone (Small/Medium/Large)**
3. Staff are requested to observe the drone until the Airport Police Fire Service arrive.
   (All information relayed back to the APFS is crucial for the APFS in tracking the drone operator)
4. If staff have a mobile device with them, please photograph/video any such observations as this may provide crucial evidence in any follow up investigations

Safety- It's everyone's business

Issued by Cork Airport Safety Department Date of Issue: 09/01/2019 Duration: Indefinite	If you require airside operational assistance contact: Airport Duty Manager: 021-4329659 or 087-4194332 Emergency Services: Airport Fire Service 021-4329605

1. **Live GIS Drone and Laser Dashboards- Sent to CAOPG and AGS**
2. **Updated drone reporting procedure published on the 01/04/2019**
3. **Continued drone awareness campaigns**
4. **Work with peer airports to enhance safety with regards to drones**

daa

Cork Airport's / Dublin Airport's Initiatives To Date

Laser Incident

1/20/2019, 12:00 AM

18:55

Tivoli Area

Drone Incident

1/8/2019, 12:00 AM

None

11:25

Maryborough Ridge

Drone Incident

1/1/2019, 12:00 AM

15:30

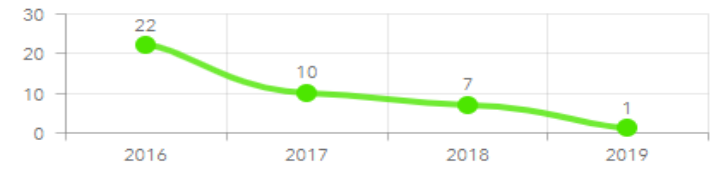
Carrigaline

Laser Incident

11/10/2018, 12:00 AM

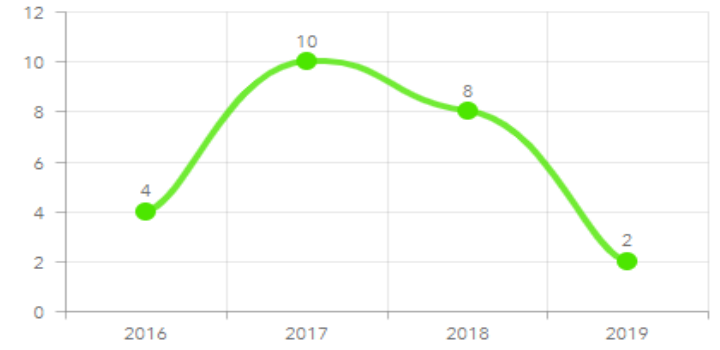
Last update: a few seconds ago

Laser Strike by Year



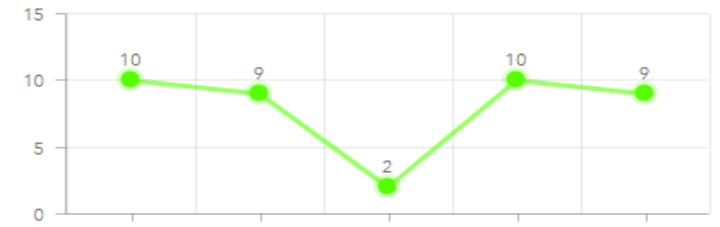
Last update: a few seconds ago

Reported Drone observation by Year



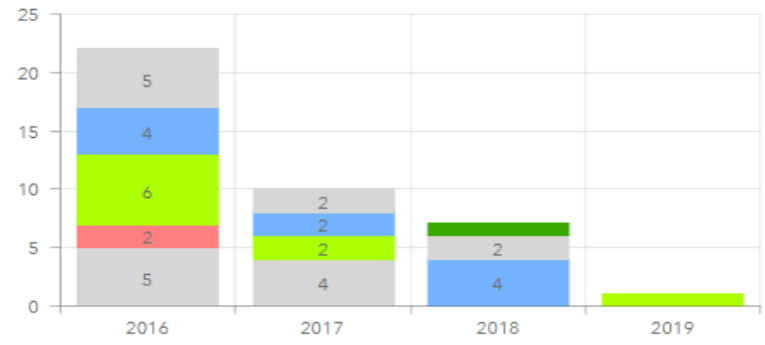
Last update: a few seconds ago

Laser Strike by Airline

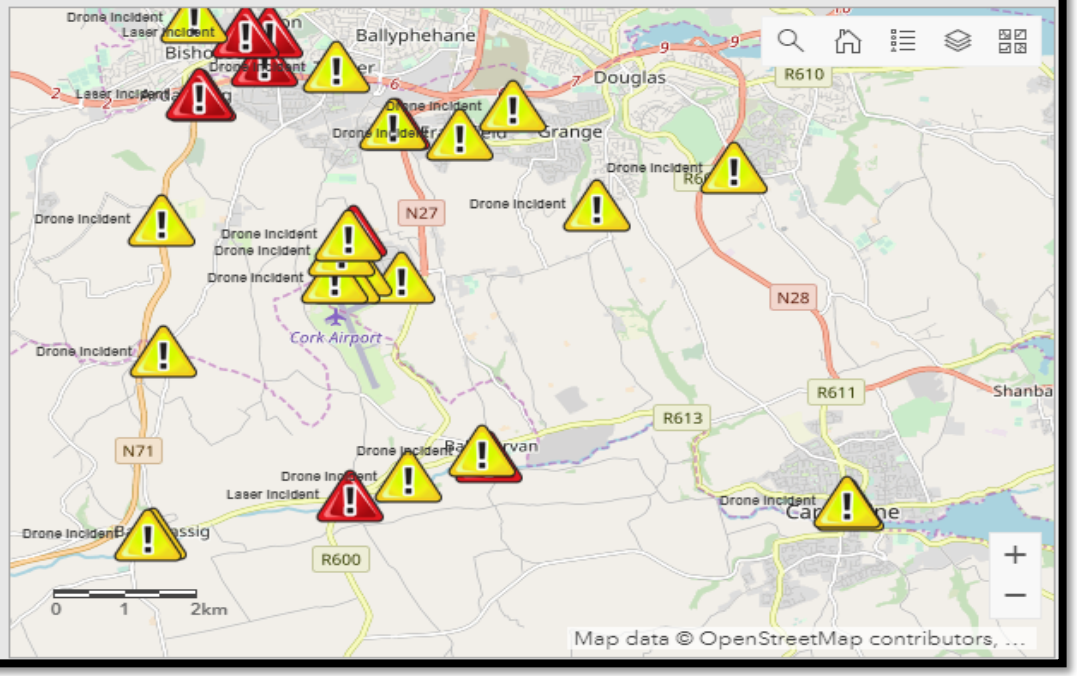


Last update: a few seconds ago

Laser Strike by Airline



Last update: a few seconds ago



Positive Side To Drones In The Airport Environment

Potential use of Drones at Airports

- **Runway Inspections**
- **Wildlife Patrols**
- **Security Patrols**
- **Incident Management**
- **Airfield Patrols**
- **Airfield Survey**
- **Building & Infrastructure Survey**
- **Media/PR Footage**
- **Aircraft Maintenance Checks**

1. Drones offer new services and applications going beyond traditional aviation and offer the promise to perform existing services in a more affordable and environmentally friendly way. They are a truly transformational technology.

2. Unmanned aircraft might have a future at Airports. If airports desire to use drones, they must currently receive special permission from the national civil aviation authority. To receive such permission certain requirements are required;
   - ✓ **Risk Assessment**
   - ✓ **Licensed Drone Operator**
   - ✓ **Drone Operator must be insured**
   - ✓ **Standard Operating Procedure for the specific Drone Operation**

Airports And The Future

DublinAirport
go beyond

Drone Documentation
Dublin Airport

Dublin Airport Progress 2016-2018

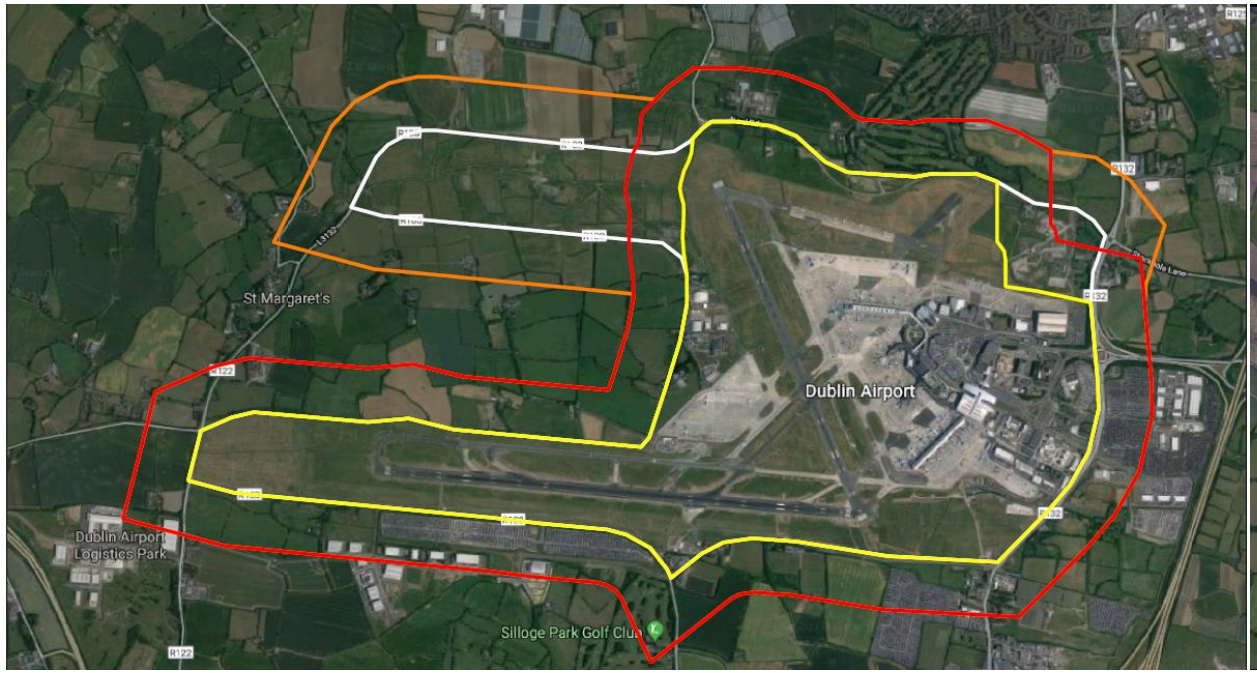
1. Risk Assessment: Safety and Security
2. No Drone Zone
3. SOP Developed
4. Stakeholder engagement regarding drones

Gatwick Incident – Follow Up

1. Between 19th and 21st December 2018 – Gatwick Drone Incident
2. December 21st – in consultation with IAA-ANSP – high level update of Drone SOP – taking account developments in Gatwick
3. Early January – further consultation with IAA-ANSP and IAA – SRD in relation to further enhancing measures to update SOP (DUB and ORK)
4. Critical Area – Aerodromes defined.

Critical Area

Dublin Airport



Cork Airport

Updated SOP

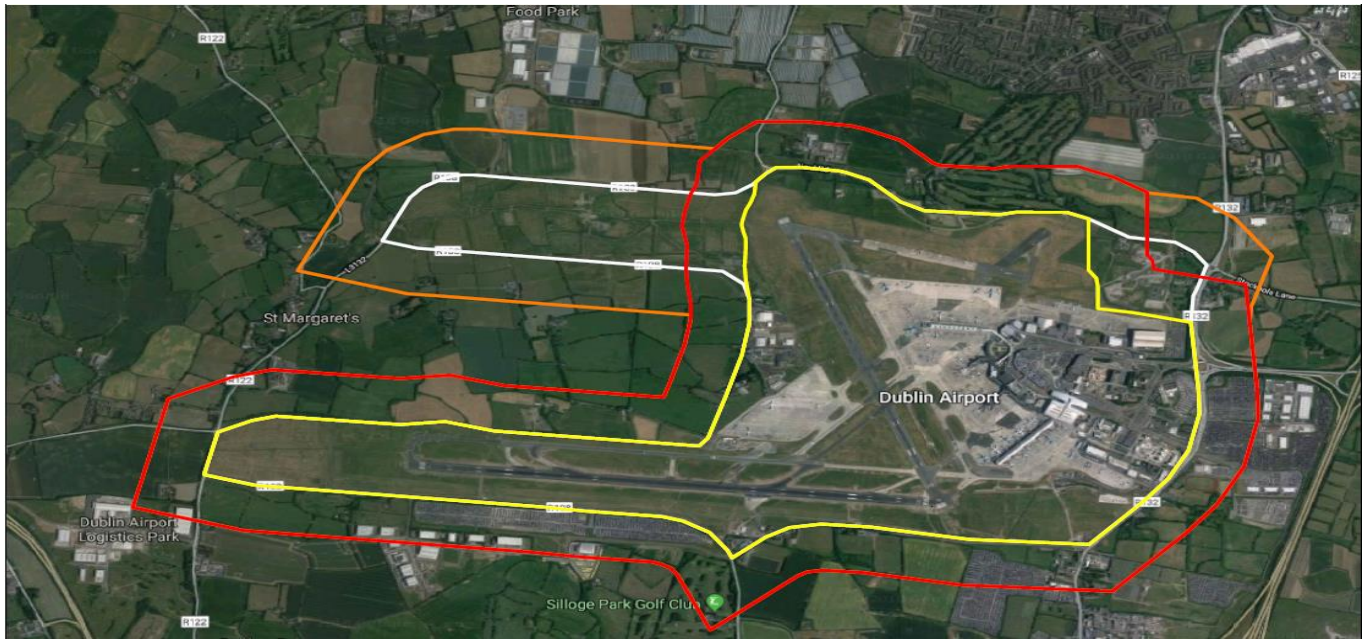
How are we informed of a Drone?

1. "Credible" sources defined
    - I. An Garda Síochana (AGS)
    - II. Pilot*
    - III. Fire Station
    - IV. AMU
    - V. Airfield Asset Care
    - VI. Airport Police

* Clarification will be sought to ensure it was a Drone as oppose to Drone like object….

All reports are investigated – response crews deployed

Unauthorised Drone – Critical Area - Report



1. DAP take measures to verify confirmation by implementing the deployment plan initiated
    - **Moving to confirm reported sighting**
2. An Garda Síochana (AGS) contacted by Airport Police
3. Personnel located around the airfield.

Unauthorised Drone – Critical Area - Confirm

1. ATC initiate zero flow operations
2. Deployment plan remains in place to monitor and relay drone position
3. AGS on site – “Blue Light” response
4. Location of drone to be constantly updated to response teams
5. Incident Recorded and tracked

Resumption of Operations

1. Drone Recovered
    - Deployment plan/AGS verify that the drone has been recovered (drone falls/operator apprehended, etc.) and threat removed
    - Airport Fire Service conduct RWY and TWY inspection
    - ATC recommence operations.

2. Drone “disappears”
    - Responders deployed to, and observing critical area verify that the drone is removed from critical area
    - Time of last confirmed sighting recorded - ATC informed of status
    - 30 minute countdown begins
    - At 20 minutes (10 minutes remaining) - Airport Fire Service conduct RWY and TWY inspection
    - After a period of 30 minutes from last confirmed sighting - ATC recommence operations.
    - Responders remain in location for further 30 minutes to heighten awareness of reoccurrence of drone incursion

DublinAirport
go beyond

Drone Incident 21st February 2019
Dublin Airport

Drone Incident - Reporting Timeline

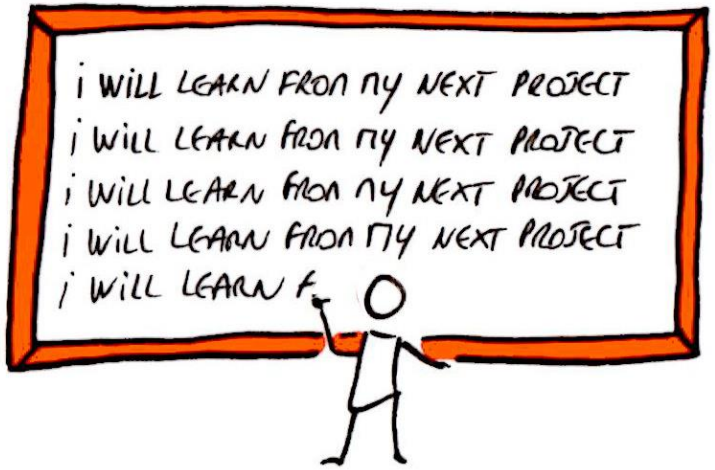
- 11:30 – Pilot reported Drone to ATC
- At 11:30- ATC contacted ADM to advise sightings of drone activity on the airfield.
- 11:31 – ATC advise a/c on approach
- 11:33 - ATC Contact R15 - on the airfield at the time
- 11:35 – ATC contact Pilot to confirm presence of drone
-
- In accordance with SOP 02/2017 the ADM confirmed to ATC Watch Station Manager the confirmed sighting of a drone in the critical area
- ATC implemented a zero flow rate at Dublin Airport.

Drone Incident – 21st February 2019

Drone Incident – Follow Up

- The deployment plan was implemented Rescue vehicles, Airside Management Unit/Asset Care/Airport Police dispatched to verify sightings.
- SMS issued to all Stakeholders advising suspension of flight operations for 30 minutes due to confirmed drone sighting.
- AGS contacted
- 11:52 ADM contacted AFO - no further sightings were reported from deployment team.
- ADM requested Rescue vehicles prepare for Runway/Taxiway inspection prior to reopening. None of the other Responders deployed reported any drone activity.
- ADM advised ATC Watch Manager no further drone sightings reported and following a Runway inspection, flight operations could resume at 12:00.
- Operations recommenced 12:01
  - First departure – EI3224 at 12:04
  - First arrival – EI283 at 12:09

Lessons Learnt Action Items



	Actions
1	Standard question to pilots for Drone confirmation request
2	Introduce “Batphone” concept between ATC Station Manager and ADM
3	Drone specific text to be developed to be sent out for occurrence
4	SOP Check list with allocated timelines to be developed for location within the ACC
5	Review Tetra comms model – Emergency Channel
6	Dedicated clock to be located in ACC for countdown to live operations

thank you!

daa

Declan Collins- Head of Operational Safety
Dublin Airport

Nathan Wall- Safety and Training Manager
Cork Airport

DublinAirport

CORK AIRPORT