

Drone Ready Cities- Urban Drone Use Cases

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Summary

The Department of Science, Innovation & Technology (DSIT) funded Drone Ready cities aims to remove non-aviation regulatory barriers to realisation of the value of urban drone use. As part of the project, delivery partner Midlands Aerospace Alliance (MAA) has captured the most significant projected use cases for drones in the urban environment.

This is to support the identification of appropriate stakeholders and identification of applicable non-aviation regulation.

This second issue incorporates development of the use cases carried out for a separated Future Flight Challenge funded Use Case Study delivered by MAA.

Through review of public materials and engagement with stakeholders, more than 30 significant use cases have been identified with some duplicated across sectors.

Background

The application of drones will lead to innovative solutions in many sectors driving economic growth. They will benefit our society by:

- Increasing safety & efficiency e.g. blue light services and infrastructure maintenance
- Reducing CO₂ emissions
- Delivering social benefits e.g. faster medical sample transport
- Reducing ground transport congestion
- Reducing costs of logistics deliveries
- Opening new business opportunities & creating new job opportunities

Drone Ready Cities is a project being delivered by Coventry City Council and Midlands Aerospace Alliance and funded by the Department of Science, Innovation & Technology (DSIT) under the Regulators' Pioneer Fund.

The project aims to develop and disseminate a non-aviation regulatory framework for use by the UK's Local Authorities, thereby removing barriers to the realisation of the economic and social benefits of urban drone use and contributing to achieving a safe Net Zero environment.

Objectives

Identify the most significant projected use cases for drones in the UK urban environment.



This is to inform the stakeholders to be engaged with and areas where non-aviation regulation applies.

Method

Review of public material:

- Operators websites
- Press releases relating to demonstrations, trials and early adoption
- Market and demonstration reports in the public domain

Review with stakeholders

Scope

In scope	Out of scope
Commercial or public drone missions in the UK urban environment Non-passenger carrying Remotely Piloted Air Systems (RPAS)	Long-range delivery Middle mile delivery Military applications Passenger carrying air systems

Findings – the use cases

Name	User	Purpose	Typical distance	Typical payload	Benefits	Challenges
Medical Cargo	NHS	Tissue/organ/blood Transport between facilities	Few-10s of miles ¹	<20kg ¹	Reduced delays ² Cost avoidance ² Time saving ²	Airspace integration ² Noise and privacy ² Carrying dangerous goods ²
Medical Last Mile Delivery	NHS	Medicine delivery to remote/ immobile patients	Few km ³	<3.5kg ³	Ease of access Cost reduction ³ Better health outcomes ¹	Information sharing Carriage of goods Flight routing
Last Mile Logistics	Commercial	B2C Delivery/Collection C2C Delivery/Collection	Few km ^{1,3,4}	<3.5kg ³	Ease of access ¹ Cost reduction ^{1,4} £10bn UK TAM ⁴	Information sharing ¹ Carriage of goods ^{1,4} Flight routing ¹ Airspace management ⁴ Public acceptance ⁴
Reconnaissance & Surveillance	Commercial	Site Security	100s m	Sensors only	Cost reduction ⁴ Surveillance and Professional Services GDP impact £7.0bn, cost savings £3.0bn	Routine BVLOS in unsegregated airspace ⁴ Public Privacy ⁴

¹ [Northumbria Healthcare, 2023](#)

² ROSS, H, 2024

³ [CURRAN, 2023](#)

⁴ [PWC, 2022](#)

Name	User	Purpose	Typical distance	Typical payload	Benefits	Challenges
	Blue Light Services	Search and Rescue Emergency Situational Awareness Fire Surveillance Secure Site Security Public Gathering Situational Awareness Suspect Search & Pursuit Traffic Control Flood Impact Assessment	100s m	Sensors only	Reduced Risk to Personnel ⁴ Reduced time ⁴ Increased Effectiveness ⁴ Cost reduction ⁴ Emergency Response and Building Inspection GDP impact £14.1bn, cost saving £4.6bn ⁴	Routine BVLOS in unsegregated airspace ⁴
	Local Authority	Compliance e.g. fly tipping, noise, pollution	100s m – few km	Sensors only	Reduced time Reduced cost Increased coverage	Routine BVLOS in unsegregated airspace
Data Gathering	Commercial	Asset Management Land Analysis Mapping	VLOS-10s of km ⁴	Sensors only	Reduced Risk to Personnel ⁴ Reduced time ⁴ Reduced disruption ⁴ Reduced Emissions ⁴ Cost reduction ⁴	Routine BVLOS in unsegregated airspace ⁴ Data integration with business as usual ⁴
	Local Authority	Surveys – Thermal, Noise, Air Quality, Traffic Survey			Emergency Response and Building Inspection GDP impact £14.1bn, cost saving £4.6bn ⁴ Agriculture, Mining, Water, Gas and electricity GDP impact £3.0bn, Cost savings £4.4bn ⁴	

Name	User	Purpose	Typical distance	Typical payload	Benefits	Challenges
Inspection	Commercial	Maintenance Inspection Safety Inspection Construction Progress Inspection	VLOS-10s of km ⁴	Sensors only	Reduced Risk to Personnel ⁴ Reduced time ⁴ Reduced disruption ⁴ Cost reduction ⁴ Reduced Emissions ⁴	Routine BVLOS in unsegregated airspace ⁴ Data integration with business as usual ⁴
	Local Authority	Public Infrastructure Maintenance Inspection			Emergency Response and Building Inspection GDP impact £14.1bn, cost saving £4.6bn ⁴ Infrastructure Inspection GDP impact £2.4bn, cost saving £0.9bn ⁴ Construction and manufacturing GDP impact £2.8bn, cost saving £1.6bn ⁴	
Media & Entertainment	Commercial	Light Show Film	100s of m	Cameras Lighting	Reduced fire risk ⁵ Improved operator and public safety ⁵ Reduced public nuisance ⁵ Reduced environmental impact ⁵	Privacy

Sources

Operators/Vertiports
Inteliports.com

Skyportsdroneservices.com

⁵ DALEO, 2023



Herotech8.com

Getskydrop.com

Wing.com

Swoop.aero

Manna.aero

DroneUp.com

Zipline.com

Zeitview.com (acquired DroneBase)

Trails/demonstrations

Future Flight Challenge projects: [Open Skies Cornwall](#), [CAELUS](#) projects, [Project Skyway](#) and [InDepPTH](#)

[Helicus/DronePort](#)

[Northumbria Healthcare NHS Foundation Trust](#)

[EMED Group/Skyports/NHS](#)

[Open Air by Herotech8](#)

Other

[CURRAN, F., 2023, "World's largest' drone delivery trial to start in Blanchardstown", newsTALK.com, 18th July 2023 \(Manna\)](#)

[UKRI, 2021, "Future Flight Challenge Socio-economic study", January 2021](#)

[CBINSIGHTS, 2020, "38 Ways Drones Will Impact Society: From Fighting War To Forecasting Weather, UAVs Change Everything", cbinsights.com, 9th January 2020](#)

[DALEO, J., 2023, "Are Drone Light Shows Replacing Fireworks Displays?", flyingmag.com, 30th June 2023](#)

[PWC, 2018, "Skies without limits"](#)

[PWC, 2022, "Skies Without Limits V2.0", PWC, July 2022](#)

[EC, 2022, "A Drone Strategy 2.0 for a Smart and Sustainable Unmanned Aircraft Eco-System in Europe", European Commission, Brussels, 29th November 2022](#)

ROSS, H., 2024, Future Flight Challenge, 2024, 3 Mile

Stakeholders providing input

Thanks is due to the stakeholders that have provided input without reward.

Inteliports – automating drone logistics

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Urban-Air Port

Herotech8

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ADS

