



GLASGOW
AIRPORT

PROUD TO SERVE SCOTLAND

Airspace Design Principles Engagement

Summary of feedback and potential design principles
drawn from the first round of engagement workshops

September 16th 2019

Reference: ACP 2019-46

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1. Introduction

This document summarises the feedback gathered from the first round of engagement workshops conducted by Glasgow Airport Limited (GAL) to develop design principles for our new airspace change proposal (ACP 2019-46). Three workshops were conducted in the first round of engagement with aviation organisations, local government and business representatives and local community and interest groups. The workshops took place on September 9th and 10th 2019 at the Corinthian Club in Glasgow. A full list of the workshop participants is set out in Appendix A. The objectives of the workshops in the first round of engagement were to:

- Increase the awareness and understanding among stakeholders about the need for airspace change and the process for bringing it about.
- Gain an understanding of what stakeholders believe are the main issues and opportunities connected with the use of airspace and any proposed changes.
- Gather insights from the stakeholders about the factors that should be considered when developing the airspace design principles.
- Establish a forum that can meet again in future stages of the airspace change process to compare and contrast potential airspace design options.

During the workshops, participants were given a presentation outlining the drivers for changing our airspace that are set out in the UK Airspace Modernisation Strategy (AMS) and an overview of the regulatory process that all airspace change sponsors must follow.¹ Stakeholders were then presented with several themes related to airspace change to discuss in sub-groups. The aim of the sub-group discussions were to gather stakeholders' views about the main airspace design considerations associated with each theme, and to use that information in plenary to have conversations about the factors that are important for us to consider when developing an initial list of potential design principles. The themes for discussion were:

- Safety
- Capacity
- Noise
- Airspace Access and Integration
- Flight Efficiency
- Use of Advanced Navigation Technology
- Other themes raised by stakeholders that are not adequately covered above

Section two of this document summarises the feedback gathered from the discussions about each theme and proposes an initial list of potential design principle statements that will be either be discounted or refined in the second round of engagement with stakeholders. Section three explains how stakeholders can provide additional feedback and comments on the potential design principles using the feedback form that accompanies this document. All stakeholders invited to the first round of engagement will be invited to attend one of two further workshops in the second round of engagement, scheduled for October 3rd and 4th at the Corinthian Club.

¹ The UK Airspace Modernisation Strategy (CAP1711) co-sponsored by the Government and Civil Aviation Authority (CAA) can be viewed [here](#). Guidance from the CAA on the regulatory process for changing airspace design, including community engagement requirements (CAP1616) can be viewed [here](#).

2. Summary of feedback and potential design principles

Tables 1 to 7 summarise the feedback gathered from the discussions about each theme in the first round of engagement workshops. Similar points of feedback about each theme are grouped together. The initial list of potential design principles to either discount or further refine in discussion with stakeholders during the second round of engagement are set out in table 8.

Table 1: Feedback linked to safety

<i>Feedback</i>
1.1. Maintaining and enhancing aviation safety is the top priority and should be the overriding consideration when developing airspace design options for the new ACP.
1.2. New technologies and operating approaches should be considered that have the potential to enhance safety.
1.3. Risks to aviation safety should continue to be as low as reasonably practical following the airspace change.
1.4. There is a recognition from stakeholders that the airspace surrounding Glasgow Airport has an excellent safety performance record and that airspace design options should not result in a degradation in that performance for any airspace user group.
1.5. Airspace design options with the potential to lower the actual height of aircraft above the ground (altitude above terrain rather than altitude above mean sea level) should be carefully considered from a safety assurance perspective.

Table 2: Feedback linked to capacity

<i>Feedback</i>
2.1. Additional capacity is required to ensure greater global connectivity for Scotland by enabling more direct routes to more destinations.
2.2. The capacity required to accommodate freight that is transported by air now and in the future should be considered when developing airspace design options.
2.3. Additional capacity should be used to mitigate any future requirement for airborne holding of aircraft inbound to Glasgow Airport.
2.4. The physical and mental health and wellbeing of local communities is an important consideration when assessing the impacts of introducing additional airspace capacity in the Glasgow region.
2.5. Any impact on the workload of employees brought about by increase in airspace capacity should be carefully considered by employers, although stakeholders recognised that this is not within the scope of the ACP.
2.6. Additional airspace capacity to accommodate the continued growth in demand for aviation does not seem compatible with the Scottish Government's recent response to the Global Climate Emergency.
2.7. Additional airspace capacity should be used to facilitate a reduction in aircraft emissions for traffic operating into and out of Glasgow Airport.

- 2.8. Additional airspace capacity should facilitate a reduction in the intensity of operations during more anti-social hours (e.g. the evening and night-time period), although stakeholders recognised that this is not within the scope of the ACP.
- 2.9. The controlled airspace needed to support additional capacity should be the minimum volume required to accommodate the forecast growth in demand for commercial air transport so that the impacts on other airspace users are manageable.
- 2.10. Flexible use airspace concepts and procedures should be considered to optimise the benefits of additional airspace capacity for all users.

Table 3: Feedback linked to noise

<i>Feedback</i>
3.1. The noise impacts generated by the airspace design options should be compared consistently against a credible 2019 baseline as part of the ACP process. 3.2. The ACP process should identify noise sensitive areas and buildings and ensure the airspace design options prioritise their avoidance, including areas that are not currently overflown. 3.3. Assessments of the total adverse impacts of noise generated by different airspace design options should consider the broader effects on health and wellbeing caused by greater overflight of already underprivileged areas. 3.4. The airport should consider incentive mechanisms to encourage operators to adopt quieter aircraft (e.g. scaling runway charges based on noise and offering quieter aircraft more efficient routes), although stakeholders recognised that this is outside the scope of the ACP. 3.5. The airspace design options should enable commercial air transport operators to fly higher sooner on departure and stay higher for longer on arrival, thereby reducing noise impacts. Continuous climb and descent operations should be designed to / from a minimum of 7,000ft. 3.6. The improved climb and descent profiles should result in the base of controlled airspace being raised, allowing general aviation users to operate at higher altitudes underneath, thereby reducing noise impacts. 3.7. The airspace design options should consider ways to mitigate the effects of concentrating noise impacts around the centreline of a procedure because aircraft fly new performance-based navigation routes with greater precision. 3.8. Light pollution and vibrations are also considered to be external negative impacts of overflight at lower altitudes and should be incorporated into the impact assessment of different airspace design options along-side noise. 3.9. The airspace design options should include measures to offer local communities with predictable relief/respite from aircraft noise. 3.10. Noise respite measures that rely on the use of multiple route options, which are mutually exclusive and deployed at different times should be considered along-side the additional complexity that such arrangements may introduce into the operation.

- 3.11.Noise respite arrangements should be predictable and transparent for communities, airspace users and air traffic control so as to not create undue complexity.
- 3.12.Flexible use airspace structures and procedures should be considered as a potential means to better manage the impact of aircraft noise.
- 3.13.The airspace design options should incorporate the impact of overflying high terrain, where aircraft at the same altitude above mean sea level are closer to those on the ground.
- 3.14.There is an expectation that the intensity of aircraft noise events should reduce overtime due to the introduction of progressively quieter aircraft. The industry should continue to apply pressure on operators and manufacturers to encourage the development and adoption of quieter aircraft, although stakeholders recognised that this is outside the scope of the ACP.
- 3.15.Airspace design options should focus on the provision of predictable relief/respite from aircraft noise that reduces the frequency of noise events experienced by communities.

Table 4: Feedback linked to airspace access and integration

<i>Feedback</i>
4.1. Airspace access and integration should be underpinned by transparency of all airspace users operating in the wider area, perhaps through means of electronic surveillance, although stakeholders recognised that this is outside the scope of the ACP. 4.2. Measures to enable airspace access and integration should be demonstrably as safe or safer than the current operation. 4.3. Measures to enable airspace access and integration should not be deployed at the expense of mitigations for the noise and emissions created by airspace users. 4.4. The airspace design options should be developed in close alignment with developments at adjacent airports and the en-route network. 4.5. Airspace design options should consider the mechanisms to protect commercial air transport operations in controlled airspace from drone activity. 4.6. There should be robust mechanisms established and overseen by the government or regulator that ensure the private owners of neighbouring airports work collaboratively for the overall good of the air transport network, passengers and communities. 4.7. The airspace design options should enable access to the airspace for Military operations and the Emergency Services. 4.8. The boundaries of controlled airspace should be simplified to mitigate against the risk of infringements and enable access for airspace users operating in uncontrolled airspace nearby. 4.9. Use of VFR crossing corridors should be considered as part of the airspace design options. 4.10. Some local community and business stakeholders expressed the view that the airspace should continue to be segregated and prioritised for commercial air transport operations, because the Scottish terminal airspace and airways network is a key part of the UK's transport infrastructure that supports travel, business, tourism and the wider economy.

- 4.11. The redesign of Glasgow Airport's arrival and departure routes below 7,000ft should not be constrained by the NATS-led development of the terminal and airways network above 7,000ft.
- 4.12. Airspace design options should be cognisant of the impacts on the operations at nearby general aviation aerodromes.
- 4.13. General aviation operations should be considered as part of a holistic system of airspace usage that enable equitable access based on reasonable demand.

Table 5: Feedback linked to flight efficiency

<i>Feedback</i>
5.1. The airspace design options should be compared consistently against a credible baseline of the emissions generated by the current operation in 2019. 5.2. A credible baseline for the air quality impacts created by the current operation is needed in order to compare different airspace design options consistently and transparently. 5.3. The airspace design options should prioritise the deployment of shorter routes and more efficient climb and descent profiles where possible, consistent with the requirements to better manage aircraft noise at lower altitudes. 5.4. There will be difficult trade-off decisions between minimising the impact of noise and minimising aircraft emissions. Government policy and the regulatory process offer some guidance, but decisions should be made with the input of local community stakeholders and environmental interest groups. 5.5. The airspace design options should enable queueing and airborne holding to be reduced by supporting new concepts like more accurate target times of arrival. 5.6. The airspace design options should consider the broader impacts on the ecology of the region and the effects on non-human life. 5.7. Flexible Use Airspace principles should be considered to optimise the efficiency of the airspace, for example some volumes of airspace could be released for other airspace users depending on whether the airport is operating on easterlies or westerlies. 5.8. A holistic assessment of the impact of emissions generated by surface transport to and from the airport should be conducted as part of the overall development of the airport, of which this airspace is a part. 5.9. If Scotland's terminal airspace and wider airways structure in the enroute network is outdated it should be upgraded as a priority. 5.10. A representative from the United Nations raised an objection to the concept of deploying alternative airspace structures that are intended to deliberately mitigate the impacts on flight efficiency of legitimate industrial actions by air traffic controllers.

Table 6: Feedback linked to use of advanced navigation technology

<i>Feedback</i>
6.1. The airspace design options should be based on an appropriate level of PBN specification for the aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.
6.2. The airspace design options shall implement PBN departure and arrival procedures to increase predictability, reduce pilot and controller workload and maximise the benefits of tools that systemise the operation and improve the management of queues.
6.3. Use of RNAV Visual approaches should be considered to enable shorter final approaches to a wide number of operators during good weather conditions.

Table 7: Feedback related to other themes

<i>Feedback</i>
7.1. The new ACP should be considered a clean sheet design for the controlled airspace structure and departure and arrival routes that support operations at Glasgow Airport and accord with the published AMS and all current and future plans associated with it.
7.2. The material presented to stakeholders to support the engagement on design principles and (in due course) the assessment of airspace design options should be simple, accessible and jargon/acronyms should be kept a minimum.

Table 8: Initial list of potential design principles

#	Potential design principles
1	The airspace design and its operation must be as safe or safer than today for all airspace users.
2	Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring additional airspace capacity to meet the forecast demand for air transport.
3	Additional airspace capacity should integrate effectively with the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.
4	Minimise the volume of controlled airspace required to support commercial air transport operations and enable safe, efficient access for other airspace users.
5	Mitigate any future requirement for airborne holding and queueing for arrival traffic.
6	Minimise, and where possible reduce, the total adverse effects of aircraft noise and visual intrusion on health and wellbeing.
7	Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes.
8	Avoid noise sensitive areas and buildings.
9	Avoid overflight of areas that are currently not affected by aircraft noise.
10	Mitigate the impacts on local communities that are currently affected by aircraft noise on final approach or the vicinity of immediate climb out where overflight is unavoidable.
11	Avoid introducing additional complexity and bottlenecks into controlled and uncontrolled airspace and contribute to a reduction in airspace infringements
12	Collaborate with other airports and NATS to ensure the airspace design options are compatible with the wider programme of airspace change being coordinated by the FASI North programme as part of the AMS.
13	Deploy flexible use airspace concepts and procedures to enhance airspace integration where possible and appropriate.
14	Minimise, and where possible, reduce aircraft emissions, the degradation in air quality and adverse ecological impacts.
15	Deploy shorter routes and more efficient climb and descent profiles for arrival and departure procedures.

16	Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft.
17	Deploy routes with an appropriate level of PBN specification for the aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.
18	The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.
19	All materials presented to stakeholders to support the development of airspace design options should be simple, accessible and jargon and acronyms should be kept a minimum.

3. How to offer additional feedback and participate in the next round of engagement

We would like to thank stakeholders for participating in the first round of engagement to support the development of design principles for our ACP. Over the course of the three workshops we received valuable and insightful feedback from a range of stakeholders including aviation organisations, local government, business, and community representatives and local interest groups.

We are committed to ensuring all stakeholders have the opportunity to continue feeding into the design principle development process and would like a representative from your organisation to:

- Review the feedback summary and initial list of potential design principle statements we have produced from the output of the first round of workshops.
- Complete the draft design principle feedback form and return via airspace@glasgowairport.com by **Friday 27th September 2019**
- Confirm your availability for either the Thursday 3rd or Friday 4th October workshop via airspace@glasgowairport.com by **Friday 27th September**, including any dietary or access requirements.
- You will also find enclosed a feedback form so you can provide us with your thoughts on how you have found the engagement process to date. Should you have any comments please return the form via email to airspace@glasgowairport.com.

If you are unable to attend either of the workshop dates, we will ensure you receive a copy of the presentation along with any supporting information to ensure you can continue to feed into the process.

If you have any questions, or require further information, please do not hesitate to contact us by email at airspace@glasgowairport.com or via our freephone information line on **0800 298 7040**.

You can find out more about the Airspace Modernisation Strategy by visiting www.glasgowairport.com/airspace and <https://www.caa.co.uk/News/New-Airspace-Modernisation-Strategy-launched-to-overhaul-UK-airspace/>.

Appendix A: List of participants in the first round of engagement

Workshop 1

Date: 9th September 2019

Stakeholders: Aviation Community

Workshop Time: 12pm – 4pm

<u>Organisation</u>	<u>Name</u>
Thomas Cook Airlines	Mr Chris Longley
Glasgow Prestwick Airport	Mr Phil Smith
Airspace-4-All	Mr Steve Green OBE
Lanarkshire and Lothian Soaring Club	Mr Kevin McGrath
Guild of Air Traffic Control Officers	Mr Chris Stock
NATS FASI-N rep	Mr Rob Langan
Association of Remotely Piloted Aircraft Systems	Mr Craig Jump
Gama Aviation	Mr Ian McGill
Glasgow Flying Club	Mr Archie McClelland
British International Freight Association	Mr Len Hobbs
NATS Prestwick Centre	Mr Colin Houston
Scottish Passenger Agents' Association	Ms Janice Hogarth
Scottish Ambulance Service	Mr Graeme Hay
Jet2 and Airlines UK	Mr Andy Braid
Mr Ian Sweetland	Light Aircraft Association
Edinburgh Airport	Ms June McClung
Flybe	Mr Keith Sivell (moved between table 2 & 3)
ACOG	Mr Matt Clayton
Cumbernauld Airport	Mr George Cormack
Bristow Helicopters Ltd	Mr Craig Sweeney
easyJet	Mr Mike Leslie
Scottish Aeronautics & Rocketry Association	Mr Colin MacLaren
British Parachute Association	Mr Kieran Brady
Loganair	Mr Stewart Houston
Strathaven Airport	Mr Colin MacKinnon
Ryanair	Captain Davis Friel
Flybe	Mr Keith Sivell (moved between table 2 & 3)
Independent Commission on Civil Aviation Noise	Mr Rupert Basham

Workshop 2

Date: 10th September 2019

Stakeholders: Local Government & Business

Workshop Time: 9am – 1pm

<u>Organisation</u>	<u>Name</u>
Scottish Enterprise	Maya Rousen
Howwood Community Council	Millar Leon
Renfrewshire Council	Colin Hunter
NHS Ayrshire & Arran	Andy Grayer
Office of Jo Swinson MP	Jill Broom
NHS Greater Glasgow & Clyde	Stan Murray
Uplawmoor Community Council	Louise Doncaster
Glasgow City Council	James Crawshaw
Clydebank East Community Council	Alistair Conarty
East Dunbartonshire Council	Andrew Polson
Milngavie Council	Cllr Iain McAllister
North Ayrshire Council	Alistair Gemmell
SCDI	Marc Strathie
Glasgow Airport Consultative Committee	Professor David Flint
Bearsden East Community Council	Councillor Alexander MacDonald
East Ayrshire Council	Mr Peter Atkinson
Inverclyde Council	Mr Alan Williamson
Stirling Council	Emma Fyvie
Diageo	Scott MacPherson

Workshop 3

Date: 10th September

Stakeholders: Community Representatives and Interest Groups

Workshop Time: 1.30pm – 5.30pm

<u>Organisation</u>	<u>Name</u>
Commodore David Whitham	Royal Northern & Clyde Yacht Club
John Bynorth	Environmental Protection Scotland
Pat McIlvogue	Unite the Union / Scottish Trade Union Congress
Janine Ballantyn	National Trust for Scotland
Helen Douglas	Glasgow Access Panel Chair
David Cowan	Glasgow Access Panel Board Member
Roy Gardner	City of Glasgow College
Sara Barry	Friends of the Earth Scotland
Peter McGhee	Voluntary Actions South Lanarkshire
Kerry Wallace	Scottish National Heritage
Kathleen Caskie	Glasgow Third Sector Interface Network (one behalf of GCVS and Glasgow TSI)
Morven Cruickshank	Renfrewshire Access Panel
Steven Thistleton	West Dunbartonshire CVS
Dr Michael Bradnam	Mains Estate Residents' Association
Professor Carl Schaschke	University of West Scotland
Annie Cameron	Enchanted Nursery