APPENDIX C – RECORD OF STAKEHOLDER FEEDBACK RECEIVED

PRE-WORKSHOP 1 FEEDBACK

British Microlight Aircraft Association
Policy for Design Principles during ACP engagement

Introduction

The following text describes the underlying principles that the British Microlight Aircraft Association (BMAA) believes must be followed by applicants for airspace change proposals.

Consultation

1. The BMAA welcomes the opportunity to engage in consultation at an early stage within the ACP CAP 1616 process.
2. Sponsors are encouraged to engage with the BMAA and its members as early as possible during the development of the ACP. Previous ACPs have missed the opportunity for early engagement and dialogue resulting in significant and costly delays.

Airspace classification

1. The BMAA considers that the UK airspace's default classification is G and that sponsors must establish a safety case for proposing to change this class or add any further restrictions or requirements by their ACP.
2. All sponsors must demonstrate that alternatives have been considered such as RMZ and TMZ before considering controlled airspace.
3. Class E without a TMZ should be considered as a normal option.

Access by GA

1. Sponsors must accept the assumption that GA including sporting and recreational aviation is entitled to continued safe use of airspace and that commercial aviation does not have a right to limit airspace access.
2. Sponsors should ensure that there will be measures to allow flexible use of airspace and prepare for the wider use of electronic conspicuity devices and interoperability with existing e-conspicuity, e.g. FLARM and Pilot Aware etc...

Airspace volume

1. In line with the principles of the Airspace Modernisation (was FAS) principles the ACP must respect the requirement for minimum airspace volumes designed for efficiency and reduced environmental impact. These principles will include:

- Minimum size of controlled airspace
- Minimum number of departure/arrival routes
- Steeper and continuous climbs and descents for cost and environmental benefits as well as minimisation of CAS footprint.

Justification

1. Sponsors must conduct and present proper analysis of overall airspace safety changes i.e. based on modelling and evidence rather than purely subjective opinion.
2. Sponsors must provide proper validation of forecast traffic levels. There is an expectation that data used, particularly forecasts, will be verifiable including details of any and all assumptions.

Airspace integration

1. Sponsors must show how they are integrating their proposal within the overall UK airspace modernisation context, for example proposals which do not connect efficiently between upper and lower airspace (potentially under different airspace "management") would only inhibit overall airspace efficiency and therefore not receive our support)
2. Optimisation of the development work above and below the 7,000ft NATS en-route split.

LLSC-Glasgow Airspace consultation

LANARKSHIE AND LOTHIAN SOARING CLUB

9th September 2019

Introduction, who are LLSC

The LLSC is a Paragliding and Hang Gliding Club based in Southern Scotland with about 80 members. The Club was founded in the 70's and has sound finances. The Club owns a flying site at Tinto Hills and its members fly at many other sites in Scotland under agreements with landowners or under the Right to Roam provisions in Scottish law. The Club has a Constitution and is governed by its members through an Executive Committee elected each year at an AGM. The Club welcomes new members and has a Pilot Coaching structure. The Club is affiliated to the British Hang Gliding and Paragliding Association (BHPA) and to the Scottish Hang Gliding and Paragliding Federation (SHPF). All Club members must be individual Members of the BHPA, giving them third party flying Insurance and the ability to progress through the Pilot Rating System. Web address. http://www.llsclub.co.uk/home

What do we fly? Club members fly hand gliders, paragliders, speed wings, mini wings, paramotors (foot launch only). Sailplanes are not included.

Where do we fly? We fly at local sites close to Glasgow airspace such as Tinto hill, and sites within Glasgow airspace such as Campsie and Farlie under letter of agreement (LOA). We also try to fly cross country when conditions are suitable for as long a distance as is possible, this is usually near cloud base height. Example below 130km flight from Dunkeld to Elgin. These are principally hill launched flights although tow launch is possible but more common in England where there are no hills.

LETTERS OF AGREEMENT AND CTR

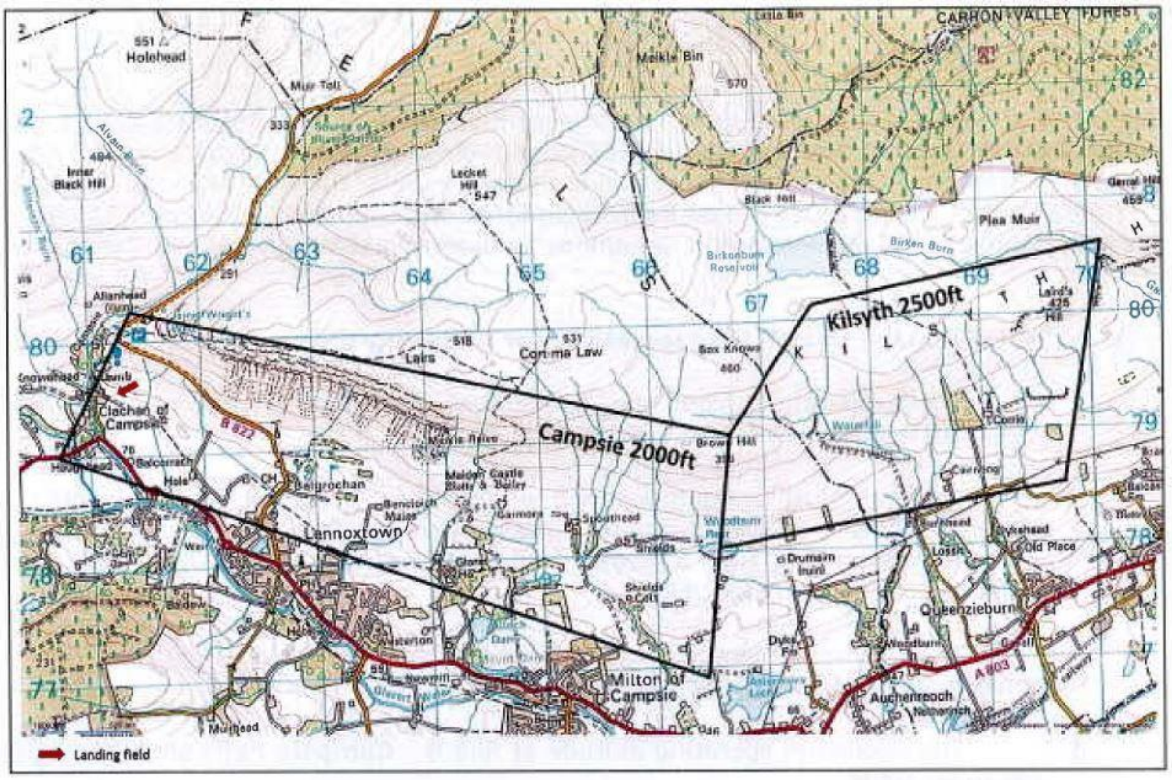
Glasgow Airport has negotiated a Letter of Agreement with the LLSC to allow flying to continue at historic flying sites which were affected by changes in Airspace. This has generally worked well. However there may be opportunity now to reduce greatly the scope of the agreement if some adjustments can be made to the CTR at its margins.

The CTR as it is currently drawn starts at ground level for a considerable distance around the Airport. Our approach here is to suggest that conflict with other users could be usefully reduced by adopting a more stepped altitude configuration where possible. This would benefit us over hilly terrain which would normally be avoided by commercial traffic in any case.

NORTHERN SECTION OF THE CTR

The hills to the North of the red line (below) rise to almost 2000 ft. A step on the CTR base from ground level to 2000ft roughly along this line should have little or no effect on commercial traffic but could free up the hills north of Strathblane and south of Fintry for low level soaring (in several wind directions) in the same way that the LOA has for the area behind Lennoxtown and Kilsyth.
Alternatively we would wish to extend the LOA to cover certain sites in this area.

EXISTING LOA FLYING SITES AT CAMPSIE



Map of Campsie Fells from the LOA

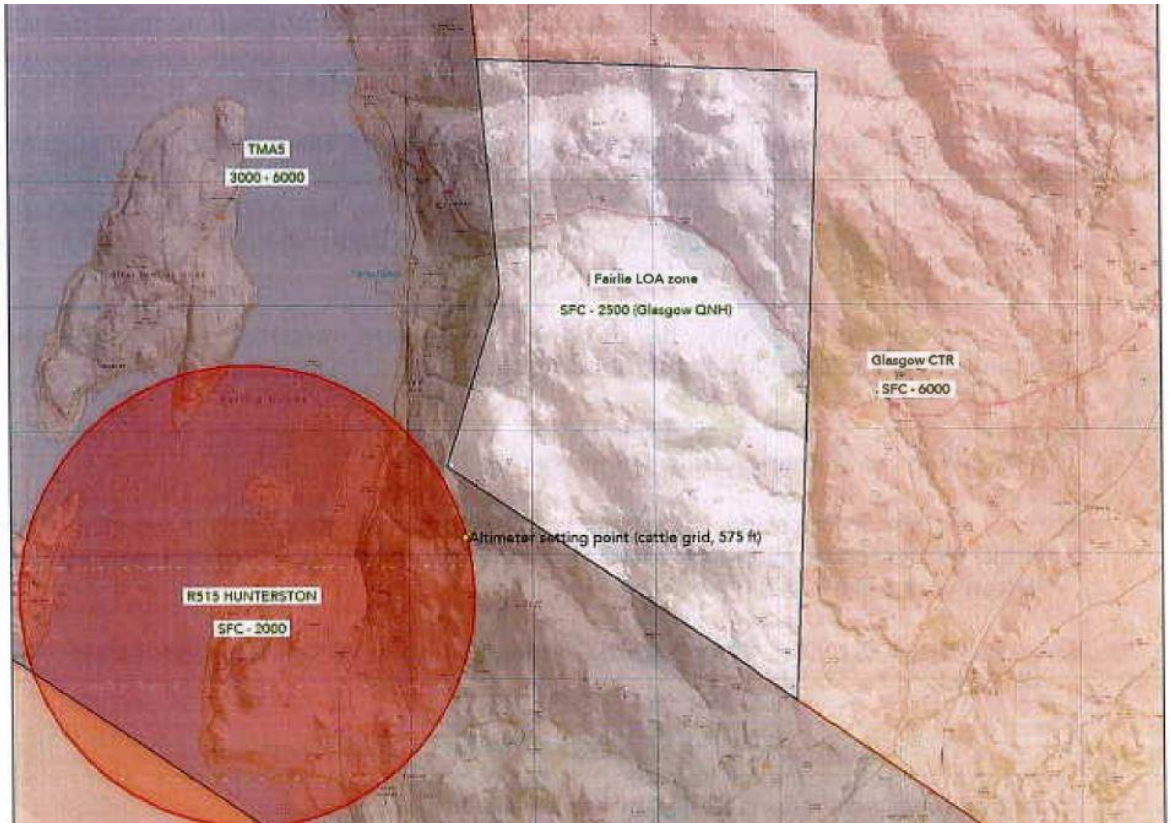
The Westerly Box labelled "Campsie 2000ft" sits right under the flight path meaning that nothing can be changed.

However the Box labelled "Kilsyth 2500ft" could be freed from restriction with only a small change of about 3 [redacted] in the corner of the CTR or the insertion of a step to 2500ft if the Air Traffic pattern allows.

CLYDE AND MUIRSHIEL REGIONAL PARK.

Looking now at the Western edge of the CTR as it is currently drawn South of Greenock . The CTR extends to ground level from the Airport over the Clyde and Muirshiel Regional Park almost all the way to the coast.
We wonder again whether a more stepped altitude configuration could be considered, meaning that the CTR would no longer extend to ground level beyond a line roughly marked by the spot heights 1448', 1713'. This would allow some, albeit still very restricted, flying on the hills near Loch Thom and south behind Skelmorlie potentially joining with our site at Fairlie.
Alternatively we would wish to add sites in the area to the existing LOA :

FAIRLIE FLYING SITE FROM LOA



Map of Farlie/Largs from the LOA

Here we can see that a move of the Western edge of the CTR by only a few [redacted] to the East or the incorporation of an Altitude Step would obviate the need for the Agreement to cover this area.

THE GARGUNNOCK HILLS:

The Current demarcation line running along the North of the Gargunnock Hills marking the descent from Class E 4000' to Class D 3000' (N to S) is at a particularly inconvenient location for flying on this ridge as it is right in the place of maximum ridge lift. A very minor movement to the south, say, running through or near the spot heights 1592' and 1678' would greatly enhance flying for paragliders, if Traffic Patterns allowed such a change.

POST-WORKSHOP 1 FEEDBACK

becg | built environment communications group

GLASGOW AIRPORT
PROUD TO SERVE SCOTLAND

ags

Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the summary of feedback from the first round of engagement and the initial list of potential design principles produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	**Bearsden West** Community Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?

We represent the views of our constituents in the Bearsden West Community Council area and propose this document as a reflection of the views our Community has on the Draft Design Principles. We are understanding in the need for change and that the status quo is unacceptable in modern aviation. We have a number of residents who are supportive of the proposal citing the economic and social benefits a more competitive airport will bring to the region, the environmental benefits of reduced fuel burn and diversification of flight paths relieving communities currently affected. We believe that improving the safety of the airspace above our community is of primary concern and are happy to see this is at the forefront of the design proposals. In addition to those outlined in the document we have the following comments:

Complexity of Proposal Document (7.2):
Whilst we accept that any future document presents a technical proposal many residents have complained to us that the previous document was overly complex. We appreciate the numerous consultations however we feel that the drop-in sessions offered played a vital role in aiding resident's understanding and should be retained. Perhaps a simplified resident specific document could be drafted or proposals run through a focus group? A shorter summary with salient points would aid greater understanding and engagement in the consultation.

Some also point to misleading information. For example, the altitude presented over the area for departing flights is recorded at St Germains Loch: a natural depression (3.13). Specific consideration should be given to wildlife corridors and areas of tranquillity (5.6). We outline that Cairnhill woods (Grid Ref: NS543705) should be highlighted as an area of tranquillity.

Air Pollution:
Air pollution has not been explicitly incorporated into the design principles (5.4). Many studies have demonstrated that aircraft have significant impacts on air quality in concentrations of NO_2, CO_2 and SO_2 that can be of detriment to resident's health even at significant distances from the airport on flight paths (Carslaw et al, 2006 for NO_2 ; Yu et al, 2004 for SO_2 and Fanning et al 2007). Some residents are particularly concerned with the flightpath crossing local schools.

Noise Pollution:
We agree with many of the design principles to set noise as a key priority in the design principles. As illustrated by a 2016 DfT study this can have wide ranging impacts on quality of life including sleep disturbance, cardiovascular disease, children's learning and other health effects.

We understand that a key change was that where it used to seek to limit and where possible reduce the number of people significantly affected by aviation noise. We understand the government's stance of concentration of traffic limits in Section 5 of the UK Airspace Policy. However many believe that a better proposal of diversifying flightpaths could be considered (3.10). Indeed, evidence has shown that RNAV provides a greater concentration of flight paths over a smaller area. As research confirms it is the frequency of noise events that has the biggest impact quality of life. We are happy to work with you to consider such alternatives to the current proposal to come to a solution that benefits both the airport, its users and our local residents.

House Prices:
House prices are not included in the design principles. Some residents believe that house prices are comparatively higher in the area at present as a result of not being directly under the current flightpath**.** Studies suggest a reduction of up to 2.6% and 3.3% for Medium and High value properties respectively ([redacted] 1980; Paul, 1971).

More Options:
We want to avoid again being given a binary choice between an unworkable status quo and a single proposal. We feel we should be presented with a wider range of alternatives. For example, a Y-bar arrivals sequence could be considered as part of the proposal. Such a proposal this would move the IAF capture over less densely populated areas. We see the benefits of reduced fuel burn but feel a compromise must be reached optimising fuel burn and population exposed to noise.

We feel that in the design principles a trade-off is being offered between higher climbing rates (3.6) and earlier turning over densely populated areas in our communities.

Existing violations:
We as a community are concerned that this proposal legitimises existing behaviours leading to a reduction in fines and therefore a reduction in funding from the Community Flightpath fund. Are there mechanisms in place to secure such funding in the future that many local groups depend upon? One resident has noted the aircraft numbers of over 100 aircraft violating the existing flightpath. Is it possible for past aircraft tracks to be published to confirm/deny this?

Consultation groups:
As outlined before we believe the airport should reach out to a wide range of community groups in this consultation and would be happy to work with you to identify suitable groups within' our community to be involved in this process. Many have approached us feeling excluded.

We look forward to working with you to address these concerns and build a mutually beneficial outcome and are happy to help in any way we can to move things forward.

becg | built environment communications group

GLASGOW AIRPORT
PROUD TO SERVE SCOTLAND

ags

Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Beith and District Community Council
Telephone	[redacted]
Email Address	t[redacted]

Do you have any comments on the attached Draft Design Principles document?
Not able to comment as not at previous meeting

becg | built environment communications group

GLASGOW AIRPORT
PROUD TO SERVE SCOTLAND

ags

Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	BIFA – British International Freight Association
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
In my view the draft design principles document has accurately captured and conveys the views of the workshop attended, and includes similar from the other workshops which is interesting to view. There are obviously conflicting wants and desires within this opportunity to deploy as much flexible use airspace as possible whilst trying to balance this against safety, noise, pollution, climate change, the impact on those who live and work within this space, and also working with neighbouring airports. Whatever is decided cannot please everyone. It is clear a great deal of factors have been considered when developing the final design principles. From a personal perspective, the main focus for Glasgow airport is passenger movements, and freight capacity is not seen as important. Most airfreight to or from Scotland moves by road down to southern airports and even into the EU hubs. This of course may change in the future, as airlines strive to maximise the yield per flight, which in the case of wide bodied flights, includes freight capacity. Therefore I can understand why the feedback in Capacity 2.2 does not find its way on to table 8. I would like to see more airfreight moving direct from Scotland, but the services are not always logistically and economically viable from Scotland. It is hard to compete with the airports across the border and in the EU. The 19 potential principals as listed in table 8 reflect accurately what has been discussed,

becg | built environment communications group

GLASGOW AIRPORT
PROUD TO SERVE SCOTLAND

ags

Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	easyJet
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
The feedback session has been comprehensively completed although within the feedback there seems to be many items included which are not within the scope of the actual ACP project, so perhaps at future sessions clearer guidance on related subject matter may be useful as the ACP progresses. As a design principle I note that principle 5 makes specific mention to minimising the airborne holding case however there is an omission in the ground holding case, which in reality is the area where we see holding occurring most frequently. I believe there should be an inclusion / amendment for the ground efficiency case as we need to see the introduction of 1 minute separations to further support capacity increases as potential growth of further aircraft based in Glasgow will become limited to the availability of Firstwave departures. We see peak departure capacity particularly at firstwave where effective sequencing of traffic types is vital to avoid unnecessary ground holding. For safety and operational continuity we would promote the development of RNAV approach procedures to supplement the ILS. Is this effectively captured within the principles? Regarding Principle 10- EasyJet Promotes NADP2 which is more efficient than NADP1 and we fully support High performance departures to achieve early departure separations. Principle 16 – We fully support CCO and CDO operations and both should be strived for however if there is a conflict between the two, Continuous Climb Operations provides greater benefit between the options. Principle 17 – It is important that the designs are compatible with the fleet that operate today however the proposal should not be limited to the lowest specification at this sole juncture in time . The respective fleet is constantly evolving and we should be looking to maximise the benefits and efficiency gains that are available. EasyJet supports the development of Basic RNP1 including the use of RF legs and for example is presently trialling ADS-C.

[redacted]
From: [redacted]
Sent: Thu, 26 Sep 2019 13:49:41
To:
Cc: [redacted]
Subject: Glasgow Airport draft design principles
Sensitivity: Normal

Dear [redacted]

I enclose reply to request for comments regarding draft design principles following the discussions held at the initial meeting on 10th Sept. 2019. I have already confirmed my attendance at 1200hr on 3rd Oct 2019 on the sheet passed round on 10th Sept.

Yours sincerely, [redacted]

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by ***Friday 27th September 2019.*** *Feedback should be submitted via email to airspace@glasgowairport.com*

Name	[redacted]
Title	[redacted]
Organisation	Bearsden East Community Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles- **Yes**

In section 6 (3rd bullet point) of the development document It is stated that a trade-off between climbing quickly and turning early to avoid noise sensitive areas and buildings may be necessary. This is a very understandable principle and clearly implies that early turning which **necessitates** the overflying of sensitive areas should not be permitted when considering airspace design.

This low level turning was discussed in the group at the initial ACP meeting on 10th Sept. 2019 and reported at the time to the presenter. There have been previous discussions regarding runway 05 departures when it was it proposed that early turning resulting in low level flying over a densely populated area with both public halls and pre-school, primary and secondary schools should take place (GALGA and FLEMN)

Needless to say this previous proposal raised massive objections and I suggest that - **low level turning which necessitates overflying of sensitive areas** cannot be part of the Glasgow Airspace Proposal and is declared as such in the list of airspace design principles.

Thank you, [redacted]

[redacted]
From: [redacted]
Sent: Wed, 2 Oct 2019 09:44:19 +0000ARC
To: #GLA Airspace Change
Subject: RE: Completed form
Sensitivity: Normal

Hi

This is the feedback contained in the unreadable file:

Do you have any comments on the attached Draft Design Principles document?

When the volume of air traffic is increased will this have a negative impact on

Glasgow Airport's excellent safety record?

Increasing the airspace capacity will affect the well being of the communities

subjected to high levels of noise not only throughout the day but night times too.

I do not feel that this issue is being addressed in the present day and with increased air traffic this will only add to the problems already suffered by communities in the surrounding areas of the airport.

Having air transport climb higher sooner and stay in the air longer seems unlikely to reduce the noise impact of landing and take-off.

Kind Regards

[redacted]

Sent from Mail for Windows 10

From: #GLA Airspace Change <airspace@glasgowairport.com>
Sent: Wednesday, October 2, 2019 8:21:48 [redacted]

To: [redacted]
Subject: RE: Completed form

Hi [redacted]

I'm afraid the file you've sent over isn't a readable file. For us to be able to see your feedback you will need to either:

A. Copy the text from your feedback form and input it into an email to us

Or

B. Send the file back in a different format. Using the Notepad app will work as it will send over in a .txt file.

If you have any questions then please contact us on **0800 298 7040.**

Kind Regards,

[redacted]
For and on behalf of Glasgow Airport

From: [redacted]
Sent: 27 September 2019 17:26
To: #GLA Airspace Change <airspace@glasgowairport.com>
Subject: RE: Completed form

Hi,

Hopefully this attachment gets through.

Kind Regards

[redacted]

Sent from Mail for Windows 10

From: #GLA Airspace Change <airspace@glasgowairport.com>
Sent: Friday, September 27, 2019 9:11:28 [redacted]
To: [redacted]
Subject: RE: Completed form

Hi [redacted]

I think you may have sent your email without attaching the form(s). Please can you resend?

Kind Regards,

[redacted]

For and on behalf of Glasgow Airport

From: [redacted] <[redacted]>
Sent: 26 September 2019 22:30
To: #GLA Airspace Change <airspace@glasgowairport.com>
Subject: Completed form

Dear whom it concerns,

This is my completed form for the airspace change from Clydebank east community council.

Kind regards,

[redacted]

Sent from Mail for Windows 10

[redacted]
From: [redacted]
Sent: Mon, 30 Sep 2019 14:13:48 +0000ARC
To:
Cc: [redacted]s
Subject: FW: Glasgow Airspace Change Proposal
Sensitivity: Normal
Attachments:
Map of Proposed GLA Airspace Change Proposal.pdf;

For the attention of [redacted]
Submission re this Thursday, as requested by [redacted] [redacted] and yourself.
Dear Sirs,

We note with interest the developments at Glasgow and further note the CAA's intent to reduce the size of controlled airspace in general.

When, an ANSP is granted approval, that Provider is required to provide a service for all traffic following a request.

During the previous GLA airspace change, when the airspace above our area was reduced from 6000' to 3000' and reclassified as 'D', we were assured that no zone transits would be denied.

Unfortunately transits have been denied or in some cases when asked to 'Stand by' it is not feasible to wait for an unknown period for a transit, thus pilots route around the zone. We have also had an increase in noise complaints.

Since the withdrawal of RW 27/09 at Glasgow Airport, there is no longer a requirement for SRA to those runways so the Western and Eastern extent of the present CTR can be reduced, thus allowing VFR traffic to transit without the need for a clearance from GLA ATC, For Example a direct track from Prestwick to Cumbernauld could be made, avoiding built up areas and alleviating the choke point at Glenmavis GVS.

By having a staged approach path, outside 10NM, this would allow for the use of the "Right Hand Traffic" rule which would allow pilots further safety, along Carron Valley reservoir to/from Cumbernauld and avoiding airspace infringements.

Further, there is no reason for the zone to be at SFC in the Balfron area as it is not possible to make contact with GLA ATC below 1500' or thereabouts.

Taking the foregoing into account, I suggest that GLA airspace is changed to SFC 3000' from Aerodrome reference point out to 10nm, 8NM wide and is limited as shown in my attachment with 4000 to 6000' between 10 and 15nm on the extended RW C/L.

If required, GLA airspace could be extended horizontally, from that which I have shown, above 4000' AMSL for IFR traffic, thus allowing VFR traffic underneath which would be a much less restrictive area than currently exists and reducing ATC workload.
Please let me know if you require any clarification or have any questions relating to my submission.
I look forward to hearing from you.
Yours faithfully,

[redacted]
Cumbernauld Airport [redacted]

Cormack Aircraft Services Ltd.
Cumbernauld Airport,
Duncan McIntosh Road,
Cumbernauld,
Glasgow,
Scotland,
G68 0HH

[redacted]

Web www.cormackaircraft.com
Registered in Scotland No. 61876
VAT No. GB 135 9610 08

[redacted]
From: Glasgow Flying Club
Sent: Fri, 27 Sep 2019 14:13:42 +0000ARC
To: #GLA Airspace Change
Subject: Airspace Change feedback
Sensitivity: Normal

GLASGOW AIRPORT AIRSPACE CHANGE PROPOSAL
workshop held 09 September 2019

feedback / comments from
GLASGOW FLYING CLUB

Lower levels of controlled airspace surrounding the Glasgow CTR should be removed from control.
This will enlarge Glasgow Local Flying Areas to the south, the west and north east to benefit GA.
[redacted] reception in parts of these areas has traditionally been poor re. high ground towards Glasgow Airport.
reception for GA operating at higher levels than present in these areas will improve safety.
Arriving and departing commercial traffic here will normally be at a higher level and will not be restricted.

Reopen the second runway at Glasgow Airport for GA daytime use.
Possibly, with a displaced threshold at the south east end.
There is no need for lighting it to be installed.
Is there a need for this runway to be "licenced" with the associated expense?
This will separate GA from commercial traffic reducing delay for both and improving separation and safety.

Stakeholders may not fully appreciate the issues adversely affecting GA.
Over its, now 57 years, of operation a significant number of Glasgow Flying Club pilot members have continued training to obtain commercial licences.
This confirms the value of, and industry respect for, the high GA training standards achievable within a commercial airport environment.
The contribution this Glasgow Airport GA training facility makes to aviation must not be lost by unnecessary airspace and runway restrictions.
Although GA has minor financial effect, Glasgow Airport should encourage local pilot training to ensure continuity of its historic industry contribution.
Stakeholders could benefit from experiencing GA flying for themselves which is markedly different from flying as a commercial aircraft passenger.

GLASGOW FLYING CLUB MANAGING COMMITTEE

[redacted]
From: #GLA Airspace Change
Sent: Tue, 1 Oct 2019 10:37:57 +0000ARC
To:
Subject: FW: Next steps: Glasgow Airport's airspace change proposal
Sensitivity: High
Attachments:
GLA Design Principles_Round 1 Report.pdf;

From: [redacted]
Sent: 01 October 2019 09:19
To: [redacted]
Cc: #GLA Airspace Change <airspace@glasgowairport.com>
Subject: Next steps: Glasgow Airport's airspace change proposal
Importance: High

All,

Apologies for the late response I have no excuses.

For some reason, my computer will not allow me to edit the word documents that were sent to me, so in the interests of expediency and the fact that I am already late with the response can I just state the following.

Having read through the report I am happy with the proposed design principals as suggested in the report and that the engagement provided by Glasgow Airport and their consultants.

This has been in accordance with the requirements of CAP 1616 and I have found the meeting/workshops to have been both informative and constructive in their approach, encouraging a good dialog on all the relevant subjects by the participants present.

I am sorry but I cannot make either of the two dates this week due to previous work commitments.

Please keep me informed on progress and any further dates for meetings or workshops.

Please could I request that you send any further proposed workshop/meeting dates through to me as far ahead as possible, my diary is very full already through to March next year so that would be very much appreciated.

Very best regards to all

[redacted]

[redacted]

[redacted]

Flight Operations Technical Group

Jet2.com & Jet2holidays

[redacted]

Airlines UK
the association of UK airlines
web: airlinesuk.org
twitter: @airlines_uk
[redacted]

From: #GLA Airspace Change <airspace@glasgowairport.com>
Sent: 16 September 2019 18:09
Subject: Next steps: Glasgow Airport's airspace change proposal

Dear Sir / Madam,

Next steps: Glasgow Airport's airspace change proposal

I would like to thank you for your recent attendance and contribution at Glasgow Airport's Stakeholder Workshop, where we began the first step in our discussions regarding our Airspace Change Programme under the CAP1616 legislation.

Over the course of the three workshops held, we received valuable and insightful feedback from a range of representative stakeholders, including aviation, local government, business, and community and local interests. As a result of this feedback, we have drawn up a set of Draft Design Principles which could be adopted to guide the development and assessment of different airspace change options later in the process.

Feedback and Follow-up Workshops:

We remain committed to ensuring your organisation has the opportunity to feed into this process and as such have attached the initial Draft Design Principles, alongside a feedback form, to allow you to provide us with any further comments.

We are also hosting a subsequent 'Follow-up Design Workshop' in order to discuss these Draft Design Principles in more detail and to receive further feedback before they are submitted to the Civil Aviation Authority. There are two workshop dates to choose from:

Date: either Thursday 3rd **or** Friday 4th October 2019

Time: 12pm to 4pm (arrival time 11.45am for a prompt start – lunch will be provided)

At: The Corinthian Club, 191 Ingram Street, Merchant City, Glasgow, G1 1DA

What we would like you to do next:

1. Review the Workshop Presentation and Draft Design Principle Statements produced by Glasgow Airport

2. Complete the Draft Design Principles Feedback Form and return via airspace@glasgowairport.com by **Friday 27th September 2019**

3. Confirm your availability at either Thursday 3rd or Friday 4th October workshop via airspace@glasgowairport.com by **Friday 27th September**, including any dietary or access requirements

4. Complete the Engagement 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 that 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/

Yours sincerely,

[redacted]

[redacted] **Glasgow Airport**

Design Principle Reference	NATS Comment
General	Upon review of principles that state "out of scope of this ACP" - for the avoidance of doubt we recommend these are added to an appendix at the back of the document to ensure the in scope principles are clear.
1.5	Please confirm the origin of this statement. Is this a requirement to reduce terrain clearance levels compared to today?
2.3	Delivering capacity alone may not reduce holding. We would suggest that airspace management tools and scheduling in conjunction with CAS availability would deliver capacity benefits
2.4	We believe this is more a Noise and Environmental consideration than a Capacity related one.
2.5	Increase in CAS would not be directly proportional to workload. However an increase in movements and tactical interventions would be a more relatable measure. Consider using the term 'movements'.
2.7	We believe this is more a Noise and Environmental consideration than a Capacity related one.
2.8	This is an Airport Scheduling issue rather than an Airspace Design Principle
2.9	No direct comment - however procedures today do allow access to airspace for other users and experience across FASI-N suggests complexed airspace designs does limit access/increases safety risk so should be designed as simplistic as possible
3.2	As discussed in the Workshop, Safety is Number 1 priority over everything else so noise may be impacted if target level of safety is not met, suggest update to re-iterate this.
3.6	Should presents a constraint that may not be met due to other reasons such as terrain, other airspace owners etc. Consider should to be replaced with 'may'
3.7	There may be technical ATC System or procedure constraints which limit this and flexibilty in this statement is required to reflect this
3.10	There may be technical ATC System, en-route network or procedure constraints which limit this and flexibilty in this statement is required to reflect this
3.13	See comment 1.5
3.15	There may be technical ATC System, en-route network or procedure constraints which limit this and flexibilty in this statement is required to reflect this
4.7	Is this a procedures related activity rather than airspace design requirement?
4.8	Reference 2.9 and experience with other FASI-N Projects. Designing complex airspace solutions may create additional Safety risk - therefore keep it simple.
4.9	Is this a procedures related activity rather than airspace design requirement?

4.11	NATS En-Route network re-design is being managed alongside the below 7000ft Glasgow Airspace Change through the FASI-N Programme. There will be design principles and criteria to be shared with Glasgow providing the access gates to the en-route network. Consider re-word: "The Re-Design of Glasgow Arrival and Departure Routes below 7000ft should be designed in coordination between the Airport and NATS against agreed and fixed entry/exit points in the en-route network/airways".
5.3	Different SID routings dependent on runway end/time of day etc. may cause technical and safety issues which will need to be identified and mitigated. Please ensure NATS is involved in this design workstream to agree principles
5.4	Adding fuel or distance to routes, however small, adds up over a day/month/year. Experience of increasing routings is not well received from airlines (even 0.5nm) therefore please add airlines to this as well as local community and environment stakeholders to achieve the correct balance
5.5	We would suggest that airspace management tools and scheduling in conjunction with CAS availability would deliver reduced holding than an airspace design
5.7	Design and Management of this would need to be carefully managed. Any impact to NATSAirspace (above 7000ft) will need to be co-ordinated into Network Designs and impact/exposure to NATS communicated early in the process
5.9	Noted - out of scope. Refer to comment 4.1. Request this principle is removed as it cannot be substaniated with evidence.
5.10	Please confirm the origin of this statement. Is there a requirement for NATS to consider here?
6.1	Designing a TMA against the lowest of PBN capability increases design in-efficency which may lead to delays. The AMS refers to RNAV1 standards, therefore we recommend this principle is updated to reflect this and the airport offer procedural based solutions to aircraft which do not meet this standard.
6.2	Please define the use of tools - we assume this will affect the en-route network and should be defined to allow NATS to evaluate the principle in future TMA Design activities
6.3	Define RNAV Visual Approach Procedure - if it is visual, is a procedure required?

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Environmental Protection Scotland (EPS)
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?

Table 1 – Safety

1.5 Perceptions of safety from different standpoints are important. Local residents who live near or directly underneath a flightpath will perceive safety from a different viewpoint to that of an aircraft passenger. The airport has a good safety record, but an increase in the number of flights over towns, including areas of smaller residential density such as Milton of Campsie and Lennoxtown, could have an effect on safety perceptions of the people living in these areas.

Table 2 – Capacity

2.4 Anxiety and stress to residents from planes was flagged up as an issue. Therefore, it would be worthwhile for local NHS service providers and/or Health Protection Scotland (HPS)/local GP's/mental health charities to be included in the consultation going forward. The introduction of quieter, or even electric aircraft, in the future could ease the situation, but noise is clearly a large element of the public's frustration and anxiety in relation to flightpaths.

2.6 A number of local authorities, including Renfrewshire Council, have joined the Scottish Government, as well as the UK Parliament, in declaring a climate emergency. We have seen an increase in awareness of the 'flight shaming' movement which urges people to consider using non-air travel to protect the environment.
Airspace modernisation needs to incorporate the potential impact of the climate change emergency into changing public attitudes which could affect how people work, use their leisure time and companies do business globally.

2.8 Efforts should be made to cut down on night-time flights as the impact of light pollution from aircraft's use of their landing lights flying at night was raised during the feedback.

Table 3 Noise

3.3 See observation **2.4**.

3.8 See observation **2.8.**

3.8 – It should mention impact of roof tiles being dislodged by aircraft noise vibration from older tenement properties and the 'back wind' caused by certain types of aircraft which were mentioned by one of the residents at the meeting.

Table 5 – Flight efficiency

5.8 What does 'surface transport' refer to? Is this private cars using the airport or airport vehicles such as fuel lorries? Perhaps this could be clarified at the next meeting.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

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Please can you review the summary of feedback from the first round of engagement and the initial list of potential design principles produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Flybe
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
Overall process and proposal are good and meet requirements. During the initial engagement asking the industry experts to define that the process with regards safety expectations was a bit of a waste of time as it should have just been a quick agreement rather than defining to all our different expectations. In the future I would advise either putting this topic at the end of just quickly agree the statement rather than the standard.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

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Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Heatherbank Park Residents within the Uplawmoor Commuinity Council Area
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
Heatherbank Park is a semi retirement estate and like any other place that is populated by predominately the frail and elderly we have several housebound residents through illness and one who is blind. All the buildings are Park Homes whose construction does nothing to lessen the sound and vibration that commercial aircraft produce when flying over our estate which is located at 55 degrees 46 minutes 53 seconds North and 4 degrees 28 minutes 14 seconds West at a height above sea level of 736 feet. Over the last year there are more planes passing over our estate than ever before and even although we are told that this is not the case everyone on the estate believes this to be so as in the past we saw them but only heard them in the distance. We have always had helicopters flying over and private light aircraft practicing above us and this offers no annoyance. Using the information provided by the Airport we have planes passing over at approximately 2300 feet that is about 1500 feet above our heads and to be wakened on a Sunday morning at 8.10 am by the sound and vibration of an aircraft passing over at low level is quite frightening. Any changes to the flight path must follow your design principals mainly 6 Minimise and where possible reduce the total adverse effects of aircraft noise and visual intrusion on health and wellbeing, 8 Avoid noise sensitive areas and buildings and 9 Avoid overflight of areas that are currently not affected by aircraft noise which you seem to think we are. We believe that our circumstances are unique and special attention must be given to us when the new Airspace design is being drawn up and finalised.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Inverclyde Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
The Draft Design principles document appears to capture the discussion points raised at the workshop I attended, and clearly includes points raised at other workshops attended by different interest groups. The potential design principles seem reasonable based on the captured discussion points. However, there does seem to remain a tension between planning for an accepted ongoing growth of air travel and the nationally declared climate emergency.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Lanarkshire and Lothian Soaring Club
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
From the information presented we are broadly in agreement and the changes in general are good for us. It allows aircraft to clear our flyable zone more quickly and the generally reduce the controlled airspace around Glasgow airport. Our desire is as previously stated to maximise the flyable airspace around the Greater Glasgow area and potentially allow a cross country route through the central belt.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Mains Estate Residents' Association (MERA), Milngavie, East Dunbartonshire
Telephone	-
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
Safety The consultation process must comply with the latest CAA guidance and the source UK Department of Transport, Air Navigation Guidance (2017), page 11, which states that: *"the CAA should ensure that the aviation industry takes account of the elevation (height) of the specific surface level involved when developing its airspace design proposals. This is particularly the case when such proposals may affect airspace at an altitude lower than 7,000 feet (amsl) and in circumstances where the actual height of the land directly beneath may be hundreds of feet above sea level"*. These considerations are further detailed in the CAA guidance. Accordingly, MERA if of the view that there should be a clear presumption in the design principles that departure routes must not be moved over higher terrain in populated areas, where the actual height of the land is hundreds of feet above sea level, as this reduces the safety margin. Furthermore, MERA is of the view that there should be a specific presumption in the design principals against moving Runway 05 to the west over the populated higher terrain in Bearsden and Milngavie, as this will reduce the safety margin. In terms of airport safeguarding, there should also be a presumption against moving departure routes closer to sites likely to attract birds including mineral workings and refuse tips. The Civil Aviation Authority recognises that: *"growth in the geese population, and especially the increase in non-migratory geese near urban centres, is causing considerable air safety concern"* (Large Flocking Birds: An international conflict between Conservation and Air Safety, Safety Regulation Group, Civil Aviation Authority, 2002). The design principles should take cognisance of the risk from bird strikes. From a safety perspective, MERA would highlight that the North Baljaffray area of Bearsden and the Mains Estate area of Milngavie are regularly overflown by flocks of geese. In addition to the raised terrain, this may potentially increase the possibility of a bird strike. The geese feed on the nearby fields, especially during the winter months.

Noise

The consultation process must comply with the latest CAA guidance and the source UK Department of Transport, Air Navigation Guidance (2017), page 11, which states that: *"the CAA should ensure that the aviation industry takes account of the elevation (height) of the specific surface level involved when developing its airspace design proposals. This is particularly the case when such proposals may affect airspace at an altitude lower than 7,000 feet (amsl) and in circumstances where the actual height of the land directly beneath may be hundreds of feet above sea level"*. Along with safety, noise is a major consideration below 7,000 feet (amsl) and especially below 4,000 (amsl). Accordingly, MERA if of the view that there should be a clear presumption in the design principles that departure routes must not be moved over higher terrain in populated areas, where the actual height of the land is hundreds of feet above sea level, as this increase the relative noise. Furthermore, MERA is of the view that there should be a specific presumption in the design principals against moving Runway 05 to the west over the populated higher terrain in Bearsden and Milngavie, as this will relatively increase aircraft noise compared to lower terrain.

The consultation process must also comply with the latest CAA guidance and the source UK Department of Transport, Air Navigation Guidance (2017), page 24, which states that: *" The CAA should also, where practicable, take into account the desirability of minimising noise impacts for noise sensitive buildings of which the CAA is aware, such as hospitals, schools and places of religious worship."* MERA wishes to highlight that a particular noise sensitive building in Milngavie is Douglas Academy, within the Mains Estate. This secondary school serves as the national music school and its' location was specifically chosen to be quiet. MERA would like to see this building safeguarded in the design principles as a noise sensitive building. As such, it would be counter intuitive to move air departure routes for Runway 05 over or closer to this school. The Music School of Douglas Academy was established in 1979 as a national Centre of Excellence for gifted young musicians. The Music School is incorporated within the main school building, benefiting from its *quiet* location. The school offers the highest quality tuition in all aspects of music. Students are funded by local authorities and come from throughout Scotland and further afield to study.

Amenity and Health and Wellbeing

MERA notes that the CAA is required by the Department of Transport to have regard to the statutory purposes of National Parks and areas of outstanding natural beauty when considering proposals for airspace changes. The Department for Transport notes in their Air Navigation Guidance (2017), that where practicable, it is desirable that airspace routes below 7,000 feet should seek to avoid flying over areas of outstanding national beauty and National Parks and furthermore, the CAA should require this to be considered by sponsors when developing their proposals.

MERA wishes to highlight that the Kilpatrick Hills in West Dunbartonshire and East Dunbartonshire are statutorily designated a Local Landscape Area. Accordingly, MERA would propose that there should be a presumption in the airspace design proposals against air departure routes overflying the Kilpatrick Hills Local Landscape Area below 7,000 feet (amsl) and certainly below 4,000 feet (amsl).

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the summary of feedback from the first round of engagement and the initial list of potential design principles produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Ministry of Defence – Defence Airspace and Air Traffic Management (DAATM)
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
The MOD recognises the importance of Airspace Modernisation and remains committed to ensuring airspace is used safely, efficiently and flexibly. Airspace modernisation and future airspace design must consider and allow for MOD access to airspace in order to meet future defence requirements. Please see comments in red below specific to each design principle. It is unclear what priority each design principle will be afforded; we would welcome clarification on this. # *Potential design principles* 1 **The airspace design and its operation must be as safe or safer than today for all airspace users.** Agree. This should be top priority. 2 **Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring additional airspace capacity to meet the forecast demand for air transport.** MOD has no comment. 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.** It's unclear what is meant by this design principle; we would welcome clarification before further comment. 4 **Minimise the volume of controlled airspace required to support commercial air transport operations and enable safe, efficient access for other airspace users.** The MOD would wish to ensure that any CAS required as part of this change should be minimised, and the classification of CAS required considered. There should be continued provision for other airspace users to transit portions of CAS as required. The MOD seeks assurance that ATS provision and access to transit or operate in CAS, can be facilitated for MOD aircraft to meet military operational and training requirements.

GAL should also consider the impact changes to CAS may have on any adjacent uncontrolled airspace e.g. traffic funnelling, caused as a result of any change. It is important that all airspace users' unique requirements are considered in any solution.

5 **Mitigate any future requirement for airborne holding and queueing for arrival traffic.**

MOD has no comment.

6 **Minimise, and where possible reduce, the total adverse effects of aircraft noise and visual intrusion on health and wellbeing.**

MOD has no comment.

7 **Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes.**

Wording does not make sense however MOD has no further comment.

8 **Avoid noise sensitive areas and buildings.**

MOD has no comment.

9 **Avoid overflight of areas that are currently not affected by aircraft noise.**

MOD has no comment.

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.**

MOD has no comment.

11 **Avoid introducing additional complexity and bottlenecks into controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.**

As per DP4, the MOD would wish to ensure that any CAS required as part of this change should be minimised and the classification of CAS required considered. There should be continued provision for other airspace users to transit portions of CAS as required. The MOD seeks assurance that ATS provision and access to transit or operate in CAS, can be facilitated for MOD aircraft to meet military operational and training requirements.
GAL should also consider the impact changes to CAS may have on any adjacent uncontrolled airspace e.g. traffic funnelling, caused as a result of any change. It is important that all airspace users' unique requirements are considered in any solution.

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.**

MOD has no comment.

13 **Deploy flexible use airspace concepts and procedures to enhance airspace integration where possible and appropriate.**

The MOD is supportive of flexible use of airspace as a concept. The MOD is also in favour of embracing new technologies and supports Electronic Conspicuity as a concept.

14 **Minimise, and where possible, reduce aircraft emissions, the degradation in air quality and adverse ecological impacts.**

MOD has no comment.

15 **Deploy shorter routes and more efficient climb and descent profiles for arrival and departure procedures.**

MOD has no comment.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Jo Swinson MP
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?

Comments on the list of potential Design Principles

Our key design principles / those that will matter hugely to the communities affected by flight routes: ***1, 6, 9, 10, 14 and 19***

Comments on summary of feedback (report round 1):

Generally, this has captured the concerns, thoughts, ideas raised in the discussion we participated in. However, the following are some points that were also discussed and should be noted:

Table 2: feedback linked to capacity:

2.6 - You said that you have been told passenger numbers will be 17 million by 2040. We feel that ***we need a better understanding of where this figure came from*** *and how it fits with future trends if people reduce begin to reduce their air travel because of current concerns about the impact of flight emissions on the climate.*

Table 3: feedback linked to noise:

Additional point: When consulting on design options with the communities that may be impacted by new proposals, the proposed increase in the level of noise should to be presented in a manner that is honest/transparent, with every effort being made to make clear what the changes really *mean for them.*

Table 5: feedback linked to flight efficiency:

Additional point (related to 5.2): Any environmental or health impact assessments should be carried out by ***independent*** *agencies. This will give communities comfort/help the airport to build trust with the public.*

There should also be clarity on how environmental and health impacts will be evaluated going forward.

Small side note on Appendix A (List of participants) – 'Milngavie council' on page 13 should be 'Milngavie Community Council'

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Stage 1B – Engagement Review Feedback Form

Glasgow Airport - Airspace change

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

We would be grateful if you, or a relevant person within your organisation, can answer the following questions regarding our engagement process to date. Your feedback is valuable to us and will help us in any future engagement we undertake.

Please return the form by 27th September 2019 via email to **airspace@glasgowairport.com**

Contact details:

Name	[redacted]
Title	[redacted]
Organisation	Glasgow Prestwick Airport
Telephone	[redacted]
Email Address	[redacted]

Question 1

I think that the engagement process so far has increased your awareness and understanding about the need for airspace change, both for Glasgow and the wider UK?

[ ] Strongly Agree
[x] Agree
[ ] Disagree
[ ] Strongly Disagree

Comments:

Question 2

I think that the engagement process so far has allowed you to demonstrate your views about the use of airspace, and any proposed changes to airspace use?

[ ] Strongly Agree
[x] Agree
[ ] Disagree
[ ] Strongly Disagree

Comments:

Question 3

I think that Glasgow Airport's approach of seeking thought and feedback on airspace change prior to any design principles being formulated is important?

[x] Strongly Agree
[ ] Agree
[ ] Disagree
[ ] Strongly Disagree

Comments:

Question 4

Please outline what worked well in the engagement process as well as how Glasgow Airport can improve their engagement in the future?

Engaging with different stakeholder groups at separate sessions initially. Individual working groups with an opportunity for the each group to feedback collectively after each topic worked well.

Question 5 Do you have any other comments regarding this process?

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

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Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Renfrewshire Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
The design principles appear to be a good starting point to allow consideration of these along with further refinement as the process continues. One of the issues discussed at the stakeholder event was around the impact of airspace change on the most deprived areas which may be affected and how social injustice/heath inequalities will be balanced with any proposed changes and this should be included within further discussion, although the subject will cross a number of the design principles. There was also discussion around how any changes to airspace will impact on future land use planning and again, this will cut across several of the design principles but is an important consideration for local authorities which are most affected by any changes.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

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Name	[redacted]
Title	[redacted]
Organisation	Scottish Natural Heritage
Telephone	
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
On Page 14 you have recorded the organisation of Kerry Wallace as Scottish National Heritage. This is in error as it should be Scottish **Natural** Heritage (SNH). We are not an 'interest group' but are a Non-Departmental Public Body (NDPB) and we both advise the Scottish Government and help it to achieve its objectives. We support 'Potential design principle' No.14 and No.8.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

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Name	[redacted]
Title	[redacted]
Organisation	Strathaven Airfield
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?
There needs to be a maintained focus on minimum volume, lowest class, flexible use and efficient performance at lower levels – in

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspacechange proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

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Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Friday 27th September 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Uplawmoor Community Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Draft Design Principles document?

Following attendance at the workshop, the resulting 'Summary of Feedback' is not clear in terms of which attendees made the comments noted in each section of the document. It is therefore difficult for us to clearly understand, based on the fact that there were two separate workshops with different attendees, whether or not any comments made by our representative have been captured in the summary. Subsequent workshops must provide clarity on the names of attendees who's comments are recorded for the purpose of finalising any Design Principles document.

Reviewing the comments in the feedback we would confirm that the elements which our community feel are most relevant to our concerns and would expect to be captured in any final version of Design Principles to be presented to the CAA at the end of this first Gateway are:

- 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.

- 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.
  - *Uplawmoor sits at 500 feet above sea level and therefore will be within the airspace below 4000 feet above sea level.*
  - *Heatherbank Park (a residential/ semi-retirement estate within the Uplawmoor Community Council Area) sits at 736 feet above sea level and subsequently impacted by aircraft operations below 4000 feet above sea level. Local Residents, utilising the links provided by Glasgow Airport directly have recorded aircraft flying at approximately 2300 (circa 1500 feet above the height of residential properties) during early morning hours. The resulting noise disruption and vibration due to aircraft passing over at low level is not in line with the guidance set out in CAP 1616.*
  - *Environmental priorities for airspace below 4000ft is set out in the Department for Transport Air Navigation Guidance. It states that "...there is a need to secure an efficient use of airspace and to ensure that aircraft operations emissions are minimised, in the airspace from the ground to below 4,000 feet the government's environmental priority is to limit and, where possible, reduce the total adverse effects on people..."*
  - *We would therefore seek confirmation that any Design Principles adhere to these guidelines*
  - *CAP 1616 states on page 34 Item 113 that "...Change sponsors must seek feedback from stakeholders on the proposed airspace change proposal Level at the design principles stage, as one of the key engagement points. This must include discussion about the altitude of the change and must consider the height of local terrain (in relation to mean sea level).*
  - *Our representative does not recall any discussions at the first consultation workshop on this point and we therefore seek confirmation from Glasgow Airport that this aspect will be discussed transparently at the second workshop session so that all attendees are clear on any subsequent impact on their communities location and height above sea level compared to any proposed airspace changes in reference to height of aircraft as they fly over their airspace*

- Glasgow Airport must demonstrate that they have considered the impacts that any changes in noise will have on those significantly affected by noise, most importantly the impacts on communities' health and quality of life as a result of noise.
  - *UCC are concerned about longer-term health effects which may not be measurable directly but will unquestionably be real, not just for physical health but also for mental health. Elevated noise has been linked to hypertension, heart disease and decreased school performance*
  - *Previous proposals by Glasgow Airport indicated a significant increase in the number of 65dB overflights in the airspace swathe above Uplawmoor. Noise levels will be*

- *disruptive to teaching in the local village primary school and therefore the number of incidents where 65dB levels occur must be limited or avoided.*
- *Noise respite arrangements should be predictable and transparent for communities, airspace users and air traffic control so as to not create undue complexity.*

- Any proposals must offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes.

- Additional airspace capacity should be used to facilitate a reduction in aircraft emissions for traffic operating into and out of Glasgow Airport
  - *We would ask that Glasgow Airport confirm at which point, in terms of height, aircraft currently exit their airspace and how any proposed change will decrease aircraft emissions as a result of leaving their airspace at an earlier point during take-off/departure*

- Additional airspace capacity should facilitate a reduction in the intensity of operations during more anti-social hours
  - *The Summary of Feedback makes reference to anti-social hours as being "...the evening and night-time period..." We would request that this should also include the early morning period ie in advance of 07:00.*

- The noise impacts generated by the airspace design options should be compared consistently against an impartial & credible 2019 baseline in order to compare different these options consistently and transparently.
  - *In Aug 2018 [redacted] Johnson wrote to UCC to advise that proposals put forward by GA were "...subject to a change in policy which would alter how our proposals would be taken forward but that no changes have or will be made to Glasgow's airspace until we have sought your views as part of the new process..."*
  - *UCC have submitted complaints and raised concerns that, since their previous proposals were withdrawn, Glasgow Airport have increased the level of flights departing over the airspace above Uplawmoor*
  - *We would ask that the current permitted level of departures authorised to use the airspace above Uplawmoor is confirmed and that a comparison against this and the total of all flights departing Glasgow Airport during 2019 is made before any agreement to use data relative to aircraft departure from the airport during 2019 as part of the development of any new airspace alteration proposals*

- 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 or affected by aircraft noise

- Any proposals must avoid overflight of areas that are currently not affected by aircraft noise.

- Deploy shorter routes and more efficient climb and descent profiles for arrival and departure procedures
  - *UCC stress that this should not at the expense of communities if this alters the frequency of flights flying over their airspace at a lower height than at present.*

- UCC also seek confirmation that any design principles for airspace design options should consider the broader impacts on the ecology of the region and the effects on non-human life.
  - *According to CAP 1616 Appendix B Environmental Metrics and Assessment Requirements, any proposals to change airspace must consider the:*
  - *"...impacts upon tranquillity with explicit consideration of any changes to routes and/or traffic patterns that may affect either an Area of Outstanding Natural Beauty (AONB) or a National Park, with specific regard to impacts upon tranquillity.'*
  - *UCC seek clarity from Glasgow Airport that they will undertake an assessment of how any future proposals would impact on areas within our locale such as Loch Libo and the part of Caldwell Wood that form part of the local Site of Special Scientific Interest (SSSI) as areas of 'tranquility'.*

POST-WORKSHOP 2 FEEDBACK

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Airspace4All Limited
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

Airspace4All Limited are broadly content with the design principles statements and welcome the approach taken by the airspace change sponsors to addressing the design of Glasgow's airspace to meet the needs of all stakeholders. In particular, bearing in mind that Glasgow currently has the largest CTR in the UK with approximately one third of the number of air transport movements of the most efficient single runway airport in the UK (London Gatwick - which has a CTR less than one third the size of Glasgow's), the willingness to look at the actual future airspace needs from a clean sheet of paper is particularly refreshing.

We should like to take the opportunity to remind the sponsors and facilitators of the General Aviation Alliance's initial engagement principles - to be borne in mind as the Airspace Change Proposal develops beyond Stage 1, specifically:

- Recognition that GA including sporting and recreational aviation has legitimate rights of access to airspace.
- Sponsors must show how they are integrating their proposal within the overall UK airspace modernisation context (for example, proposals which do not connect efficiently between upper and lower airspace (potentially under different airspace "management") would only inhibit overall airspace efficiency and therefore not receive our support.
- Reiteration that the UK airspace's default classification is G.
- Reiteration that ICAO Class E airspace default is without the addition of a TMZ or RMZ.
- Expectation that data used, particularly forecasts, includes details of any and all assumptions and available supporting evidence:
  - Reasonably justified forecast traffic levels.
  - Analysis of overall airspace safety changes, ie based on modelling and evidence rather than subjective opinion.
- Minimum size of existing and any proposed controlled airspace.
- Steeper and continuous climbs and descents for cost and environmental benefits as well as minimisation of controlled airspace footprint.
- Use of Class E airspace as an alternative to class C and D airspace.
- Optimisation of the development work above and below the 7,000ft NATS en-route split.
- Flexible use of airspace.
- Examine options for interoperability with existing e-conspicuity, eg ADS-B, FLARM and PilotAware.

- Efficient consultation.

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Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to airspace@glasgowairport.com

Name	[redacted]
Title	[redacted]
Organisation	Beith& District Community Council
Telephone	[redacted]
Email Address	[redacted]

I have no problems with the revised principles or their wording.
I also do not see any need to include any additional principles

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

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I have no problems with the revised principles or their wording.
I also do not see any need to include any additional principles

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	British International Freight Association
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

I confirm I am comfortable with the wording with the proposed design principles .

I do not have any additional design principles I would like to see included/added.

Some of the design principals would be an automatic high priority, e.g. #1 – safety, #6 - #10 - noise. Trying to balance this with the potential increased demand will be challenging.

#2-#5 - Without good controlled airspace the operations of an airport can be severely restricted and capacity limited. This could limit commercial operations and international trade, forcing imports and exports of freight to be handled elsewhere. The introduction of measures to assist with the climate emergency may influence the availability of additional air capacity in the future. The supply chain may change as a result.

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Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to airspace@glasgowairport.com

Name	[redacted]
Title	[redacted]
Organisation	Clydebank East Community Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.

- Are there any additional design principles you would like to see included?

- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

The design principles have clearly been laid out and are written concisely and well. There is an easy to follow sub-group of themes which makes comprehension of what each design principle means easy.

The design principles that I would catergorise as high are the principles relating to theme of noise. The local communities affected by the aircraft noise are extremely concerned by the proposal of a large expansion of Glasgow airport. The noise from the aircraft has a significant detrimental effect on the health and wellbeing of the communites who are under the flight path. An alarming amount of the comminity members report that their sleep is currently disturbed by aircraft noise during the night, this is having a deterimental effect on their health and cognitive function. Sleep deprivation has severe consequences on the normal health of a human being, lack of sleep causes a higher risk of cardiovascular disease therefore this proposed expansion is extremely worrying for the communities as their long term health may be affected. Additionally, there is existing research which have found a link between aircraft noise and cardiovascular disease therefore the local communites want research conducted before this expansion to ensure their health will not be compromised any further.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Cumbernauld Airport
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

We submitted the attached feedback to but it appears to have been overlooked. Please now consider our feedback to the airspace changes which were first submitted on 29th September 2019.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	East Dunbartonshire Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

East Dunbartonshire Council welcomes the opportunity to provide feedback on the refined list of proposed design principles, following a series of workshops which our officers participated in. A significant number of our residents live under the current flight paths and so are affected by the use of airspace to and from Glasgow Airport. In our response to the previous iteration of the airspace change proposals in 2018, the Council highlighted a number of concerns. These primarily related to noise impacts, air quality & climate change, and biodiversity. Having participated in the recent workshops as part of the current engagement process, the Council is broadly satisfied that the proposed design principles address these concerns.

In response to the specific questions referred to above, we would offer the following comments and suggestions.

Are you comfortable with the wording within the proposed design principles?

In terms of the 'noise' design principle theme, it is critical that noise impacts on local communities currently affected during final approach or immediate climb are properly mitigated. This is particularly important for noise sensitive areas and receptors. The overall provisions of refined design principles 5-8 are therefore welcomed.

Design Principle 7 states that arrival and departure routes below 7,000ft should aim to avoid noise sensitive areas, buildings, national parks, areas of outstanding natural beauty and areas that are not currently affected by aircraft noise. It is considered that inclusion of the word "aim" in this principle is unnecessary and could potentially undermine efforts to ensure that future route options avoid all of the above noise receptors. Removal the word "aim" would result in a stronger and more robust design principle that offers appropriate protection to noise sensitive receptors. The Council would therefore request that this design principle is amended accordingly.

Design Principle 8 refers to "mitigating the impacts on local communities currently affected by aircraft noise on final approach…where overflight is unavoidable". Any mitigation should include financial assistance towards the cost of fitting additional noise insulation, for those most adversely affected. It is suggested that DP 8 includes reference to financial assistance for those who will be affected by any future changes. Whilst it is acknowledged that the specific terms of any noise insulation scheme are not necessarily a matter for inclusion in the design principles, it is recommended that a review of the noise insulation scheme is undertaken at an appropriate stage. This should include those affected by increases in aircraft noise of more than 5 decibels as a direct result of airspace changes.

Are there any additional design principles you would like to see included?
Having participated fully in the engagement process up to this point, there are no additional design principles we wish to see included.

High, Moderate, Low Priority
In answering this question we have highlighted those design principles considered to be the highest priority, in the context of the overall list.

Ref Number	Refined Design Principle Statements	Priority

1	The airspace design and its operation must be as safe or safer than today	**High**
2	Facilitate the growth in quicker, quieter and cleaner traffic by configuring the airspace to improve efficiency and meet the forecast demand for air transport	**High**
3	Design the appropriate volume of controlled airspace to support commercial air transport, enable safe, efficient access for other types of operation and release controlled airspace that is not required.	
4	Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic.	
5	Minimise the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing.	**High**
6	Offer communities with options for both noise concentration and noise dispersion through the use of multiple routes and other respite methods that are possible the within the technical ATC system, enroute network and procedural constraints.	**High**
7	The arrival and departure routes that serve Glasgow Airport below 7000ft should aim to avoid noise sensitive areas, buildings, national parks, areas of outstanding natural beauty and areas that are not currently affected by aircraft noise	**High**
8	Mitigate the impacts on local communities that are currently affected by aircraft noise on final approach or the vicinity of the immediate climb out, where overflight is unavoidable.	**High**
9	Reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	
10	Collaborate with other Scottish airports and NATS to ensure that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme.	
11	Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to Flight Level 90.	
12	Minimise the growth in aircraft emissions, the further degradation in local air quality and adverse ecological impacts to address growing concerns about the impact of aviation on climate change.	**High**
13	Aircraft operating at Glasgow Airport should climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.	
14	Routes should be designed to meet a RNAV1 specification as a minimum in order to gain maximum benefit of the performance capabilities of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against Global Navigation Satellite System (GNSS) failure.	
15	The GAL ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711), any current or future plans associated with it and all other relevant policies and regulatory standards."	

East Dunbartonshire Council looks forward to participating and contributing to future stages of the airspace change proposals for Glasgow Airport. For the avoidance of doubt, our comments above are specifically on the wording of the refined design principles. This does not prejudice any future position relating to the Glasgow Airport airspace proposals as the process moves forward. The Council reserves the right to revise or update its position should any new information emerge during future stages of the engagement process.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Environmental Protection Scotland (EPS)
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

- I would like to make the following comments regarding the revised list contained in the design principles statement.

Item 2: I feel that in the context of the current debate about the impact of aircraft emissions that climate change should be specifically referred to as high up as possible in the overall design principles list.

Item 7: Would it read better if the word 'with' was taken out of the first section so that reads 'offer communities options.' ?

Item 10: I would like to see mention made in this statement of potential housing developments. Scotland has a massive programme of house-building, particularly on 'brownfield' sites and the airport needs to take account of the impact that aircraft noise might have on the residents of future developments who could in the future under flight paths.

Item 11: I am still a little unclear what the phrase 'Flight Level 90' means despite having it explained at the meeting. If the aim is to cut down on jargon then perhaps then this phrase should be made clearer.

- There are no additional design principles that I wish to have included.
- Categorisation of design principles:

  High

  1, 2, 3, 5-8, 10, 11, 12
  I feel that safety is the number one priority and that this should be followed by efforts to lessen the noise impacts of aircraft on communities as part of a general reduction in the environmental impact of aircraft use on communities. It is good to see public health is an important consideration in terms of the impact that flightpaths can have on mental health and well-being if they are not properly planned. Climate change is also a burning issues that is not going to go away, as witnessed by the recent protests at London City Airport.

  It is important that Glasgow and Edinburgh airports work to avoid conflicting airspace proposals. Collaborating with other Scottish airports can also reduce noise impacts so these items are all of high importance.

  Moderate

  13, 9
  There may be benefits from a noise standpoint for communities of pilots of commercial aircraft making continuously climbs and descents to/from at least 7,000ft. However, the trade-off might be that this leads to greater fuel usage by aircraft and contributes to higher emissions. Therefore, I have placed it as a 'moderate' priority.

Reducing congestion and bottlenecks could assist with improving the overall efficiency of aircraft taking off or landing at the airport, reducing noise intrusion for communities and bring environmental benefits by reducing fuel usage.

Low

4, 14, 15
As our organisation does not represent non-commercial airspace users, I do not consider item 4 to be a particular priority.

Items 14, and 15, are more of a technical or regulatory requirement and I therefore consider them to be of a lower priority than some of the other design principles.

Light Aircraft Association Policy for Design Principles during ACP engagement

The Light Aircraft Association believes the following underlying principles must be followed by applicants for Airspace Change Proposals and thus, form the basis for our Consultation responses.

1. Prioritisation

The LAA has so far this year received around 200 invitations to participate in consultations surrounding CAP 1616 airspace change proposals. We are therefore prioritising them in the following order:

1. Significant areas of lower airspace likely to affect LAA users.
2. Airspace proposals for ATZs or airports which may affect LAA users.
3. Ground areas (windfarms, ranges) which may affect LAA users.
4. Other airspace applications which may affect LAA users.
5. Airspace applications which are unlikely to affect LAA users. (Standard null response).

2. Consultation Principles

- The LAA welcomes the opportunity to engage in consultation at an early stage within the CAP 1616 airspace change consultancy process.

- Change sponsors are encouraged to engage with the LAA and its members as early as possible during the development of the ACP. Previous ACPs have missed the opportunity for early engagement and constructive dialogue, resulting in significant and costly delays.

- The LAA represents 7,800 members and oversees on behalf of the CAA, more than 2,600 active light aircraft on LAA-administered Permits to Fly and another 1,400 projects either in build or under restoration around the UK. We speak as the largest body representing powered sport flying in the UK and also as a member of the GA Alliance, speaking for around 72,000 members of the flying community.

- The LAA considers that the UK airspace's default classification is Class G and that sponsors must establish a safety case for proposing to change this class or add any further restrictions or requirements by their ACP. This should also include an assessment of the effects of the proposed

- Sponsors must demonstrate that alternatives have been considered such as RMZ and TMZ before considering controlled airspace. Class E without a TMZ should be considered as an option.

3. Access by GA

- Sponsors must accept the assumption that GA including sporting and recreational aviation is entitled to continued safe use of airspace and that commercial aviation does not have a right to limit airspace access.

- Sponsors should ensure that there will be measures to allow flexible use of airspace and prepare for the wider use of electronic conspicuity devices and interoperability with existing e-conspicuity, e.g. FLARM and Pilot Aware, as well as Mode C/S and ADS-B. Recent trials have demonstrated that the development of such interoperability is both feasible and preferable to reliance on a single, potentially outmoded current form of technology.

4. Airspace volume

In line with the principles of the Airspace Modernisation (was FAS) principles the ACP must respect the requirement for minimum airspace volumes designed for efficiency and reduced environmental impact.

Given the environmental/noise considerations of today, almost all aircraft operators and airports adopt constant descent approaches as a standard operating procedure. Standard Instrument Departures should be designed to get commercial traffic up and away from civilisation (and lower airspace), to the safety of controlled airspace where they belong.

Key principles should include:

- The minimum size of controlled airspace
- A minimum number of departure/arrival routes
- Steeper and continuous climbs and descents for cost and environmental benefits as well as minimisation of CAS footprint.

Two further questions should be asked when reviewing ACP proposals:

- Why is the lower limit of Class D airspace surrounding most of the above CTRs only 1500'?
- Why are the geographical limits of many of the above CTZs so large?

5. Justification

- Sponsors must conduct and present a proper analysis of overall airspace safety changes, based on proper modelling and evidence rather than subjective opinion.

- Sponsors must provide proper validation of forecast traffic levels. There is an expectation that data used, particularly forecasts, will be verifiable including details of any and all assumptions.

- Sponsors should be encouraged to review existing controlled airspace and where practicable reduce or remove under-utilised airspace, in recognition of the fact that the current scale of controlled lower level airspace has grown disproportionately and without adequate control, principally to accommodate now obsolete equipment and procedures.

6. Airspace integration

- In principle, the LAA is only concerned with lower airspace below 7,000 feet, but will respond to other consultations where transitions from above these altitudes may infringe on Class G airspace used by LAA members.

- Sponsors must demonstrate how they are integrating their proposal within the overall UK airspace modernisation context, for example proposals which do not connect efficiently between upper and lower airspace (potentially under different airspace "management") and would inhibit overall airspace efficiency, will therefore not receive our support.

ENDS

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GLASGOW AIRPORT
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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Mains Estate Residents' Association (MERA), Milngavie, East Dunbartonshire
Telephone	-
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

MERA highlights Design Principles 1, 8, 9, 16 and 18 as high priority.

Design Principle 1 - The airspace design and its operation must be as safe or safer than today for all airspace users.

Summary - The Mains Estate Residents Association (MERA) fully supports this design principle and wishes to reiterate that the design process must consider the safety impacts of flight path options in (i) areas of higher terrain, and (ii) areas likely to attract birds (increasing the risk of bird strikes).

Background - The consultation process must comply with the latest CAA guidance and the source *UK Department of Transport, Air Navigation Guidance (2017)*, page 11, which states that: *"the CAA should ensure that the aviation industry takes account of the elevation (height) of the specific surface level involved when developing its airspace design proposals. This is particularly the case when such proposals may affect airspace at an altitude lower than 7,000 feet (amsl) and in circumstances where the actual height of the land directly beneath may be hundreds of feet above sea level"*. These considerations are further detailed in the CAA guidance. Accordingly, MERA if of the view that there should be a clear presumption in the design principles that departure routes must not be moved over higher terrain in populated areas (e.g. the Mains Estate), where the actual height of the land is hundreds of feet above sea level, as this reduces the safety margin. Furthermore, MERA is of the view that there should be a specific presumption in the design principals against

moving Runway 05 to the west over the populated higher terrain in Bearsden and Milngavie, as this will reduce the safety margin.

In terms of airport safeguarding, there should also be a presumption against moving departure routes closer to sites likely to attract birds including mineral workings and refuse tips.

The Civil Aviation Authority recognises that: *"growth in the geese population, and especially the increase in non-migratory geese near urban centres, is causing considerable air safety concern"* (*Large Flocking Birds: An international conflict between Conservation and Air Safety, Safety Regulation Group, Civil Aviation Authority, 2002*). The design principles should take cognisance of the risk from bird strikes. From a safety perspective, MERA would highlight that the North Baljaffray area of Bearsden and the Mains Estate area of Milngavie are regularly overflown by flocks of geese. In addition to the raised terrain, this may potentially increase the possibility of a bird strike. The geese feed on the nearby fields, especially during the winter months.

Design Principle 8 - Flight paths below 7000ft should aim to avoid noise sensitive areas, buildings, national parks and areas of outstanding natural beauty.

Summary - MERA fully supports this design principle. The design process should include a presumption against moving flight paths over higher terrain in populated areas due to the increase in noise that this would produce. MERA has highlighted that Douglas Academy in Milngavie (a centre of excellence for young musicians) is identified as a noise sensitive building. MERA notes that National Parks and Areas of Outstanding Beauty (National Scenic Areas) should be included in this principle and reference to overflights below 7000ft (especially Kilpatrick Hills Local Landscape Area).

Background - The consultation process must comply with the latest CAA guidance and the source *UK Department of Transport, Air Navigation Guidance (2017)*, page 11, which states that: *"the CAA should ensure that the aviation industry takes account of the elevation*

(height) of the specific surface level involved when developing its airspace design proposals. This is particularly the case when such proposals may affect airspace at an altitude lower than 7,000 feet (amsl) and in circumstances where the actual height of the land directly beneath may be hundreds of feet above sea level". Along with safety, noise is a major consideration below 7,000 feet (amsl). Accordingly, MERA if of the view that there should be a clear presumption in the design principles that departure routes must not be moved over higher terrain in populated areas (e.g. the Mains Estate), where the actual height of the land is hundreds of feet above sea level, as this would increase the relative noise. Furthermore, MERA is of the view that there should be a specific presumption in the design principals against moving Runway 05 to the west over the populated higher terrain in Bearsden and Milngavie, as this will relatively increase aircraft noise compared to lower terrain.

The consultation process must also comply with the latest CAA guidance and the source *UK Department of Transport, Air Navigation Guidance (2017),* page 24, which states that: *" The CAA should also, where practicable, take into account the desirability of minimising noise impacts for noise sensitive buildings of which the CAA is aware, such as hospitals, schools and places of religious worship."* MERA has highlighted that a particular noise sensitive building in Milngavie is Douglas Academy, within the Mains Estate. This secondary school serves as the national music school and its' location was specifically chosen to be quiet. MERA would like to see this building safeguarded in the design principles as a noise sensitive building. As such, it would be counter intuitive to move air departure routes for Runway 05 over or closer to this school. The Music School of Douglas Academy was established in 1979 as a national Centre of Excellence for gifted young musicians. The Music School is incorporated within the main school building, benefiting from its *quiet* location. The school offers the highest quality tuition in all aspects of music. Students are funded by local authorities and come from throughout Scotland and further afield to study.

MERA notes that the CAA is required by the Department of Transport to have regard to the statutory purposes of National Parks and areas of outstanding natural beauty when considering proposals for airspace changes. The Department for Transport notes in their *Air*

Navigation Guidance (2017), that where practicable, it is desirable that airspace routes below 7,000 feet should seek to avoid flying over *areas of outstanding national beauty* and National Parks and furthermore, the CAA should require this to be considered by sponsors when developing their proposals. National Scenic Areas in Scotland, are broadly equivalent to the Areas of Outstanding Natural Beauty found in England, Wales and Northern Ireland **https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/protected-areas/national-designations/national-scenic-areas.**

MERA has highlighted that the Kilpatrick Hills in West Dunbartonshire and East Dunbartonshire are statutorily designated a Local Landscape Area. Accordingly, MERA has proposed that there should be a presumption in the airspace design proposals against air departure routes overflying the Kilpatrick Hills Local Landscape Area below 7,000 feet (amsl).

Design Principle 9 – Avoid overflight of areas that are currently not affected by aircraft noise

MERA fully supports this principle.

Design Principle 16 - Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously

MERA fully supports this principle as this would minimise noise impact on the populations under the flight paths.

Design Principle 18 - The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.

MERA would highlight that the redesign process should also use accord with the published *UK Department of Transport, Air Navigation Guidance (2017)*. This source document

provides the guidance to the CAA on its environmental objectives when carrying out its air navigation functions, and to the CAA and wider industry on airspace and noise management. As such, it underpins the CAA airspace modernisation strategy.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Jo Swinson MP
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

Categorising:

For the communities on the ground that Jo represents, the Design Principles that we would categorise as **high priority** are:

1, 5, 6, 7, 8 and 12.

General comments:

(1) Although the original principle 19, regarding ensuring all materials presented to stakeholders should be simple, accessible and jargon-free, etc., is not technically considered a principle of design, we would like to emphasise **again** the importance of ensuring that clarity and transparency underpin **all** future engagement and any consultation materials.

(2) There is still some concern among community members about the previous proposals for planes on take off to turn earlier (in order to shorten the route) as this would've had a huge impact on the noise emitted by aircraft over the Westerton/Bearsden South area. We hope that this will now be omitted as a possibility by adopting Design Principles 7 and 13, however, it is important to local residents that we highlight their continuing concerns on this matter for your attention.

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Draft Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's Stage 1B draft design principle statements.

Please review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Strathaven Airfield
0797 997 1301	
Email Address	[redacted]

Do you have any comments on the attached refined list of design principles statements?

In providing your feedback please consider:

- Are you comfortable with the wording within the proposed design principles? If not, please indicate what you would like to see amended.
- Are there any additional design principles you would like to see included?
- Which of the design principles would you categorise as a high, moderate or low priority in the context of the overall list of principles and why? You may choose not to provide priority to any of the listed design principles, if you so wish.

My personal feeling is that not enough attention is given to GA in the principles, which focu mainly on CAT.

A reduction in the area of Glasgow's airspace is a high priority – this will reduce controller workload, helping Glasgow controllers handle CAT more efficiently. It will also help GA operate more efficiently, which will bring noise reduction benefits too.

As regards:

4. DESIGN PRINCIPLE REVIEW: ACCESS AND INTEGRATION 11. Avoid introducing additional complexity and bottlenecks into controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.

I would like to see:

4. DESIGN PRINCIPLE REVIEW: ACCESS AND INTEGRATION 11. **Work to reduce complexity and remove exisiting bottlenecks** into controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.

I raised this at the Friday meeting. It would be a poor ACP if it was to complexity and bottlenecks!.

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Final Design Principles Feedback Form

Creating airspace design principles that will guide the development of Glasgow Airport's airspace change proposal. (Stage 1B)

Stakeholder Details

Thank you for taking the time to take part in Glasgow Airport's engagement process, regarding the development of our airspace change proposal.

The following pages have been designed to capture stakeholder feedback in response to Glasgow Airport's stage 1b draft design principle statements.

Please can you review the draft design principle statements produced by Glasgow Airport and return any feedback you have by **Wednesday 23rd October 2019.** Feedback should be submitted via email to **airspace@glasgowairport.com**

Name	[redacted]
Title	[redacted]
Organisation	Uplawmoor Community Council
Telephone	[redacted]
Email Address	[redacted]

Do you have any comments on the attached Refined Design Principles document?

Following attendance at the second workshop, the resulting Round 2 Report Appendix C summarises the feedback received from Stakeholders on the original draft design principles. We are surprised to see that several of the concerns/comments raised by UCC are not noted in Appendix C and seek to understand from Glasgow Airport how they have selected and/or omitted comments in order to create Appendix C.

Reviewing the comments in the feedback we would confirm that the elements which our community feel are most relevant to our concerns and would expect to be captured in any final version of Design Principles to be presented to the CAA at the end of this first Gateway are:

- The final design principles must reflect the latest CAA guidance and the source UK Department of Transport, Air Navigation Guidance (2017), page 11, which states that: "the CAA should ensure that the aviation industry takes account of the elevation (height) of the specific surface level involved when developing its airspace design proposals. This is particularly the case when such proposals may affect airspace at an altitude lower than 7,000 feet (amsl) and in circumstances where the actual height of the land directly beneath may be hundreds of feet above sea level". We retain our position that 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.

- 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.
    - *Environmental priorities for airspace below 4000ft is set out in the Department for Transport Air Navigation Guidance. It states that "...there is a need to secure an efficient use of airspace and to ensure that aircraft operations emissions are minimised, in the airspace from the ground to below 4,000 feet the government's environmental priority is to limit and, where possible, reduce the total adverse effects on people..."*
    - ***We would therefore seek confirmation that any Design Principles adhere to these guidelines***
    - *CAP 1616 states on page 34 Item 113 that "...Change sponsors must seek feedback from stakeholders on the proposed airspace change proposal Level at the design principles stage, as one of the key engagement points. This must include discussion about the altitude of the change and must consider the height of local terrain (in relation to mean sea level).*
    - *Our representative does not recall any discussions at the second consultation workshop on this point and* ***we therefore seek confirmation from Glasgow Airport that any final design principles will be clear on any subsequent impact on communities represented at the consultation in relation to their location and height above sea level compared to any proposed airspace changes in reference to height of aircraft as they fly over their airspace***

- Glasgow Airport must demonstrate that they have considered the impacts that any changes in noise will have on those significantly affected by noise, most importantly the impacts on communities' health and quality of life as a result of noise.
    - *UCC are concerned about longer-term health effects which may not be measurable directly but will unquestionably be real, not just for physical health but also for mental health. Elevated noise has been linked to hypertension, heart disease and decreased school performance*
    - *Previous proposals by Glasgow Airport indicated a significant increase in the number of 65dB overflights in the airspace swathe above Uplawmoor. Noise levels will be disruptive to teaching in the local village primary school and therefore the number of incidents where 65dB levels occur must be limited or avoided.*
    - *Noise respite arrangements should be predictable and transparent for communities,*

airspace users and air traffic control so as to not create undue complexity.

- Additional airspace capacity should be used to facilitate a reduction in aircraft emissions for traffic operating into and out of Glasgow Airport
  - ***We would ask that Glasgow Airport confirm at which point, in terms of height, aircraft currently exit their airspace*** *and how any proposed change will decrease aircraft emissions as a result of leaving their airspace at an earlier point during take-off/departure*

- Additional airspace capacity should facilitate a reduction in the intensity of operations during more anti-social hours
  - *The initial Summary of Feedback made reference to anti-social hours as being "...the evening and night-time period..." We would request that this should also include the early morning period ie in advance of 07:00.*

- The noise impacts generated by the airspace design options should be compared consistently against an impartial & credible 2019 baseline in order to compare different these options consistently and transparently.
  - *In Aug 2018* [redacted] *Johnson wrote to UCC to advise that proposals put forward by GA were "...subject to a change in policy which would alter how our proposals would be taken forward but that no changes have or will be made to Glasgow's airspace until we have sought your views as part of the new process..."*
  - *UCC have submitted complaints and raised concerns that, since their previous proposals were withdrawn, Glasgow Airport have increased the level of flights departing over the airspace above Uplawmoor*
  - ***We would ask that the current permitted level of departures authorised to use the airspace above Uplawmoor is confirmed*** *and that a comparison against this and the total of all flights departing Glasgow Airport during 2019 is made before any agreement to use data relative to aircraft departure from the airport during 2019 as part of the development of any new airspace alteration proposals*

- 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 or affected by aircraft noise

- Any proposals must avoid overflight of areas that are currently not affected by aircraft noise.

- UCC also seek confirmation that any design principles for airspace design options should consider the broader impacts on the ecology of the region and the effects on non-human life.
  - *According to CAP 1616 Appendix B Environmental Metrics and Assessment Requirements, any proposals to change airspace must consider the:*
  - *"...impacts upon tranquillity with explicit consideration of any changes to routes and/or traffic patterns that may affect either an Area of Outstanding Natural Beauty (AONB) or a National Park, with specific regard to impacts upon tranquillity.'*
  - *The Department for Transport notes in their Air Navigation Guidance (2017), that where practicable, it is desirable that airspace routes below 7,000 feet should seek to avoid flying over areas of outstanding national beauty and National Parks and furthermore, the CAA should require this to be considered by sponsors when developing their proposals.*
  - *UCC seek clarity from Glasgow Airport that they will undertake an assessment of how any future proposals would impact on areas within our locale such as Loch Libo and the part of Caldwell Wood that form part of the local Site of Special Scientific Interest (SSSI) as areas of 'tranquility'.*

[redacted]
From: [redacted]
Sent: Tue, 22 Oct 2019 10:14:17
To:
Cc: [redacted]
Subject: Glasgow Airport design principles v 1.0 09/10/2019
Sensitivity: Normal

Dear [redacted]

I enclose reply to request for comments regarding draft design principles following the discussions held at the meeting on 3rd Oct. 2019.
Yours sincerely, [redacted] Bearsden East Community Council

Comments:

In section 6 (3rd bullet point) of the original development document It was stated that a trade-off between climbing quickly and turning early to avoid noise sensitive areas and buildings may be necessary. This is a very understandable principle and clearly implies that early turning which actually necessitates the overflying of sensitive areas should not be permitted when considering airspace design.

This low level turning was discussed in the group at the initial ACP meeting on 10th Sept. 2019 and reported at the time to the presenter. There have been previous discussions and massive objections regarding runway 05 departures when it was it proposed that early turning resulting in low level flying over a densely populated area with both public halls and pre-school, primary and secondary schools should take place (GALGA and FLEMN)

At the meeting on 3rd Oct 2019 the issue of low level turning appears to have been included in what is now point 7 in the refined list of design principles (final) v1.0 dated 09/10/2019. It is however such an important point that I suggest that - low level turning on departures which necessitate the overflying of areas as described in the previous paragraph - cannot be part of the Glasgow Airspace Proposal and should be declared as such in the final (refined) list of airspace design principles.

I look forward to your comments on this matter.

Thank you, [redacted]

Design Principle Reference	NATS Comment
General	Upon review of principles that state "out of scope of this ACP" - for the avoidance of doubt we recommend these are added to an appendix at the back of the document to ensure the in scope principles are clear.
1.5	Please confirm the origin of this statement. Is this a requirement to reduce terrain clearance levels compared to today?
2.3	Delivering capacity alone may not reduce holding. We would suggest that airspace management tools and scheduling in conjunction with CAS availability would deliver capacity benefits
2.4	We believe this is more a Noise and Environmental consideration than a Capacity related one.
2.5	Increase in CAS would not be directly proportional to workload. However an increase in movements and tactical interventions would be a more relatable measure. Consider using the term 'movements'.
2.7	We believe this is more a Noise and Environmental consideration than a Capacity related one.
2.8	This is an Airport Scheduling issue rather than an Airspace Design Principle
2.9	No direct comment - however procedures today do allow access to airspace for other users and experience across FASI-N suggests complexed airspace designs does limit access/increases safety risk so should be designed as simplistic as possible
3.2	As discussed in the Workshop, Safety is Number 1 priority over everything else so noise may be impacted if target level of safety is not met, suggest update to re-iterate this.
3.6	Should presents a constraint that may not be met due to other reasons such as terrain, other airspace owners etc. Consider should to be replaced with 'may'
3.7	There may be technical ATC System or procedure constraints which limit this and flexibilty in this statement is required to reflect this
3.10	There may be technical ATC System, en-route network or procedure constraints which limit this and flexibilty in this statement is required to reflect this
3.13	See comment 1.5
3.15	There may be technical ATC System, en-route network or procedure constraints which limit this and flexibilty in this statement is required to reflect this
4.7	Is this a procedures related activity rather than airspace design requirement?
4.8	Reference 2.9 and experience with other FASI-N Projects. Designing complex airspace solutions may create additional Safety risk - therefore keep it simple.
4.9	Is this a procedures related activity rather than airspace design requirement?

4.11	NATS En-Route network re-design is being managed alongside the below 7000ft Glasgow Airspace Change through the FASI-N Programme. There will be design principles and criteria to be shared with Glasgow providing the access gates to the en-route network. Consider re-word: "The Re-Design of Glasgow Arrival and Departure Routes below 7000ft should be designed in coordination between the Airport and NATS against agreed and fixed entry/exit points in the en-route network/airways".
5.3	Different SID routings dependent on runway end/time of day etc. may cause technical and safety issues which will need to be identified and mitigated. Please ensure NATS is involved in this design workstream to agree principles
5.4	Adding fuel or distance to routes, however small, adds up over a day/month/year. Experience of increasing routings is not well received from airlines (even 0.5nm) therefore please add airlines to this as well as local community and environment stakeholders to achieve the correct balance
5.5	We would suggest that airspace management tools and scheduling in conjunction with CAS availability would deliver reduced holding than an airspace design
5.7	Design and Management of this would need to be carefully managed. Any impact to NATSAirspace (above 7000ft) will need to be co-ordinated into Network Designs and impact/exposure to NATS communicated early in the process
5.9	Noted - out of scope. Refer to comment 4.1. Request this principle is removed as it cannot be substaniated with evidence.
5.10	Please confirm the origin of this statement. Is there a requirement for NATS to consider here?
6.1	Designing a TMA against the lowest of PBN capability increases design in-efficency which may lead to delays. The AMS refers to RNAV1 standards, therefore we recommend this principle is updated to reflect this and the airport offer procedural based solutions to aircraft which do not meet this standard.
6.2	Please define the use of tools - we assume this will affect the en-route network and should be defined to allow NATS to evaluate the principle in future TMA Design activities
6.3	Define RNAV Visual Approach Procedure - if it is visual, is a procedure required?

Design Principle Reference	NATS Comment
5	It is unclear to NATS how airborne holding can be mitigated against an unknown design and airport schedule. It should be documented that Glasgow Airport is part of the wider Scottish TMA therefore NATS will continue to develop airspace and manage capacity based on the requirements of the airspace users.
7	The respite requirements will need to be co-ordinated with NATS Prestwick to manage the interface with the En-Route Network. Designs would have to be discussed and agreed to ensure suitable compatibility with the En-Route Network. While options may be offered by Glasgow, without agreement from NATS Prestwick, options may be limited due to airspace constraints, safety or ATC system limitations
13	Direct mention of a flight level to design to i.e. FL90 is outside of Glasgow Airport Airspace Responsibility and we requested that the use of preferred level co-ordinated with NATS Prestwick should be the preferred terminology. This provides greater flexibility to both Glasgow and NATS Prestwick. NATS would require this reference to a specific flight level removed until detailed designs are agreed.
n/a	We requested that included within the Design Principles is a reference to CAP1385, this would ensure clear ownership and responsibility for design development and assurance of designs. This approach would ensure clear responsibilities between Glasgow and NATS Prestwick and avoid issues later in the desigh phases and is a key lesson learnt from other airspace changes NATS has been involved in during the last 5 years.

NOTES AND RECORDED FEEDBACK FROM GLA STAKEHOLDER WORKSHOPS 1-5

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Development of design principles for Glasgow Airport's airspace

GLA ACP - Stakeholder workshops on 9 & 10 September

Location: Corinthian Club, Glasgow, 191 Ingram St, Glasgow G1 1DA

becg.com

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Overview

This document is an overview of the workshops held with stakeholders representing General Aviation; Community and Interest; and Local Government and Business groups regarding the development of design principles for a change in Glasgow Airport's airspace.

This document details what potential themes and issues were raised for consideration as part of the development of Southampton Airport's airspace design, across all these workshops.

The objectives of the workshops were to:

- Increase awareness and understanding among participants about the need for airspace change and of the process for bringing it about
- Gain an understanding of what key stakeholders believe are the main constraints and opportunities connected with the use of airspace and any proposed changes to airspace use.
- Provide Glasgow Airport with an insight into participants perspectives as to what factors should be considered when developing the design principles around changes to airspace.
- Develop a forum which can meet further to assess views on how the above findings are being used to shape and frame the design principles and to enable effective engagement throughout the Airspace Change Process (ACP).

Workshop format and design themes for discussion

Presentations were given by either [redacted] or [redacted] from Trax, who highlighted the six themes that were to be outlined and discussed throughout the workshops. Those six themes were:

- Safety (overriding priority)
- Capacity
- Noise
- Airspace access and integration
- Flight efficiency
- Use of advanced navigation technology

The running theme for each workshop is listed below:

- Trax to introduce each theme through a PowerPoint and provide an opportunity for participants to ask any questions
- Participants then asked to discuss each theme amongst their table with their spokesperson recording key points
- After each theme is discussed as a table a nominated spokesperson from each table was asked to report back to the room

General Aviation Stakeholder Workshop

This workshop was held at the Corinthian Club, Glasgow on Thursday 27th June 2019, between 12pm and 4pm. Attendees included persons within the aviation industry representing commercial airports, aviation emergency services, gliding clubs and societies, and companies providing private charter aircraft and helicopters.

Internal Attendees and Roles

GLA attendees

- [redacted] ([redacted] – [redacted] provided an introduction, giving a high-level overview of the ACP process and welcoming all stakeholders present.
- [redacted] ([redacted] – [redacted] there to observe the session and provide additional information to stakeholders' questions, where necessary.
- [redacted] ([redacted] there to provide additional information to stakeholders' questions where necessary, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.
- [redacted] ([redacted] there to provide additional information to stakeholders' questions where necessary, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.
- [redacted] ([redacted] - NATS: there to provide additional information to stakeholders' questions where necessary, particularly regarding the interface of airspace between NATS and airports.
- [redacted] ([redacted] - NATS: there to provide additional information to stakeholders' questions where necessary, particularly regarding the interface of airspace between NATS and airports.

Trax attendees

- [redacted] ([redacted] – Technical [redacted] presented in greater detail how GLA will develop a set of design principles for Glasgow Airport's airspace change. [redacted] presented technical details surrounding the need for the ACP and was also there to provide additional information to stakeholders' questions, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.

BECG attendees

- [redacted] ([redacted] – [redacted] facilitated the room discussion and ensured that all key objectives were met throughout the session.

Pagoda attendees

- [redacted] ([redacted] – [redacted] annotated and facilitated the discussion on Table 1. Asked questions to guide discussion when appropriate.

- [redacted] ([redacted] annotated and facilitated the discussion on Table 2. Asked questions to guide discussion when appropriate.
- [redacted] ([redacted] annotated and facilitated the discussion on Table 3. Asked questions to guide discussion when appropriate.

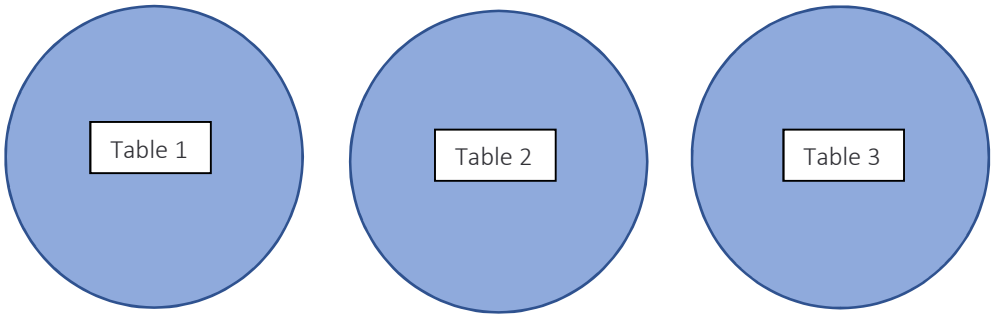
Table Plan and List of Attendees

Workshop 1

Date: 9th September 2019

Stakeholders: Aviation Community

Workshop Time: 12pm – 4pm



	Organisation	Name
Table 1	Thomas Cook Airlines	[redacted]
	Glasgow Prestwick Airport	[redacted]
	Airspace-4-All	[redacted]
	Lanarkshire and Lothian Soaring Club	Kevin McGrath
	Guild of Air Traffic Control Officers	[redacted]
	NATS FASI-N rep	[redacted]
	Association of Remotely Piloted Aircraft Systems	[redacted]
	Gama Aviation	[redacted]
Table 2		
	Glasgow Flying Club	[redacted]
	British International Freight Association	[redacted]
	NATS Prestwick Centre	C[redacted]
	Scottish Passenger Agents' Association	[redacted]
	Scottish Ambulance Service	[redacted]
	Jet2 and Airlines UK	[redacted]
	[redacted]	Light Aircraft Association
	Edinburgh Airport	[redacted] June McClung
	Flybe	[redacted] Keith Sivell (moved between table 2 & 3)
Table 3	ACOG	[redacted]
	Cumbernauld Airport	[redacted]
	Bristow Helicopters Ltd	[redacted]
	easyJet	[redacted]
	Scottish Aeronautics & Rocketry Association	[redacted]
	British Parachute Association	[redacted]
	Loganair	[redacted]
	Strathaven Airport	[redacted]n
	Ryanair	[redacted]
	Flybe	[redacted]
Observer	Independent Commission on Civil Aviation Noise	[redacted]

Notes from each table

Each table had a member of staff from Pagoda to facilitate and record any issues relevant to the themes discussed. These notes are shown below in relation to each design theme for consideration.

Table 1

Initial	Name	Organisation
[redacted]	[redacted]	Thomas Cook Airlines
[redacted]	[redacted]	Glasgow Prestwick Airport
[redacted]	[redacted]	Airspace-4-All
[redacted]	Kevin McGrath	Lanarkshire and Lothian Soaring Club
[redacted]	[redacted]	Guild of Air Traffic Control Officers
[redacted]	[redacted]	NATS FASI-N rep
[redacted]	[redacted]	Association of Remotely Piloted Aircraft
IG	Ian McGill	Gama Aviation

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

[redacted] – safety as a definition is vague.

[redacted] – asked to define what a principle is. This was clarified by GLA.

[redacted] – does safety programme define the actual level of safety? NATS classification sits behind this.
[redacted] – must maintain or increase the current safety level.

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] – we don't use the airspace very often

[redacted] – all good having capacity below 7000 ft but need to focus on interface – both between airports and NATS. Need to ensure arrival and departures aren't disrupted due to poor interface between NATS and airports.

[redacted] – agreed with [redacted] view

[redacted] – Edinburgh Airport are doing things in isolation, should they be talking to GLA?

[redacted] – lack of coordination in south of England too. Luton, Stansted. Net result is more controlled airspace. Less complicated system in Scotland. Interested in efficiencies. Capacity

of lower airspace is finite and pressures from other users. CAA share the air advocates equal access of airspace – GLA need to focus on this. GLA is 10x less efficient than Gatwick. Look at sq. [redacted] with CTA. Too much airspace can't be efficiently controlled. The problem is going to get worse – more and more drones operating. Large airspace needs to be controlled.

[redacted] – capacity of airspace must be tied to runway capacity.

[redacted] – Runway, rapid exit taxiways needed for efficiency.

[redacted] – number of air transport movements are key. Freight needs to be considered also.

[redacted] – do we have enough capacity for an adverse event.

[redacted] – two min and 1 min spacing. Fan departure to allow greater departures. Gatwick is all jets flying at same speed. Glasgow has a mixture of aircraft – will this affect design?

[redacted] – containment policy needs to thorough.

[redacted] – airspace constraints impacts on capacity.

[redacted] – can design different point and merge procedures to increase capacity?

[redacted] – flight paths can have curved approaches. Integrated procedures between NATS and other airports. Manage interfaces

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] – not closely involved at Prestwick. Other experience – significant work done on noise footprint. Data brought together. Most noise complaints come from GA – S&R, helicopters. Time a significant factor.

[redacted] – this is DFT's biggest priority. [redacted] countered that Co2 may replace this.

[redacted] – fan preferable route. More fuel efficient to accelerate at lower altitude but this creates more Co2. Less noisy to do so at higher level

[redacted] – a fan system may disperse the noise to a wider area.

[redacted] – maybe further improvements in technology will reduce noise.

[redacted] – Gatwick have limited approaches at certain times of day for certain aircraft.

[redacted] – respite is an important principle. Curved approaches in good weather could give respite at certain times of the day.

[redacted] – not all aircraft are equipped to do this.

[redacted] – no capacity for curved approaches.

[redacted] – curved approaches could be more suitable for more modern aircraft. Older aircraft should use traditional approach as they are restricted.

[redacted] – Bearsden and Milngavie areas of Glasgow – problems with arrivals due to disturbance

[redacted] – departure intervals down to 1 min? Perhaps create more noise often

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] – flexible use of airspace. If not being used by GLA, could be given to GA users. This works well in Frankfurt.

[redacted] – this already happens at Edinburgh.

[redacted] – would like helicopter corridors. IFR corridors.

[redacted] – appropriately sized airspace makes it easier to control.

[redacted] – PW had a larger airspace, now much smaller. Less of an issue with GA because airspace is smaller and less time to go around.

[redacted] - Commercial traffic should be contained and let able to go around.

[redacted] – integration – airports being at different stages is difficult. Timelines – can we align the processes.

[redacted] – arrivals and departures are set. Transitions cause an issue.

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] – putting aside routes and integration. Avoiding holding – spacing and timing – flow management instead of holding patterns from hundreds of miles out would be better. Don't want to hold people on the ground.

[redacted] – managing the groundwork too.

[redacted] – needs to be a mechanism that encourages airlines to arrive on time. Issue for airspace management and airport management.

[redacted] – relief routes would be helpful.

[redacted] – speed differentials – more information needs to allow aircraft to arrive in order.

[redacted] – predictability – speed and track miles. Planning means you can fly more efficiently.

[redacted] – speed control applied early enough to help.

[redacted] – speed control means that air traffic control doesn't have to intervene with flights as often.

[redacted] – anything that can be done on fleet mix?

[redacted] – flow management data needs to be accurate to have an effective system.

[redacted] – does Glasgow have any data? Arrival management tools?

[redacted] – if we make route planning too complex, that will have impact for the airlines, especially on air crews.

[redacted] – too many options, human factors will impact with multiple departure routes. Airports want to see what's in the FMC.

[redacted] – technology also has an impact on operations.

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] – don't forget the visual clues which are extremely important to GLA. Embrace the full suite of technology available.

[redacted] - ILS transitions need to be considered.

[redacted] – better technology may allow you to reduce separation standards. Don't quite have the same margin of error.

[redacted] – more capacity on ATCO side. Should reduce the workload and allow you to handle other things more easily.

[redacted] – if flights are closer together then might not have the opportunity to go elsewhere.

[redacted] – if you do this routinely – then procedures are already in place. Try to keep it as simple as you can. Should have capacity if you are making best use of space.

[redacted] – human risk factors. Monitor technology rather than actually do things with the airplane. The use of air traffic monitors rather than air traffic controllers needs to be considered.

[redacted] – with the right mix and habits there is no reason why that would be a factor. Reduces workload and opens up controller's time to deal with other things such as GA. There needs to be a buffer outside containment area, which can be done. Ways of improving things via technology. Too many types of technology – only mode S can be seen by air traffic. A lot of airlines more conspicuous. Pressuring CAA to give long range focus to allow technology companies to focus.

[redacted] – not just navigation but communication

[redacted] – need ability to integrate current tech with what is required

Table 2

Initial	Name	Organisation
[redacted]	[redacted]	Glasgow Flying Club
[redacted]	[redacted]	British International Freight Association
[redacted]	[redacted]	NATS Prestwick Centre
[redacted]	[redacted]	Scottish Passenger Agents' Association
[redacted]	[redacted]	Scottish Ambulance Service
[redacted]	[redacted]	Jet2 and Airlines UK
[redacted]	[redacted]	Large Aircraft Association
[redacted]	[redacted]	Edinburgh Airport

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

[redacted] – nothing is 100% safe and the risk to safety is placed on aircraft users

[redacted] - airspace changes in UK – anything other than jets not allowed into it – need to go around – even if flying IFR – if we're going to shut the whole of UK off to just commercial traffic industry is in dire straits (can't go through airspace – had to go around and down to the Borders) can't go down the east coast – need to go to north sea and around.

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] – availability and runaway and through traffic in airspace which can affect the runway.

[redacted] – anything below the jets are 3rd class citizens – Manchester corridor example of where it is difficult – a very narrow corridor.

[redacted] – in my previous job done work on airspace change in little bits – it is a typical British compromise. It is so complicated it is no wonder that there are airspace issues – Manchester corridor is a classic example – the idea of this new process is that if you get all this bit right then it won't end up with a British compromise that is not practical – if you had a blank bit of paper what would it look like? GLA need to put it all together.

[redacted] – airspaces are impossible to get through (for private).

[redacted] – why can't we separate the traffic reduce loads?

[redacted] – our maps are so blocked up – can't read them – small corridor to go through Cumbernauld but there is a gas petrol station and can't go above a certain number of feet there – that far out no need for them to have from surface up to 3000 feet.

[redacted] – need GPS system to navigate through the corridors.

[redacted] – there is bigger use of personal use of equipment on iPad's and pilots are starting to learn that but a lot from the CAA saying that you're not allowed to use it, but then read somewhere else to use – so the guidance is not clear on whether it can / can't be used?

[redacted] – and there is no training for a PPL to use it.

[redacted] – if you're told not to enter airspace it isn't a case of don't ever darken my door – just saying can't at this time – what you need to say is what do you need to fly in these areas – we should be able to come up with designs that are better than the 1950s.

[redacted] – up until recently using equipment from the 1920s (whizz wheel).

[redacted] – flights growing – potential aircraft transiting through – using Scotland as a hub that will increase traffic – so many routes are thin.

[redacted] - Simplification of the airspace = not just the size, how many joins, changes ([redacted] added the shaped).

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] – lives right under a GA zone

[redacted] – Loch Lomond zone is entry / exit lane – the altitude is wrong. Glasgow can't see you or speak to you if you are under 2000 ft in that area – Gartocharn – need to climb over the loch to about 2500 feet to speak to Glasgow.

[redacted] – need to consider residents.

[redacted] – get up as quick as possible, high as quick as possible, but bring in respite.

[redacted] – continuous climb / continuous descent.

[redacted] – 80% of commercial traffic – waiting to fly off to 5 miles and then turning 380. For 777's, get them as high as possible and then turn them away – can't help coming in over the city but can spread out the impacts.

[redacted] – if you narrow people into a narrow lane than of course you will get noise – biggest complaints we get at the club are Grobs (RAF) coming from Erskine or Kilpatrick – they are limited to the same paths as us though (RAF Grobs) and they have clearance to climb to 3000 ft, so why not us? That would reduce noise impact.

[redacted] – performance-based navigation - don't go over the top and put respite routes everywhere. Need one primary route and one or two respite routes during the peak hours – alternating traffic between the 2 – continuous arrivals we could shut throttles at 30,000 feet and not touch them again until closer to the runway – we use Lanark as an arrival for Glasgow.

[redacted] – main consideration for communities is night flying – reduce it where possible – brought in an environmental charge to discourage airlines flying through the night.

[redacted] - can do it by incentivising airlines not to fly at night.

[redacted] – charge a light aircraft more for landing – they go on tonnage and we get a flat rate – we pay more than Ryanair.

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] – redesign of what the runway is now – nice and simple – racetrack design.

[redacted] – don't see that we need CAs from surface for commercial operations – so minimum amount that we need to do that safely we don't need any more than that – Helensburgh had general handling area and people went out there and did what they liked. For us our main arrivals are from the south – providing proper connections are there for wedding cake very happy with it

[redacted] – you guys are coming out from the south, why?

[redacted] – it should be a clean sheet approach.

[redacted] – forget the wedding cake idea just start from scratch – whilst taking into consideration the different needs of the airports.

[redacted] – coming up at 5000 & 6000 feet needs to be considered.

[redacted] – all agreed on the clean sheet idea?

[redacted] – this is national infrastructure we are talking about.

[redacted] – but Government doesn't recognise it as national infrastructure – we've argued this before.

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] – with regards to commercial stuff more away, build a new route be within 3 miles above Clydebank in terms of commercial stuff that helps noise and whole efficiency package and that is for arrivals.

[redacted] – kind of do that when they are coming in with VFR turning in at Bearsden and coming in - speeds things up when they approach like that.

[redacted] – predictability, punctuality as well as efficiency.

[redacted] – we can predict what the jets are doing to do but what the guys told me is that there has been complaints – we need a system where we know who is flying the aircraft – is it a student, recognised pilot or an instructor?

[redacted] – I wouldn't expect a student to come in the way that I come in – we used to have personal calls signs, for example I was told to come in tight but someone else wouldn't have been allowed to do that – we also have to wait on the jets all the time – or jets come down who are not ready and they sit at the hold and they are not ready to go – the better you can read air traffic and air traffic can read you, the smoother airspace operations should be.

[redacted] – Government policy is consideration of noise up to 4 / 7000 feet but at Edinburgh still get complaints above that – noise is still a consideration over 7000 ft in areas – so in some areas it should still be a consideration.

[redacted] – need to be careful where you redesign to.

[redacted] – complaints depend on the wind direction.

[redacted] – Stockholm example of futureproofing (showed map) rather than having standard out to Milngavie. GLA can design ACP to be something similar to Stockholm.

[redacted] – continuous decent and arrivals and continuous departures – can stabilise at 2 miles – be on approach for 3 miles maybe depending on what approach it is – early turns for us is no problem as long as it not under 400 feet, unless it is an absolute emergency.

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] – top down with aircraft we have IMP – not sure what level but near enough everything – upgrading aircraft constantly – free up airspace and time – all commercial aircraft should be to high specification.

[redacted] – high spec for integrity or facility?

[redacted] - which would allow capacity GA traffic and give ability to everything commercially.

[redacted] – if the kit in the aircraft is okay then I agree.

[redacted] – but kit can still go wrong.

[redacted] - IKO specification is changing everything is going to be RNP (required navigational performance) – need to understand that it is changing. I specialise in this and working on getting certification for the airline and it is a very difficult area – some of our jets are 0.1 – equipment based – most jet equipped airlines are at standards already – spacings (vortex) will stay the same but amount will change.

[redacted] – does this have an effect on everyone's efficiency? Is there a standard that airlines need to aim at to be more efficient?

[redacted] – sit on Gbass panel – international standards are coming in – different varieties for GPS coming in (Russia, China, America have own boxes) – all nationalities – all work differently so need different boxes on aircraft so for long haul operators it is a nightmare and some countries insist that you use this system – (China would never let you use / or they would use / an American system).

[redacted] – so compatibility internationally needs to be mentioned?

[redacted] – yes and future proofing.

[redacted] – you need approach to be set up before you guys can use it?

[redacted] – with this airspace proposal would hope they would put in and design RNP/ approach.

[redacted] - you don't get the same dispersion.

[redacted] – so you could track it away from the houses?

[redacted] – Yes, most international operators are equipped for operations at any airfield - if one system more efficient but we're never going to have it.

[redacted] – American GPS system the only truly global system – they have ground systems all over the world, so they don't disappear – Chinese doesn't so do disappear in blind spots.

[redacted] – first statement needs to be more than tolerably safe – got to be better than today otherwise we shouldn't do it.

Table 3

Initial	Name	Organisation
[redacted]	[redacted]	ACOG
[redacted]	[redacted]	Cumbernauld Airport
[redacted]	[redacted]	Bristow Helicopters Ltd
[redacted]	[redacted]	easyJet
[redacted]	[redacted]	Scottish Aeronautics & Rocketry
[redacted]	[redacted]	Ryanair
[redacted]	[redacted]	British Parachute Association
[redacted]	[redacted]	Loganair
[redacted]	[redacted]	Flybe
[redacted]	[redacted]	Strathaven Airport

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

[redacted] – Mitigate risk using safety management systems

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] – Increase in capacity for departure numbers to suit the contemporary environment applicable at the moment.

[redacted] – Too large, cannot accommodate general aviation. Cannot raise the traffic due to hills. Choke point between Strathaven and Stirling, previous change amended it, but has led to increase in noise complaints. Carron Valley reservoir approach cannot be used as safe method of transit - Needs to be raised and reduced in width, needs to have a parallel approach.

[redacted] – Should be taking existing airspace and start again from first principles. Different users have very different requirements. Rather than discuss nooks and crannies, completely amend the lot. Below 3,500 ft.

[redacted] – Glasgow very generous for GA. But generous as they don't utilise all the airspace under their control, they just hold it under control.

[redacted] – NATS issue, lack of staff. This has now been split, so it has significantly changed. Still need to have sufficient staff to operate correctly.

[redacted] – Air support provider needs to provide for everybody.

[redacted] – Increase in capacity for all users GA and commercial.

[redacted] – Commercial is predictable and disciplined. Flight paths need to be narrowed to fit commercial which can fit into more restricted spaces/limit to fit the rest in.

[redacted] – Know what is happening all over, but not actually needed. Comprehensive info is given. NATS have been talking to amazon about drones in Glasgow.

[redacted] – Cumbernauld airport is also trying to get a GNSS (check) approach, hampered by being so close to Glasgow.

[redacted] – Review of all available technology to provide an increase in capacity. Review all modern nav aids to fit the modern environment of operation. Clean sheet design can use modern methods to revise it.

C. [redacted] – Need to get there first, then fit the relevant format/emphasise that they shouldn't go the way of most large operators, think outside the box. Rationalise it and sometimes relinquish control to more relevant groups and parties depending on use of airspace.

[redacted] – Future proof capacity.

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

*[redacted] – moved tables to table 3, no longer part of discussion

NATS – Is it better to continue with existing policy or spread the load/overfly new areas/overfly AONB as less population. Is it better to overfly current community, day and night routes?

[redacted] – Respite routings, can add complexity at the end. Can reduce or increase airspace.

[redacted]- still continue over current routes rather than changing it to different routes. Knew what they were getting into, etc.

[redacted] – Noisy departure end off to the east, less densely populated area, so reduced noise complaints.

[redacted] – Is it easier to have variable departure areas?

[redacted] – Departure rather than arrivals the problem.

[redacted] – Commercial traffic not that noisy, all the other stuff causes it.

[redacted] – Duration of noise, landing aircraft different to departing. Whilst it is "fair" to split across areas, people who would then get it who didn't have it, would object to it.

[redacted] – Lots of work being undertaken in design to reduce noise. Even microlights are doing this now. Even light aircraft are getting quieter. CAA have made it difficult to fit "hush kits"

to airplanes. Zoning of housing development a problem, but still building housing in unsuitable places.

[redacted] – Helicopters, don't want to go above 4000 ft, nosier than some large jet aircraft approach speeds slower. High powered a problem. Low level noise abasement corridor needed. Semi split it through zoning, low level corridor required

[redacted] - Climb gradients to the north.

[redacted] – Previous designs were looking at 7%, needs to be considered.

[redacted] – Training very important. Pilots tend to be conservative and want to minimise impacts.

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] – Easier it is to people to have access of airspace, the safer it is. Build familiarity, builds confidence.

[redacted] – If there is not a really good tie-in with Edinburgh and Glasgow departure corridors then it will cause issues. Need to be co-ordinated, commercial pressures need to be countered with shared and equitable efficiencies. Need to talk to NATS about making sure the systems are properly integrated. Airspace should be designed to allow equal access from all operators.

NATS - Aspiration is to de-restrict growth. All should have unrestrained access, but then boundaries/sovereignty issues come into play.

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] – Glasgow dominant, if come in from the south, traffic density on the top means a big hit. Starts from 6000 ft, but taps coming up already to drop a gear. Depending on transition, put them at 5000 ft per minute. Could be a moot point, but how do you reconcile the larger airports with larger corridors and flight paths? Prestwick impact - reconcile airspace so it is to the mutual benefit of all. It is relatively straightforward

[redacted] – Designated corridor could deliver this.

[redacted] – As no longer constrained, no longer coming from West. Split the two elements, Prestwick further west, deconflict the routes. Independent routes for airports need to be considered.

[redacted] – Deconflictions and efficiency needs to be coordinated between airport operators.

NATs - independent interactions and routes could be designed that mean they do not conflict. As soon as deconflicted, increases numbers.

[redacted] Glasgow very keen on CDAs, but turboprops can't do this. Embraer's can do this, cannot do them from the north on Dash-8s. Southend start gets driven down quickly. Needs to be point to point rather than lots of CDAs which are becoming more of a problem.

[redacted] – All London airports are inefficient like this.

[redacted] - Gatwick scenario needs to be avoided.

[redacted] – Efficacies for turboprops, leave as high for as long as possible. Cannot fly CDAs with a turboprop. Cannot do the climbs and constrained by the gradients. Very tough with turboprops. Must go a long way which may lead to issues.

[redacted] - Final holding issues with approach. Do we need an access corridor?

[redacted] – Widen or narrow it.

[redacted] - Feeds into the final area in terms of approach. Lots of holding that isn't ideal.

[redacted] – Could be a potential safety issues but could lead to improvements.

[redacted] – Shorter route would be better, could do so from a greater area out. Big issue is that they have to climb to Loch Lomond, takes a large fuel burn flying in the wrong direction in order to turn to the airport. Efficiency is down to controllers to implement.

[redacted] – Historic turning circle and approach, does not impact turboprops.

[redacted] – Sometimes jets permitted to use these, saves fuel but it at the discretion of air traffic controller.

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] – Loganair cannot do this. Mod just available from SAAB, but owners not willing to spend money. Really bad place for this. Need to be ADSP next year, 35 of the fleet not able to do it as not equipped for it. ATRs, want it all, but can't have it. Not in a good place in this timeframe, would still have a legacy fleet that cannot accommodate the new change. This would need to accommodate them. If the VOR is removed, then the fleet won't work. The emergency turn is based on the VOR, will the NDB remain?

[redacted] – VOR is the one to go.

[redacted] – One of the western isles is based on it. This will be replaced.

[redacted] – Cannot use any of the new equipment until 2025. New fleet should come out then but cannot guarantee it. Being replaced with ATRs and lease aircraft not capable of supporting new technology with the current fleet.

NATS – airport needs to keep legacy equipment designed for lack of modern equipment.

[redacted] – Need to ensure it isn't restricted as a change of this airport change.

[redacted] – Had a similar issue with their aircraft. Integration is difficult, will also need legacy support.

[redacted] – Needs to make it clear that the fleet isn't supported.

[redacted] – This is the enabler for all the extra facets to come forward. Without the removal of legacy systems, it is all pie-in the sky. Need to sort airspace sovereignty issue, unless people start investing in this then the changes won't work.

[redacted] – Would you then look at nav-routing. Looking at redundancy of SDC, then it would efficiently shut the system without the link. As long as a person is providing the reroute it would provide redundancy and it would work. Also provides redundancy over the entire system.

[redacted] – Revolutionises airfield operations.

[redacted] – System needs to be dragged into the modern era.

[redacted] - Whatever is put into place needs to take full advantage of the changes and the latest technology. But also needs to be resilient enough to support legacy aircraft and systems otherwise the airport will not be available to service some fleets.

[redacted] – Need to embrace the technology. Need a dual system to support both ends, also there is an issue in terms of emergencies i.e. could not land or use Glasgow if not compliant.

[redacted] - 2023 until it (these proposed changes) comes in, likely to have moved on (technically) from then and need another round of consultation to deal with the next set of changes.

[redacted] – Need to accommodate the current and previous navigation aids, otherwise it limits usability and access.

Notes from summary round up

Once all tables had concluded their group discussions, a representative from each table was selected by other members on their table to present the highlights and key themes to their discussion, referring to each design theme.

Table 1 Summary

Safety

None raised as agreed to overriding priority.

Capacity

- Integrated procedures between nats and other airports. Manage interfaces
- Access to all users
- Runway capacity affects airspace
- Larger airspace = harder to control. Balance. Needs to be efficient
- Resilience – recovery from events
- IKO/CAA standards
- Data link/GPS – advanced satellite navigation. Across all users
- Future capacity planning – what is the design life of the airspace

Noise

- Measurement baseline – demonstrate pros and cons and where noise exists
- Single runway funnels noise
- Time of operations – could more take place in the day
- Visual arrivals as options during good weather.
- RNAV vs Vector
- Accelerate lower to climb faster vs Co2. Trade off
- GA non-standard rotary wing

Airspace Access and Integration

- Clean sheet design
- Open access to all users
- Flexible use of airspace – hand it back when not in use (aligns with CAA strategy)
- Separate corridors for helicopter
- Align with other airports
- Required time of arrival – integrate other traffic

Flight Efficiency

- Reduce holding and streaming downstream – arrival time principles.
- Fleet mix at airport – props vs jets. Different performance criteria. How does that impact?

- Use of tools – datalink – present more information to controllers or aircraft to make things more efficient.
- Efficiency vs simplicity – human factors – multiple options – how do you know you picked the right one?
- Continuous climb and descent. Predictability of track miles.
- Predictability = efficiency.

Advanced navigation Technology

- Tech great, don't forget visuals. Maintain reference points
- ILS transitions – CAA struggling to understand the concept. Difficult to approve
- Communication not navigations
- ADS-B and ADS-C
- Human factors – too many options are not a good thing. Clearance from 50-60 miles away is preferential
- Impact of regulatory oversight. Will it be available by the time this ACP programme comes about?

Table 2 Summary

Safety

- Choke points – possibly at Cumbernauld too
- Can you define what a design principle is, so we all have the same understanding
- Is there a number that defines safety?
- It must be safe but need a footnote that defines what safe is – it is a calculating value and the level is as low as reasonably possible
- What is that number? Only way to get a zero for safety is not to fly
- Does the air safety programme state an acceptable level of safety for industry?

Capacity

- Airspace capacity is going to be affected by Transatlantic traffic – affecting runway usage
- Altitude restrictions?
- Piecemeal changes – opportunity for a more integrated approach – this process can address some of the shortages of that piecemeal process of the past
- Enhanced GA capacity particularly in area that are current constraints and to allow transit across Scotland
- Reduced complexity of controlled airspace spaces
- Navigation technology needs to improve
- Neat buffer in Clyde – no fly over the Clyde
- AS a GA Community need to say more about what we get out of this process
- GA & NATS community – GA community needs to understand that they are not being told to bog off by NATS

- Some views that GA is second or third class
- There is a block of airspace that is no longer needed ([redacted] – part of clean sheet design
- Consider VFR corridors
- Simplification of CAs boundaries
- Ability for ATC to integrate low cost / new technology (e.g. iPad)

Noise

- Time of day for flights to be considered.
- Charging structure – busy runway cost more to take-off
- Complaints about GA noises – may be a case of mistaken identity
- Removing human factor - concentrate traffic down

Airspace Access and Integration

- Clean sheet approach needed to design

Flight Efficiency

- Also had predictability through the route as well
- Affects GA as well
- Tighter turns to final – 3 miles / 4 miles
- Monitoring that and CO2
- Noise impact at higher altitudes than 7000 feet
- Overcautious take-off on runway

Advanced navigation Technology

- More standardised – technology and approaches
- Technology risk – whatever approach we take now will obviously evolve
- Multiple boxes – more space and efficiency

Table 3 Summary

Safety

None raised as agreed to overriding priority.

Capacity

- View that too much control is held centrally, needs to be less restricted. More as a result of historic requirements rather than current operational needs
- Increased capacity required for all. Clean sheet design required. Size and replication of airspace does not represent the current operational and technological situation. Modern aircraft not flown in
- Future proof design for the longer term
- Size of airspace for commercial does not reflect the use of GA. Has to be sympathetically enhanced for all users.

- Lots of the existing principles built on historic. Some refinements/bolt-ons take place, but now get to look at the first principles given ongoing change
- Capacity required/built on former use and old technology.
- Increased airspace capacity/minimum departure separations to be reduced in line, 1-minute departures.

Noise

- High performance departures when possible/modern aircraft
- BUT has to be relevant for all users i.e. Loganair
- Maximum use of CDAs, CCOs
- Duration of noise- Longevity, would respite be better than predictable routings? Stick with predictable, as people already know what to expect. Respite would add extra impacted communities over increased period of time
- Helicopters/GA - duration of noise longer, low level climb-out corridors to mitigate.

Airspace Access and Integration

- Easier access to airspace allows greater familiarity with the availability and therefore get improved safety
- Integration with airfields/role of ACOG within that. Good integration important to allow good use. Access and integration important between areas and airports
- Unless capacity can be increased in upper areas, then will not enable a successful increase and improvement in traffic. Good integration between upper unless the design changes will not realise full benefits that could be possible.

Flight Efficiency

- Easterly departures from Glasgow. At present due to historic, goes north for a long while before going south. Burring 78 mins worth of flying time fuel. Some air traffic controllers allowing to turn to the right after 5 miles
- Increased traffic will lead to increased holding times, could be considerable. Are there alternative ways of getting over central lines?
- Stay as long and as high as possible. Some of the planes coming down early, CDA attainment difficult. To get down beneath outbound, lots of issues with STAR lengths
- Airspace to north a problem with prop traffic and step downs. Due to airspace structure. The step downs need to be avoided, keep high and long as possible
- Prestwick and Glasgow departures need to be linked, look at whole picture, not just this part of the jigsaw. There is a knock-on impact.

Advanced navigation Technology

- Maximum use of tech needs to be embraced, but redundancies required. 2025 for Loganair to be fully compliant with ACP. Other carriers, if change of planes on the day need ODD built in to allow departures and arrivals otherwise it won't function
- RNAV links, required for initial approach. ATC perspective, shortage of approach controllers then this can aid the airfield and predictability for the aircrew. Many

European airports use RNAV linking, also allows for better fuel planning, reducing waste as routes are better known

- Technology can mitigate safety issues ILS; terrain means it can be controlled.

Local Government and Business Stakeholder Workshop

This workshop was held at the Corinthian Club, Glasgow on Tuesday 10th September 2019, between 8.30am and 4pm. Attendees included persons from local government, businesses and business groups, community councils, MP staffers and public health organisations.

Internal Attendees and Roles

GLA attendees

- [redacted] ([redacted] – [redacted] provided an introduction, giving a high-level overview of the ACP process and welcoming all stakeholders present.
- [redacted] ([redacted] – [redacted] there to observe the session and provide additional information to stakeholders' questions, where necessary.
- [redacted] ([redacted] there to provide additional information to stakeholders' questions where necessary, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.
- [redacted] ([redacted] – [redacted] there to provide additional information to stakeholders' questions where necessary, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.
- [redacted] ([redacted] - NATS: there to provide additional information to stakeholders' questions where necessary, particularly regarding the interface of airspace between NATS and airports.

Trax attendees

- [redacted] ([redacted] – [redacted] presented in greater detail how GLA will develop a set of design principles for Glasgow Airport's airspace change. [redacted] presented technical details surrounding the need for the ACP and was also there to provide additional information to stakeholders' questions, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.

BECG attendees

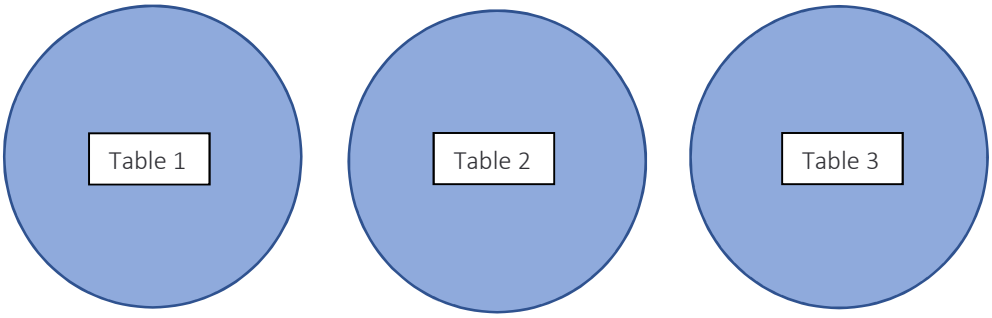
- [redacted] ([redacted] – [redacted] facilitated the room discussion and ensured that all key objectives were met throughout the session.

Pagoda attendees

- [redacted] ([redacted] – [redacted] annotated and facilitated the discussion on Table 1. Asked questions to guide discussion when appropriate.
- [redacted] ([redacted] annotated and facilitated the discussion on Table 2. Asked questions to guide discussion when appropriate.
- [redacted] ([redacted] annotated and facilitated the discussion on Table 3. Asked questions to guide discussion when appropriate.
- [redacted] ([redacted]

Table Plan and List of Attendees

Workshop 2
Date: 10th September 2019
Stakeholders: Local Government & Business
Workshop Time: 9am – 1pm



	Organisation	Name
Table 1	Scottish Enterprise	[redacted]
	Howwood Community Council	[redacted]
	Renfrewshire Council	[redacted]
	NHS Ayrshire & Arran	[redacted]
	Office of Jo Swinson MP	[redacted]
	NHS Greater Glasgow & Clyde	[redacted]
	Uplawmoor Community Council	[redacted]
Table 2	Glasgow City Council	[redacted]
	Clydebank East Community Council	[redacted]
	East Dunbartonshire Council	[redacted]
	Milngavie Council	[redacted]
	North Ayrshire Council	[redacted]
	SCDI	[redacted]
Table 3	Glasgow Airport Consultative Committee	[redacted]
	Bearsden East Community Council	[redacted]
	East Ayrshire Council	[redacted]
	Inverclyde Council	[redacted]
	Stirling Council	[redacted]
	Diageo	[redacted]

Notes from Local Government and Business Stakeholder Presentation

Following a short introduction from [redacted] and then the initial presentation, [redacted] asked if GLA are "taking things through from the flawed consultation process?" and that GLA are "contradicting yourself from taking things from a flawed consultation……not a blank process." [redacted] also asked if GLA would be consulting again and would people have a chance to engage with that process, and if GLA were taking forward any of the objections?

[redacted] – The consultation we undertook was done in accordance with the rules at the time. We can't unlearn and unlive the last experiences we had. We absorbed all the feedback we had. The information to move over from last consultation will be three years old. This is opportunity today to get better intelligence.

Notes from each table

Each table had a member of staff from Pagoda there to facilitate and record any issues relevant to the themes discussed. These notes are shown below in relation to each design theme for consideration.

Table 1

Initial	Name	Organisation
[redacted]	[redacted]	Scottish Enterprise
[redacted]	[redacted]	Howwood Community
[redacted]	[redacted]	Renfrewshire Council
[redacted]	[redacted]	NHS Ayrshire & Arran
[redacted]	[redacted]	Office of Jo Swinson MP
[redacted]	[redacted]	NHS Greater Glasgow & Clyde
[redacted]	[redacted]	Uplawmoor Community

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

Principle proposed by [redacted] that airspace change must be safe. No objections from the room

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] – one of the important. Is there a discussion taking place for the route development teams? What else are the planning to do? How many new routes do the airport want over the next twenty years? Without that information how can we decide whether there are capacity issues. Scottish Enterprise want to develop strategically important routes. The airport might want to develop something else.

[redacted] Private use. Are there plans to increase capacity for GA? That will have an impact on commercial.

[redacted] Do the commercial airlines feed into the demand for more airspace?

[redacted] What is the big plan?

[redacted] Needs to be some integration with the master plans. We shouldn't be looking at these issues in isolation.

[redacted] No real experts at the table in aviation. How do we feed into that process?

[redacted] I was in the air force many years ago

[redacted] My role is very much on the economically important routes. Three agencies – [redacted] SE and VS. We look more at route development. We wouldn't consider things such as noise.

[redacted] All very interrelated. Freight traffic will have knock on impacts in other communities.

[redacted] There needs to be some overlap with the Glasgow Airport masterplan. Freight now travels predominantly by road.

[redacted] How will capacity impact on environmental concerns? A balance with protecting the economically important routes.

[redacted] New technology will be linked to lower emissions. This is a continuous process. We need to use new technology better.

[redacted] – Hub and spoke basis. We take short haul to London to then fly long haul.

[redacted] Assumption of figure of 17 million by 2040. Where does that come from? Are we making assumptions that it will grow?

[redacted] Brexit will have an impact on how often people are travelling. The B word sits there – we talk about assumptions – there are a whole lot of assumptions around Brexit

[redacted] Lots of medicines coming through Dover and others. This might impact on capacity.

[redacted] Emission targets might mean having to stop flying. We need to be realistic.

[redacted] Another key factor – accessibility of the airport drives capacity. I don't want to talk about the rail link – there is a direct correlation. Freight, logistics, private. That ability to get to/from the airport is hugely important.

[redacted] I do wonder the increase the in capacity will have on communities. I got off a flight yesterday and it was jam packed. Do passengers take account of emissions?

[redacted] Until alternatives are developed then people will choose to fly. People living under the flightpath will Bearsden Cross one of the most polluted areas in the country. That's not even taking into account noise. Balance for the [redacted] to decide whether it's a designated airport and whether that would restrict.

[redacted] What are the ambitions for AGS as a group? Are they looking to build all the airports up? Or are AGS more focused on routes between airports?

[redacted] Are you keeping existing routes? Or are you adding new routes. Old proposals 70% of flights flying over village. We are a tranquil village.

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] my first thought was technology. Can the aircraft manufacturers mitigate the noises? Can more pressure be put on the manufacturers? [redacted] clarified.

[redacted] I live in Howwood. We're used to having flights over my home. The noise level has improved but there are still a few that are noisy. Improvements still need to be made.

[redacted] Discussion about fleet improvements. That's an ideal world. Airlines focused on routes not fleet.

[redacted] percentage wise most would be take-off.

[redacted] East Dunbartonshire get mostly landing traffic. Bearsden and Milngavie still getting the impact. Take off routes louder than landing.

[redacted] Are there going to take into consideration the levels of noise before they propose new flightpaths? Totally against previous proposal – with this new statement to reduce the impact on communities which are not currently being overflown. We're not saying we don't want any flights overflown, more just concerned with what is being proposed.

[redacted] Is there a compromise which can mitigate?

[redacted] Could be mitigated with GLA being named as a designated airport which would prevent night flights.

[redacted] Noise has an impact on health, particularly on mental health.

[redacted] it's an environmental nuisance.

[redacted] The flight route is directly over the primary school.

[redacted] there's a study which shows that children under flightpaths are held back educationally.

[redacted] – we look at aircraft A380 – looks good but to little focus

[redacted] – You're dictating to me – I chose to live in a rural community. I didn't choose to live under a flightpath.

[redacted] – Assumptions that have been made – where are these figures come from?

[redacted] – Would really like to know where these figures from?

[redacted] – as aircraft flight heights increase – noise reduces.

[redacted] – manoeuvres also have an impact on noise

[redacted] –Impact on natural heritage?

[redacted] – do we need to put more restrictions on times~? Need to integrate the economic and community viewpoint.

[redacted] these are two incompatible interests.

[redacted] – Level and duration of noise in particular need to be considered.

[redacted] - Difficult for communities to actually judge the practical impacts of noise. Having a better understanding and making that clearer and understanding. It needs to understandable. What does 100db actually sound like? This would help with the consultation.

[redacted] – this would be different for different kinds of houses.

[redacted] – insulation budget?

[redacted] - people don't feel they are being consulted. The community consultation stage will be very important

[redacted] Consultation was not clear last time around. Needs to be layman's terms.

[redacted] – technical maps and acronyms needs to stop. Feedback is it's understandable and in different formats.

[redacted] – what's the chances of these assumptions coming to pass? Change of governments and policy. HS2 muted as a solution which might bring about reduction in need for air travel.

[redacted] – needs to be an overarching transport strategy

[redacted] – not enough choice in travel options. People feel they have to fly to Aberdeen

[redacted] – would be interesting to see what the steep approach at London city might have on Glasgow airport. This is using technology on the aircraft

[redacted] Could some of the routes be passed around to other airports such as Dundee.

[redacted] Need to remember the commercial element. A lot of suspicion within communities – is this all about the money?

[redacted] – Can't have less flights and capacity – but then people want to keep flying to places such as Mallorca?

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] less concerned about how this is managed. More about how this impact on community

[redacted] built into that flexibility and resilience. If we have flexibility, then that will have an impact on holding. From a healthcare perspective – need air ambulance access with no delays. Three helipads in Ayrshire and arran – critically important.

[redacted] Helipad at the Southern.

[redacted] airspace should be proportioned across all Scotland. Glasgow and Edinburgh should not cannibalise access. Very central belt focused. Geography of Scotland requires our highland communities to have access.

[redacted] Prestwick might have a role to play in this.

[redacted] cognisance needs to be taken – commercial organisations are running our airports. Is there a way of sharing information between these two competing businesses? If Edinburgh is growing faster; does this mean there will be constraints on Glasgow?

[redacted] Can't just accept the video – we need to put things down in here.

[redacted] : we don't want the concentrated volume

[redacted] integrate and make sure the flight paths – this needs to be integrated. All parts taking to each other. NATS, airports, CAA.

[redacted] I don't think they will change from original proposal

[redacted] AGS have the expertise to develop these

[redacted] Won't be coming from a blank canvas

[redacted] Take account of improvements in technology. Will mean that the options will be better developed than three years ago

[redacted] Prestwick more being used as a resilience airport. [redacted] owns this.

[redacted] a lot of aviation business that sits around that airport.

[redacted] [redacted] will seek to maximise

[redacted] How do competing airports utilise their airspace?

[redacted] How does Prestwick gets it fair share against its bigger neighbour in Glasgow.

[redacted] Could Prestwick capitalise on freight?

[redacted] Glasgow City Deals project. A lot of new infrastructure being developed.

[redacted] it's a hellish job to come up with the answer on this

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] covered most of these points already.

[redacted] the last bullet point is important. We should consider impact on air quality.

[redacted] direct correlation between air quality and noise.

[redacted] Older aircraft taking a while to take off. My one question would be the impact of the steeper climb? More noise, more emissions?

[redacted] Asking communities to decide between greater noise impact and emissions.

[redacted] need a distinction between direct and indirect health impacts. Would need to be some health assessment for ASC. Effects on emission on respiratory health – direct health. Indirect effects would be – longer term economic impacts – would that disadvantage the local economy more as people get poorer. Air quality an important part – short term and long-term effects. If you have a change in particulates – you will get a change in health status in 2 days. Multiple impacts on mortality. Immediate and longer-term impacts such as lung cancer.

[redacted] how are they evaluating that impact and how is it being relayed back to the community?

[redacted] An environmental impact assessment is required. Not sure how airspace changes would affect that. If there are more steeper climbs, then it will generate more emissions. In Glasgow City we have a low emission zone. We are talking about a defined population –

need a baseline idea of what the health of that population is – respiratory disease, lung cancer. What are the likely impacts? Level of nitrates, burning of heavy metals.

[redacted] An independent contractor to do this? Should we have something which is entirely independent organisation or body and has no allegiance to the airport.

[redacted] could we have a role in deciding that? An acoustic expert in the last consultation had an affiliation to the airport.

[redacted] there would be scientific studies which can help guide this.

[redacted] How much APD is currently being used to mitigate the environmental impact? Could this be used to offset the other impacts.

[redacted] During last consultation asked for baseline acoustic and health considerations. Was never provided.

[redacted] Social justice element of this. Some of these communities are already disadvantaged. If the effects of these changes are going to fall on the same shoulders, then this is not right. Health inequalities are getting wider.

[redacted] prevailing winds should be considered. That should be considered also.

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] If we think of GPS on cars and how we have been more reliant. Could using a system like this be using and criteria such as not overflowing on communities. Means heavily reliant on technology. There is a risk when you put all your eggs on the technology basket. We need to think out of the box and be more creative and ambitious. One of the issues we have here in Scotland – we focus on the here and now.

[redacted] there is a secondary benefit – the removal of radar and radio-based transmissions. They have health impacts.

[redacted] We've focused on the aviation element. Not looked enough at the surface impact such as radar.

Table 2

Initial	Name	Organisation
[redacted]	[redacted] David Flint	Glasgow Airport Consultative
[redacted]	Councillor Alexander MacDonald	Bearsden East Community Council
[redacted]	Peter Atkinson	East Ayrshire Council
[redacted]	Alan Williamson	Inverclyde Council
[redacted]	Emma Fyvie	Stirling Council
[redacted]	Scott MacPherson	Diageo

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

Principle proposed by [redacted] that airspace change must be safe. No objections from the room

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] - One of the problems is that you get on a plane and it sits on the tarmac, it causes increased noise and pollution. Need to integrate across the system north to south. Better management of capacity. Destination and arrival need to be joined up. London capacity had a knock-on. Ensure minimum amount of stacking. Generally, not a problem at the moment, but needs to be minimised if it starts. Needs to be kept away from the airport and surrounding area, no circling over Glasgow for over 20 mins. Should it be over more rural areas rather than over the city? 10 or 20 years ago used to stack, doesn't generally happen anymore. Volume in the peak, leaves before 06:00 – 09:00 – 17:00 – 20:00 In the evening, not that busy out of peak. Need to closely mange the process, better feed-in "merge in turn". Heathrow manages it well.

[redacted] - Need to know not to stack over Bearsden East

[redacted] - Is there a specific route they need to take at the moment?

[redacted] – Where would you stack for Glasgow?

NATS – Currently don't do it very much at Glasgow. Reduced at Heathrow, had up to four different stacks at any one time. Heathrow is at 98%. Glasgow is a lower capacity issue. Doesn't happen all day. Can occasionally happen at peak

[redacted] – Main point may be that it is scheduled to take off at xx:xx but due to a delay at Heathrow it remains on the tarmac with engine running

NATS – Overarching driver is required. What is it you would like to be considered?

[redacted] – Reduced holding at Glasgow and better management of London stack so the connections are made better. Mange the capacity better

[redacted] – Capacity – is anybody worried about lack of flights?

[redacted] – Would like more flights to more destinations but travel a lot with business. How the desire of greater connectivity for all users can be met without causing environmentally disruptive methods.

[redacted] - Until there is an environmentally sound way of travelling by air it will always be an issue with capacity

[redacted] – There are waves of flights/peak and off-peak operations. Late night flights tend to be from the Mediterranean. Very little aircraft traffic between 23:00 – 04:00 in winter season. Depends on demand, the times of flights change to deal with the destination. How do you balance the issue re climate?

[redacted] – Also climate change targets

[redacted] – How is the pollution monitored?

[redacted] – Major pollution cause is actually road transport

[redacted] – But not in terms of the global environment

[redacted] – True, but not globalist. Newer jets are more efficient than the older ones. Less noise and jets now more efficient in terms of fuel. Need to accept that it minimises disruption but recognises that people want to travel to places and at times that are convenient to them. It is difficulty to pair the two issues off.

[redacted] – Explained the Airport Consultative committee to the table

[redacted] – Asked about the issues of the committee

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] – What are the thoughts, other than it is annoying if impacted by it? Constrained by the runway and the take-off and landing facility. Wide range of possibilities, then more people could be included. Main noise is at take-off and landing. Should they climb higher and faster, but it takes more noise to get up quickly. Both cause noise, but there are duration issues. What do people want generally?

[redacted] – Loading of the aircraft, the busier the flight, the harder the engines have to be worked in order to take off, have the put more throttle on to get up into the air

[redacted] – Has the A380 increased noise?

[redacted] – No, as flightpath is fairly distant

[redacted] – Quite a quiet aircraft, A380 makes a different noise, but no greater. If one A380 takes large amount of people and cargo better than multiple smaller planes? Perhaps a solution is a few larger planes rather than lots of smaller ones.

[redacted] – Could it go to London?

[redacted] – Unlikely

[redacted] - Desirability of meetings and need to fit in with people's schedules

[redacted] – Demand is first thing on a morning and for an arrival for around 10am. Flights back are between 6pm – 8pm.

[redacted] – Noise is the next biggest issue due to impact on communities that do not directly get the benefits from the airports. Possibly never use it, but it has a negative impact. Clydebank East, in particular it is an issue

[redacted] – Noise factor is related to the height of the aircraft and take-off or landing. If taking off and heavy, then it is nosier, if turning then also an increased issue.

[redacted] – Looking at this, if the noise is greater on take-off, would it be better that aircraft were encouraged to get a higher altitude at a faster stage.

[redacted] – Would be noisier for Clydebank East

[redacted] – If it changes, then they may not like it. The closer ones to the airport will get more noise, but the ones further down the line will get more.

[redacted] – Can we distribute the noise across different groups "fair share"

[redacted] – Always going to have noise but needs to be smoothed out across routes and areas. Makes it easier on everybody

[redacted] – how they measure noise is important. It is averaged over 36 days, which isn't good

[redacted] – Pointed out they are maintained daily and you can see the data daily. It is transparent, report back to consultative committee.

[redacted] – Brought out noise conduit, does not give the peak noise. Would like to see the peak noise levels and the breakdown

[redacted] – Faster climb and vertical take-off is the perfect solution (laughter)

[redacted] – Always need to balance the system, two runways, which one they use is dependent on the wind (95% on wind direction)

[redacted] – No it isn't. Under 10 knots, it is up to them to choose the runway

[redacted] – Speed of climb and trajectory to minimise the noise footpath

[redacted] – Noise figures, need to be peak figures rather than average figures. Would like to see all the data in detail.

[redacted] – Should we encourage the move to quieter aircraft?

All – Yes

[redacted] – Accelerated move to quitter aircraft should be done

[redacted] – No increase in noise from the current levels.

[redacted] – Is this frequency

[redacted] – Just generally.

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] – Without seeing the flight maps, difficult to see the impacts. Glider group might be impacted by it.

[redacted] – 7000ft zone around Glasgow, does it overlap with other airports?

NATS – Yes, includes Edinburgh, Glasgow and Prestwick. Think of it as an inverted wedding cake. Flight all integrated with one another. Seamless for aircraft.

[redacted] – How do they transfer?

NATS – Need to get to next controller at about 4000 ft. Maintain control up to 7000 ft.

[redacted] – How does the flight path work?

NATS – Standard management system is programme before they taxi to the runway and it generally doesn't change

[redacted] – Like an automatic pilot?

NATS – Bit like that

NATS – Most modern jets do a manual take off and then goes automatic. Can't be precise to deal with an individual house but is very accurate.

[redacted] – Also air traffic from Cumbernauld and Perth, does this form part of the Glasgow Tower responsibility?

NATS – Look at integration with the others. Yes, it does.

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] – Trade-off between avoiding all residential areas and some overflying

[redacted] – Noise zone at low level is a problem, not bad at high level

[redacted] – Bristol and route out, the impact would still be a problem. Seek a compromise between track miles and overflying residential areas

[redacted] – When it comes around London it must do a 180 turn and this causes more noise. By moving this further away or closer, what is the impact?

[redacted] – How does the current stem operate?

[redacted] – Point – to-point beacons. But GPS make it more precise

[redacted] – Is it worth adding 20 miles to offset noise, but this uses more fuel

[redacted] – If you move away from one community then it will impact a different one. There will always be an impact. If noise reduced in one place, then increased somewhere else

[redacted] – Turns are less efficient, so increases fuel use

[redacted] – Don't increase efficacy by increasing noise pollution.

[redacted] – If it is noisier in the "middle of nowhere" not a problem

[redacted] – Have to work out population density and balance this with impacts

[redacted] – Proposed a right turn is above my house, which why I opposed it

[redacted] – The people who lived where the current turn is very much in favour

[redacted] – Somebody doesn't notice aircraft as much higher, turning at 14k ft. The new routes were more efficient

[redacted] – Efficiency needs to be balanced with noise impacts

[redacted] – Flight efficacy is a great positive, but most are not done at the expense of greater noise pollution on local communities. There needs to be a trade-off between the two key elements.)

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] – Ground base nav-aids and beacons will be removed. The pinch point coming into and leaving Glasgow is where the aircraft move to make their descent or where they move

towards other areas and fly onto the next destination i.e. London. Should it be a single turning point, or should it be adaptable i.e. over a number of different places

[redacted] – The height is the issue

[redacted] – Is this a hangover from the current system

Am – Is this a landing?

[redacted] – Yes

[redacted] – Not concerned about landing

[redacted] – All up for discussion

[redacted] – This is aircraft dynamics

[redacted] Yes, but it can start at various points, so where should this point be i.e. over your house, Stirling or somewhere else

[redacted] – Will this give greater flexibility, a change from beacons?

[redacted] – In the last series of discussions they didn't mentioned changing the landings is this still the case?

NATS – This can be changed using new technology. From about 30 miles away they get integrated into a sequence, but at the discretion of sir traffic controller. New technology could allow the aircraft to find the path based on GPS.

[redacted] – So pilots don't do a lot these days and the improvements in landing could mean it is automated

NATS – Yes, once the technology in ground-based technology is there it will be more predictable and exact, so computers could facilitate this.

NATS – The pinch points could be varied

[redacted] – is the point it banks and turns noisier?

NATS not necessarily but tend to be lower. 6.5 miles is the closest for the majority of flights. Future technology could md change things further. No last-minute amendments.

[redacted] – Runway fixed direction, how far out can the controller be in control

NATS – About ten miles from the airport. The equipment pretty much automates the process. In future this could be shorter.

[redacted] – Some of the beacons are switched off already.

NATS, Yes, but design is constantly improving, and the future procession is going to be much better

[redacted] – Which system will be used?

NATS – Depends on Brexit, etc

Table 3

Initial	Name	Organisation
[redacted]	[redacted]	Glasgow City Council
[redacted]	[redacted]	Clydebank East Community
[redacted]	[redacted]	East Dunbartonshire Council
[redacted]	[redacted]	Milngavie Council
[redacted]	[redacted]	North Ayrshire Council
[redacted]	[redacted]	SCDI

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

Principle proposed by [redacted] that airspace change must be safe. No objections from the room

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] – do we know what current traffic is and what it is likely to increase by over coming years? It would be good to know to predict change.

[redacted] – does that relate to what he was saying about future proofing?

[redacted] – there is info in presentation about predictions.

[redacted] – On a Saturday and Sunday the volume of traffic is horrendous – just coming in and in and in, and getting bigger and bigger – we need more information about volumes – it interferes with our wi-fi, years ago the radio used to interfere with our TVs – this has all just happened within the last couple of months, they've changed the routes, which they are denying to us now, they need to define exactly what it is – keep it down Elgin St.

[redacted] – so it needs to be more transparent

[redacted] – Yes. I spoke to the MSP, but he never comes back to the community and explains what is going on

[redacted] – it seems that environmental impact and noise is what we're more interested about at this table – councils will have different perspectives – so noise, air pollution is what I'm more interested in – clearly Glasgow as a city will benefit from expansion but we're worried about environmental impact.

[redacted] – capacity needs to be realistic not just an ultimate goal.

[redacted] – have they been taking base levels of noise and capacity before doing this?

[redacted] – think they should extend Prestwick and put on a better train and bus service – extend that runway – in Dubai and other countries the airports are right out of the way – why should I suffer? They keep putting the volume of planes up – more traffic going in will increase the volume and it will be a plane every 2 minutes.

[redacted] – good point that Clydebank is being developed so there will be a larger community there that it might affect.

[redacted] – increased freight will also have an impact on road networks – that freight has got to go somewhere – how does that impact on road and rail network?

[redacted] – it's gridlocked as it is.

[redacted] – is there base levels for the noise – are they doing that now?

[redacted] – I don't get many complaints (from constituents) in Milngavie.

[redacted] – I can hear it coming over – Friday, Saturday, Sunday night is murder.

[redacted] – can there be more socially acceptable traffic during the daytime – limit anti-social flying times.

[redacted] – this 7000-foot figure, how does that increase capacity? NATS explained who owns the spaces and their interactions with regional airports.

[redacted] – you don't tend to go around Glasgow?

[redacted] – it's a numbers game for the noise – get them above 7000 feet.

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] – please take into consideration any points about noise raised in the previous sections under this section.

[redacted] – public health Scotland - health and equality aim – in some communities people die much earlier than other communities and they will look at why this is one of the key things here is in terms of noise and other factors is it going to disadvantage communities already suffering.

[redacted] – problem with Glasgow is it only has one runway so only has one route

[redacted] – when come into land they still have to come in the same way

[redacted] – increased traffic over the same route increases noise

[redacted] – they come in one way and go out one way

[redacted] – increase from 9.7m to 17m passengers that's almost a doubling in the number of flights – they are definitely going to be overrun, and it is definitely going to have an increase in noise

[redacted] – any noise improvements are essentially wiped out by the increase in flights

[redacted] – another point is I'm aware some communities have been given insulation for their homes – has that happened in Clydebank?

[redacted] – we've had issues - we're after triple glazing and insulation – but there is a lack of agreement of routes and houses affected

[redacted] – people still want to enjoy gardens and outside space in their communities – don't want to live in an insulated box

[redacted] – the noise is constant

[redacted] – increased insulation in homes mitigates it a wee bit but there will still be an issue with noise

[redacted] – the impact of noise in communities is going to be worse at night-time – during the day people are going about their business – at night when people sleep or want to read it's more of an issue – especially if going to be an increase in flights

[redacted] – it's actually quiet during the day

[redacted] – so in Milngavie you don't hear it?

[redacted] – well if you're lying about out in the sun, yes, but we've (council) had few complaints over the years

[redacted] – also need to consider natural habitat populations and protected habitats that are quite close to the airport – not just human populations

[redacted] – should find out the areas that are the most affected by the noise – you're not really going to engage with this – should focus more on the areas that are affected

[redacted] – people (the airport) don't come to us regularly or our meetings to talk about the noise – the MSP is involved so we've been shunted out of the road – the councillors are talking to the airport

[redacted] - whole thing about resources and what local authorities are able to shell out – if I was a local authority, I would say it's not my fault there is an airport near us

[redacted] – who gives them the right to fly over my house – it is not their airspace it is my airspace – how can an airport just put a plane over my area

[redacted] – infrastructure around airport – communities like Clydebank increase in noise from more flights but will there be an increase in road noise too – a secondary impact from the new bridge being built and the increase in air traffic

[redacted] – it would be ideal to move it all out a bit (past the Erskine bridge)

[redacted] – coming from an SCDI viewpoint – where some of our members will say that 30,000 jobs is great – I'm trying to see it from both sides of the coin – environmental side is huge and I agree with it – but can we afford to turn down these jobs in this climate – [redacted] want to reduce climate change and say we have an emergency but then they want Scotland to have an export plan

[redacted] – it comes down to a choice doesn't it – do they want the economic side or the environmental side – I think the environmental side will win the day

[redacted] – spoke before about the train line which almost went ahead and that does need looked at again (Glasgow airport)

[redacted] – extortionate fares on trains though

[redacted] – so key points are health and equality, increase in traffic in one route, mismatch in noise improvements and the fact there will be an increased number of flights there is no benefit, minimise noise to homes (triple glazed windows), non-human habitat needs considered,

[redacted] – potential for more people to be affected by noise because of the increase in development around Clydebank

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] – is the airspace that was shown in the video in use at Glasgow at the moment? [redacted] clarified that Glasgow has 18 different departure routes - so might reduce routes but have more options in one

[redacted] – that seems to make sense that you have one route but within that there is options [redacted] can bank, accelerate and turn in different routes but not always comfortable for passenger

[redacted] – leisure aircraft should we be concerned about noise? I have noticed in my own experience going up to Stirling an increase in drones, microlights etc, if there is potential for more – might that be a problem for Clydebank too?

[redacted] – they have restricted that territory – surrounded by high flats and cranes

[redacted] – not sure what this means in reality - would we see an increase in activity at Cumbernauld for private, leisure flights

[redacted] – it's quite low grade at Cumbernauld chartered flights and training and birthday presents for your wife

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] – obvious one is noise if going on a steeper climb, will it increase noise?

[redacted] – think it will at start but less when it was higher

[redacted] – but will there be an impact to the local communities

[redacted] – air quality not spoken about – that is a concern as well – there is carbon emissions and effect on global warming and climate change and then air quality and impact on health

[redacted] – someone mentioned earlier about having a baseline measure

[redacted] – before GLA start anything, they should have a baseline to monitor sound and possibly air quality

[redacted] - it is possible to monitor air and noise pollution at the same time and get reading now so that can be considered within the modelling etc.

[redacted] – our council is doing that now – started it years ago

[redacted] – growth being sustainable – is there any benefits that we see from efficiency improvements in the overall increase in the air traffic

[redacted] – minimal growth – would that be worth the trade off – not too sure about that phrase 'any growth' it sounds like a couple of buzzwords

[redacted] – ensuring any growth is sustainable – not sure what they mean by that – it depends on how you define sustainable

[redacted] – everything goes down Elgin St – the figures have been done and they should have shown us that today – that should be up on the board – and they are going to increase all this – it is not acceptable

[redacted] – but they are talking about changing the flight – steeper etc – and the impact of that – and they are talking about being more efficient and being able to more accurately predict what the impact might be

[redacted] – to be fair we don't need that information for what we're doing or trying to achieve today

[redacted] – but they should be doing it now

[redacted] – get all the information on the table first – if I go back to my meeting with this they will laugh at me – there is a lot of information missing today – this has been going on for years and it is a sore point for Clydebank

[redacted] – so we've got steeper climb leading to more noise,

[redacted] – your area (Clydebank) because it is so close the airway the options to mitigate anything are very limited

[redacted] – general climate change issue as well

[redacted] – the other one you haven't mentioned is when the planes land that you get the throttle back (that is another one for noise too – please record this in that section – [redacted]

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] – it's down to location – no matter what you do it is still going to be the same – one way in and one way out – still in that area of Renfrew and Clydebank

[redacted] – the runway is still where the runway is – despite any advances in technology

[redacted] – they might be twice the height, but they are still noisy and then you hear when they put the reverse thrust in. You must put up with the pilots training, coming in and landing and going straight off again

[redacted] – what is the priority here? Is it the local area or is it the wider climate change agenda?

[redacted] - think there are some conflicts here that you just can't handle

[redacted] – they're not going to just bulldoze the airport

[redacted] – maybe they could bulldoze Clydebank instead

[redacted] – but they could move the airport (to Prestwick or anywhere remote)

[redacted] – example of Bristol airport that is out the way – increased traffic going there – so you increase emissions going there – then the transport links aren't good enough – so you would just move the problem from there to Prestwick. There is only one road in and one road out so if there is a crash it blocks the airport

[redacted] – let's not keeping talking about that. How do we define the limits in terms of noise, flights, emissions etc?

[redacted] – more control can't be a bad thing

[redacted] – more advances and more flexibility in where it can land good thing

[redacted] - benefit with technology more likely to be wider out from the airport but as you come into land at the airport just the same

[redacted] – but Glasgow is heaving – can't even get on that M8

[redacted] – Clydebank and Glasgow should be having a separate conversation with Glasgow airport because it is such a localised and specific issue –we can't understand it without coming across as being cynical towards it or that we don't care

Notes from summary round up

Once all tables had concluded their group discussions, a representative from each table was selected by other members on their table to present the highlights and key themes to their discussion, referring to each design theme.

Table 1 Summary

Capacity

- How are the masterplan and ACP going to interact?
- [redacted] want direct flights to key economic hubs. Will the airport have different priorities?
- Impact on increasing capacity on the communities who will be affected
- Is there a potential growth for private user of the airport? How will that impact on commercial operators?
- How can communities feed in the process? Need an understanding a prediction of 17 million passengers.
- Brexit – impact that will have on airport – increase freight – reduced passengers. Changes in demand. Flying in medical products – perishable foods. Will this be moved about via road?
- Logistics to/from – does surface access impact on capacity? Potential of the rail link to be implemented
- Population health and impacts on social justice. Exponential increase in traffic and an increase in emissions – which will lead to deterioration in air quality. Debateable on where that might be most severe. Rates of respiratory disease already high – social justice if this fell upon the same communities.

Noise

- Technology used to reduce noise. Put pressure on those to develop those more quickly. Airports to work with airlines to improve fleet mix – quitter flights
- Consideration of noise on existing communities. How is that assessed against communities? Potential of survey work?
- Is there an opportunity to concentrate noise into certain hours?
- Health impact – health and mental health. Noise – has that been considered?
- Educational impact – does noise affect young people more than adults?
- Community understanding – how will noise change? Last consultation was very technical – find a way to better communicate. Develop a better understanding with communities.
- Steep approach at London City – could this be introduced into Glasgow?
- Planning policy? When new housing developments are [proposed should people be made aware they are under the flight path. Should a decision be made on the environmental impacts?
- The airport is a material planning consideration in Renfrewshire. There is a policy which won't allow development within a certain noise contour of the airport. We

have consulted with the airport on the contours – increased capacity would have an impact on recently permitted housing.
- Reassured by bullet point 1. Previous proposal meant that 70% of flights would overflow Uplawmoor. I take huge reassurance and hope you stick to that.

Airspace Access and Integration

- How access and integration impact on noise, emissions
- Private access – need for air ambulance.
- Access on an equitable basis. Not monopolised by bigger airports
- Remember commercial airports – private organisations – scope for integration between that aspect of this.
- When we are looking at access and integration to ensure no impact on currently unaffected communities where alternatives are available.

Flight Efficiency

- Requirement on doing a health impact assessment. Need baseline data on disease prevalence.
- Environmental impact assessment needed.
- Impartiality of otherwise of those commissions. Independent organisation not affiliated to airport. Who would be pay for this? APD could pay for this?
- Social justice – number of communities will be impacted who are already disadvantaged from a societal perspective. Potential for their health to be further impacted by other proposals. This could worsen their outlook – particularly around health.

Advanced navigation Technology

- Navigation system should be developed to maximise efficiencies. Should take cognisance of all the other topics we discussed.
- Airport should be ambitious on what they are trying to achieve
- One of the advantages is removing radar and other radio-based transmissions which might open up wavebands for other users.

Table 2 Summary

Safety

None raised as agreed to overriding priority.

Capacity

- Increase in freight and increase in capacity has that been factored in?
- Realistic aims in capacity against ultimate – gradual increase
- More traffic during the daytime and less during anti-social hours

Noise

- Heath & equalities will it further exacerbate in areas that are already suffering as well.
- Increase in traffic but it is going over the same one route
- Any potential benefits in noise so will be offset by the increased number
- Noise proofing homes directly affected by it but not sure how much is in airport remit vs council
- Non-human population, natural habitats and species around airport
- Infrastructure around airport and growth in airport attracts more which creates more noise

Airspace Access and Integration

- What affect does it have on drones and private flights?
- Does it increase traffic around airports like Cumbernauld - will it create problems elsewhere?

Flight Efficiency

- Health inequalities has a lot of similar stuff – ongoing affect it
- Steeper climb - it would have more noise in areas affected
- Air quality issue – think increased efficiency would improve air quality – few concerns that might not be the case
- Is there a way for baseline monitoring to share with people in households so they could mitigate some of that Government policy right now at early stages of the climate emergency – could that radically change this – would you have to look at it again – as other lady in the room pointed out about previous consultation on this having to start again – but need more emphasis for the climate emergency in future

Advanced navigation Technology

- Advantages in advanced technology no one disputes that
- More information on whether this would mitigate surrounding areas – what improvements could that make?
- Trade-off between climbing / turning quickly – could argue for local area but how does it fit in with climate change
- Hard to predict what affect advanced technology could have right now without having information on climate change

Additional comments

- Understand purpose of workshops but for more local communities – don't know if they get benefit from these, because their issues are completely different as I'm trying to represent all my members. It could be useful to have something specific for local communities
- Surely should have two separate workshops at this stage then? Majority of folk not affected by this – Renfrew and Clydebank should have meeting on their own.

Table 2 Summary

Safety

None raised as agreed to overriding priority.

Capacity

- Holding at Glasgow more linked to capacity issues at destination airports, need to tie-in with operations at destination airports
- Currently stacking not an issue, but potentially could be an issue, capacity is an important principle to deal with. Also, environmental complications
- Different views re capacity growth vs climate change and the tensions between the two

Noise

- Aircraft climbing noise key issue, especially fully laden aircraft. Would there be a benefit to a faster climb, but this could impact closer residents negatively whilst benefitting those further from the airport
- Should have the noise figures for all the airport on a real-time basis so aircraft could be followed, rather than averages produced over the 365 period
- Industry should get quitter aircraft on a quicker basis
- No increase in overall noise.
- Need to over to a rail link to the airport as would decrease the noise.

Airspace Access and Integration

- Most important element is safety and that all air controllers talked to one another to ensure it
- Need to co-ordinate with smaller airports
- Drones are an issue, potentially. Gliders as well.
- Uber jets (flight on demand), could be an issue i.e. transport on demand could cause individual problems if not just a standard scheduled departure.

Flight Efficiency

- Focussed on noise. No magic route that avoids all communities
- Noted conflict between track miles and noise. Turns vs noise
- Proportionately savings on efficiency that increase noise on currently under impacted communities are not a good idea
- Proportionally noise is more important than pure efficiency, there needs to be a trade-off between the two elements.

Advanced navigation Technology

- We welcome the new technology, needs to be tied off with the political policy imperatives once decided
- Suitably what is done depends on if having a local or regional impact

- More for those deciding on the macro policy, rather than those operating on the micro level.

Community and Interest Stakeholder Workshop

This workshop was held at the Corinthian Club, Glasgow on Tuesday 10th September 2019, between 1.30pm and 5.30pm. Attendees included persons from community groups, unions, educational institutions, seldom heard and equality/diversity groups.

Internal Attendees and Roles

GLA attendees

- [redacted] ([redacted] – [redacted] provided an introduction, giving a high-level overview of the ACP process and welcoming all stakeholders present.
- [redacted] ([redacted] – [redacted] there to observe the session and provide additional information to stakeholders' questions, where necessary.
- [redacted] ([redacted] there to provide additional information to stakeholders' questions where necessary, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.
- [redacted] ([redacted] – [redacted] there to provide additional information to stakeholders' questions where necessary, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.
- [redacted] ([redacted] - NATS: there to provide additional information to stakeholders' questions where necessary, particularly regarding the interface of airspace between NATS and airports.

Trax attendees

- [redacted] ([redacted] – [redacted] presented in greater detail how GLA will develop a set of design principles for Glasgow Airport's airspace change. [redacted] presented technical details surrounding the need for the ACP and was also there to provide additional information to stakeholders' questions, both in response to the presentation and when matters arose that required GLA input during the design theme discussions.

BECG attendees

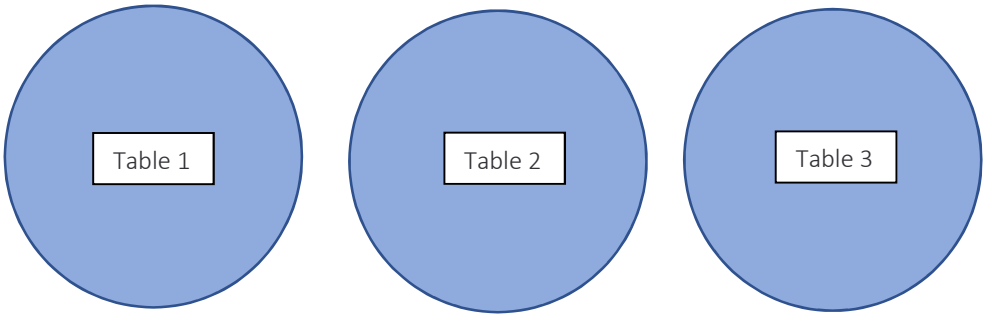
- [redacted] ([redacted] – [redacted] facilitated the room discussion and ensured that all key objectives were met throughout the session.

Pagoda attendees

- [redacted] ([redacted] – [redacted] annotated and facilitated the discussion on Table 1. Asked questions to guide discussion when appropriate.
- [redacted] ([redacted] annotated and facilitated the discussion on Table 2. Asked questions to guide discussion when appropriate.
- [redacted] ([redacted] annotated and facilitated the discussion on Table 3. Asked questions to guide discussion when appropriate.
- [redacted] ([redacted]

Table Plan and List of Attendees

Workshop 3
Date: 10th September
Stakeholders: Community & Interest
Workshop Time: 1.30pm – 5.30pm



	Organisation	Name
Table 1	[redacted]	Royal Northern & Clyde Yacht Club
	[redacted]	Environmental Protection Scotland
	[redacted]	Unite the Union / Scottish Trade Union Congress
	[redacted]	National Trust for Scotland
	[redacted]	Glasgow Access Panel Chair
	[redacted]	Glasgow Access Panel Board Member
Table 2	[redacted]	City of Glasgow College
	[redacted]	Friends of the Earth Scotland
	[redacted]	Voluntary Actions South Lanarkshire
	[redacted]	Scottish National Heritage
	[redacted]	Glasgow Third Sector Interface Network (one behalf of GCVS and Glasgow TSI)
Table 3	[redacted]	Renfrewshire Access Panel
	[redacted]	West Dunbartonshire CVS
	[redacted]	Mains Estate Residents' Association
	[redacted]	University of West Scotland
	[redacted]	Enchanted Nursery

Notes from each table

Each table had a member of staff from Pagoda there to facilitate and record any issues relevant to the themes discussed. These notes are shown below in relation to each design theme for consideration.

Table 1

Initial	Name	Organisation
[redacted]	[redacted]	Royal Northern & Clyde Yacht Club
[redacted]	[redacted]	Environmental Protection Scotland
[redacted]	[redacted]	Unite the Union / Scottish Trade Union Congress
[redacted]	[redacted]	National Trust for Scotland
[redacted]	[redacted]	Glasgow Access Panel Chair
[redacted]	[redacted]	Glasgow Access Panel

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

[redacted] - Our proposal to you is our first principle is that all airspace proposal options should be safe? no unanimous agreement!

[redacted] – extra resilience and industrial action with air traffic controllers – there is real safety concerns with unfamiliar people having to deal with the routes – we don't think it's safe or acceptable and want to register our objection (unite the union / STUC) to the creation of a side street.

[redacted] – current flight path very low over Drumchapel and Clydebank and if anything was to happen to a plane it would be a very big disaster. Are you looking to move it (airspace) out of these built up areas for safety? [redacted] not necessarily more for noise

[redacted] – do have issue of vibration causing roof tiles to move at the moment because the planes are flying so low

[redacted] – terrain around the airport, aircraft premediated for plane losing engine after take-off and have an emergency turn-off which takes you over different terrain, away from built up areas

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] – Safety issue is the main concern

[redacted] – I grew up in Johnstone in Renfrewshire and the planes fly really low – if we're talking about safety, it is not just aviation safety, what about the health and environmental impact? What impact has it had on me as a resident living there?

[redacted] – would you consider anxiety within that?

[redacted] – personally I don't have anxiety as a result, but it is a consideration

[redacted] – the planes used to be every hour and a half and now very 3 – 4 minutes there is no respite

[redacted] – ridiculous having planes over built up areas but that is where the runway is

[redacted] – stress for some people living in these areas – anxiety is a big thing these days

[redacted] – if you look at Pumpherston, its every 3 / 4 mins the planes are flying in – if you go to Troon it's the same – if you talk about safety then you have to talk about monitoring these, at Prestwick the planes hardly make it over the trees

[redacted] – can only take off from direction the wind is flowing – against that performance is predicated against losing an engine

[redacted] – when large aircraft takes off it is a long process

[redacted] – so cargo planes is also a big issue?

[redacted] – freight in Glasgow on commercial planes – Emirates a lot of freight goes into that – increased growth must be managed correctly – the airport creates an environment where the partners cut each other's throats in terms of finance which affects staffing levels

[redacted] – From government point of view got targets to reduce carbon emissions – Nicola Sturgeon declared a climate emergency – how does this all tie up with that?

[redacted] – the way airspace is operated at the moment is totally inefficient because it is too old – so this is still a worthwhile exercise even if capacity doesn't increase because we could be doing what we currently do better – you can adjust your flight path better and more efficiently rather than all the circling

[redacted] - so even if capacity reduced this is still a worthwhile exercise?

[redacted] – Prestwick – volume of freight –could be utilised better – predominantly commercial routes that might be aligned to Prestwick might be better aligned to Glasgow – so re-routing it might be more efficient flow in and out – it is contradicting with emissions etc

[redacted] – I'm here with environmental flag on

[redacted] – both governments say a lot but don't deliver

[redacted] – it is up to us to hold them to account then

[redacted] – train travel should be a lot cheaper to encourage it

[redacted] – planes that fly low over Drumchapel also cause a backwind

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] – what is current measurements or thinking on how to climb an aircraft in the least noisy way – [redacted] – difficult conversation with airlines

[redacted] – interesting these days because there are more planes but the noise the old jets made is phenomenal compared to the ones of today (drew diagram for table showing airflows) so we get much more or a buzz now when the old jets made a racket. The noise has been mitigated dramatically but number of flights increased so total effect on someone living in Clydebank might be much the same – the least noise is generated from a high climb rate up to around 6000 feet so idea of 7000ft causes a constraint – we should be talking about going up to 10,000 ft and then that is the changeover to a different air traffic control – focus should be to get up and get away as fast as you can

[redacted] – the area I'm talking about is the area that they come in (close to runway) – every 5 to 10 mins – can't go out and sunbathe because of it

[redacted] – number of planes has gone up considerably over last 10 years from every half hour to every few minutes

[redacted] – 2 planes usually come in around same time around the same way

[redacted] – propeller planes much noisier

[redacted] – end of day all down to money and finance if you want to look at it truthfully

[redacted] – old days there was a shorter runway at Glasgow and it's such a shame that one closed – idea of shopping at airport closed it down (expansion) – you took off towards Bishopton and came in over runway – that closed about 10 years ago now – but was used for smaller planes – it was a great benefit to the airport

[redacted] – do the airports define what the climb is? Trax said it is the individual carriers that determine it and I don't get that?

[redacted] – I don't agree with his point either – you should just tell the airlines what they must do – it should be built into the navigation performance

[redacted] – do they have to come into Glasgow can they go to Prestwick? And what about the possibility of electric planes, could they use Prestwick?

[redacted] – Prestwick is too far away – I might try something electric on the road but not in the air

[redacted] - what is night-time noise like?

[redacted] – bad – but plane lights are also a problem

[redacted] – the noise in summer would disrupt your sleep – it's too hot to have window shut and too noisy to have it open so you would have to resort to things like putting white noise on your phone which you shouldn't have to do

[redacted] – what about compensation?

[redacted] – houses built years ago so no sound insulation – double glazing on the windows is okay but it doesn't insulate all the sounds out

[redacted] – I lived in a modern home though and it was just exactly the same – it made no difference for the noise

[redacted] – plane lights – landing lights shine down the way as come in over houses

[redacted] – what about the decimal levels – get compensation –should threshold be changed?

[redacted] – know that Clydebank is challenging that this just now because slates coming off the roof – years and years of vibration have caused it

[redacted] – silencers on engines – challenge is on manufacturers to make them quieter

[redacted] – get a backdraft every time a plane flies over – my granddaughter said put your hand out of the car window you can still feel the wind but it's not actually the wind

[redacted] - these houses were built long before the airport was expanded the way that it was

[redacted] – it (Glasgow airport) was a navy base before

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] – is Edinburgh doing same – what is projected growth with Edinburgh and projected space and how it marries in? How do you cherry pick who gets what – what is the mechanism on that? Who gets the slots and the space so that they get the growth?

[redacted] – terminal airspace – what does it mean?

[redacted] – bubble outside the airport – at moment it is done in boxes and it could all be done a bit smoother – access for GA and microlights outside airspace but infringements are much more regular I believe and causes a headache for air traffic – I wonder if that would be mitigated by everything that is flying has a device in planes so that everyone can see what they are doing I don't know what the regulations are these days

[redacted] – issue with drones these days?

[redacted] – yes not allowed within 5 miles of airspace – would think with technology these days electric bubble around airport that kills (geofence)

[redacted] – seems like Edinburgh and Glasgow are too close together – I live in South Lanarkshire but have started going to Edinburgh airport as just find it easier –

[redacted] – problems at moment is that it is a very old-fashioned system of airways – you could fly a straight line from Glasgow to Heathrow now with technology

[redacted] – are the public or privately owned (private)

[redacted] – all used to be BAA but now

[redacted] – Glasgow feel Edinburgh gets preferential treatment in Edinburgh because it is Capital and think it gets more connectivity

[redacted] – I used to feel that way but now feel that Edinburgh has surpassed Glasgow

[redacted] – flying out of Prestwick soon and feel apprehensive about it but was only airport I could get flight from at that time (Lanzarote)

[redacted] – Edinburgh has higher turnover but Glasgow turns a bigger profit (passenger and finance) – all to do with landing fees, profit, what they charge airlines, airport duty – the airlines pit the airports against one another and are happy to do it as well – he ([redacted] talks about collaboration and mutual interest but difficulty is it is driven by profit rather than efficiency and integration

[redacted] – end of the day it is a business

[redacted] – both projecting growth but at some point, there is a tipping point

[redacted] – restrictions on what they can do at Edinburgh?

[redacted] – can't put a pint of water into a half pint tumbler!

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] – don't know what to say

[redacted] – says it on the board to climb and descent in the manner in the most efficient way – would be useful to know from NATS from route 5 what it currently is – if you can climb more rapidly it saved you a whole bunch of more miles then you are saving a lot of fuel and time

[redacted] – does weather affect how you climb?

[redacted] – no – heat does but not the rest of the weather does

[redacted] – deviate from technology and tools do they get fined – is that something that can be looked at?

[redacted] – don't think so because route that is put in is pre-programmed and will fly it unless a deviation is needed for thunder storm or something – arriving in London and not going to a holding pen – not arrive and then go around the stack for 20 mins. Computer knows from min of launch to min you arrive (New York to London) exactly what time you will arrive and what you will face - if that is out then there is something dramatically wrong!

[redacted] – how do you measure impact on air quality? How is it measured by airports?

[redacted] – sensors around the airports – also for noise and there are fines for noise violations

[redacted] – problem is when you speak to CAA about it, they refer you back to aerodrome controllers so can get a merry go round on that issue

[redacted] – but if you climb as quickly and efficiently as possible taking that pollution away as quick as possible better

[redacted] – it is the same if you are complaining about safety or anything else – the CAA refer you to the aerodrome controller which is the airport which is who you are complaining about so you get a situation of the guards guarding the guards

[redacted] – do you think there is enough prominence given to the air quality issue? Don't see it that prominently on airport websites – could that be more transparent?

[redacted] – be good for people living on air paths to know that too – or someone who might be purchasing a house in that area - they are entitled to know what is the impact on air quality of living in that area – we see the figures about cars every year (e.g. St [redacted] Road in Edinburgh) but don't see it from planes –

[redacted] – don't see what the impact is

[redacted] – SMOG - people were dying – pollution has always been there. We obviously want to get rid of it and think we are on a process for getting there

[redacted] – but we're up against climate change

[redacted] – think it is a bit beyond our remit to ask us this – it's the pilot and everyone else who is involved that need to decide or make up the rules – it's a bit distant from what we can contribute

[redacted] – air quality should be relevant to everyone though

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] – we've already talked about this – please take any points referencing technology in previous sections and count them under this section. Use technology now from when flight is leaving until it is going to land

[redacted] – do we still need airways above 10,000 ft if it's much more efficient get them out to the end of the Glasgow zones and go straight in that direction? That whole airspace could be free airspace to go whichever track you want to go

[redacted] – what is the reasoning for that? Designated flight paths

[redacted] – you would put on your flight plan depart Edinburgh at x point to fly direct to x – rather than airplane calculating it the super computers on the groundwork it all out with far less constraints than the routings they are currently doing

[redacted] – any impact on jobs with technology coming in?

[redacted] – watching the skies above us but although done on computers still passes out a strip so need a human to go back to procedural in case it goes wrong – from an air traffic and pilot point of view.

[redacted] – automation of technology shouldn't necessarily mean reduction in jobs – efficiency should be shared – multiple avenues to explore that – it shouldn't mean less jobs – you always need a fall back – new technology should benefit workforce

[redacted] - agree benefits should flow the other way – quality of life but working less time

[redacted] – work life balance issues

[redacted] – no can have an infinite variety but still need to land

[redacted] – flight path in Glasgow goes over river but colder air – technology could make things smoother

Table 2

Initial	Name	Organisation
[redacted]	[redacted]	Hampshire Chamber of Commerce
[redacted]	[redacted]	City of Glasgow College
[redacted]	[redacted]	Friends of the Earth Scotland
[redacted]	[redacted]	Voluntary Actions South Lanarkshire
[redacted]	[redacted]	Scottish National Heritage
[redacted]	[redacted]	Glasgow Third Sector Interface

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

[redacted] – Not just planes against planes. SSI, Black Cat and swans/geese and bird strike an issue surrounding routes.

[redacted] - Bird strikes: what are we trying to define as safe, what is a safe height? 2000 feet? Currently flights coming into Glasgow don't come into city centre is that deliberate?

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] – Would part of the increase in capacity be part of changing operational hours? Could this be an option?

[redacted] – Moving flight paths from urban to rural. Will this be constrained by wind farm developments in rural locations?

[redacted] – There are no planning restrictions

[redacted] – Just wanted to clarify

[redacted] – Not statutory that the first flight leaves at 06:30?

[redacted] – Huge Emirates plane coming over Bearsden. No restriction?

[redacted] – Does the airport have any say on when the airplanes land?

[redacted] – Glasgow more chilled

[redacted] – Do they want to put a holding area in?

[redacted] – Has to be held in a certain area. Emissions and circling can cause a block of pollutants in the sky

[redacted] – Want them down quickly

[redacted] – Scotland too small for planes to be wasting fuel. One in/one out the best way. Do not want holding areas

[redacted] – Stacking a huge issue

[redacted] – Oppose growth idea

[redacted] – Young people will not fly

[redacted] – Will be rationed in the near future

[redacted] – Should be fewer regional transfers, move away from hub and spoke airports to direct flights

[redacted] – Rail network is slow, badly connected not suitable, investment is required

[redacted] – Want more direct flight, Heathrow awful. If growth meant less internal flights, then would this be a good thing?

[redacted] – Youth are anti-plane

[redacted] - Kids don't want to work in oil and gas industry

[redacted] – New international obligation (CORSAIR) have to compensate for carbon capture. All companies having to change mode of operation. Cheap flights, etc will keep changing

[redacted] – Business and leisure elements could constrain economic growth

[redacted] – Needs to be sustainable

[redacted] – Would it be possible for air travel to be prevented

[redacted] -In Norway new innovation is internal short flights are via electric planes

[redacted] – Unless not building a new runway then it is just more flights in the same space

[redacted] – More communities on the ground could be impacted

[redacted] – Not necessary, as can go out higher and faster. By increasing capacity could avoid take off and landings. Integrated transport the answer.

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] – Presumably uses more fuel to climb more quickly?

[redacted] – Impacting Clydebank more, but would prefer to avoid from the city centre. Greater background noise

[redacted] – After 9/11 decided fewer planes should fly around built up areas

[redacted] – Planes were diverted due to fear factor, no actual proven impacts or problems

[redacted] – Noise could be spread more evenly

[redacted] – One of our offices is in Clydebank, planes go over, cannot hear them

[redacted] – Don't notice police helicopter overhead, tune it out over time

[redacted] – Live on flight path, hear them slowing down

[redacted] – Have to stop talking at a friend's house when planes overhead as so noisy

[redacted] – Planes fly over me, they can be noisy

[redacted] – One of the key things, want to move air traffic from one community to open land, generally it is a wildlife corridor and wildlife is restricted to the current area

[redacted] – Greenbelt important, where will animals go?

[redacted] – Some shout loudest. Big issue with population movement

[redacted] – Not impacted by the noise at Dunchapel. Would they be willing to take a percentage of it? Don't have clue on the final answer

[redacted] – Will it impact communities too badly

[redacted] – Impacts wildlife a lot

[redacted] – People who know it on a flight path, no say on the issue due to social housing. Is it better to keep it on the same flight path or to vary it?

[redacted] – Research that babies and children are impacted by noise (reported at Heathrow)

[redacted] – (People) could block some noises out, such as traffic. Acclimatised to it.

[redacted] – Could I live here, two-minute walk to town centre, but can now hear the motorway in the background and is 2.5 miles away

[redacted] – Fly A380 to Dubai, very noisy. 777 is better

[redacted] – Noise, can science see it as a decreasing problem if planes are quieter?

[redacted] – Electric planes are silent, much better than current planes

[redacted] – Getting 3 electric cars at the college

[redacted] – Not fair objecting to any expansion

[redacted] – One problem then becomes many, can steamroller. If one has an extreme view, still listened to it. Have to consider the whole, not the individual

[redacted] – if flight paths over the east coast, might be ani issue with some of the tenement housing as not fit for purpose. Might be a need to consider the height of the actual housing stock

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] – Jurisdiction, given Scotland could go indy - could be a problem

[redacted] – Needs to be done properly

[redacted] – I don't understand the issue

[redacted] – Drones are an irritant and a potential issue, need to be kept away from airports

[redacted] – Everybody has the right to do things, but it musn't impact others. Let them fly but keep them out of major flight paths.

[redacted] – Private jets are getting unpopular, uncool, but probably doing it (buying them) on the quiet

[redacted] – Ban drones, ban small planes

[redacted] -Do they still do bird scaring?

[redacted] – Yes, they do

[redacted] – We think there should be restrictions placed on airport users i.e. drones and microlites

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] – High speed take-off and landing not comfortable for the passenger

[redacted] – High nitrogen emissions harm the local community

[redacted] – Air quality is poor in Glasgow

[redacted] – More noise Is preferable to more pollution, so quick up and down is preferable

[redacted] – Need both, to ensure quality of life

[redacted] – Good that it is split across affluent and poor communities,

[redacted] – Should remain as is as it will impact all people, both rich and poor

[redacted] – Can jet engines stall (confirmed greater than 3 degrees angle can do so)

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] – Clydebank submarine base scrambles the system, could open to cyber issues. Could this impact the new system? GMSS outages do happen, sunspot activity, etc. If people know about it then all are grounded. All land at airport, pilots fly procedurally or visually. Would be very inefficient to not use the system

[redacted] – What happened to the one that crashed (nose issue). Was due to sensors.

[redacted] – Could this save on pilot training? [Clarification, no, safety is first consideration]

[redacted] – If everything lands and if there is a GMSS outage, then wouldn't fly [not efficient to do so]

[redacted] – No brainer, wouldn't fly. Provided it is safely implemented, then a positive

Table 3

Initial	Name	Organisation
[redacted]	[redacted]	Renfrewshire Access Panel
[redacted]	[redacted]	West Dunbartonshire CVS
[redacted]	[redacted]	Mains Estate Residents' Association
[redacted]	[redacted]	University of West Scotland
[redacted]	[redacted]	Enchanted Nursery

1. Discuss: The principle(s) related to aviation safety that are particularly important when developing airspace design options.

General comments –

[redacted] – Establish the principles of what we are discussing. Can we discuss issues around moving the airport, switch everyone travelling to London on trains, freight moved onto ships. [redacted] indicated this was not the purpose of the discussion.

[redacted] - if we are redesigning the airpath – wouldn't move the flight path across the things that the local authority deems as areas of special interest? Birds and other areas where likely to affected. The DFT says you have to be very careful when redesigning airspace. One of our major concerns is that we are hundreds of feet higher. This is taking a considerable safety margin out – 280 ft. Flybe plane coming into Glasgow – pilot lost 500 feet before regaining control. Reducing safety margin for pilot. We think this is an important point. We don't think flight paths should be diverted over higher ground - also, a noise consideration.

[redacted] – wind turbines causing a shadow for ground-based radar.

[redacted] – there are technologies out there that can mitigate the impact.

[redacted] – DFT says in guidance that if you are choosing the airspace under 7000ft if the change in the air route is losing hundreds of feet in the process.

[redacted] does Glasgow have hold stacking? NATS – yes hold pattern over 7000ft over Lanark.

2. Discuss: The principle(s) related to airspace capacity that are particularly important when developing airspace design options.

[redacted] - UWS working with NATS on projects.

[redacted] - Capacity more of an interesting issue with commercial airlines.

[redacted] – Bigger planes would increase capacity. We should focus on freight – postal service flies at night. Night flying might be a solution.

[redacted] – does night flying and bigger airplanes not bring about other problems? The arrival of the A380 is transformational.

[redacted] – if we are not going to put more people on trains, not move the airports into the sea – then larger planes are the only option.

[redacted] – maybe we need to mitigate more on the impact of nearby households.

[redacted] - Other places don't line flights up 8 hours out. Could they not fly up the Clyde and turn left?

[redacted] – 20% of winds from the east, 80% of winds from the west.

[redacted] - There is the potential to have larger planes, but the market isn't going in that direction. Airbus not making the larger planes anymore. 737 for

[redacted] - the airport is a business, needs to keep up with demand

[redacted] - Night-time flights not desirable. White crook in Clydebank is 400m above them. Airport should pay to insulate these homes properly. A lot of it funded by housing associations.

[redacted] - Do we want to make a comment about holding patterns?

[redacted] - Any plans to put in a second runway? Perhaps that would increase capacity.

[redacted] - Holding patterns. Might stack planes over Lanark above 7k feet. Should we suggest this be done in a quieter area?

[redacted] - Holding over Glasgow city would not make sense

[redacted] - Could we improve the efficiency of the planes? Are planes flying around empty?

[redacted] - A lot of displaced planes because of BA strikes.

[redacted] – it is the airport's responsibility to mitigate the impact. Hard to get used to aircraft flying above you at 400m

3. Discuss: The principle(s) related to noise that are particularly important when developing airspace design options.

[redacted] - How the new flightpaths would have less sway on them? Would the concentration be swayed vertically as well as horizontally? Last time around in the consultation a specific gradient was proposed. Will there be scope to do this in this session?

[redacted] - will need to do a radius around the airport – to do improvement work on insulation.

[redacted] - what is the certain decibel level? What is that level?

[redacted] - aeroplanes have different types of engines. Could there be a restriction on the types of aircraft that would be admitted into the airport? Landing noise is less than take off. Could landing be permitted at night and not taking off at night?

[redacted] - Could be quite noisy a few miles out – reverse thrust.

[redacted] - If climatic conditions are right then aircraft noise can be heard in the West End

[redacted] - The A380 makes a big difference. Extremely loud in both take-off and landing

[redacted] - Need more concentrated effort to insulate more homes. Airport should pay for this.

[redacted] - needs to be a 25-30 mile radius of the airport.

[redacted] - There must be a decibel level in mind. Something similar has been done in London City and the decibel effort is lower. [redacted] reminded that London City and Heathrow close at night.

[redacted] - Glasgow is not closed at night. Quieter planes and not changing flight paths that ensure that planes are not flying to closer to the ground should be considered. Should be the land level and not the sea level used as a datum point.

[redacted] - Should we look at steeper take offs and approaches? Can we minimise the noise?

[redacted] - A lot of conversations with airlines is required.

[redacted] – have 1000 homes in the estate – we have consulted with residents. We are elected representatives so we can only put forward views that have been agreed.

SC – is that feedback relevant now?

[redacted] – Can't see how they can go around places like Drumchapel. One of the areas is the national music school – chosen for quiet location – worried about the national music school and impact. Douglas Academy - need to broaden out to avoid sensitive receptors.

4. Discuss: The principle(s) related to airspace access and integration that are particularly important when developing airspace design options.

[redacted] - Is commercial expansion going to take away from general aviation users?

[redacted] - Building a superhighway – always be capability for flights across those routes. Can't comment on the logistics.

[redacted] - Does getting into the main routes dictate local flight paths.

[redacted] - It's a technical point. Flights do come in from left, right and centre. Some flights come in via Denmark. Not everything lines up with a superhighway

[redacted] - Have to streamline things. There are only X amounts of shuttles going to Heathrow.

[redacted] - If you scrap all that and start again then the picture will look much different.

[redacted] - How does the airspace in Glasgow connect with the arteries in the sky

[redacted] - Whatever happens in the highways, is going to impact on lower levels.

[redacted] - this is a superhighway for the future. Always want more capability than they'll need.

[redacted] - Selfish perspective and residents in the Glasgow area. Want to make sure that what happens above 7k and not negatively impacting on lower levels.

5. Discuss: The principle(s) related to flight efficiency that are particularly important when developing airspace design options.

[redacted] - have to cut down on unnecessary journeys. This would include the courier companies and other freight.

[redacted] - what are you trying to cut down or maximise? Having planes on the ground is not efficient.

[redacted] - With new technology, perhaps the issues of courier companies be solved.

[redacted] - Maximise revenues could be an efficiency.

[redacted] - One of the things that happened during the last consultation. They wanted to turn planes around quicker.

[redacted] - Can't have efficiency if it is impacting their carbon footprint. I assume they are looking for this to reduce.

[redacted] - Want to be able to turn planes quicker, but what is the point of this if the planes are sitting on the ground longer.

[redacted] - If airspace is increasing then we expect it to be well used. Planes are more efficient at higher altitudes so it's in their interests to rise quicker. You mentioned carbon footprint – if plane leaves the aircraft half empty – dichotomy. Ryanair flying empty planes into Prestwick as they have an engineering base there. Obligation and duty of care

[redacted] - Noise v carbon footprint of the plan trades off. Noise is more of an issue for people living nearer the airport.

[redacted] - I live three miles from the airport, but I don't actually hear the a/c. So, I'd be more concerned with the carbon footprint. Other people will see it differently though.

[redacted] - Different type of fuels?

[redacted] - shorter routes more efficient?

6. Discuss: The principle(s) related to advanced navigation technology that are particularly important when developing airspace design options.

[redacted] - more computer controlled

[redacted] - good idea. can't make it completely computer controlled

[redacted] - is this so we know where every plane is at every given point?

[redacted] - Examples of when pilots have taken control of their aircraft.

[redacted] - the technology can make sure you are never close to another plane. Predictability.

[redacted] - could be problems caused by storms etc.

[redacted] - I'm not saying we don't need pilots. But there is opportunity to make things more precise

[redacted] - I'm guessing some of the smaller planes wouldn't have the technology.

[redacted] - Most of the planes will still have GPS.

[redacted] - at the moment there is still a bit randomness to it. Could be a couple of hundred metres between how a plane is flown on multiple occasions. This will eliminate.

[redacted] - Can they divert planes around bad weather

[redacted] - System should be dynamic enough to deal with this

[redacted] - would you like planes to go over the exact same spot every time or would you prefer the variability

[redacted] - Not all pilots would land the plane in the same way so still have that variability.

Notes from summary round up

Once all tables had concluded their group discussions, a representative from each table was selected by other members on their table to present the highlights and key themes to their discussion, referring to each design theme.

Table 1 Summary

Safety

None raised as agreed to overriding priority.

Capacity

- Stacking, impact of Co2 and waste of fuel
- Carbon capture/offsetting and impact on airport, if increasing capacity then increasing pollution then going to have to something to deal with that, 2022 legislation
- Alternative of stacking, one in one out option
- Debate over if opposed to growth or not. Some thought there would be in reduction in flights
- Potential for more long-haul destination
- Increase in capacity/does it lead to a change of operating hours – discussed as there were no links at 1am
- If any growth - must be sustainable
- Short-haul domestic, introducing electric planes, could that be done here?
- Is this also looking at capacity as in what the flights are catting or using? Sustainable procurement. Package needed to go to Eire to Clydebank, had to go via Edinburgh/Bristol and then flown back to delivered in Glasgow

Noise

- Aviation industry: can science mitigate against noises? new developments may result in quieter aircraft.
- Stability of housing in Clydebank and Drumchapel, will vibrations damage them?
- Flight pats over social housing, is this an issue that needs looking into
- If changing flight paths can they go over the city centre and cause less of an impact in terms of background noise. 9/11 fear factor
- Changes to rural areas to fly over, could be good to remove impacts from urban areas, but wildlife cannot move, noise will impact them
- Larger planes, more noise via A380
- Domestic use, more electric vehicles

Airspace Access and Integration

- Found ourselves at a loss to approach it

- Principal conclusion that there should be disproportionate restrictions on other users. Small airfields with parachutists, drones and other users should not get in the way of Glasgow Airport
- Desires of individuals vs greater good
- If Glasgow airspace to be used for leisure activities, then the boundaries should be very clear
- Smooth running and efficient utilisation of the resource is very important.

Flight Efficiency

- Good idea to ensure there was flight efficiency through faster take off. More noise, but less ground pollution
- Nitrogen, heavy metals etc. would be minimised at a higher altitude, lower levels of concentration (perhaps) if this approach adopted. However, the overall acidification could be an issue if it falls on a wider area.
- Question the need based on growth in air traffic and passenger numbers.

Advanced navigation Technology

- Sounds sensible
- Questions about safety, happy nobody is going to be using "Google pilot" to automate the process
- Did discuss the threats to the problems and decided life is risky anyway
- More fuel efficient to take a direct route.

Table 2 Summary

Safety

None raised as agreed to overriding priority.

Capacity

- Increase in freight and increase in capacity has that been factored in?
- Realistic aims in capacity against ultimate – gradual increase
- More traffic during the daytime and less during anti-social hours

Noise

- Heath & equalities will it further exacerbate in areas that are already suffering as well.
- Increase in traffic but it is going over the same one route
- Any potential benefits in noise so will be offset by the increased number
- Noise proofing homes directly affected by it but not sure how much is in airport remit vs council
- Non-human population, natural habitats and species around airport
- Infrastructure around airport and growth in airport attracts more which creates more noise

Airspace Access and Integration

- What affect does it have on drones and private flights?
- Does it increase traffic around airports like Cumbernauld - will it create problems elsewhere?

Flight Efficiency

- Health inequalities has a lot of similar stuff – ongoing affect it
- Steeper climb - it would have more noise in areas affected
- Air quality issue – think increased efficiency would improve air quality – few concerns that might not be the case
- Is there a way for baseline monitoring to share with people in households so they could mitigate some of that Government policy right now at early stages of the climate emergency – could that radically change this – would you have to look at it again – as other lady in the room pointed out about previous consultation on this having to start again – but need more emphasis for the climate emergency in future

Advanced navigation Technology

- Advantages in advanced technology no one disputes that
- More information on whether this would mitigate surrounding areas – what improvements could that make?
- Trade-off between climbing / turning quickly – could argue for local area but how does it fit in with climate change
- Hard to predict what affect advanced technology could have right now without having information on climate change

Additional comments

- Understand purpose of workshops but for more local communities – don't know if they get benefit from these, because their issues are completely different as I'm trying to represent all my members. It could be useful to have something specific for local communities
- Surely should have two separate workshops at this stage then? Majority of folk not affected by this – Renfrew and Clydebank should have meeting on their own.

Table 2 Summary

Safety

None raised as agreed to overriding priority.

Capacity

- Safety issues a concern - [redacted] was saying she lived in Johnstone where flights come in low – need to think about not just the safety of flights and passengers but also of communities

- Impact of increased capacity on health of residents in Drumchapel and specifically mental health and anxiety with planes coming over every 3 or 4 mins, there is no respite from noise – some people fear they are going to land on you these planes
- Freight – going into commercial planes such as Emirates one solution for reducing movements
- Airport and ground handlers – increased capacity need to relieve pressure of work on that – often a race between contractors and subcontractors on bringing down prices
- More resources into capacity so don't just do things to the cheapest possible price
- Disconnect with Scottish Govt climate emergency – doesn't marry up to targets – flights to Birmingham not good environmentally as short distance and should be cheaper to travel by train even though it takes longer
- Stacking in sky - digital comms can reduce this with the right technology
- Find more green ways to travel just generally speaking
- Even if we do get more people on trains still a good exercise to do this
- Commercial routes to Prestwick better aligned to Glasgow (realignment between)

Noise

- More planes now but quieter noise levels but still very annoying for people living in Drumchapel, Clydebank, Johnstone
- Flights get as high as possible and as quickly as possible to mitigate noise – should be talking about 10,000 ft – aim to get away from airports asap – and technology is there to do this
- Propeller aircraft, Flybe club flights from Highlands, much noisier and that is an issue – not all planes are that quiet – can't go out and sunbathe if they are coming over every 2 mins
- Used to be a cross runway which was a good benefit for planes coming in from west but closed due to airport expansion – worth looking into it
- Light pollution from big, big aircraft night lights takes away from amenity and trying to get to sleep
- Communities worst affected were built decades ago and although have double glazing, don't have insulation to cope with this – know there is compensation schemes but are they wide enough, cover enough people?
- Issue with slates on the roofs coming off – that is about safety as much as anything else
- Challenges manufacturers have to face up and they need to do as much as everyone else to reduce noise
- Backdraft at Drumchapel - wind comes from planes down streets and some other areas – not just noise

Airspace Access and Integration

- Transparency around airspace integration for everyone that flies
- Issues about drone legislation and whether it will be effective
- Old fashioned system of airways at moment - routes could be more direct

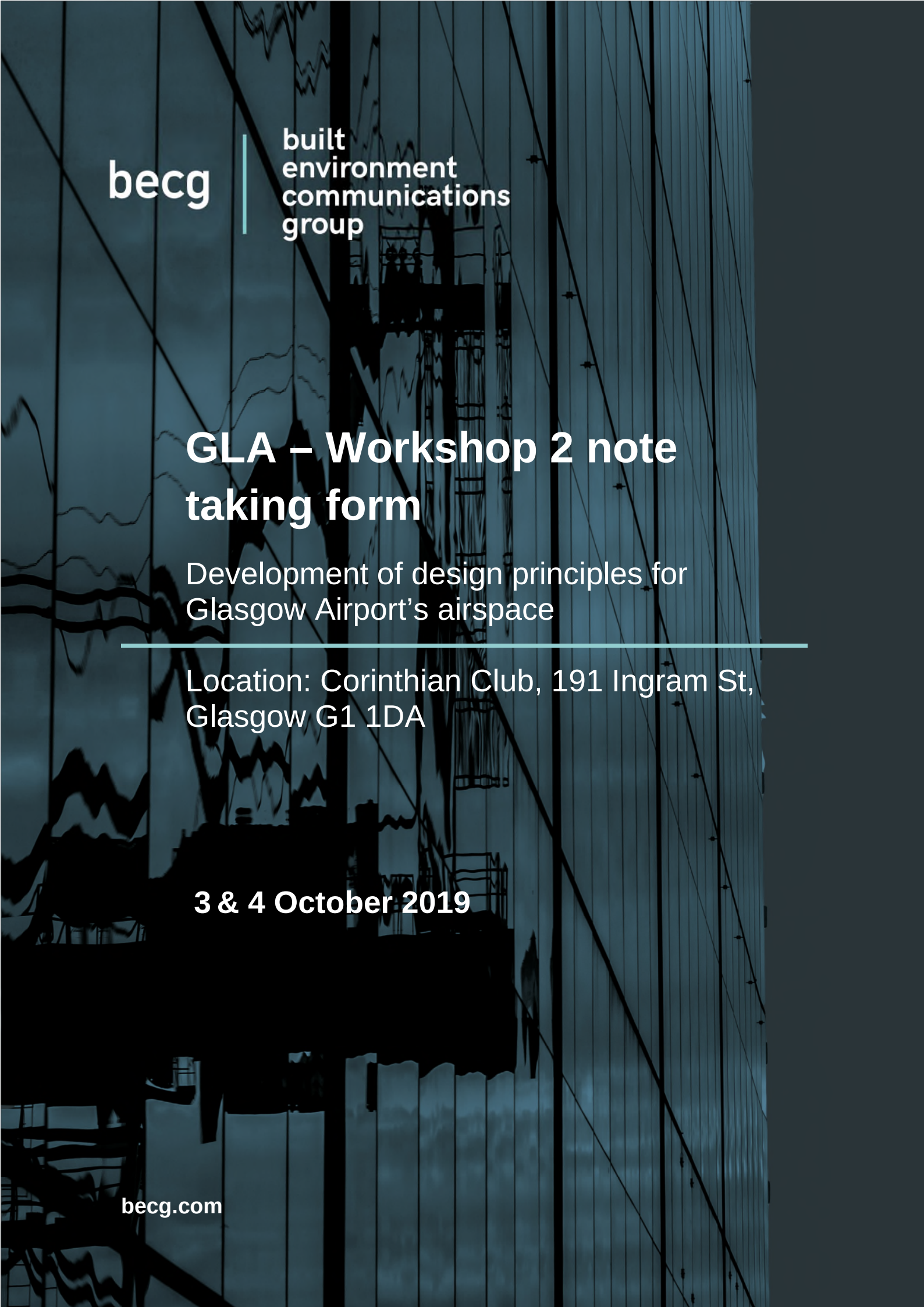
- Competition between Edinburgh and Glasgow, some airlines pit them against each other – airports very close – should be collaborating more rather than competing and possibly undermining each other (just for profits)
- Ensure clear communication when going out to the public – reduce jargon.

Flight Efficiency

- Climb more rapidly and ensure planes taking off more sharply saving fuel and time
- How efficiently can planes be made to arrive accurately on time rather than holding pens
- Making a complaint about air quality complain to CAA but referred to aerodrome controller making the offence in the first place – conflict of interests here
- Air pollution lots around road transport always in media but nothing on websites about air pollution around them and need more transparency about that and presented better – is there somewhere you can go to monitor it and update them regularly that would help people
- how efficiently is measure a real pertinent point, longer it's on the ground the more charges it gets – but airport in control of cost of charges on ground

Advanced navigation Technology

- Technology can pinpoint landing times
- Heights 10,000 ft open it above with new technology
- More efficient, anti-collusion warnings, freedom to use airspace
- Impact of tech on jobs, still need controllers on ground
- Automation shouldn't lead to reduction in jobs but could improve work life balance
- Passenger point of view could make flights smoother – coming over Clyde just before landing



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GLA – Workshop 2 note taking form

Development of design principles for Glasgow Airport's airspace

Location: Corinthian Club, 191 Ingram St, Glasgow G1 1DA

3 & 4 October 2019

becg | built environment communications group

Stakeholder Information

Workshop (please circle or highlight)	**Date:** 3rd October 2019 **Stakeholders**: Mix of all **Workshop Time:** 12pm – 4pm Table 1	
Stakeholders Present on table	Name	Organisation
	[redacted]	Beith and District Community Council
	[redacted]	NHS Greater Glasgow
	[redacted]	Light Aircraft Association
	[redacted]	Prestwick Airport
	[redacted]	Easyjet

Pre Table discussion (before and during presentation)
Notes NONE

Design principle review: Safety related principle

General Notes

1. The airspace design and its operation must be as safe or safer than today for all airspace users.

[redacted] – if GA is excluded from airspace for lack of capacity then this needs to be modified
[redacted] – but that is a capacity issue – although linked separate items, safety should be separate to capacity / noise anything else as it has to be the overarching design principle
[redacted] – should it be all users of the air, rather than airspace?
[redacted] – if looking at safety then also needs to be safety of those on the ground
[redacted] – it should be for all users full stop then?
[redacted] - for those on ground as well as those upstairs?
[redacted] – airspace tends to imply controlled airspace
[redacted] – looking at the feedback – there is nothing in there that speaks about users workload e.g. changes to procedures but then an increase in workload which is human factor – should that be considered?
[redacted] – that should be looked at under the principle – then designed – then reviewed against the design – that will be include at a later stage
[redacted] – also covered in access and integration – don't need to mention it at this stage
[redacted] – is there anything to add to this – it has to be priority number 1
[redacted] – argue that airspace is mentioned at start of the statement, and you're saying take it out at the end – does that make any difference?
[redacted] – I think that is the right way round
[redacted] – just they didn't mention it in the key feedback
[redacted] – this [document] is just the additional feedback from 25 respondents – it would have been good to have original feedback from the workshop notes before
[redacted] – issues with obstacles, pylons, windfarms
[redacted] – the safest thing for airspace is not to fly at all, as long as appropriate margin, must be as safe or safer than it is today
[redacted] – remove airspace from end of service to cover everyone in the air, around and on the ground

Summary from [redacted]
Looking at airspace design and impact on others can't be confined to airspace users, it needs to be users of the air and also people on the ground
Suggest DP is modified to end at the end so it says 'for all' [delete airspace users at end]
We put it at priority 1

[redacted] – make general point that presumably these 19 principles will need to be weighted when you do the appraisal ([redacted] confirmed that is correct) and other general point is that these are not all independent and some cover a general radius ([redacted] asked them to spot where they can be grouped together)

[redacted] – will you ask us to put these in priority order ([redacted] – will be asked to do it online)

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Design principle review: Capacity related principles

General Notes

CAPACITY

2. Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport and address growing concerns about the impact of emissions on climate change.
3. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.
4. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.
5. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.

[redacted] – how much impact commercial in Glasgow rather than the airways? What is the cause of the congestion? Glasgow small space to Airspace
[redacted] – currently airspace is archaic and we're carry that over and routings done from south-east runway we fly to the north because it is a historic route – a Glasgow problem – then there are limitations on times between take-offs which is an airspace issue
[redacted] – this redesign supposed to eradicate this then
[redacted] – no it won't but minimise and make it as efficient as possible
[redacted] – item 2 is clearly DP that must be met – more efficient than we have them today
[redacted] – if we look at them from the sustainable aviation front – some journeys can't be completed with alternative means – aviation for the future – making it more sustainable
[redacted] – need to say anything about the forecast itself
[redacted] - discussed that last time – how far into future does this exercise look?
[redacted] – other airports looking at airspace banking so GA has to go around, getting it right affects ability to expand, being flexible is important but likelihood it will expand
[redacted] – look at ACP is a once in generational event, this is something that doesn't come along in a decade
[redacted] – At Prestwick we've done this exercise but there have not been very significant changes –associated procedures are less complex probably
[redacted] – changes like this should be reviewed 12 months and 3 years – this doesn't say it here
[redacted] – yes but it is in the framework after they've introduced it – thing about forecast – always talk about growth rather than demand, or change rather than demand, doing this without someone crunching the numbers
[redacted] population growth decline etc. tied into so many factors
[redacted] – do we want to challenge the 'additional' in DP 3
[redacted] – instead of forecast demand – future requirements
[redacted] – 2 is acceptable as it stands – only thing is do we want to add the future forecast demand – and if doing future how far into the future next year – next decade?
[redacted] – next DP picks that up so probably fine as it is
[redacted] – think it [item 4] captures it – 9 further down is a good statement
[redacted] – particularly at ground level, too big at the base
[redacted] – I suggested reference ground holding as well – so in order of priority between departure and arrival
[redacted] – reasonable statement in relation to capacity – relates back to 1st one about efficient, cleaner so efficiency thing
[redacted] – could you replace it with more efficient traffic?
[redacted] – regulating inbound traffic – talked about that at first meeting

[redacted] – certainly talked about for withholding for departure

[redacted] - so no need to modify but only use of efficiently in DP 2 – other than that no need to amend it

Design principle review: Noise related principles

Noise

6. Minimise the volume of controlled airspace needed to support commercial air transport operations, enable safe, efficient access for other airspace users and release controlled airspace that is not required.

7. Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes or methods that are possible within technical ATC system, enroute network and procedural constraints

8. Flight paths below 7000ft should aim to avoid noise sensitive areas, buildings, national parks and areas of outstanding natural beauty

9. Avoid overflight of areas that are currently not affect by aircraft noise

10. Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic.

Group looked up Heatherbank Park on Google to query who it was
[redacted] – item 6
[redacted] – could be tidied up a bit – sounds like letting them off the hook – can they not just say minimise the effects of aircraft noise – and says where possible so people could say wasn't possible
[redacted] – should just say minimise
[redacted] – and remove adverse
[redacted] – affect the GA community more?
[redacted] – but that's not noise – the visual impact – suggest that visual is questioned
[redacted] – does that not fit into environment further down

[redacted] – 7
[redacted] – no comments
[redacted] – 2 methodologies – offloading routes, multiple routes, spread over wider demographic less time, or singular routes, affect less population for longer time – different airspaces users go for different approaches
[redacted] – discussion last time was it will be much more focused so it will be greater impact
[redacted] – different viewpoints
[redacted] – until recently I stayed under the turnpoint to Glasgow – moved 200 metres east – and missing the aircraft as used to be able to tell the time from the Stansted flight coming in
[redacted] – if you can get 1st morning rush wave out then you can reduce it by 0 – 15 minutes
[redacted] – multiple route options for respite routing? Do you use respite routing or predictable routine and I would say respite routing
[redacted] – should use 'consider' mitigation methods

[redacted] – 8 suggest gets added into 8

[redacted] – stick to no 7 – complaining about GA effectively?
[redacted] – especially around the loch Lomond area
[redacted] – are they talking about certain aircraft?
[redacted] – I wonder if that is behind that complaint – it needs to be qualified
[redacted] – so do we fall back to 8 originally?
[redacted] – the principle and the update are not linked – going to ask the question where the complaint was from [no 8]
[redacted] – still avoiding all flying which is what they talk about in no 8
[redacted] – contrary to no 7 talking about respite routing

[redacted] *summary*
6 should be simplified to minimise the total adverse effects – (remove and reduce where possible)
7 limited and pre-judging the outcome, another option with the focused routing you can then focus mitigation such as noise mitigation, should be on the table as an option to be considered
[redacted] – always 2 arguments with rnav and the predictability that offers – do you go for what impacts the few for considerable time or the many for less?
[redacted] – focusing mitigation on a more limited number of routes means potential airspace under management – keeps the options open
DP 8 – where did this come from with its community – GA or CA – that's the question our feeling is that we ought to return to the original principle as this is too specific arising from GA rather than CA
[redacted] – so if want it to be specific for CA it needs to capture that in the statement somehow
[redacted] - possibility that 8 & 9 should be combined – add second half of sentence on 9 to the end of 8
[redacted] – but we didn't reach a conclusion on that it could be limiting
[redacted] - and it could be contrary to the respite routing
[redacted] – needs careful wording – option might be where unavoidable
[redacted] – we felt 10 was a reasonable statement
[redacted] – (on the more or less argument) de-classification of controlled airspace vs uncontrolled is what that statement says – could the unused areas be released for the GA community?
[redacted] – noise is just another environmental emission – should really be in that category
[redacted] – DPs can you weight them and also relate them to the principle output of it

Access and integration

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 that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme.

13. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to Flight Level 90.

[redacted] – conflict just now with aircraft coming up from Edinburgh
[redacted] – yes that is 13 you are looking at – it is saying they shouldn't conflict with each other without an air traffic intervention
[redacted] – got upper airway and link routes down into arrivals – that is to get you from upstairs to lower airspace – they should be conflictual – it has to be a DP
[redacted]
[redacted] – does so to / from
[redacted] – on the to its already managed but on from the departure is where the conflict may arise
[redacted] – 11 we're happy with
[redacted] – 12 proposed new DP can't be conflict on approach it must be departure
[redacted] – 12 & 13 linked in my opinion
[redacted] – but 13 is being removed that is what we need to come to. On 12 does it make sense or does it need clarified ?
[redacted] – routes within the Scottish TMA – to and from
[redacted] – Scottish TMA is airspace that sits above Glasgow, Edinburgh and Prestwick – but need to also say

airports
[redacted] – without listing – need to use the to and from, and then are you going to start saying transiting
[redacted] – finish of 12, and Scottish TMA airports and NATS
[redacted] – could say collaborate with Scottish TMA airports rather than 'other'
[redacted] – proposed update is what we're trying to achieve so it is the bottom section that we really want to get nailed
[redacted] – 13 got to include Prestwick
[redacted] – 12 & 13 incredibly similar not that large a task to combine them
[redacted] – but is it a valid reason saying to minimise to knock that out of 13 – so we agree it should be removed as a separate DP – what do we need to add to 12 to make up for 13
[redacted] – need to say de-conflicted
[redacted] – think we need to keep Prestwick in there specifically
[redacted] – it is a fundamental DP that they should be de-conflicted and then flies in the logic of No 1 about safety
[redacted] – so remove first half of 13 and add it into 12
[redacted] – to summarise we say that 12 and 13 should be combined

[redacted] *Summary*

Maybe a little pedantic, 11 we agreed, covers everyone we think, 12 proposed updates, add in collaborate with others airports in the Scottish TMA, proposed new principles not sure why it is a separate, common sense it should be added in and some discussion whether we need to name the airports or not as Glasgow, Prestwick, Edinburgh is concentration and then 13

Environmental performance

14. Minimise, and where possible, reduce aircraft emissions, the degradation in local air quality and adverse ecological impacts.
15. Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.

[redacted] – minimise is not
[redacted] – 15 is best practice – could design a lengthy arrival procedure could achieve 14 but not 15
[redacted] – so do we need to modify 14?
[redacted] – no keep it as broad as possible – a broad statement of need to reduce emissions is the correct thing to do This is the one we said prioritisation should be for climbs over descents as it is where industry will achieve most environmental achievements
[redacted] – descent guy from Jet 2 at last meeting said we would like to drop and then glide in?
[redacted] – essentially up to pilot discretion to request descent at time
[redacted] – does that cause aircraft to depart – does it have to go to higher altitude to give predictability?
[redacted] – Can ACP send the message to FASI
[redacted] – upper airspace piece will potentially benefit this
[redacted] – not just aircraft emissions – if have local airport with more traffic then more road traffic so also talking about emission
[redacted] – on 15 is ensure achievable – ensure climb and descend continuously – as air traffic controller can't give an assurance that will happen all of the time
[redacted] – less than 10% of arrivals are using it
[redacted] – another lever you can use which is charging structure
[redacted] – effectively taking descent to further back the line

[redacted] *summary*
just looked at coloured sheet – again just 'where possible reduce' is unnecessary – 15 focused on limb that is the major fuel consumption and on 15 is 'ensure' the right word at the beginning? And then had a discussion about moving to a PBN system would ensure the DPs are met

Didn't looked at the removed DPs on the other sheet
[redacted] – gave explanation about upper / lower vertical separation under 7,000ft
[redacted] – prefer us as controllers to keep climbing and level off the inbound rather and then stop the upper from descending on it

[redacted] – could argue 7000 not needed in this
[redacted] – but if something came out of this exercise that needed to change that would it be possible

Design principle review: other principles

General Notes

16. Deploy routes with a level of RNAV1 specification that optimise the performance of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.
17. The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.

[redacted] – number on spreadsheet don't match with DP sheet
[redacted] – what is GNSS – means navigational satellite – with Brexit UK looking at its own [redacted] there will be DME beacons
[redacted] – statement of redundancy and resilience is encouraging – happy with the DP
[redacted] – are we happy?
[redacted] – got to be
[redacted] – one challenge had before – not all flights PBN capable – need to look at modern aircraft fleet too
[redacted] – new developments coming through all the time
[redacted] – think ATC from air traffic perspective
[redacted] – always be people using different systems – don't know how to use them safely and effectively
[redacted] – lots of criticism in GA press that people don't know how to use them – GA community has got to say GPS tools are there
[redacted] – in sameway updated driving test to include a sat nav type awareness need something
[redacted] – GA still ahead than some of the airlines of what they have in the cockpit
[redacted] – yes because so heavy regulated

[redacted] – should it be reviewed regularly so
[redacted] – Cap1616 further change means it has to go through that
[redacted] – CAP1616 been criticised as needs to be more flexible does it need to be reviewed to keep it dynamic for the future?
[redacted] – that is a DFT function rather than CAA
[redacted] – becomes a hurdle to increase rather than decrease
[redacted] – could put it in point 18 bearing in mind the prescriptive nature of CAP1616 – could see what he says – devils advocate – look how frustrating it was for Glasgow they got so far
[redacted] - it is being criticised already – anything else?
[redacted] - when is this all to be implemented
[redacted] – if there is anything else comes back to human factor aspect of all of this across the board, predominantly from the airspace users, not a huge mention of it anywhere
[redacted] – we're upgrading radar at moment and human factors are huge because interfacing with new piece of equipment – when thinking about all of this should be an emphasis on human factor implications
[redacted] – a lot of these that we're talking about today have been around for 10 years plus but UK lagging behind other areas and some of it is archaic
[redacted] – its HF , situational awareness, compass bias – say what you wish
[redacted] - it is regulation or lack of impetus from government or DFT to do things
[redacted] – think there is a drive
[redacted] – almost being pushed from a Euro side
[redacted] – remember when windfarms were first becoming an issue

[redacted] *summary*
Confused by numbers on spreadsheet being out of sync
CAP 1616 being criticised in some quarters and perhaps needs chased and might become a barrier to progress. Glasgow has to go through all this for a relatively minor change – some of the criticism came from GA community – simplified process, make it more dynamic so the system can respond – if we're dealing with 50/60 years old need to be more dynamic

Human factors come into from all aspects

[redacted] – part of the design process, part of implementation process – just did this at Prestwick and trained controllers – need to go from design, fringed article and rollout out to airlines and controllers manage how training goes as safely as possible

[redacted] -deal with legacy aircraft – need to consider it – may be a problem
[redacted] – GA need to get act together navigation wise – better that they do at the moment perhaps
[redacted] – move towards this by 2024 but always get an aircraft that won't be able to comply for a reason – don't want it to be 100% prescriptive but need flexibility in case some aircraft can't get to the ground safely
Fundamental tool radar display and ability needs to be there in case aircraft counter something unusual

Post Design Principle presentation discussions
Agreement and objections

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Stakeholder Information

Workshop (please circle or highlight)	Workshop 1 **Date:** 3rd October 2019 **Stakeholders**: Mix of all **Workshop Time:** 12pm – 4pm Table 2	
Stakeholders Present on table	Name	Organisation
	[redacted]	Guild of Air Traffic Control Officers
	[redacted]	Bearsden East Community Council
	[redacted]	Office of Jo Swinson MP
	[redacted]	Edinburgh Airport
	[redacted]	Scottish Council for Development and Industry

Pre Table discussion (before and during presentation)

Notes

[redacted] – Have you taken in to account early turning, height and impact of noise this is the feedback from Bearsden Community council.
[Question as presentation was starting]

General Notes

[redacted] agreed to be the chair for the table.

1. The airspace design and its operation must be as safe or safer than today for all airspace users.

Add or amend principles

[redacted] – no one would disagree with safety but this seems to be a bit of a given
[redacted] – yes, it's a given
[redacted] – yes I agree but the wording should be changed to *"safer for those under flight path"*

[redacted] – issues around noise come in to safety arguments.
[redacted] – We are talking about safety and not noise.
[redacted] – Yes, there are other principles later on that discuss the issues around noise.
[redacted] – noise should be considered with safety.

[redacted] – Safety starts from the ground up. But I wouldn't add anything else to the principle at the moment.
[redacted] – That was a good point [redacted] made regarding amending the principle to include the wider public and not just "for all airspace users" as it is currently.
[redacted] – Disagreed.
[redacted] – Those who don't have background knowledge may question this principle and the fact it all only references "airspace users". But [redacted] has knowledge and therefore understands this principle better.
[redacted] - More of aircraft operating procedure rather than design.
[redacted] – attended Edinburgh consultation

Additional principles

[redacted] – if not coming from aviation background then would be include to include wider public & everyone else in to principle.

Higher /lower priority
ALL – safety top priority.

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Table summary

- Agree that safety is the top priority.
- Airspace users should be included from the ground up. **Safe for ALL** not just airspace users
- [redacted] – confused on feedback point – Trax answered = refers to all options following consultation in the next stage

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Design principle review: Capacity related principles

General Notes

2. Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport and address growing concerns about the impact of emissions on climate change.

Add or amend principles

[redacted] – don't believe forecasts as they just go straight line. Seem to ignore the climate change issue. Highest proportion people flying are those going on holiday. What if these habits change? This could have impact on the forecasts.

[redacted] – wouldn't change or add anything to this principle. [redacted] / [redacted] / [redacted] = all agree
[redacted] – Will there be by any other comparative forecast demand? To demonstrate the implications and how things have changed.
[redacted] – agrees with [redacted] on the forecast demand
[redacted] – what are the implications of this?
[redacted] – this is my only concern if under forecast

Additional principles
ALL – nothing to add

Higher /lower priority
[redacted] – should remain at this level of priority because it is very important issue.
ALL – agreed.

3. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.

[redacted] – The runway capacity is a key issue for airports
[redacted] – I doubt that Glasgow airport is currently running to full capacity
[redacted] – More potential impacts to consider around Edinburgh and NATS. The 1616 process only applies to Glasgow and there are other separate consultations going on for Edinburgh. Not linked up
[redacted] – Agreed with [redacted] This separation is a failure of CAP1616 process.

4. Minimise the volume of controlled airspace needed to support commercial air transport operations, enable safe, efficient access for other airspace users and release controlled airspace that is not required.

[redacted] – if you minimise the volume of space you would concentrate the noise
[redacted] – if you live at end of a runway then none of this matters
[redacted] – but if you don't then the concentration will be increased if you minimise the airspace.

5. Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic.

Table summary

- Main issue and questions were around the forecast demands and whether there will be other comparative work carried out.

Design principle review: Noise related principles

General Notes

6. Minimise, and where possible reduce, the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing.

Add or amend principles

[redacted] – It has to be a key priority to minimise noise where ever possible
[redacted] – that's the problem of using *"where possible"* as the wording in this principle.
[redacted] – It sounds as though they are concentrating the noise path through the new flight paths.
[redacted] – What is the impact on those if they don't currently under flight path?
[redacted] – What is the alternative? Should the flight paths go over homes and the general population or an area of natural beauty? That's the decision that needs to be made.

Additional principles

[redacted] – The size of airspace will impact on the number of those who are affected by noise.
[redacted] – Should the airspace volume be reduced as this would impact on the noise? [No overall agreement]

Higher /lower priority

[redacted] – I think this grouping should stay where there are in terms of priority as the principles already discussed will impact noise.
[redacted] – I think Principle 4 should be moved up in priority as by concentrating airspace will clearly impact on noise levels.
[redacted] – I think these principles are where they should be in terms of priority.
[redacted] – Yes, but I don't want to see this drop off or down the list as I know how important this issue is to community

[redacted] – Are there any studies on impact of noise?
[redacted] – Yes, there are through Heathrow airport.

Above information applies to all questions in this section.

7. Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes or methods that are possible within technical ATC system, enroute network and procedural constraints.

[redacted] – Based on community feedback to Jo's office there are some areas who are fed up with the noise and want to share the noise (East Dunbartonshire) through respite or different routes.
[redacted] – Respite can raise other problems as when you reinstate the flight paths following respite, many report the noise as worse than before.

[redacted] – Keep in mind that new routes will impact on house prices

8. Flight paths below 7000ft should aim to avoid noise sensitive areas, buildings, national parks and areas of outstanding natural beauty.

9. Avoid overflight of areas that are currently not affected by aircraft noise.

[redacted] – I would add in an additional word in principle so it reads as:

"Avoid overflight of POPULATED 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 the immediate climb out where overflight is unavoidable.

Table summary

- Most statements are reasonable but if you are concentrating capacity then this will impact on the noise (Principle 4) restricting routes & minimising airspace means increased noise. This is a trade-off between private aircrafts and those on the ground.
- Agreed on the current priority of noise but should continue to have importance going forward.

Design principle review: Access and Integration

General Notes

Add or amend principles

[redacted] – Can't really complain about any of them
[redacted] – There should be collaboration between airports.
[redacted] – The 1616 process doesn't really make cooperation between airports easy.
[redacted] – I agree with all the statements in this section.
[redacted] – There is nothing there that I disagree with in this part.

[redacted] – Will there be a route through the central belt? And there isn't a mention of the west coast route that is in currently use.
[redacted] – Will this existing route be affected?
[redacted] – CAP1616 will start from scratch so there are no assumptions at the beginning of the process.

Additional principles

ALL – nothing really to add to what is current down as the principles

Higher /lower priority

[redacted] – About right where they are currently sitting in the list.
[redacted] – Yes, can't leapfrog anything that has already been discussed – safety and noise
[redacted] – Agree

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 that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme.

13. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to Flight Level 90.

[redacted] – Flight plans are set in stone. This is not just Glasgow and Edinburgh. It applies to all routes
[redacted] – Do we know if there is a glider problem?
[redacted] – I don't think there is a big problem here in Glasgow.
[redacted] – I know this is issue in Edinburgh
[redacted] – The gliders will follow slightly different routes

[redacted] – If Glasgow are doing CAP1616 and Edinburgh are doing CAP1616 they are separate. Someone needs to coordinate these. The CAP1616 procedure isn't that flexible to do this at the moment.

Trax – a team has been set up to assist this process.

Table summary

- Agreed on all of the principles.
- We do have a question on 13 and how the tie up between the two airports would work in practice as they are both going through separate consultation process.

Design principle review: Environmental Performance

General Notes

14. Minimise, and where possible, reduce aircraft emissions, the degradation in local air quality and adverse ecological impacts.

[redacted] – we are limited on what we can do to reduce aircraft emissions
[redacted] / [redacted] / [redacted] – all agree that this is something that it is up to aircrafts / companies.

[redacted] – The two important things to an airport are noise and local air quality.
[redacted] – Everyone wants to reduce aircraft emissions
[redacted] – It is the vehicles that are used on the ground at the airport that would impact on local air quality. This should be considered.

Additional principles

[redacted] – The statements that are there already cover it. Could add in something that acknowledges that reducing emissions shouldn't impact on noise.
[redacted] – So noise takes precedence over emissions?
[redacted] – Yes, as there can be a change in the flight paths but noise is the most important
[redacted] – Yes noise is very important and especially to the local communities.

[redacted] – But if you don't live near the airport then you may say that emissions is more important than noise?
[redacted] – Emissions won't affect the air quality on the ground as it is above 1000ft. If you want to reduce air quality on ground then you need to look at traffic on ground and transport used at the airport.
[redacted] – Local air quality is too broad for this
[redacted] – Noise is the issue that affects locals in that area.
[redacted] – The issue in my community is overflying not air quality.
[redacted] – There are people that are currently right under the flight path but the changes will take it over new areas in Bearsden. This is not sharing the burden. It will be louder and concentrated.

15. Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.

[redacted] – there is a trade-off around emissions and noise.

ALL – agree with the removal of principle 15 as it is included in principle 14.

Table summary

- Air quality – not quite the right place to be discussed here. There are other factors to play at ground level rather than at airspace design.
- Emissions versus noise – at a local level there would be support for noise being the most important issue, however, if not directly impacted then it is likely that emissions would be highlighted as the most important.
- It is difficult to separate environment from noise
- [redacted] – Continuous descent versus climb. What circumstances would it apply to Glasgow? Don't understand.
- Table 1 – sometimes there is a need to prioritise one over then other. Preference is given to the lower to enable continuous flight path (EasyJet) & levelling off the inbound flight to enable the lower flight to proceed. Preference is for climbs over descend.

Design principle review: other principles

General Notes

Add or amend principles

[redacted] – I don't think we need these two design principles at all. If they don't accord with the national strategy then they won't get it. The national strategy and legislation will decide what we have to do.
[redacted] – is this just because they have to include it?
[redacted] – agree that there is no need to include 16 and 17.
[redacted] – We could either combine or get rid of both
[redacted] – To combine both principles we could say: *"The ACP must conform with all national regulations"*
[redacted] – This combines both principles or just scrap both.
ALL - agree with this

Table summary

- Last 2 principles are not necessary. Goes without saying that they need to conform. Or you could combine 16 & 17 or change to *"ACP must conform with all national regulations."*
- Fiona @ GLA Airport – 16 sets the bar higher than the minimum.
- [redacted] – are you going to prioritise the principles further? Going through the current priority seems to me in the right order.
- Trax – following workshops there will be an update on the principles and will ask everyone to consider this. Not ranking but thoughts on higher or lower priority for the principles. Feedback by 23rd.

16. Deploy routes with a level of RNAV1 specification that optimise the performance of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.

17. The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.

Any other principles you would like to add to the process

[redacted] – The whole process of 1616 is so very detailed so isn't really anything to add. This consultation process is really for local issues and this is why we are doing this now.
[redacted] – This process needs to be transparent
[redacted] – Yes everything is available on the portal to look at. It is good that the 1616 process is so detailed and does things step by step.
[redacted] – Local issues are important and people have been coming to the office to raise issues during.
[redacted] – Environmental assessments should be independent of Government as this will increase trust within the local community. This should be a general requirement. They also shouldn't just present information there needs be clear evaluation and opportunity to feedback on the assessments and evaluations.

[redacted] – Does Glasgow have a night curfew?
[redacted] – No
[redacted] – This something that has been discussed but you have to consider the impacts on jobs. During the summer at night it is very loud and wakes people up so this is something we are aware of.
[redacted] – In London they have a system (Gatwick Heathrow & Stansted) quota system and aircrafts are ranked. This doesn't stop night flights but can restrict the growth of night flights
[redacted] – This is interesting as an increase in night flights are what people are worried about.

[redacted] – There is some debate around self-restriction by airlines versus a quota system as the system isn't always the best option.

Post Design Principle presentation discussions
Agreement and objections

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Stakeholder Information

Workshop (please circle or highlight)	Workshop 1 **Date:** 3rd October 2019 **Stakeholders**: Mix of all **Workshop Time:** 12pm – 4pm Table 3	
Stakeholders Present on table	Name	Organisation
	[redacted]	Police Scotland
	[redacted]	Loganair
	[redacted]	National Trust for Scotland
	[redacted]	Glasgow Third Sector Interface Network
	[redacted]	Scottish Enterprise
	[redacted]	SPAA
	[redacted]	Clydebank East Community Council

Pre Table discussion (before and during presentation)

Notes

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Design principle review: Safety related principle

General Notes

1. The airspace design and its operation must be as safe or safer than today for all airspace users.

[redacted] – Must be safe or safer, anything else we could say
[redacted] – No reference to increase to drones and safety around them. Principle is correct, but need to quantify it more
[redacted] – Deal with drones all day. Drones concern me. Drones under safety is an issue. Need to mention them. 18 incidents yesterday. Almost 1,000 last year 300% increase over time. High level drone activity. 2.5 miles exclusion distance from the airport. Other issue is conflict of need to have approval from air traffic control, not based on the law. Might be permitted as ATC permit it, but not actually legal. Not many birds carry batteries (like drones do), so if birds are dangerous, then drones more so. Registration coming in in November
[redacted] – Flying over his house, makes noise, too manyjames planes. Not happy about the process. Questioned the entire process and rationale of the issues involved. My feedback is anti, waste of my time. Made my point, should have noise as issue no.1 – left room with Fiona for separate discussion re community issues
[redacted] – Heathrow and Gatwick
[redacted] – Drone blocker technology is required, but might impact on other technology
[redacted] – If we're talking about drones, then need to feed into other areas.

Summary

- Just put "the public" rather than "all airspace users"
- Item 4 re bird strikes, unmanned aircraft, not having been at the first meeting consider how unmanned may impact this
- Not so much about legal use, but illegal use of aircraft and protect against malicious use and how it may be countered using technology
- Insert new wording re unmanned aircraft.

Design principle review: Capacity related principles

General Notes

Overall the table agree with the points, so a general discussion took place about matters.

[redacted] – Glasgow not enjoying huge growth, demise of Thomas Cook is going to be a problem at conference yesterday to talk about climate chaos. Fly shaming may be a problem in the future, causing a reduction in flights. Capacity growth may not be required/be achieved. Flights going over the top different, but there may need to be a revision of the forecasting

2. Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport and address growing concerns about the impact of emissions on climate change.

3. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.

[redacted] – Edinburgh mentioned, need to share the flight approach
[redacted] - Work with Visit Scotland to increase services, direct services are vitally important
[redacted] – Sustainability of tourism is a problem, some direct services may not work
[redacted] – Need alternative modes of transport that are efficient, reliable and sustainable
[redacted] – There was an ATC taking about going into aviation, but thought it wasn't going to grow
[redacted] huge advancements in technology will make it more efficient, will help with things. Also need to consider communities in highlands and Islands and the impacts they will have. Lifeline services – Loganair example
[redacted] – Vital, but some are not
[redacted] – Want as many direct flights as possible as hub and spoke is awful. Airplanes may become greener, so will be less of a problem
[redacted] – Always has to be sustainable, when flights are not full there is not a need for larger aircraft. Less fuel.
[redacted] – Should always look for increasing given the timescales
[redacted] – Wil need longer services, and flights in order to survive post Brexit. Post 31st October more services will be required.

4. Minimise the volume of controlled airspace needed to support commercial air transport operations, enable safe, efficient access for other airspace users and release controlled airspace that is not required.

[redacted] – I would be interested to know how often planes are held waiting to land/stacking. Is it a serious problem up here compared to down south?
[redacted] – Glasgow not too bad, not a big issue here. Flight shaming, consider why we want direct flights in order to reduce transfers/justify climate change balance
[redacted] – Community out there that does not want to be watched, think ATC watch them, so try to keep away from them. Freedom to fly
[redacted] – Have a different view, not legal
[redacted] – Want it shrinking so less leisure flying. No need why they can't, but it is people of a certain age that cause issues. They are dying out

[redacted] – Some leisure aircraft not given access. They are restricted
[redacted] – No they aren't, misnomer
[redacted] – Some fly without telling people what they are going to do. MOD do this all the time; big exercises and they aren't told this is going to happen. Uncontrolled airspace
[redacted] – Should it all be integrated together
[redacted] Agreeing with all the statements
[redacted] – was concerned, but a non-issue really.

5. Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic.

Summary

- Didn't have any issues, aside from questions the growth forecasts.

Design principle review: Noise related principles

General Notes

[redacted] – 8 and 9 should not be merged together, disagree with point from table 1
[redacted] – Always take the side of the people on the ground over those in the air

6. Minimise, and where possible reduce, the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing.

7. Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes or methods that are possible within technical ATC system, enroute network and procedural constraints.

8. Flight paths below 7000ft should aim to avoid noise sensitive areas, buildings, national parks and areas of outstanding natural beauty.

[redacted] – Need to protect tourist spots to ensure people still want to visit them.

9. Avoid overflight of areas that are currently not affected by aircraft noise.

[redacted] – Thought this should be shared equally. There is something about fairness, everybody should get some
[redacted] – Edinburgh they can very it, but not a lot
[redacted] – Sometimes in the summer can be difficult to sleep. But you get used to it, but can impact
[redacted] Timings, is there value in changing the timings
[redacted] – There is already something in about night timings
[redacted] – There is a curfew on Glasgow
[redacted] – Gets planes on a morning. Weekends are worse
[redacted] – Is it seasonal?
[redacted] – No, Monday – Friday and night flights. Quite a few come in at nights 6 or 7
[redacted] – Idea is to spread it around with new technology. Closed runway a few years ago, all use the same runway now. Would prefer two approaches, would spread the propeller noise
[redacted] – big jets more nosily
[redacted] – Can throttle back, but still an issue
[redacted] – Actually the undercarriage that is the main problem, dropping it later
[redacted] – Can't stop the fundamental problem, more planes is more noise
[redacted] – How do they mitigate the noise
[redacted] – Nothing yet, but they need to put double glazing
[redacted] – Emissions from planes, the more there are the worst it is. Issue with public health, not just noise also fleet patterns and physical health
[redacted] – Mitigation the real issue, need to know what the mitigation will be (define point 10)

10. Mitigate the impacts on local communities that are currently affected by aircraft noise on final approach or the vicinity of the immediate climb out where overflight is unavoidable.

Summary

- Most of our discussion was about dispersion, concentration and mitigation
- Small hint about Glasgow getting rid of second runway
- Basically, focussed on point 7, mutually exclusive with 8, 9 and 10
- Wording is going to be important.

[redacted] - Comes down to weighting and deciding which ones are more important than others and how to weight them accordingly.

Design principle review: Access and Integration

General Notes

[redacted] – Keep it simple, no objection to any of this. Will also avoid noise issues, make it easier to fly so it is easier to deal with
[redacted] – Seems technical
[redacted] – Explained the principle of how routes can cross, can be stopped by design. Adds 10/12 minutes and quarter a tonne of fuel. Prestwick clear, have done their redesign
[redacted] – How far out will they turn?
[redacted] – Hills cause problems and noise, having to bank around them. Always assume worst case scenario, so puts noise over the same area
[redacted] – Built up areas can be a challenge
[redacted] – Has to be kept integrated
[redacted] – Ones coming over from Europe also a potential issue, but higher up so less of an impact
[redacted] – What's happening with the other local airports i.e. Cumbernauld?
[redacted] – All light aviation and maintenance, 2 flights per day plus military. Mostly NHS stuff
[redacted] – Related, should there be integration with planning permission, i.e. with housing and estates. Would mitigate the issues if there was proper integration between the two things
[redacted] – A new development was thrown out due to potential impacts on aviation in Edinburgh.

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 that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme.

13. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to Flight Level 90.

Summary:
- Just keep it simple, may not be compatible with some of the words and phrases used. Keep the design simple and the principle simple, including the design. Avoid introducing complexity
- Deconfliction issues with Edinburgh, also discussed by another table.

Design principle review: Environmental Performance

General Notes

[redacted] – Word “ensure”, not in the gift of the airport, some fleets may not be able to do so. Change to “encourage” work with airlines to have fleets that can do this
[redacted] – Modern planes go up and down quicker, noise if up and down quicker reduces the noise envelope but puts it in volume for shorter periods. Separating noise and environment not always separate
[redacted] – Boxing them in, new aircraft that could have been started may not go ahead. Work with industry to achieve change
[redacted] – Depends where the 7k ft is. Can vary depending on the location, but emissions the same. Bit vague, when do you want to be there
[redacted] – Is it linked or separate?
[redacted] – Too ambiguous and potential safety impacts
[redacted] – Would it be weather dependant?
[redacted] – Yes, depending on weather, then won’t work
[redacted] – Needs to be clarified further, cannot be unambiguous language
[redacted] – Language needs to be flexible in terms of the langue used
[redacted] – Optimised in separate ways
[redacted] – Highland community links are a big problem, need to encourage central belt capacity from the Islands and Highlands
[redacted] – All issues are linked, can’t simply separate noise and the environment.

14. Minimise, and where possible, reduce aircraft emissions, the degradation in local air quality and adverse ecological impacts.

15. Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.

Summary

- Agree with point of table 1, insure is too prescriptive and exclusive, particularly in the case of Loganair
- Too much of a “must have” rather than a “should”
- Also discussed the point of having it difficult to have noise out of the environment and vice versa. Discussions kept crossing into each of them
- 7k ft is more about the gradient rather than the height. In a 40-knot wind it will be different, the height is meaningless depending on the impacts
- Wind will adjust the pollution, etc. 7k included as is under the control of Glasgow Airport

Design principle review: other principles

General Notes

[redacted] – Can't argue against it but will keep sending aircraft over exactly the same ground and there will be no deviation from the routes. Loganair struggles with this, however easyJet don't have a problem. Is more efficient, but legacy fleets have an issue with this change
[redacted] – Impacts Wi-Fi and television
– Have changed frequencies, shouldn't be interfering with it, report it to the airport
– Would these changes impact on passenger experience?

16. Deploy routes with a level of RNAV1 specification that optimise the performance of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.

17. The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.

Summary

- Can't argue with technology, no issue with 17
- Links back to no. 7. So accurate will dry planes along the same tracks each time, dispersion an issue, concentrates impacts, so more routes will be required to spread the noise.

Post Design Principle presentation discussions
Agreement and objections

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Stakeholder Information

Workshop (please circle or highlight)	Workshop 2 **Date:** 4th October 2019 **Stakeholders**: Mix of all **Workshop Time:** 12pm – 4pm Table 1	
Stakeholders Present on table	Name	Organisation
	[redacted]	Renfrewshire Council
	[redacted]	Uplawmoor Community Council
	[redacted]	Scottish Natural Heritage
	[redacted]	Strathaven Airport
	[redacted]	Leading Edge Flight Training
	[redacted]	Mains Estate Residents' Association
	[redacted]	Voluntary Action South Lanarkshire

Pre Table discussion (before and during presentation)
Notes NONE

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Design principle review: Safety related principle

General Notes

1. The airspace design and its operation must be as safe or safer than today for all airspace users.

[redacted] – principle looks at view from people using the airspace – but it also impacts on birds, planes closer to ground – need to consider ground level – suggest needs to be broadened to incorporate the environment
[redacted] – should also be people and things affected by the airspace
[redacted] – should also be people affected by the airspace
[redacted] – all users and people underneath it
[redacted] – people and places that are affected by it
[redacted] – a cover all for everyone
[redacted] – could end DP after words 'for all'
[redacted] – appreciate its captured in feedback but needs to be specifically stated
[redacted] – not just people in the plane – what does the plane affect?
[redacted] – from our perspective – commercial aircraft - it all applies
[redacted] – DP no 6 is more focused on what you're talking about, I see this one as being about airplanes don't bump into each other – 6 is more about the environment – slight difference in aspects they are talking about
[redacted] – should they be explicit then?
[redacted] – in leisure recreation, taking off and landing as quick as possible so if anything goes wrong can glide – but jets take off at 70% power – as a passenger I'm not sure if I'm happy about that – one aspect about the environment and one changes with safety

[redacted] *summary*
Agreed that should remove words 'airspace users', discussion about bringing in people and things to broaden it out and then just agreed to remove airspace users

Design principle review: Capacity related principles

General Notes

2. Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport and address growing concerns about the impact of emissions on climate change.
3. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.
4. Minimise the volume of controlled airspace needed to support commercial air transport operations, enable safe, efficient access for other airspace users and release controlled airspace that is not required.
5. Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic.

[redacted] – kick off capacity for forecast demand – Edinburgh and Glasgow additional runways – forecast demand becomes irrelevant if no-one is going to build an extra runway – so if number of flights stays constant be more efficient – so in a way capacity doesn't really matter – if can use the space more efficiently can achieve positive aims
[redacted] – that came up last time
[redacted] – think proposal is to reduce the airspace – hence other concerns over safety of controlled airspace
[redacted] – Glasgow people used to come in over East Kilbride so that airspace is gone because that runway has gone – looking at making the airspace more simplified so controllers will have more focus and the whole thing can become more streamlined and efficient. You can't control airspace if you don't control it in general terms, aircraft like to come / leave in a straight line – will occasionally see 's' turns
[redacted] - so with DP2 they have brought in emissions and climate change that wasn't there before
[redacted] – change airspace to make it more efficient but will also improve noise and emissions, airlines save on fuel, passengers on tickets, communities on noise and emissions. But if people are concerned about an increase then people might want to introduce a cap.
[redacted] - that was something suggested last time
[redacted] - that more about if they want to bring in new terminal
[redacted] – historically was east – west runway – so if it increases need more space on runway to allow the space in-between
[redacted] – technology will be able to predict timings of landings etc
[redacted] – still human factors with it – tower has to say to them – human interaction to say need to delay or circle – or queue in front of you so they will say don't start your engines (so that is part 5)
[redacted] – 5 is the most important from environmental point of view as it is about efficiency – don't be on the ground burning kerosene
[redacted] – I don't have any points on capacity
[redacted] – also think4 is important
[redacted] – is 2 not the most important – as it will need growth?
[redacted] – but if we do all the others it will increase the capacity anyway – if did have another runway could have one for departures / arrivals but that is out-with the remit of this
[redacted] – forecasted demand will be very different in the future – look at different methods of transport

[redacted] *summary*
We had a good discussion around terminology, around forecast demand, and streamlining becoming more efficient, but also good discussion around how doing things better will make it more efficient, but the themes are all intrinsically linked, and prioritisation struggled in our group coming at it from different angles and background – 2 or 5 highest possibly should be the priority but we couldn't agree

[redacted] – GA element of holding at Glasgow

Design principle review: Noise related principles

General Notes

6. Minimise, and where possible reduce, the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing.
7. Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes or methods that are possible within technical ATC system, enroute network and procedural constraints.
8. Flight paths below 7000ft should aim to avoid noise sensitive areas, buildings, national parks and areas of outstanding natural beauty.

[redacted] – does this just have to be about noise? I would also want in there wild land which is not necessarily a protected area. If you just mention some of them then you are excluding others.
[redacted] – issue with noise is taking off – coming down shouldn't be as much of an impact
[redacted] - arrivals shouldn't be a major concern, aircrafts taking off need a lot of power – at Glasgow can get up to these heights fairly quick – going out always going to be an issue
[redacted] - Uplawmoor is not affected at the moment, but our concern is if they concentrate the flight path over Uplawmoor
[redacted] - where Uplawmoor go to – 1000 ft? The aircraft are getting quieter.
[redacted] - the guy from the airport last time said he wouldn't want to live in Uplawmoor with new flight paths. We have occasional planes, which is acceptable, but not every 6 minutes, which is what is being proposed
[redacted] - but they are not going to route everything towards it?
[redacted] - it was targeted at 70% in previous proposals
[redacted] - how can that be a DP?
[redacted] - it is if you go back to the original document and particular. If the route is taking planes over an area of land that is hundreds of feet higher
[redacted] - they are talking about respite
[redacted] - if you're sometimes flown over so that wouldn't come into it
[redacted] - where Uplawmoor is we fly small planes, but as soon as it is possible they will let us go in a direction with new technology if its available
[redacted] - rather than going over Loch Lenith were going to let them turn
[redacted] - to half kill the argument 50% of the time they will be using the other runway
[redacted] the initial departure routes are straight rather than go specific routes all the time big benefit of what we are doing
[redacted] - previous consultation if that goes unchanged then we will be impacted
[redacted] how far away is that area
[redacted] – there was a consultation last year for new cap that we all inputted to and told they are going to throw it away as CAA said they need to turn it round as we need to come up with the principles so your priority DP is 9

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 the immediate climb out where overflight is unavoidable.

[redacted] - 9 you want that wording tightened up? It's about the level there.
[redacted] - got to be something that captures frequency
[redacted] – the word is not affected – basically everyone is affected
[redacted] - used to run Perth airport we used to track planes and whether it is over your area or over your house – could find that it was 1 mile away

[redacted] *summary*
Not got too much to say, had a good discussion around DP9, key priorities particularly around communities, has to be a definition around word not affected occasional flight means community is affected so needs

tightened up and need to capture something about frequency – 8 & 9 would be our priorities
[redacted] - and note noise is a priority under 7000
[redacted] - and should be above the land not sea level

[redacted] - our committee would have an issue with 7,8,9 being deleted because they capture our concerns

Design principle review: Access and Integration

General Notes

11. Avoid introducing additional complexity and bottlenecks into controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.

[redacted] – 1st one [DP] if you have controlled airspace, and aircraft drifts into it, which happens, then controllers have to mover there stuff from mile bubble round it by reducing infringements, reduces workload and increases efficiency. We have a few bottlenecks in Glasgow airspace around Kilmarnock area and areas that have problems with infringements. I think this is slightly negative – avoiding introducing – should work to remove existing complexity and bottlenecks rather than avoid introducing more (deal with the current situation)
[redacted] – what about wind turbines? They interfere with air traffic control. At the moment they are 70m tall and new ones will be up to 200m tall. Does that have more or less impact?
[redacted] - shouldn't affect airspace in terms of what they do
[redacted] - airport can object to some of them
[redacted] - radar detects it, these days they watch it on the television but it is a composite picture, so have radar at Glasgow and cut out wedge and built a new radar Whitelee so Glasgow has removed some of the airspace around Whitelee because they can't control it because they can't see what it is in it. Glasgow have right of rejection for new wind farm proposals. We have had some people experimenting with Whitelee to see what is and isn't possible for safety and can only build if the developer can fund the radar needed. They now have infrared light on turbines so that planes can see them. There are technologies being used, so it is an issue for control but not one they can't handle.
[redacted] - all airfield should have a safeguarding plan. Ours looks like this – divided the area around the airfield into squares with colour codes for height levels [showed picture on his phone of it] and is also on airfield website – blue is 300 ft below and red 200 above
[redacted] - so Glasgow need to know about Edinburgh as well

12. Collaborate with other airports and NATS to ensure that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme.

13. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to Flight Level 90.

[redacted] - aircraft corridor a lot of smaller aircraft will contact to come through if there is a corridor that lets people through would take away a lot of conflicts that's DP13 – gives people an easy option.
[redacted] - a delay for our aircraft is next to nothing of 5 – 10 minutes but it is for larger aircraft. There is a big issue with lack of controllers, so really want to use the ones we have better.
[redacted] corridor give other users the access
[redacted] - that's below 7000 ft
[redacted] yes
[redacted] - Edinburgh is west of Carlisle if look in map so need to come up the corridor – and corridor at Prestwick

[redacted] *summary*
DP 11 - felt it was quite negative, potentially reword to work hard to remove turn around to be more positive.
DP 12 common sense good proposal, we had a good discussion with Alan about it, think its positive and help to reduce bottleneck and infringements.

Design principle review: Environmental Performance

General Notes

14. Minimise, and where possible, reduce aircraft emissions, the degradation in local air quality and adverse ecological impacts.
15. Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.

[redacted] - conflict between commercial and GA
[redacted] - (mix up with the DP sheet and other sheet causing confusion and [redacted] said they mean different things
[redacted] - easyJet last time said climbing straight out will reduce noise by 20%. Loganair mentioned islands flights not the same type of aircraft that don't go up to 7000 feet up to Stornoway
[redacted] - from last workshops they were talking more about the commercial not the lighter aircraft, and commented last session things climbing quickly out of Glasgow, then levelling off, and everyone recognised that not do to this is more efficient. I think that's what it is about, or how I recall what was being discussed last time.
[redacted] - the last time I learnt a lot about commercial traffic. It would have been useful to have a short course about what airspace is and what it is about it for people attending.
[redacted] - there are different types of noise as well, because we live on the airfield we sometimes come out and thought what type of aircraft is that?
[redacted] - last session Whitecrook were complaining about the A3s because they fly so low
[redacted] – sometimes think that plane must be at 2000 ft, and look up and see an Emirates plane, but when you actually go on radar and see it is 6 or 7000 ft up
[redacted] - suggesting taking out 15
[redacted] - or making sure it applies to the appropriate aircraft
[redacted] - 14 nothing of changes to routes will change that, it's down to the types of engines
[redacted] - at last session people were saying that want better planes
[redacted] - the design can't do anything about the efficiency of an aircraft
[redacted] - does it mean of an aircraft or aircraft in total
[redacted] - fuel and nitrogen deposited in habitats want to ensure that is minimised
[redacted] - more efficient aircraft
[redacted] - if more efficient by ensuring the route is more efficient it is going to have an impact on that (land) rather than having it here, here and here. It doesn't matter what height it is at –still comes down, it just might be delayed
[redacted] - agree emissions always
[redacted] - but still got wind that will blow things out uncontrollably
[redacted] - but you can keep it away from sensitive areas that are really sensitive to the nitrogen

[redacted] *summary*
Our side discussed continuous climb, it makes sense for saving fuel. DP14 instead of minimise use word prevent.
[redacted] - in terms of design of route can't see how that influences it, and way wind blowing will influence where your emissions go, so on designated routes can't see how that will make a difference
[redacted] - but still got sensitive routes

Design principle review: other principles

General Notes

16. Deploy routes with a level of RNAV1 specification that optimise the performance of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.

17. Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.

[redacted] - most DPs are understandably focused on major users of Glasgow airport – commercial traffic- theme of proposal was to try and reduce Glasgow's airspace significantly and think that should be reinforced a bit more because airspace around Glasgow is a very historic design for facilities that are not present anymore from navigational beacons the runways – it is inefficient and impacts almost all stakeholders users, people living nearby and environmental issues. Think that instead of tweaking it we should sit down with a blank sheet of paper and start from scratch to create a modern – start with clean sheet – say right this is perfect one and then create it from an aviation and aircraft point of view, and then adapt if to the issues the stakeholders are raising. None of us are experts in designing airspace and we don't have the overall knowledge. One way to do it is how we're doing it now but because we don't have the knowledge, and we need to compromise with each other.
[redacted] - with no restraints what would the computer say is the best one and then work from there
[redacted] - we should be blank sheet of paper, technology moves on and things might move on in next few years so forecast may change
[redacted] - [redacted] said they would take lessons from the last consultation
[redacted] - need to focus on the big issues but need to look at general principle for simplifying it this is going to be the biggest change for Glasgow airport in years don't really know what's happening but got an opportunity to do a major review and we're not doing that, we're tweaking
[redacted] - needs more of a push
[redacted] – I keep quoting the Department of Transport guidance, they should make sure that it is consistent with aviation and Department of Transport Strategy
[redacted] - and climate change guidance not just relevant to one piece of guidance – they are all relevant don't just single out one
[redacted] - climate change affects everything, and our transport so accept your point but also suggest the department of transport has specific guidance. It should be a key reference and whatever is designed should be checked against that.

[redacted] *summary*

Had a good chat with Colin, focused on major users, commercial users, it needs reinforced the proposals are to reduce Glasgow airspace and we also had a discussion on old runways
[redacted] - focus on commercial traffic and also need focus on GA too – DP 4 is 1 out of 18 – and it does tie into everything, controller workload and things like that
[redacted] - 17 have to make sure it is consistent across all strategies and the department of transport and all others

18. The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.

Post Design Principle presentation discussions
Agreement and objections

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Stakeholder Information

Workshop (please circle or highlight)	Workshop 2 **Date:** 4th October 2019 **Stakeholders**: Mix of all **Workshop Time:** 12pm – 4pm Table 2	
Stakeholders Present on table	Name	Organisation
	[redacted]	**Friends of the Earth**
	[redacted]	**NATS FASI-N**
	[redacted]	**Airspace for All**
	[redacted]	**Falkirk Council**
	[redacted]	**University of the West of Scotland**
	[redacted]	**East Dunbartonshire Council**
	[redacted]	**Inverclyde Council**

Pre-Table discussion (before and during presentation)

Notes

[redacted] – Are those dates hard and fast; they could be moved. CAA have indicated could be moveable. Confirmed that currently is the timetable being worked to, Brexit and Thomas Cook not an issue

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Design principle review: Safety related principle

General Notes

[redacted] – Safe or safer than today should have a qualifier re it being within and without the airspace
[redacted] – Was mentioned last time, more local users need to be included
[redacted] – Statement should explicitly state that it should include all commercial and other users, explicit wording all within, without and utilising
[redacted] – How do you draw the limit? May need to set a parameter limit of size or volume
[redacted] – Three types of traffic, internal, external and passing. Degree of tangential interaction
[redacted] – Wider area, could be an interface issue
[redacted] – Impact affected traffic
[redacted] – Did discuss how it would impact other airports last time
[redacted] – Edinburgh and Prestwick integration is a potential issue
[redacted] – One thing we discussed was baselines, measuring safety today to quantify the new airspace design would be safer in the future
[redacted] – Migratory birds could be classed as airspace users, along with bees.

1. The airspace design and its operation must be as safe or safer than today for all airspace users.

Summary

- Although not explicit, previous changes have ignored some issues, within, without or passing the final design so not exclusive
- How do we create a stable base line to show improvement? Nil detriment.

Design principle review: Capacity related principles

General Notes

[redacted] – Nothing really needs changing with these statements
[redacted] – Conflict between 2 and 4. Could be limiting the benefits or opportunity to change things. Could concentrate traffic into smaller area, which is gov policy, but wouldn't permit dispersal. Which is the priority?
[redacted] – Gov policy there for a reason, to go against it, will need approval from government, may not be forthcoming
[redacted] – If everybody said it was wanted it, then they'd have to offer it
[redacted] – Edinburgh followed the disperse or concentration policy. Community groups fought it out, so stuck with government policy. Random doesn't work, so how do you disperse as not possible to randomise?
[redacted] – Recognise policy piece, but dispersal and respite a couple of key things
[redacted] – Chicken and egg, procedure and changes work between the two
[redacted] – 2 and 4 need to be balanced. If is cleaner and quieter, then are less controls needed?
[redacted] – Do you want to amend point 4?
[redacted] – No, but it is more about designing the volume of suitable airspace to make it work?
[redacted] – But would adjust the principle. Dispersal might not work
[redacted] – Is there enough appropriate airspace to act as buffer, or if underutilised there could be too much uncontrolled airspace? If appropriate, then could allow Glasgow to do so
[redacted] – Design procedures, then should follow-on from the procedural
[redacted] – Appropriate volume of airspace
[redacted] – Put in context, needs to be appropriate
[redacted] – Can they expand the airspace under control?
[redacted] – Everybody wants more control
[redacted] – No such thing as sustainable air transport. Biofuel replaces one problem with another. In the feedback, no mention of electric planes or island hopping. Should be included in the feedback. Nothing is ever environmentally neutral. How to ensure respite on communities impacted on the local communities? Stop flying over Drumchapel
[redacted] – Close areas to airport can't change impact much, but airlines want most efficient route. Route round population centres, negative impact in miles, but potential impacts via respite so can increase the carbon footprint as it is an alternative method.

2. Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport and address growing concerns about the impact of emissions on climate change.

3. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.

4. Minimise the volume of controlled airspace needed to support commercial air transport operations, enable safe, efficient access for other airspace users and release controlled airspace that is not required.

5. Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic.

Summary

- Diversified on the topics. Got onto government policy of respite and how can negatively impact on carbon footprint, as longer routes increase track miles
- Linked to that, respite routes may require more controlled airspace use word “appropriate instead of “minimise”
- Increasing input from widened flight paths can cause conflict with local communities not currently impacted.

[redacted] – Glasgow holds don’t want to be below 7k ft

Design principle review: Noise related principles

General Notes

[redacted] – No. 6, still balance with respite. Noise and visual intrusion can be put under this
[redacted] – Risk of it only focussed on commercial traffic, general can also be impacted if held down and lower. Lots of issues against government policy
[redacted] – Won't capture full feedback until there are lines on a map
[redacted] – Covered by point 9. Nothing talks about minimising over populous areas. Needs properly quantifying
[redacted] – Rural vs urban impacts. Complaints tend to be from the rural areas. Could be as isolated and the baselines are lower
[redacted] – Baseline noise higher than in town then in the rural areas
[redacted] – Had people contact her about impacts on Drumchapel, but people not able to do so
[redacted] – Aircraft use energy efficient when on full thrust, but noisier for local people
[redacted] – Word optimised misused
[redacted] – Has to be a compromise (table agreed)
[redacted] – Number of people under six is only issue. Could be changed via a head count of people i.e. concentrations of population. Although cows don't vote
[redacted] – Minimise when possible on behalf of populations who are overflown. Minimise overall issue
[redacted] – Then no conflict
[redacted] – Needs to be agreed
[redacted] – Should there be something re farmers and impacts on rural areas?
[redacted] – But by definition that's where government want it all to go
[redacted] – More flexibility the moment they have taken off
[redacted] – Approach is almost always straight
[redacted] – In general for safety, need to have a stable approach - 3-degree line, defines height, etc.
[redacted] – If standard improved, then shorter legs required to land
[redacted] – The rural farmer and locations, back then (when routes were originally planned) some areas developed (housing estates) didn't exist
[redacted] – Population and communities have changed; procedures have remained the same
[redacted] – Social issues meant Drumchapel was built. Planning should take current development of the city into account. Short of moving the runway, not a lot could be done
[redacted] – Aircraft now specifically designed to respond to the procedures, so if procedures changed, aircraft less efficient.

6. Minimise, and where possible reduce, the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing.

7. Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes or methods that are possible within technical ATC system, enroute network and procedural constraints.

8. Flight paths below 7000ft should aim to avoid noise sensitive areas, buildings, national parks and areas of outstanding natural beauty.

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 the immediate climb out where overflight is unavoidable.

Summary

- Conflicts between what are here, 7 and 6. Could be why government had done policy, supposed to cater for both
- On 6, defining the “who”. Mental health and wellbeing “of people overflown” how to quantify and define this point
- Brief discussion, not about design rules, but the understanding of why aircraft approach as they do compared to departure. Education issue on this
- Point 6 does not explicitly say about reducing the number overflown, thought about adding to point 6.

Design principle review: Access and Integration

General Notes

[redacted] – Very detailed, Glasgow and Edinburgh have detailed agreements
[redacted] – Issue with 13 is Glasgow and Edinburgh agree to be easterly or westerly, means all aircraft in same rotation. If one on each, then they would conflict
[redacted] – More tactical to ensure they are off the route and safely in the air. Came up at Edinburgh, 13 is slightly out of context. If can climb quicker, then benefits of environmental reduction comes through
[redacted] – Once above 3k, not an issue. Have to be stable at 3-4k ft, that is the bit when. They are lower for longer. Point needs to clarify it refers to departures
[redacted] Airspace in centre and uncontrolled airspace in centre but isn't, there is opportunity for a corridor in the centre, which could given noise respite from smaller aircraft. Need to integrate between Glasgow and Edinburgh. Cumbernauld also have a cap, so have issues entering the airspace. Weather can cause issues, along with air ambulances, etc. Has to be integration between Glasgow and Edinburgh, with a corridor that is flexible
[redacted] – Happy with point 1, but gets the nuances
[redacted] – This is possibly too technical. So just change to agreed flight levels and departures
[redacted] – Can argue about taking work further away, could it be 120 or 140? Arbitrary in some cases, saying 90 now adjust and reduce flexibility in both design and operational terms
[redacted] – As you fly over Drumchapel, then levels reduce
[redacted] – Everything should be on a 3 degree angle. Procedure designed for older aircraft as the most consistently safe way of landing them
[redacted] – Are modern aircraft are designed to hit this old limit?

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 that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme.

13. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to Flight Level 90.

Overview

- Point 13 – mainly to do with departures, should be critical point. Flight level 90 too set in stone, can move things slightly
- Point 12 - huge importance in Glasgow and Edinburgh to reduce the nonflexible use, there is space that could be released on a procedurally tactical basis, to minimise impacts and aid operations

Design principle review: Environmental Performance

General Notes

[redacted] – How justifiable? Is it too predicated on a single operator?
[redacted] – All aircraft and operators need to be considered, in the design, what does this mean? Different routes for older aircraft or different ones for higher performing ones?
[redacted] – Aircraft need to meet emission standards
[redacted] – But then is it better for the environment to build a new plane or to keep the older one in operation? New can be worse when carbon emissions of a new build taken into account
[redacted] – Depends on your objection
[redacted] If environment is damaged by making the new plane, then this may not be a good idea
[redacted] – If airspace is lower, then causes further issues. Gives operator the choice
[redacted] – If regulated, then causes problems
[redacted] – Environmental cost of making decent and climb steeper for the environment is negative then a bad thing, but if Loganair are out into uncontrolled airspace then how could they be stopped
[redacted] – Need to keep the Island links, Loganair only operator that currently does this/

Consensus; need to be aware of the danger of always working to the lowest common denominator. This might reduce access to some operators, but this would force them to change. Fly alternative routes or need to have them fly outside of control space.

[redacted] – No change to the principles but is it appropriate for Glasgow to follow the Heathrow Airport method. Within the lifetime of the airspace, all users will need to update their aircraft to meet the new standards
[redacted] – Battery operated short-haul should be considered

[redacted] – Strong winds blow form the north west, so the negative air impacts will be located in certain areas. Wind and rain can cause changes in the way things interact.

14. Minimise, and where possible, reduce aircraft emissions, the degradation in local air quality and adverse ecological impacts.

15. Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.

Overall

- Beware of lowest common denominator operators, who chose to low fly in order to reduce costs. Didn't want to see airspace too low to have an impact on people on the ground. Can fly out on the existing airspace but shouldn't have a piece of airspace that is just for them. By improving planes and putting on minimum standards, can improve things for all users.

Design principle review: other principles

General Notes

[redacted] – Specific standards limit the operators and users. Others could work, go back to original wording, replace RNAV1 with word "appropriate"

[redacted] – Thing not in here is the protection of air transport - cannot happen if Glasgow does not have sufficient controller resources. If they lack the resource, then it won't work. Part of the planning has to include proposed transiting traffic and the operation of airspace

[redacted] – Was covered in section 3 and 4

[redacted] – Statements are used as covering statements; things will change over the next 40 odd years. Things that can be done now, but things will change later-on.

16. Deploy routes with a level of RNAV1 specification that optimise the performance of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.

17. The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.

Overview

- Implicit but not explicit, Glasgow ATC needs to have sufficient resources to meet expected transitioning traffic, if you have an airspace change that you cannot manage with no personnel then you cannot effect the change you want
- Acronyms, some documents not understood, could do with a glossary of terms at all sessions
- R-NAV1, let us not constrain ourselves with a detailed definition, just in case new specifications come along, technology will improve, may result in another airspace change and kickstarts whole process again due to restrictive wording which could be resolved through introduction of "or better" (so it reads Deploy routes with a level of RNAV1 (or better) specification, etc)

Post Design Principle presentation discussions

Agreement and objections

[redacted] - General point from the table, need a glossary of terms available for lay-people at the meetings
- Dates are quite tight. Especially as UK national representative. Will be asking for help for longer response periods. This is much better than most other programmes but is quite tight. Doing a much better job than other airports.

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Stakeholder Information

Workshop (please circle or highlight)	Workshop 2 **Date:** 4th October 2019 **Stakeholders**: Mix of all **Workshop Time:** 12pm – 4pm Table 3	
Stakeholders Present on table	Name	Organisation
	[redacted]	Glasgow City Council
	[redacted]	Environmental Protection Scotland
	[redacted]	Scottish Aeronautics & Rocketry Association (SARA)
	[redacted]	Glasgow Airport Consultative Committee
	[redacted]	British Parachute Association
	[redacted]	NATS Prestwick Centre

Pre Table discussion (before and during presentation)
Notes

General Notes

[redacted] – Is there the intention to move away from ground based navigation to satellites?
[redacted] – Yes

1. The airspace design and its operation must be as safe or safer than today for all airspace users.

Add or amend principles

[redacted] – I think the word users should be changed. Maybe 'stakeholders' is a better word to use here?
[redacted] – Would that cover people on the ground?
[redacted] – Agrees with [redacted] Remove the phrase airspace users. And finish the sentence "safer for all". New principle should read: *"The airspace design and its operation must be as safe or safer than today for all"*

Additional principles

ALL – agreement that there are no additional principles required for this section.

Higher /lower priority

[redacted] – I wouldn't want to change priority and think it should remain where it is.
ALL – agreement that safety is a high priority

Table summary

- Agreement that safety should remain where it is in terms of priority
- Agreement that the principle should read: "*The airspace design and its operation must be as safe or safer than today for all.*"

Design principle review: Capacity related principles

General Notes

2. Enable the sustainable growth of quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport and address growing concerns about the impact of emissions on climate change.

Add or amend principles

[redacted] – Sustainable growth doesn't mean more planes throughout the day. At the moment it is inefficient and there is a need to change flight paths.
[redacted] – What is meant by sustainable growth? Unsure what this principle means.
[redacted] – agrees with [redacted]
[redacted] also questioned what is actually meant by sustainable growth.
[redacted] – New wording for this principle – "*Facilitate quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport having regard to growing concerns about the impact of emissions on climate change."*

[redacted] – I think this principle should stop after air transport. The remainder of the sentence – "address growing concerns about the impact of emissions on climate change" – should be moved to the environment section.
[redacted] – New wording for this principle – "*Facilitate quicker, quieter, cleaner traffic by configuring the airspace to meet the forecast demand for air transport.*
[redacted] – Agreed to add the last part in to the environmental section of the principles.
[redacted] – This should be moved as this isn't related to questions on capacity.

[redacted] – If we separate the climate change part of the principle this will lower the priority.
[redacted] – If you reworking this principle, we still mention that it should be **cleaner** and therefore it still references environmental side of things.

3. Options to introduce additional airspace capacity for Glasgow Airport should consider the potential impacts on the operations of nearby airports, the wider Scottish terminal network and other airspace users in uncontrolled airspace.

ALL - no changes to this principle.

4 Minimise the volume of controlled airspace needed to support commercial air transport operations, enable safe, efficient access for other airspace users and release controlled airspace that is not required.

[redacted] – I suggest that this principle should be amended to add the word **safely.** This should read:

*Minimise the volume of controlled airspace needed to **safely** support commercial air transport operations, enable safe, efficient access for other airspace users and release controlled airspace that is not required.*

5. Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic.

[redacted] – I'm not sure how the airport would action this principle.
[redacted] – Is this a change to holding patterns?
[redacted] – I don't' think this is just an issue for Glasgow. It is much wider than that.
[redacted] – Mitigate doesn't seem like the right term to use here. We could change this to "minimise" rather than "mitigate"
[redacted] – I don't know what is in Glasgow's ability to really do anything about this. This doesn't sit within Glasgow's ACP

Table summary

- Debate on table around principle 2 and whether or not the climate change part of the sentence should be moved to a different section in the principles. [redacted] & [redacted] both agreed that this should happen.

Design principle review: Noise related principles

General Notes

6. Minimise, and where possible reduce, the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing.

[redacted] – 6 seems sensible
ALL – agreed that there are no changes needed to this principle.

7. Offer communities with predictable relief from aircraft noise through the use of multiple route options and respite routes or methods that are possible within technical ATC system, enroute network and procedural constraints.

[redacted] – It seems as though no.7 conflicts with no 9.
[redacted] – Agreed. Not sure how respite would work with these principles

[redacted] There are flight paths over my house and the noise is fine. Are the residents in these areas not used to this by now?
[redacted] – Clydebank Community Council have emphasised the noise over its community and wanted to spread the burden. Communities may be supportive of multiple route or respite options
[redacted] – If planes are coming in to the airport then they are going to go over Clydebank.

[redacted] – Does the airport ever get feedback on the noise?
[redacted] – On the website you can monitor the noise. The numbers of complaints are low but are increased during a consultation like this.
[redacted] – That's not really a good measure of levels of complaints
[redacted] – We either widen routes or not. There was a councillor in Bearsden who highlighted an issue of change of flight paths, so there are differing opinions on this.

8. Flight paths below 7000ft should aim to avoid noise sensitive areas, buildings, national parks and areas of outstanding natural beauty.

[redacted] – The planes need to fly over somewhere
[redacted] – These statements are contradictory
[redacted] – I don't' think there is anything they can do on this issue.
[redacted] – The airport can't avoid this. I think we should remove principle 8.

9. Avoid overflight of areas that are currently not affected by aircraft noise.

[redacted] – I also think this contradictory and that this will ultimately be a political decision.
[redacted] & [redacted] – agree with [redacted]

10. Mitigate the impacts on local communities that are currently affected by aircraft noise on final approach or the vicinity of the immediate climb out where overflight is unavoidable.

[redacted] – Agree. Glasgow's noise has already been reduced to 63 decibels.

[redacted] – Insulation will help to mitigate the impacts of noise
[redacted] – More people notice noise in the country
[redacted] – Agree, and also in the summer when people open windows meaning the noise is more noticeable.

[redacted] – Could an alternative wording for this principle include "*encourage the use of quieter aircrafts"*

Table summary

- Difficulty with principle options as contradictory with one another. We agree to delete 7, 8, & 9 because they are covered by 6 & 10 and contradictory.
- This section should only have principles 6 and 10.

Design principle review: Access and Integration

General Notes

11. Avoid introducing additional complexity and bottlenecks into controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.

[redacted] – Does this principle relate to safety again?
[redacted] – Slightly but could relate to bottlenecks
[redacted] – This section is to do with integration
JBY – asked [redacted] to explain
[redacted] described airspace as a box and infringement would be if someone enters airspace box without permission. This is private aircrafts mainly.

[redacted] / [redacted] / [redacted] – all agree with this principle.

12. Collaborate with other airports and NATS to ensure that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme.

ALL – agreed that this principle is ok

13. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to Flight Level 90.

[redacted] – Should this be changed to level 70?

[redacted] – Level 90 doesn't mean anything to anyone who don't have the technical understanding and language. This should be clearer for people to understand.

[redacted] – This can't be a principle as it isn't in Glasgow airport control

[redacted] – stop principle at deconflicted.
[redacted] – Deconflicted is also difficult to understand. Should this be "so don't meet" to make it easier to understand?
[redacted] – does this impact noise and safety principles?

ALL – change this principle to:
"Routes to /from Glasgow and Edinburgh airports should be procedurally deconflicted in accordance with the FASI North programme"

TABLE FEEDBACK

- [redacted] – no comments on principles 11 and 12
- [redacted] – reference to level 90 doesn't apply to Glasgow.
- Change principle to - Routes to /from Glasgow & Edinburgh airports should be procedurally deconflicted in accordance with the FASI North programme

Design principle review: Environmental Performance

General Notes

14. Minimise, and where possible, reduce aircraft emissions, the degradation in local air quality and adverse ecological impacts.

[redacted] – surely this depends on the fuel or aircraft?
[redacted] – So is this efficiency versus noise?
[redacted] – This principle all depends on airline operator and how they come in to land. All are very different.
[redacted] – This is not worded very well. Is this s not the same thing? To minimise and adverse?
[redacted] – Also over what? What are the baseline measurements?

[redacted] – In regards to air quality, the biggest impact on air quality is the ground traffic and roads not aircrafts.
[redacted] – efficient routes will reduce amount of fuel and improve things.
[redacted] – Unsure of this principle. What do they mean by ecological impacts mean?
[redacted] & [redacted] – no idea

[redacted] – climate change and air quality are two different things.
[redacted] – what is the impact of climate change & how does that impact the flight paths?

CHANGE principle to – *"Minimise, and where possible, reduce, aircraft emissions, FURTHER the degradation in local air quality and adverse ecological impacts, FROM TODAY'S ROUTES TAKING IN TO ACCOUNT OF CONCERNS ABOUT THE IMPACT OF EMISSIONS ON CLIMATE CHANGE."*

(Climate change information taken from principle 2 as thought it was a better fit here = JBY/ [redacted] / [redacted]

15. Ensure that aircraft operating at Glasgow Airport climb and descend continuously to / from at least 7000ft, with a preference for continuous climbs if both cannot be achieved simultaneously.

[redacted] – covered elsewhere so principle is not needed.

Table summary.

- On principle 14 – look at encouraging more efficient aircraft (Similar feedback to table 2)
- New wording for principle 14 - *"Minimise, and where possible, reduce, aircraft emissions, further the degradation in local air quality and adverse ecological impacts, from today's routes taking in to account of concerns about the impact of emissions on climate change."*

Design principle review: other principles

General Notes

16. Deploy routes with a level of RNAV1 specification that optimise the performance of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.

[redacted] – RNAV1 is very specific. This should be amended to include "RNAV1 OR BETTER"

New wording for principle - ***Deploy routes with a level of RNAV1 OR BETTER specification that optimise the performance of the modern aircraft fleet operating at Glasgow Airport and provide sufficient resilience and redundancy against GNSS failure.***

17. The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.

[redacted] – Problem with the terms "or future" what does this mean?
[redacted] – also don't like the wording of this statement
[redacted] is it "in accordance with"?
[redacted] – do we actual need this principle?
[redacted] – It could be a tick box exercise

[redacted] – We should reword this principle to: "*The GLA ACP IS BEING DEVELOPED IN ACCORDANCE with the CAA's published Airspace Modernisation Strategy (CAP 1711) and current associated with it."*

Additional principles to add

[redacted] – Cap *1385 should be utilised for route separation and where not achievable, co-ordinated with other relevant stakeholders to ensure safety arguments are suitable*

Table summary

- [redacted] – Glasgow air traffic control space shouldn't expand. Where we launch from is between airports and expansion would have a negative impact on our group. (this relates to principle no 4.)
- [redacted] - drones covered by BMFA (British model flying association) and they having conversations with my group.
- [redacted] – there is legislation on drones and it's not commercial operators that cause issues its others buying cheap drones & not following regulations.

[redacted] – add to mailing list.

Post Design Principle presentation discussions
Agreement and objections