

UNMANNED AERIAL VEHICLE (UAV) TRIALS

1.0 EXECUTIVE SUMMARY

- 1.1 Argyll and Bute Council have collaborated with Skyports, a private company, to examine and establish a large volume of Unmanned Aerial Vehicle (UAV) (drone) trials over the west coast of Scotland. The duration of the project was a year and was completed in September 2024. Funding for this project was secured through the UK Govt's. Regulator Pioneer Fund and received £250k.
- 1.2 During the project, the local authority and Skyports investigated the feasibility of the creation of a blanket area of low-density airspace over rural areas that would enable the safe integration of unmanned aircraft systems with general aviation/scheduled manned aircraft. This required close working with the Civil Aviation Authority to look at groundbreaking new regulations and discussions are still on going.

The successful trials and regulatory change will:

- Validate that low-density airspace over rural areas is a viable means of safely, seamlessly and equitably integrating unmanned with manned aviation.
- Provide a blueprint that can be applied anywhere in the UK with the same air and ground risk characteristics.
- Support the achievement of recurring UAV operations in the UK - not currently achievable inside temporary segregated airspace corridor structures.
- Complete a foundational step towards unlocking UAV airspace in the UK without disenfranchising manned aviation.
- Provide a network across the West Coast of Scotland, including inter island, to allow UAV trials for multi logistic delivery purposes.

2.0 RECOMMENDATIONS

- 2.1 It is recommended that the Environment, Development and Infrastructure Committee:-
- i. Consider the report included in Appendix A.

- ii. Approve course of action to now publish the report, including Comms communications press release with quotes from participants.

3.0 DETAIL

- 3.1 In November 2022, the UK Government awarded Argyll and Bute Council a grant of £250,000 via the Regulators' Pioneer Fund (RPF) to deliver West Coast of Scotland Trial for Integration of Manned and Unmanned Air Space, which finished in August 2024. The RPF is a grant-based fund to enable UK regulators and local authorities to help create a UK regulatory environment that encourages business innovation and investment. The current £12m round is being delivered by the UK Govt Department for Science Innovation and Technology.
- 3.2 The council appointed the services of Skyports Drone Services to assess the feasibility of establishing a volume of airspace over the west coast of Scotland whilst conducting a series of Uncrewed Aerial Systems (UAS) demonstrations within the region.
- 3.3 The project was split into three phases, covering the following items:
 - i. Regulatory Pioneering
 - ii. Delivery Operations
 - iii. Survey Demonstration
- 3.4 The project aimed to assess the feasibility of integrating Uncrewed Aerial Systems with general aviation within the west coast of Scotland. The primary objective was to carry out a series of flight demonstrations and inspections to explore how drone services can benefit remote communities and businesses in the area.
- 3.5 The trials were split into two main categories of **logistics/transfer of goods** and **survey and surveillance**.

Logistics/transfer of goods Trials

- 3.6 Argyll and Bute Council has now undertaken trials for school meal deliveries, worked with Regulatory Services in trials for food and water samples, worked with external agencies **Royal Mail** and **NHS** in deliveries of mail and hospital drugs/equipment. This was undertaken between Islay and Jura.

Survey and Surveillance Trials

- 3.7 The Council Roads and Infrastructure Service undertook trials for use in (survey and surveillance) vegetation management along the River Ba on Mull. **Scottish and Southern Electric Networks** undertook trials for a transmission powerline from **Dunoon to Arrochar** and **Network Rail** undertook UAV surveillance trials of railway inspections between **Taynuilt and Dalmally**.



3.8 By establishing the benefits drones bring to Argyll & Bute, this contributes to the feasibility of establishing a permanent drone base such as the Advanced Air Mobility Hub at Oban Airport, that has been allocated £4M through the Rural Growth Deal programme subject to a successful business case being approved.



Images below of the Trials and Outputs:-



NR_WL_3

Inspected 5 Ready 50 Viewed 0

New ticket Mark 0 asset as inspected

Low High

Asset inspection RGB and Thermal

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Layers

- Measurements
- Annotations
- Indoor
- Street
- Skyports POC 24509
- Open Street Map
- Ortho WMTS

Synchronizing

Viewer to sync: Map & Oblique

Events: order

Vegetation Encroachment and fall-risk

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Detailed description: This is a screenshot of a web-based drone inspection software interface. The top bar shows project information: 'NR_WL_3', 'Inspected 5', 'Ready 50', and 'Viewed 0'. There are buttons for 'New ticket' and 'Mark 0 asset as inspected'. The main view is split into two panels. The left panel shows a high-resolution RGB aerial view of a railway track cutting through a dense forest. A blue bar at the bottom of this panel reads 'Asset inspection RGB and Thermal'. The right panel shows a map view with a blue line representing the flight path and several colored markers (red, yellow, green) indicating inspection points. Below the main view, there are two smaller panels. The left one shows a 'Layers' panel with a list of map layers: 'Measurements', 'Annotations', 'Indoor', 'Street', 'Skyports POC 24509', 'Open Street Map', and 'Ortho WMTS'. Below it is a 'Synchronizing' section with 'Viewer to sync: Map & Oblique' and 'Events: order'. The right panel shows a thermal image of the same railway track area, with red and yellow areas indicating heat signatures, likely representing vegetation encroachment or fall-risk. A blue bar at the bottom of this panel reads 'Vegetation Encroachment and fall-risk'. The bottom right corner contains copyright information: '© Field Collection AG, Inc. 2024 © Geoport'.

- 3.9 A critical aspect of the report involves outlining the benefits and impacts drone services can bring to remote island communities and seeing how regulations can help enhance the expansion of drone networks within these regions.
- 3.10 The study also defined other potential use cases that the council could be interested in exploring that would have an impact in providing efficiency, enhanced safety, and reduced cost within council services.

4.0 CONCLUSIONS

- 4.1 Based on the project conducted, the following can be concluded:
- 4.2 There is a strong use case for drone-enabled deliveries which would provide a significant timesaving for end users. Increased payload weight and further distances are keen to be explored to establish the feasibility of expanded operations. Temperature control is a key component for a handful of end users; this would need to be further explored prior to integrating with day-to-day operations.
- 4.3 Survey Demonstrations: Drone-enabled inspections provide a significant health and safety benefit together with time savings brought about by the remote nature of drone operations. Council services would benefit the most for inspection use cases mainly for council owned infrastructure.
- 4.4 Regulatory Innovation: The regulatory landscape is continuously changing, and it is necessary for regulatory bodies, airspace users, and operators to collaboratively work together to work toward demonstrating the safe integration and operation of drones within the United Kingdom.

5.0 IMPLICATIONS

- 5.1 Policy - the Single Outcome Agreement (SOA) and Economic Development Strategy and Action Plan support improvements to reduce the carbon footprint.
- 5.2 Financial – None – external UK funding supported this project.
- 5.3 Legal – Tenders for consultancy work need to be compliant with regulations.
- 5.4 HR- None directly from this report.
- 5.5 Fairer Scotland Duty:
 - 5.5.1 Equalities - protected characteristics - the differing nature of the deployment of new technology UAV has the potential to lead to inequalities in terms of access to services including those which support business.
 - 5.5.2 Socio-economic Duty - there is an overall risk that the economic and social benefits rising from modern UAV technology are not fully realised.
 - 5.5.3 Islands - There are risks that those areas which do not benefit from UAV technology and services could become less attractive locations within which to live and work which could have implications in relation to the SOA objective of growing the population.

- 5.6 Climate Change - The ability to access UAV services will limit the requirements to travel logistics, reducing the carbon footprint with Argyll and Bute.
- 5.7 Risk - The various UAV programmes are reliant on new technology and innovation which is developing rapidly. Some projects are reliant on commercial operator decisions to invest whilst grant funding is necessary for many aspects. These aspects all create a level of uncertainty around the extent of UAV infrastructure improvements.
- 5.8 Customer Service - improvements in UAV technology improve the opportunities for the efficient delivery of customer services.
- 5.9 The Rights of the Child (UNCRC) – None.

Kirsty Flanagan, Executive Director with responsibility for Development and Economic Growth

Councillor John Armour, Policy Lead for Roads, Transport and Amenity Services

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For further information contact:

Fergus Murray, Head of Development and Economic Growth
fergus.murray@argyll-bute.gov.uk

Moya Ingram, Strategic Transport Manager
moya.ingram@argyll-bute.gov.uk

APPENDICES

Appendix A – Skyports RPF Report 20241211.pdf