Future Airspace Strategy Implementation South (FASI-S)

Cardiff Airport

Gateway documentation:
Stage 1 Define

Step 1B Design Principles and Stakeholder Engagement Feedback

Uncontrolled

Sign-Off

Action	Role	Date
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Issue	Month/ Year	Comments
Issue 1.0	February/ 2020	First issue submitted to the CAA
Issue 2.0	March/ 2020	Updated issue submitted to the CAA: - The wording "*if possible*" has been removed from DP2 in recognition that this is a mandatory principle and adherence to the Airspace Modernisation Strategy is prescriptive. - Document metadata updated to include an appropriate document title

Contents

1. Introduction

This document forms part of the document requirements under the Civil Aviation Authority's (CAA) CAP1616 Airspace Change Process: *Stage 1 Define Gateway, Step 1B Design Principles.*

Cardiff Airport (CWL) formally commenced an Airspace Change Proposal in July 2019 through the submission of a Statement of Need to the CAA (portal link). This outlined Cardiff Airport's need for an airspace change including removing dependencies on the Brecon (BCN) navigation aid; coordination with the wider Future Airspace Strategy Implementation for the South (FASI-S) and alignment with the CAA's Airspace Modernisation Strategy and improving the efficiency and environmental impact of procedures.

An Assessment Meeting between the CAA and Cardiff Airport was held in September 2019 (portal link). This gave Cardiff Airport the opportunity to expand upon its Statement of Need; outline the potential issues and identified opportunities from the proposed change; and present a proposed timeline.

The above activities concluded the requirements for Step 1A Assess Requirement of CAP1616 and allowed Cardiff Airport to commence work on Step 1B Design Principles.

In January 2020, Cardiff Airport engaged a representative group of aviation industry and community stakeholders. Prior to this, Cardiff Airport had provided these stakeholders with a list of draft Design Principles and an explanation as to how these fit in to Cardiff Airport's Airspace Change Process under CAP1616. Feedback and suggestions on the draft Design Principles were received from a variety of stakeholders during workshops; which was analysed and used to update our list of Design Principles.

This document describes how stakeholder feedback has influenced the evolution of the Design Principles. The Executive Summary lists Cardiff Airport's final Design Principles amended as a result of the feedback received during the engagement process. The subsequent sections of this document outline our targeted stakeholders; the draft Design Principles disseminated to stakeholders; the engagement activities in support of this submission; and a summary of the feedback received and how the Design Principles changed as a result of this.

Cardiff Airport will now submit this Design Principles document to the CAA, to complete the Stage 1 Define Gateway. The submission of this document is targeting the CAA's March 2020 Gateway Assessment meeting (27/03/2020) and was submitted four weeks prior to this (28/02/2020). Subject to approval of Stage 1, Cardiff Airport will formally adopt these Design Principles for the FASI-S Cardiff Airport Airspace Change Proposal (ACP).

Engagement on specific design concepts will occur later in Stage 2, and formal consultation in Stage 3. The design concepts will be evaluated against the final Stage 1 Design Principles as part of Stage 2.

2. Executive Summary – List of Final Design Principles

The following list summarises the final Design Principles which have resulted from the engagement process described in Section 5 below. Some of these Design Principles have changed in response to the engagement feedback received, which is summarised in Section 5.

Design Principles have been split into general categories (e.g. policy, regulation) and prioritised as: high – high/ medium - medium – medium/ low - low. These priorities are based on whether the Design Principle is mandatory or not (e.g. consideration of safety); Cardiff Airport's own objectives and on the feedback received on the Design Principles during the stakeholder engagement workshops.

These priorities will be considered when the Design Principles are used to evaluate/ rank design options in the later Stage 2 of the Airspace Change Process. None of the Design Principles were assigned a "low" priority as this could not be justified following the feedback received. Therefore, most of the Design Principles – which are not compulsory – have been assigned a "medium" priority. This is summarised in Section 5 below.

The noise mitigation techniques – originally provided as part of the title – have been included under the "*details*" section for Design Principle 5. These are mitigation techniques which could potentially be incorporated as part of Cardiff Airport's proposed design, in support of this principle. Cardiff Airport will seek to minimise noise impact where possible and will consider local circumstances and stakeholder feedback received. Government guidance also states that minimising noise should be the priority for airspace design below 7,000ft. We recognise that there are several applications of this guidance and have therefore provided the following sub-principles.

Theme	Design Principle and Priority	Details
Safety	DP0 Safety: Must maintain or where possible, enhance current levels of safety Priority: high	*Safety is at the forefront of everything Cardiff Airport does. Safety will underpin any airspace change which where possible, will enhance current safety standards. Cardiff Airport also believes it is crucial that any proposed changes do not have a detrimental safety impact on other airspace users.*
Operational	DP1 Resilience: The proposed airspace must maintain or where possible, enhance operational resilience of the ATC (Air Traffic Control) network and operations Priority: high	*Cardiff Airport will consider airspace and route designs that support – if not improve - the resilience of the airport and national air traffic network; benefiting associated airspace users.*
Operational	DP2 Capacity: The proposed airspace design will yield the maximum capacity benefits from systemisation in line with the CAAs (Civil Aviation Authority) published airspace modernisation programme Priority: high	*Cardiff Airport's airspace change, in conjunction with the FASI-S programme and in accordance with the airspace modernisation programme (CAP1711), will need to respond to future growth opportunities. Any changes to airspace or procedures must be able to cope with an increased demand and link efficiently into the network; for the benefit of those who use and are affected by UK airspace.*

Theme	Design Principle and Priority	Details
Economic	**DP3 Network Performance:** The proposed Cardiff FASI-S (Future Airspace Strategy Implementation – South) airspace should facilitate optimised network economic performance Priority: **medium**	*Cardiff Airport, through improved airspace and procedure designs, will seek to drive growth through environmental and operational improvements e.g. track mileage, route charges, fuel burn and associated emissions.*
Environmental	**DP4 Greenhouse Gas Emissions (CO_2):** The proposed Cardiff FASI-S airspace should minimise CO_2 emissions per flight Priority: **medium**	*Cardiff Airport is committed to minimise environmental impact through the most efficient proposed airspace and procedure design. This covers both CO_2 emissions and associated fuel burn.*
Environmental	**DP5 Noise impact to stakeholders on the ground:** The proposed Cardiff FASI-S airspace should limit, and where practicable reduce, noise impacts to stakeholders on the ground. Priority: **medium**	*Considerations/options to mitigate the impact of noise include (in no particular order):* - *Using more noise efficient operational practices* - *Minimising number of people newly overflown* - *Maximising sharing through predictable respite* - *Avoid overflying communities with multiple routes* - *Maximising sharing through managed dispersal* - *Minimising total population overflown* - *Designing flight paths over commercial and industrial areas* - *Prioritising routing flight paths over parks and open spaces (rather than over residential areas)*
Technical	**DP6 Airspace Access and Integration (MoD Requirements):** The Cardiff FASI-S Airspace Change Proposal should minimise impacts on the MoD Priority: **medium**	*Cardiff Airport's proposed design will take into consideration the requirements of the military. The MoD will be involved and engaged with throughout the process, particularly in design work which may propose changes to airspace or procedures.*
Technical	**DP7 Airspace Access and Integration (GA Impacts):** The Cardiff FASI-S Airspace Change Proposal should minimise impacts on GA and other civilian airspace users Priority: **medium**	*In accordance with the Airspace Modernisation Strategy, Cardiff Airport should consider an Airspace Change Proposal that facilitates and accommodates access to airspace for GA and other civilian airspace users such as emergency service traffic and training flights.*
Technical	**DP8 Airspace Access and Integration (Minimise CAS):** The volume and classification of controlled airspace required for the Cardiff FASI-S ACP should be the minimum necessary to deliver an efficient airspace design,	*Cardiff Airport's proposed design, including any changes to controlled airspace, will ensure the delivery of a safe and efficient operation. The reference to "other airspace users" covers adjacent aerodromes, General Aviation users and the MoD; amongst others.*

Theme	Design Principle and Priority	Details
	taking into account the needs of all airspace users Priority: **medium**	
Technical	**DP9 Use of Advanced Navigation Technology (PBN):** The route network linking airport procedures with the enroute phase of flight will be designed to yield maximum safety and efficiency benefits by using an appropriate standard of PBN. Priority: **high**	*Cardiff Airport will remove the dependencies on legacy navigational aids and will comply with the requirements of known PBN implementing rules. Changes to arrival and departure routes will be designed to make full use of modern navigation technology. Any changes to airspace or systems will have back-up procedures in place.*
Policy	**DP10 Use of Advanced Navigation Technology:** The proposed Cardiff FASI-S airspace design must be compliant with all relevant laws and regulatory requirements. Priority: **high**	*Cardiff Airport will ensure accordance with all relevant policies – such as the PBN Implementing Rule – for compliance and maintenance of safety standards.*
Technical	**DP11 Airspace Access and Integration (Impact on Adjacent Airfields/ Aerodromes)**: The proposed airspace should where possible, achieve a mutually beneficial solution to surrounding airfields ensuring equitable access to the airspace 'shared' with Bristol Airport Priority: **high/ medium**	*Cardiff Airport will engage with surrounding airfields throughout their design work to mitigate the impact on neighbouring airports such as Bristol Airport, Exeter Airport, St Athan and Cardiff Heliport.*

3. Engagement Activities and Stakeholders

3.1 Cardiff Airport Airspace Change Stakeholders

Cardiff Airport started work on the CAP1616 *Step 1B Design Principles* in November 2019, after an Assessment Meeting was held with the CAA in September 2019 (link to portal).

As outlined in Section 4 below, Cardiff Airport created a set of draft Design Principles based on their submitted Statement of Need (link to portal) and objectives they wish to achieve through an Airspace Change Proposal. The draft Design Principles were based on Cardiff Airport's local requirements alongside alignment with other Airspace Change Proposals of relevance to Cardiff Airport, such as Bristol Airport's. These draft Design Principles were used as a starting point to base the engagement on; giving stakeholders some context.

Prior to engaging on their draft Design Principles, Cardiff Airport identified relevant aviation industry and local community stakeholders who might be affected by an airspace change and could help to develop the principles through two-way engagement. An appropriate representative or communications department was identified for each stakeholder.

Cardiff Airport identified stakeholders by considering who may be directly or indirectly impacted by an airspace change; whose help may be required; and who may have an interest in the subject. A lot of the aviation and community stakeholders were already known contacts of the airport; such as local community councils and organisations which Cardiff Airport has a Letter of Agreement (LoA[1]) with, including St. Athan Airport and South Wales Police.
Cardiff Airport also used the 'Potentially Affected Area' - found on its Airspace Change portal page (link) – to identify any further relevant aviation industry and local community stakeholders. This area was devised by Cardiff Airport to illustrate the region which may be affected by this airspace change up to 7,000ft.

The aviation and community stakeholders have been summarised below.

Aviation Industry Stakeholders

Cardiff Airport has a wide variety of aviation stakeholders who could be impacted or interested by an airspace change. This included adjacent airports/ airfields who Cardiff Airport will need to coordinate any changes with due to their close airspace and procedure proximity; as covered by current standing LoAs.

Cardiff Airport identified other airspace users who use the airspace around Cardiff that could be impacted by changes such as airspace structure, procedure placement or timings. The airspace is used by a wide variety of stakeholders for different purposes; from the emergency services to gliding clubs.

There are also several mandatory aviation stakeholders who Cardiff Airport are required to contact as part of an airspace change. These include the Military of Defence (MoD) and representatives from the National Air Traffic Management Advisory Committee (NATMAC), which covers a wide variety of airlines and aviation organisations.

[1] An LoA sets out the high-level policy for cooperation between separate states (e.g. airfields) and provides a way of establishing mutual support under contingency conditions.

Cardiff Airport identified and contacted 66 unique aviation stakeholder groups and organisations. A summary of these can be found below and a full list in Appendix 1 of the Engagement Report (Ref 1).

- 28 NATMAC members including General Aviation (GA) organisations who contact appropriate local representatives e.g. Airspace4All and British Gliding Association
- 12 Airlines who operate from Cardiff Airport e.g. Flybe and Ryanair
- 10 local aviation clubs and companies e.g. Caerdav aviation
- 4 adjacent commercial Airports e.g. Bristol and Exeter Airports
- 3 emergency service operators e.g. Bristow
- 3 MoD contacts e.g. MoD Defence Airspace and Air Traffic Management (DAATM)
- 3 NATS contacts e.g. representative from the NATS London Airspace Modernisation Project (LAMP) design team
- 2 Government organisations e.g. HM Customs Excise
- Airspace Change Organising Group (ACOG)

Local Community Stakeholders

Cardiff Airport identified and contacted 130 unique community stakeholder groups and organisations local to the surrounding area. A summary of these can be found below and a full list in Appendix 1 of the Engagement Report (Ref 1).

- 48 District, Town, Parish and Community Councils e.g. Barry Town Council and North Somerset Town Council
- 27 education institutes and organisations e.g. Cardiff University and National Training Federation Wales
- 17 local businesses and commerce organisations e.g. Cardiff Hoteliers Association and South Wales Chamber of Commerce
- 16 emergency and public service organisations e.g. Health Boards and South Wales Police
- 13 local charity organisations e.g. Cardiff Airport PRM (Passengers with Reduced Mobility) & Disability Forum and Wales Council for Voluntary Action
- 6 transport and travel companies e.g. Wales Tourism Alliance
- 3 other companies e.g. Creative Rural Communities

3.2 Engagement Activities

Cardiff Airport submitted a Statement of Need for this Airspace Change Proposal (ACP) to the CAA on 29th July 2019 (link to portal). Since this submission, Cardiff Airport have met with neighbouring airports Bristol and Exeter, alongside the NATS London Airspace Modernisation Project (LAMP) and the Cardiff Airport Consultative Committee; to ensure all key stakeholders are kept up to date on the progression of the ACP.

The following collaboration meetings have been held between Cardiff Airport and relevant stakeholders:

- A joint FASI-S meeting was held between Cardiff Airport, Bristol Airport, Exeter Airport and NATS LAMP on the 12th October 2018.
    - The main purpose of this meeting was to understand Cardiff Airport's needs/ requirements from an ACP; it's alignment with FASI-S; and coordination with adjacent Airports

  - Cardiff Airport provided an update on its future ACP and masterplan aspirations including known issues to resolve and coordination with Bristol and Exeter
  - Exeter Airport also provided an update on their ACP plan and timeline
  - Notes from the meeting have been provided (Ref 2)

- A joint ACOG/ FASI-S meeting was held between Cardiff Airport, Bristol Airport, Exeter Airport, ACOG and NATS LAMP on the 26th July 2019.
  - Cardiff Airport provided an update on their planned ACP after submitting a Statement of Need and having a date for their Assessment Meeting with the CAA planned
  - Updates were also provided on the progress of Bristol and Exeter's (separate) ACPs
  - All airports agreed they would need to work collaboratively as a region; alongside the wider FASI-S programme of work. Cardiff and Bristol Airports agreed to work closely with the LAMP design team
  - Notes from the meeting have been provided (Ref 3)

- Cardiff Airport provided an update to the Airport Consultative Committee on the 29th October 2019
  - Update presented to the committee on the FASI-S Airspace Change Proposal and the upcoming stakeholder engagement workshops
  - Notes from the meeting have been provided (Ref 4)

3.3 Design Principles Engagement

As part of an Airspace Change Proposal – underpinned by the CAA's CAP1616 process - Cardiff Airport is required to develop Design Principles as part of Stage 1B. These must be developed through two-way engagement with a targeted, but wide range, of aviation and community stakeholders. This allows the change sponsor of an airspace change (Cardiff Airport) to communicate the need for change and for impacted stakeholders to feedback their own priorities into the development of the principles.

Cardiff Airport contacted the aviation industry and community stakeholders in December 2019, as listed in Section 3. All communication with stakeholders – alongside facilitation of the engagement workshops (covered below) – was completed by a third-party, neutral, communications agency called Freshwater.

All of Cardiff Airport's identified stakeholders were contacted via email – written in Welsh and English - in the middle of December 2019 (17th – 20th). Stakeholders were invited to participate in a Design Principles engagement workshop in January at Cardiff Airport: an aviation focussed workshop on the 16th January and two community stakeholder workshops on 17th January. This gave stakeholders just over four weeks' notice before the workshops; to respond and identify a representative if they wished to attend.

The invite email sent to stakeholders contained background information on airspace change and Cardiff's alignment to the UK Airspace Modernisation Strategy. The email explained why Cardiff Airport is required to produce and submit Design Principles through two-way engagement with targeted stakeholders. The workshops planned for mid-January 2020 would be used to understand stakeholder's specific and local priorities for airspace change, and how they want to see these reflected in the Design Principles. Stakeholders were made aware that this was not a consultation on designs but an engagement on the guiding principles of Cardiff Airport's airspace change.
The email also contained a link to Cardiff Airport's page on the CAA portal, containing their Statement of Need, alongside a link to the wider Airspace Modernisation Strategy.

If respondents wished to attend an engagement workshop, they were asked to respond via email or telephone to a provided number by Monday 6th January 2020, just under three weeks later.

Cardiff Airport – via their neutral contracted company, Freshwater – also sent prompt emails during the first week of January; with consideration of Christmas leave just before this. A number of telephone calls were also made to stakeholders who had not accessed the initial email invitation or the secondary follow up email. A full communications log, covering all emails and telephone calls, can be found within Appendix 3 of the Engagement Feedback Report (Ref 1).

Prior to the engagement workshops, Cardiff Airport developed a set of draft Design Principles which sought to address the safety, environmental and operational objectives of Cardiff's Airspace Change Proposal. The draft Design Principles were also based on Cardiff Airport's Statement of Need (link to portal) alongside consideration of the Design Principles approved for other change sponsors whom Cardiff Airport will need to align and coordinate with i.e. Bristol Airport and NATS LAMP.

The draft Design Principles and background information were circulated via email to all aviation and community stakeholders who had confirmed attendance at one of the three stakeholder engagement workshops. The email articulated the engagement process and that Cardiff Airport had developed the draft principles for discussion and scrutiny; as opposed to a "blank sheet of paper" approach. Attendees were encouraged to consider the wording of the draft Design Principles and make recommendations for additional, alternative or amended principles during the workshops prior to them being finalised and submitted to the CAA.
The draft Design Principles were sent out a week before the workshops which allowed enough time for attendees to read through the short document in preparation for the workshops.

3.4 Stakeholder Engagement Workshops

Cardiff Airport ran three stakeholder engagement workshops in January 2020 which allowed stakeholders to discuss the draft Design Principles within groups and suggest any additional, alternative or amended principles.

Cardiff Airport ran three workshops; including one for aviation industry stakeholders and two for community stakeholders. This reflected the number of stakeholders who were invited from each stakeholder list. The workshops and number of attendees who attended each are listed below:

- Thursday 16th January 2020 (10:00 – 13:00), attended by 21 aviation stakeholders *(Aeros, British Microlight Aircraft Association/ Light Aircraft Association/ Airspace4All, Black Mountains Gliding Club, Bristol Airport, Bristow Group (2 representatives), Caerdav (2 representatives), Cardiff Heliport/ Wales Air Ambulance, Dragonfly Air Charter, easyJet, Exeter Airport, Global Trek, Horizon, NATS Bristol, NERL, South Wales Gliding Club, St Athan ATC, University Air Squadron Team, St Athan (2 representatives), Welsh Government)*
- Thursday 16th January 2020 (14:00 – 17:00), attended by 3 community stakeholders (an additional 3 stakeholders did not turn up on the day)
- Friday 17th January 2020 (10:00 – 13:00), attended by 8 community stakeholders and a neutral representative from ACOG (an additional 2 stakeholders did not turn up on the day)

The community stakeholder workshops were attended by a good number of parish council representatives from across a wide area.

The three workshops had an identical agenda and were facilitated consistently by the third-party communications company Freshwater. Members from Cardiff Airport and NATS were also in attendance to answer any queries related to the airport or airspace. The slides from the workshops have been supplied within Appendix 5 of the Engagement Feedback Report [Ref 1].
As mentioned, the three workshops were administered identically, with the same agenda which is summarised below:

- Welcome and workshop overview from Cardiff executive board representative
- Introduction to airspace modernisation and a summary of the CAP1616 process from NATS
- A representative from Cardiff Airport presented slides on why the Airport needed to modernise and the purpose of the engagement workshops (slides are available within Appendix 5 of the Engagement Feedback Report [Ref 1])
- Freshwater – the independent facilitator – explained the format of the workshops and the way in which feedback would be recorded during the session (from the group discussions and individual questionnaire)
- The group was split into small groups (3-5 in each) who were directed to discuss what priorities they felt Cardiff Airport should consider as part of its Airspace Change Proposal. The discussion was split into six themes – *safety; capacity; noise; airspace access and integration; flight efficiency (environmental); and the use of advanced navigation technology* - with the relevant draft Design Principles assigned to each theme.
- The independent facilitator guided the discussion and recorded the dialogue throughout. Attendees were asked to consider any changes to the draft Design Principles. An individual from each group fed the main discussion points back to the whole group.
- After the group discussion, individual attendees were asked to complete a short questionnaire which asked the respondent to rate each draft Design Principle 1-5 on how important they felt it was. A free text section was available after each draft Design Principle to suggest any changes as well as a section at the end to suggest any other amendments/ additions.
- Wrap-up and next steps

Stakeholders were thanked for their attendance and feedback on the draft Design Principles. Cardiff Airport explained that this feedback would be analysed and reviewed against the draft Design Principles, before determining the final Design Principles which would be submitted to the CAA at the end of February 2020. Cardiff Airport suggested that stakeholders sign up to updates on their portal page so that they are informed once documentation is submitted to the CAA.

3.5 Engagement Feedback Analysis

Throughout the workshop discussions, independent facilitators from Freshwater took notes and summarised key discussion points from stakeholders. Feedback was recorded during the workshop and checked against a verbal recording afterwards; alongside who made the comment and which organisation they represented.

The workshop group feedback has been grouped against the six themes (*safety; capacity; noise; airspace access and integration; flight efficiency (environmental); and the use of advanced navigation technology*.) and summarised within the Engagement Feedback Report [Ref 1].
Salient points discussed within the groups have been captured, alongside information on which workshop (aviation/ community) it came from. Within the theme sections and where relevant, it has been made clear where comments are made against specific draft Design Principle.
This includes comments in support of the draft Design Principle; not in support; or feedback which suggested or had the potential to change the draft Design Principle.

A separate section within the feedback report summarises the questionnaire responses submitted by individual workshop attendees. This feedback has been broken down by each draft Design Principle and split into stakeholder group (aviation/ community). The report summarises suggestions which were recorded in the questionnaire e.g. additional, alternative or amended Design Principles. Respondents were also asked to allocate a priority score against each draft Design Principle which have been collated and summarised within the feedback report, alongside graphs to show the proportion of scores recorded.

The engagement feedback received has been assessed by Cardiff Airport to determine the final Draft Principles, as described in this document. The following sections summarise all suggested changes

The final Design Principles were circulated to all stakeholders who had attended the workshops and therefore contributed to the final submitted set. This was sent on the day of submission to the CAA (Friday 28th February) as a courtesy to these stakeholders and to thank them for their input.

Engagement on specific design concepts will happen later, in Stage 2, and formal consultation in Stage 3, but the design concepts will be evaluated against the final design principles as presented herein.

4. Draft Design Principles

The following 12 Design Principles were created by Cardiff Airport prior to the stakeholder engagement workshops in January 2020. The Design Principles should encompass the safety, environmental and operational objectives we wish to achieve through our Airspace Change. The Design Principles should be formed through a two-way process involving effective engagement with stakeholders, allowing any local factors to be discussed.

Cardiff Airport's draft Design Principles were aligned with our Statement of Need (link) which outlines the benefits we hope to achieve from an Airspace Change. As covered in Section 3 above, these Design Principles were sent to aviation industry and community stakeholders before attending an engagement workshop; allowing stakeholders time to review and discuss internally. Evidence of relevant external communication from Cardiff Airport, including this, can be found within Appendix 4 of the Engagement Report [Ref 1].

The noise Design Principle (DP5) contains a number of noise mitigation techniques which Cardiff Airport could potentially incorporate into a proposed design. Cardiff Airport acknowledged that some of these techniques contradict each other; but wanted to allow stakeholders to provide feedback against them.

Category	Design Principle
DP0 Safety	Shall maintain or enhance current levels of safety
DP1 Operational (Resilience)	The proposed airspace will aim to maintain or enhance operational resilience of the ATC (Air Traffic Control) network
DP2 Operational (Capacity)	The proposed airspace design will yield the greatest capacity benefits from systemisation in line with the CAA's (Civil Aviation Authority) published Airspace Modernisation Programme
DP3 Economic (Network Performance)	The proposed Cardiff FASI-S (Future Airspace Strategy Implementation – South) airspace should facilitate optimised network economic performance (*note: this includes track mileage/ fuel burn/ route charges)*
DP4 Environmental (CO_2 emissions)	The proposed Cardiff FASI-S airspace should facilitate the reduction of CO_2 emissions per flight
DP5 Environmental (Noise impact to communities on the ground)	The proposed Cardiff FASI-S airspace should limit and, where possible, reduce noise impact to communities on the ground. Considerations/ options include: - Using more noise efficient operational practices - Minimising number of people newly overflown - Maximising sharing through predictable respite - Avoid overflying communities with multiple routes - Maximising sharing through managed dispersal - Minimising total population overflown - Designing flight paths over commercial and industrial areas - Prioritising routing flight paths over parks and open spaces (rather than over residential areas)
DP6 Technical (MoD Requirements)	The Cardiff FASI-S airspace will endeavour to be compatible with the requirements of the MoD

Category	Design Principle
DP7 Technical (General Aviation Impacts)	The impacts on GA and other civilian airspace users – due to the Cardiff FASI-S ACP – will be minimised
DP8 Technical (Minimise Controlled Airspace)	The volume of controlled airspace required for the Cardiff FASI-S ACP should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of UK airspace users
DP9 Technical (Use of PBN [Performance Based Navigation])	The route network linking airport procedures with the enroute phase of flight will be designed to yield maximum safety and efficiency benefits by using an appropriate standard of PBN. It will mitigate the dependencies on and future removal of legacy navigational aids and will comply with the requirements of known PBN implementing rules.
DP10 Policy (PBN IR [Implementing Rule])	The proposed Cardiff FASI-S airspace will fulfil the requirements of the PBN IR
DP11 Technical (Impact on adjacent airfields/ aerodromes)	The proposed airspace should achieve a mutually beneficial solution to surrounding airfields ensuring equitable access to the airspace 'shared' with Bristol Airport

5. Draft Design Principles Feedback

The following sub-sections discuss each Design Principle in turn in the manner "we asked, you said, we did":

We asked: *The original draft Design Principle and description text*

You said: *A summary of how stakeholder feedback has influenced the Design Principle*

We did: *Any amendments to the Design Principle (or why no changes were made)*

This process is repeated for each draft Design Principle.

The draft Design Principles were sent to stakeholders prior to attending the workshops. During the workshops, the draft Design Principles were grouped into six themes which were discussed by the attendees. Attendees were also asked to complete a questionnaire at the end of the workshop which prompted them to numerically score the draft Design Principles and provide any further comments.

The following sections summarise the feedback received – both verbally during the workshop group sessions and from the questionnaires – for each draft Design Principle, which have been grouped into themes.

The questionnaire prompted the respondent to score each draft Design Principle from 1 (Extremely Important) to 5 (Not Important). The results of this have been summarised in the below sections and the full results, including graphical depictions, can be found within the Engagement Summary Report (Ref 1).

We have assigned a priority to each Design Principle based on the feedback received and whether Cardiff Airport is required to comply with the principle e.g. safety or regulation. The priorities used are

high – high/ medium – medium – medium/ low - low

Upon reviewing the feedback and deciding on the final Design Principles, it was agreed that no principles would be captured under the "low" priority. This was based on a combination of the feedback received from stakeholders; Cardiff Airport's own objectives and priorities of an Airspace Change Proposal; alongside whether the principle is mandatory e.g. policy and regulation which must be adhered to.

As part of the questionnaire, stakeholders were also prompted to suggest any additional or alternative Design Principles. This feedback has been covered within the upcoming sections asides from the below two which did not logically fit against one of the draft Design Principles.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Community stakeholder	Consideration for infrastructure improvements to support optimised airspace	Ground based or technical infrastructure changes are not within the scope of this Airspace Change Proposal. Either would have to be completed through a different process separate from CAP1616.
Community stakeholder	I would like to see Cardiff Airport using this to build their business case for expansion	Cardiff Airport's proposed plan for expansion and growth in passenger numbers is a completely separate submission from this Airspace Change Proposal. Although one submission may support the other, Airport expansion is completely out of scope for this proposal.

Theme One: Safety

Draft Design Principle 0 (DP0) Safety: Shall maintain or enhance current levels of safety

This was the only draft Design Principle which was captured under the theme of safety.

Feedback Summary

During the workshops, both aviation and community stakeholders agreed that safety is paramount and should not be compromised. Stakeholders agreed that safety performance should be maintained as a minimum but – where possible – improved upon. Attendees agreed that although there will always be an element of risk, Cardiff Airport should seek to improve safety standards where possible.

Controller capacity and workload – as a result of airspace change - was discussed during the aviation workshop. Stakeholders stressed the importance of ensuring that any future changes do not have a negative impact on other airspace user's safety, such as gliders and VFR traffic. Cardiff Airport will seek to ensure that future proposed design changes do not introduce any safety risk for all stakeholders, both ground-based and other airspace users. These factors – amongst others – will be covered as part of the safety case Cardiff Airport are required to complete.

During the aviation workshop, there was discussion around General Aviation traffic and ensuring that any proposed changes by Cardiff Airport do not have a consequential negative impact on other users, such as gliders and the emergency services. An aviation stakeholder left a comment in the questionnaire about ensuring that all aircraft affected by an airspace are fully considered which Cardiff supports and will ensure. During the Stage 3 consultation, information on current usage – including aircraft types – will be included in the consultation material.

A representative from the General Aviation community also expressed concern that future changes might not consider VFR traffic and specifically, the surrounding high terrain they might be forced to operate around. All of Cardiff's proposed changes – including information on local geography – will be developed through engagement with other airspace users, allowing Cardiff to recognise the impact changes might have other airspace users. As summarised during the workshop, any design changes should ensure the system is safe for all, rather than from an individual stance.

Community stakeholders had a discussion around safety and posed questions on the current safety standards at Cardiff Airport. Stakeholders mentioned other Design Principles which could have a consequential impact on safety, such as an improvement in safety from using more accurate navigation technology. Some groups also debated whether there was a possible trade-off between safety and capacity, but all agreed that safety should be the overriding principle. Any change in capacity would be underpinned by a full and comprehensive safety case.

In the questionnaire, over 90% of all stakeholders rated this Design Principle as "*1 - Extremely Important*", making it the most supported Design Principle of all.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholder – workshop feedback	The word '*safety*' should be added to every Design Principle rather than having a specific safety principle.	Safety must underpin any changes that are made. As a standalone Design Principle, Cardiff's long list of proposed designs will be evaluated against this and therefore could be rejected on a safety specific basis. Cardiff also received feedback that safety should "spread its wings" over all other Design Principles; demonstrating a difference in views between splitting it out.
Aviation stakeholders – workshop feedback	Add "*for all airspace users*" at the end of the Design Principle	Cardiff Airport believes it is crucial that any proposed changes do not have a detrimental safety impact on other airspace users. This will be added to a supplementary "details" section below the Design Principle title.
Aviation stakeholder – workshop feedback	Use negative wording – "*nothing in these proposals shall reduce safety …*"	This ultimately says the same as the original draft Design Principle text but could potentially cause confusion from the use of a double negative.
Aviation stakeholder – workshop feedback	The principle should state that "*this is not going to allow safety targets to fall*"	Not allowing safety standards to fall is covered under the original "*maintain or enhance*" wording. Safety targets will not be impacted as part of this Airspace Change Proposal. The wording will be updated to "*Must maintain or enhance …*" to further emphasise this point.
Aviation stakeholder – questionnaire feedback	Explain the inter-relationships between the first 3 DPs – encompassing capacity, resilience and safety	As discussed during the workshops, the first three Design Principles are intrinsically linked together. An improvement in capacity, resilience and/ or safety will inherently support each of the others. However, as these principles can be focused on and evaluated independently from each other, Cardiff Airport will capture them within discrete Design Principles.

Final Design Principle Wording and Priority

The above comments all endorse Cardiff Airport's overriding safety Design Principle. The relevant concerns raised – such as workload impact - will form part of Cardiff Airport's Safety Assessment which we are required to submit alongside our formal Airspace Change Proposal. To emphasise the importance of this Design Principle, the wording will be updated from "*Shall maintain or enhance …"* to "*Must maintain or enhance …"*. The wording "*where possible*" has been appended to the principle to emphasise that Cardiff Airport will endeavour to improve upon safety where viable.

An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received.

Final Design Principle 0 (DP0) Safety: **Must maintain or where possible, enhance current levels of safety**

Details: *Safety is at the forefront of everything Cardiff Airport does. Safety will underpin any airspace change which where possible, will enhance current safety standards. Cardiff Airport also believes it is crucial that any proposed changes do not have a detrimental safety impact on other airspace users.*

This Design Principle will be captured as a "high" priority as it is a central principle which will underpin our entire airspace design. This was reflected in the feedback received from stakeholders who agreed that safety should never be compromised.

Theme Two: Operational (Capacity & Resilience)

There was wide ranging discussion relating to capacity among aviation and community stakeholders; initially spent ensuring everyone had a common understanding of what the draft Design Principles and wording meant.

Stakeholders queried whether there should be a "hierarchy" of Design Principles within the capacity theme. As covered in the following sections, Cardiff Airport has assigned a **high** priority to DP1 (resilience) and DP2 (capacity) in recognition that these are mandatory objectives of the Airspace Change Proposal. DP3 (economic) has been given a **medium** priority because – despite not being a compulsory element of this proposal – an improvement in network performance and associated economic benefits, should still be sought where possible.

The draft Design Principles and grouping of the workshop discussions had been split into six themes. The draft Design Principles DP1 (resilience), DP2 (capacity) and DP3 (economic) had been categorised under a "Capacity" theme. These have since been split out into an "Operational" theme to cover DP1 and DP2; and a specific "Economic" theme for DP3. This does not have any impact on the scope or objective of the Design Principles themselves; it just simplifies the grouping of them.

Draft Design Principle 1 (DP1) Operational (Resilience): The proposed airspace will aim to maintain or enhance operational resilience of the ATC (Air Traffic Control) network

There was agreement that resilience should be maintained and ideally, improved upon where possible. A group at the aviation workshop commented that changes should stand up to scrutiny and react to unforeseen events.

Some aviation stakeholders discussed the distinction between the benefits of increased systemisation and over-reliance on automated systems. Subject matter experts at the workshops offered explanation on systemised airspace to assist understanding. Attendees suggested that as a new and complicated area, advances in automation and technology should be discussed with stakeholders who could be affected. Cardiff Airport is in full agreement with this and intends to engage and consult with all potentially impacts stakeholders throughout the airspace change process.

There was some discussion around the impact of specific design components on resilience such as airspace timings and the incorporation of a growing drone community. In their submitted questionnaire, an aviation stakeholder noted that a simpler design will reduce pilot and ATC workload; a benefit of systemisation Cardiff Airport seeks to achieve.
These are considerations which will be fully explored during Cardiff Airport's Stage 2 design development, such as whether flexible timings can be used to minimise impact on other airspace users. However, design considerations do not fall within the scope of the Stage 1B Design Principles work.

All but one respondent rated this Design Principle as one of the two top scores for how important they consider it. A larger proportion of community stakeholders rated this principle as "*1 - Extremely Important*" – 80% versus 53% of aviation stakeholders. Overall, this Design Principle – alongside DP4 (Environmental) – scored highest after DP0 (Safety).

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholder – workshop feedback	Update wording to include "*provided that it does not impact capacity or network performance*"	The three draft Design Principles under the Capacity theme will be given the same highest priority; therefore, any design options which introduce a detrimental impact to any of these will not be progressed.
Aviation stakeholder – workshop feedback	Include "*operational resilience for the air traffic network and the operations*" in the wording	Cardiff Airport will update the Design Principle to include "*…resilience of the ATC network and operations*". An additional "details" section will also be included to explain that this principle covers resilience for both ATC and associated airspace users.
Aviation stakeholder – questionnaire feedback	ATC and other airspace users should be considered	
Aviation stakeholder – questionnaire feedback	Explain the inter-relationships between the first 3 DPs – encompassing capacity, resilience and safety	As discussed during the workshops, the first three Design Principles are intrinsically linked together. An improvement in capacity, resilience and/ or safety will inherently support each of the others. However, as these principles can be focused on and evaluated independently from each other, Cardiff Airport will capture them within discrete Design Principles.

Final Design Principle Wording and Priority

The wording of this Design Principle will be updated slightly to include "*ATC network and operations*". The word "*must*" has been added to denote this principle as mandatory; alongside "*where possible*" as an improvement may not always be possible. An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received.

Final Design Principle 1 (DP1) Operational (Resilience): **The proposed airspace must maintain or where possible, enhance operational resilience of the ATC (Air Traffic Control) network and operations**

Details: *Cardiff Airport will consider airspace and route designs that support – if not improve - the resilience of the airport and national air traffic network; benefiting associated airspace users.*

This Design Principle will be captured as a "**high"** priority as it is a key objective of the airspace change. A design which degrades resilience would not be accepted. This was reflected in the feedback where stakeholders scored this as the highest priority beyond safety.

Draft Design Principle 2 (DP2) Operational (Capacity): The proposed airspace design will yield the greatest capacity benefits from systemisation in line with the CAAs (Civil Aviation Authority) published airspace modernisation programme

There was agreement - specifically amongst aviation stakeholders – that capacity is a constraint and should be focussed on in order to allow Cardiff Airport to develop and grow. Stakeholders also acknowledged the potential economic benefits for the surrounding region.

There were a few suggested amendments – covered below – but attendees during both workshops were generally in agreement that Cardiff Airport should focus on catering for an increase in future demand; noting a potential economic benefit (linking into DP3 below).
There was some discussion in the aviation workshop on the link between systemisation and automation. There was a slight concern of a potential over-reliance on systems in the future however, Cardiff Airport would not introduce any new technology without an assurance that safety would be maintained and ideally improved (as covered in DP0). New technology and improved systems would only be introduced in order to augment how the airspace is managed, rather than replace responsibility.

There were a few concerns over a potential safety risk arising from an increase in capacity. This was also recorded by a few stakeholders via the questionnaire, alongside ensuring that resilience (DP1) is not compromised. Cardiff Airport will ensure that safety is not compromised as a result of airspace change or an increase in traffic.

An aviation stakeholder recommended that Cardiff Airport considers design concepts such as airspace classification and Flexible Use of Airspace (FUA) to support future growth. These considerations will form part of Cardiff Airport's Stage 2 design work.

A combined total of 89% of all stakeholders allocated one of the two top priority ratings for this Design Principle; with a slightly higher proportion of aviation stakeholders giving it the top score.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholder – workshop feedback	Update wording to include "*provided that it does not impact resilience or network performance*"	The three draft Design Principles under the Capacity theme will be given the same highest priority; therefore, any design options which introduce a detrimental impact to any of these will not be progressed.
Aviation stakeholders – workshop feedback	Include "*operator needs*" alongside ATC needs	An additional "details" section will be included to make this clear.
Aviation stakeholder – questionnaire feedback	Explain the inter-relationships between the first 3 DPs – encompassing capacity, resilience and safety	As discussed during the workshops, the first three Design Principles are intrinsically linked together. An improvement in capacity, resilience and/ or safety will inherently support each of the others. However, as these principles can be focused on and evaluated independently from each other, Cardiff Airport will capture them within discrete Design Principles.
Community stakeholder – workshop feedback	The word "*greatest*" doesn't sit comfortably, does it overreach anything else?	Based on the feedback received, Cardiff Airport will amend the wording from "*greatest*" to "*maximum*". In line with the CAA's Airspace Modernisation Strategy, Cardiff Airport aims to use a more efficient airspace to achieve maximum capacity benefits while continuing to maintain, or improve upon, current high safety standards.
Community stakeholder – questionnaire feedback	The use of the word "*greatest*" could imply – or encourage – trade off from other areas such as safety or environmental	

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Community stakeholder – workshop feedback	Could the phrase "*maximum possible*" be considered as an alternative to "*greatest*"?	
Community stakeholders – workshop feedback	Issue with the word "*greatest*"; particularly when compared to the equivalent words used for DP3 "… *facilitate optimised network economic performance …".*	
Aviation stakeholder – workshop feedback	The GA Alliance suggested a number of proposed "principles" including: "*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".*	Cardiff Airport supports the point raised by the GA Alliance and will endeavour to ensure that proposed designs align with the Airspace Modernisation Strategy and improve – never inhibit – efficiency. The wording for this Design Principle, nor DP1 or DP3, will be changed as a result of this feedback.

Final Design Principle Wording and Priority

In response to feedback received, the Design Principle will be updated from "*greatest possible"* to *"maximum possible"*. An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received.

Final Design Principle 2 (DP2) Operational (Capacity): **The proposed airspace design will yield the maximum capacity benefits from systemisation in line with the CAAs (Civil Aviation Authority) published airspace modernisation programme**

Details: *Cardiff Airport's airspace change - in conjunction with the FASI-S programme and in accordance with the airspace modernisation programme (CAP1711) - will need to respond to future growth opportunities. Any changes to airspace or procedures must be able to cope with an increased demand and link efficiently into the network; for the benefit of those who use and are affected by UK airspace.*

This Design Principle will be captured as a "**high"** priority as it is a key objective of the airspace change and a requirement of the Airspace Modernisation Programme. A design which worsens capacity at Cardiff Airport would not be accepted.

Theme Three: Economic (Network Performance)

The draft Design Principles and grouping of the workshop discussions had been split into six themes. The draft Design Principles DP1 (resilience), DP2 (capacity) and DP3 (economic) had been categorised under a "Capacity" theme. These have since been split out into an "Operational" theme to cover DP1 and DP2; and a specific "Economic" theme for DP3. This does not have any impact on the scope or objective of the Design Principles themselves; it just simplifies the grouping of them.

Draft Design Principle 3 (DP3) Economic (Network Performance): The proposed Cardiff FASI-S (Future Airspace Strategy Implementation – South) airspace should facilitate optimised network economic performance (note: this includes track mileage/fuel burn/route charges)

This draft Design Principle did not generate a lot of discussion. There was general support for enhanced economic performance; stakeholders recognised that it could have a positive effect on the local economy.

During one of the community workshops, the words "facilitate optimised" were acknowledged and supported, with stakeholders appreciating that this principle supports Cardiff Airport's wider strategy. Via the questionnaire, a community representative suggested that there may be an economical benefit from improving environmental impacts such as encouraging new carriers. Another attendee supported potential economic gains from an increase in capacity.

Another community representative submitted – via the questionnaire – general support for this Design Principle with the proviso that economic performance should take into account environmental consideration. Cardiff Airport fully supports this comment hence including environmental factors – fuel burn and associated emissions – as part of what constitutes "economic performance".

Overall, most stakeholders (78%) rated this draft Design Principle with one of the top two scores and no one rated it as '*5 – Not Important*'. This concurs with the general support and few comments received for this principle during the workshops.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholder – workshop feedback	Update wording to include "*provided that it does not impact resilience or capacity*"	During Stage 2 Cardiff Airport's design options will be evaluated against each of the Design Principles. Therefore, any detrimental impacts to elements covered by other Design Principles - such as resilience or capacity - will be identified through this evaluation. Cardiff's draft Design Principles have been designed to each cover a specific trade-off rather than linking them together. The priorities will determine which Design Principles are given preference to.

Final Design Principle Wording and Priority

There was no feedback received which has the potential to change the wording of this Design Principle. An additional "details" text will be appended to the principle in order to provide further context. The note on "including track mileage, fuel burn etc." will be captured within the details section for simplicity.

Final Design Principle 3 (DP3) Economic (Network Performance): **The proposed Cardiff FASI-S (Future Airspace Strategy Implementation – South) airspace should facilitate optimised network economic performance**

Details: *Cardiff Airport, through improved airspace and procedure designs, will seek to drive growth through environmental and operational improvements e.g. track mileage, route charges, fuel burn and associated emissions.*

This Design Principle has been assigned a **medium** priority. This is not a mandatory objective of Cardiff Airport's airspace change and did not generate a lot of discussion however, Cardiff Airport upholds the importance of seeking economic benefits.

Theme Four: Environmental (Noise)

The draft Design Principles and grouping of the workshop discussions had been split into six themes. The draft Design Principles DP4 (CO2) and DP5 (noise) had previously been captured under separate "Flight Efficiency/ Environmental" and "Noise" themes. These have since been grouped under the same "Environmental" theme as they both support this objective. This does not have any impact on the scope or objective of the Design Principles themselves; it just simplifies the grouping of them.

Draft Design Principle Four (DP4) Environmental (CO_2 emissions): The proposed Cardiff FASI-S airspace should facilitate the reduction of CO_2 emissions per flight

A reduction in environmental impacts was supported by all stakeholders with many stressing how significant an issue environmental protection is. This was particularly dominant during the community stakeholder workshops.

A group at the aviation workshop felt that operators should make best use of modern aircraft systems in order to reduce environmental impacts, which Cardiff Airport fully supports but falls out of the remit of an Airspace Change Proposal. This group also discussed whether a potential benefit of reducing the amount of Controlled Airspace could be a reduction in track miles and holding; leading to an associated environmental benefit. Specific design concepts – such as reduced holding and track miles – will form part of Cardiff's Stage 2 Design work.
Attendees at the community stakeholder workshops were also keen to understand mitigation techniques and design considerations which could be used to reduce emissions; however they accepted that this fell beyond the scope of the Stage 1B Design Principles work.

Some attendees at the aviation workshop queried why CO_2 impact is specifically focussed on rather than other emissions. Representatives from Cardiff explained that the focus on CO_2 and fuel is predicated on a directive from the Department for Transport (DfT). Measuring CO_2 - as the most significant greenhouse gas – serves as a proxy for other emissions with climate effects.
An aviation representative suggested, via the questionnaire, that high polluting aircraft operators should be specifically focussed on. Cardiff Airport's airspace change proposal will focus on improving the efficiency of their airspace and procedures; however, airline fleet mix is out of the scope of this proposal.

As covered under Suggested Changes below, several stakeholders felt that the wording for this draft principle was not strong enough and cited wider climate change issues in their questionnaire response. Alongside DP1 (resilience), this draft Design Principle emerged as the highest scoring asides from DP0 (safety). Despite a couple of stakeholders scoring this 4 or 5 (the lowest), 81% scored it as one of the two highest priority ratings. It is worth noting that 100% of community stakeholders rated this as "*1 - Extremely Important*", the highest score.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholders – workshop feedback	Replace "*CO_2*" with "*emissions*"	As covered above, measuring and reporting on CO_2 is the criterion set by the DfT. As fuel burn is also focused on, the

Stakeholder	Proposed Amendment	Cardiff Airport's Response
		Design Principle will be updated to state "*… the reduction of CO_2 emissions and fuel burn …*".
Aviation stakeholder – workshop feedback	This should not be a standalone principle as it is intrinsically linked to capacity	A lot of the draft Design Principles are closely linked including capacity and environment. However, a potential design option could support an increase in capacity but would not offer any environmental improvements (and vice versa). Therefore, it is important that these are considered as separate principles and evaluated independently during Stage 2.
Community stakeholder – workshop feedback	Avoid using the word "*facilitate*" as it suggests welcoming others' ideas but not necessarily being proactive	The wording will be simplified from "*should facilitate the reduction of*" to *"should minimise"*. This strengthens the wording from potentially sounding less committed; a point which was raised by several stakeholders.
Community stakeholder – workshop feedback	Use the term "*encourage*" instead of "*facilitate*"	
Aviation stakeholder – workshop feedback	The Flight Efficiency and Environmental theme should be grouped together with Noise	The Design Principles – as stipulated under CAP1616 – should address both fundamentals critical to the Airspace Change Proposal (e.g. reducing environmental impacts) alongside local trade-offs (e.g. noise mitigation). Environmental and noise impacts can be measured and mitigated in very different ways. The impact and associated priority of these factors also varies hugely for different stakeholders. They have therefore been split out and will be evaluated as separate factors.
Aviation stakeholder – questionnaire feedback	Include "*fuel consumption*" alongside "*CO_2 emissions*"	An additional "details" section will be appended to the Design Principle which will cover this.

Final Design Principle Wording and Priority

In response to the feedback received, the original wording of "*should facilitate*" will be strengthened to "*should minimise*". An additional "details" text will also be appended to the principle in order to provide further context and address some of the feedback received.

Final Design Principle 4 (DP4) Environmental, Greenhouse Gas Emissions (CO_2) - **The proposed Cardiff FASI-S airspace should minimise CO_2 emissions per flight**

Details: *Cardiff Airport is committed to minimise environmental impact through the most efficient proposed airspace and procedure design. This covers both CO_2 emissions and associated fuel burn.*

This Design Principle will be assigned a **medium** priority. This was particularly important for community stakeholders and will be given the same priority as all of the other non-mandatory Design Principles. However, there may be instances where environmental performance has to be balanced against another principle such as safety.

Draft Design Principle 5 (DP5) Environmental (noise impact to stakeholders on the ground): The proposed Cardiff FASI-S airspace should limit, and where possible reduce, noise impacts to stakeholders on the ground.

Considerations/ options include;

- *Using more noise efficient operational practices*
- *Minimising number of people newly overflown*
- *Maximising sharing through predictable respite*
- *Avoid overflying communities with multiple routes*
- *Maximising sharing through managed dispersal*
- *Minimising total population overflown*
- *Designing flight paths over commercial and industrial areas*
- *Prioritising routing flight paths over parks and open spaces (rather than over residential areas)*

The theme of noise generated a lot of discussion, particularly during the community stakeholder workshops. Attendees agreed that minimising noise to those on the ground was an important consideration and Design Principle.

When discussing the different methods of noise mitigation, community stakeholders felt that maximising sharing amongst a large group of people was a preferred approach; rather than heavily impacting a smaller group. One attendee agreed with this but also suggested still trying to avoid densely populated areas. Another local stakeholder added that not all of the mitigation techniques are mutually compatible, and it may be necessary to share the grief.

Several local stakeholders supported designs taking into consideration recently built and planned housing developments; which also supports minimising the number of people newly overflown. These are factors which Cardiff Airport will also consider as part of the Stage 2 design work alongside information which will be sought through the Stage 3 public consultation.

A community stakeholder group acknowledged that Cardiff Airport doesn't currently receive a lot of noise complaints and should continue – and where possible enhance – good practice of avoiding overflying local communities. However, it was also recognised that the amount of flights is likely to increase in the future.
The contents and themes of recently received complaints – based on the current operation - will be useful during the design phase of work. A representative from a Town Council added that locals would not want to see too much of a deviation from what they experience today.

During the aviation workshop, there was a majority view that avoiding overflying residential areas would be preferable over avoiding parks or open spaces. The option of minimising newly overflown people was a preference for several stakeholders, in order to avoid communities that were not currently exposed to the associated noise impacts.

The aviation stakeholders spent time discussing the various trade-offs between the different noise mitigation techniques alongside specific design techniques which could minimise noise intrusion such as continuous climb/ descent. However, all design considerations will form part of the later Stage 2 design work. Ensuring that geographical solutions or operational practices are not stipulated in the Design Principles was accepted by stakeholders; after being explicated in the workshop introduction by Cardiff Airport.

Several aviation and community stakeholders acknowledged the tranquillity and peace enjoyed in rural areas, which future designs should be cognisant of. Two stakeholders from different workshops

suggested avoiding specifying "open spaces" but for Cardiff Airport to instead focus on avoiding residential areas or routing over [2]brownfield sites. This feedback aligns with the above to avoid overflying residential areas.

A point was also raised about the interaction between Cardiff and Bristol Airports; specifically, in relation to an overlap in noise impact. Cardiff and Bristol Airports will continue to work closely and develop appropriate consultation strategies for both Airports. These will be based on their current and proposed route changes; which the individual Airports will be responsible of their own.

Just over two thirds of all stakeholders scored this draft Design Principle against one of the top two priorities, followed by just under a quarter of all scoring it a neutral rating of 3. It is worth noting that the top priority rating predominantly came from community stakeholders.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholders – workshop feedback	Concern over the use of the phrase "*where possible*"	To make the description clearer, the wording will be updated from "*… should limit, and where practicable reduce …"* to *"… where practicable"* There may be instances where this is not possible e.g. on final approach aircraft will be in a predictable and defined routing.
Community stakeholders – workshop feedback	"Future proof" the Design Principles by considering visual impact, alongside noise	This airspace change proposal will consider the impact upon tranquillity, with specific reference to Areas of Outstanding Natural Beauty (AONB) and National Parks.
Aviation stakeholder – workshop feedback	The bottom 2 considerations should not be part of a Design Principle	All of the proposed considerations are noise mitigation techniques and could be used to evaluate design options against. Therefore, Cardiff Airport endorses these as appropriate considerations for this Design Principle.
Aviation stakeholders – workshop feedback	Concern over the use of the term "*where possible"* which could "send you down a garden path"	There are certain phases of flight – for example, final approach – where the noise impact unfortunately cannot be limited.
Aviation stakeholder – workshop feedback	The Flight Efficiency and Environmental theme should be grouped together with Noise	Covered under DP4 above.
Aviation stakeholder – workshop feedback	Avoid assigning priorities to the noise Design Principles; instead a value judgement should be made on each one.	Agreed, all noise mitigation techniques will be taken forward with the options which generated the most interest noted.

Final Design Principle Wording and Priority

There were differing opinions across the workshops about the best noise mitigation techniques. Overall, there was a majority view for a flexible airspace design which maximised sharing whilst avoiding densely populated areas.

[2] Previously developed land - which has subsequently become vacant, derelict or contaminated - is referred to as a brownfield site.

A potential reduction in noise impact from the introduction of improved satellite navigation technology was a common theme throughout the workshops and was mentioned outside the specific discussion for this principle.

Cardiff Airport will keep all of the proposed noise mitigation techniques in the description of this Design Principle, however the techniques which generated the most interest will be noted.

As a consequence of the feedback received, this Design Principle has been slightly updated to include "*… where practicable reduce, noise impacts …*". The noise mitigation techniques have also been added to the details section for brevity.

Final Design Principle 5 (DP5): Environmental, Noise Impact to Stakeholders on the ground - The proposed Cardiff FASI-S airspace should limit, and where practicable reduce, noise impacts to stakeholders on the ground.

Details: *Considerations/options to mitigate the impact of noise include (in no particular order):*

- *Using more noise efficient operational practices*
- *Minimising number of people newly overflown*
- *Maximising sharing through predictable respite*
- *Avoid overflying communities with multiple routes*
- *Maximising sharing through managed dispersal*
- *Minimising total population overflown*
- *Designing flight paths over commercial and industrial areas*
- *Prioritising routing flight paths over parks and open spaces (rather than over residential areas)*

This Design Principle has been assigned a medium priority, alongside the rest of the non-mandatory principles, to reflect the importance of mitigating noise impact – particularly to local stakeholders.

Theme Five: Technical (Airspace Access and Integration/ use of PBN)

The four Design Principles under this theme generated more discussion and comments at the aviation stakeholder workshop than with the community stakeholders; potentially due to the technical nature.

The draft Design Principles and grouping of the workshop discussions had been split into six themes. The draft Design Principles DP6 (MoD), DP7 (GA), DP8 (minimise CAS) and DP11 (adjacent airfields) had been captured under an "Airspace Access and Integration" theme. These have since been captured under a more appropriate "Technical" theme with the original wording. This does not have any impact on the scope or objective of the Design Principles themselves; it just simplifies the grouping of them.

Draft Design Principle 6 (DP6) Technical (MoD Requirements) – The Cardiff FASI-S airspace will endeavour to be compatible with the requirements of the MoD

Aviation stakeholders were in support of this principle but felt that - alongside DP7 – it should be further strengthened. This was backed up by several comments on the use of the word "endeavour" in the draft Design Principle and is covered under the below Suggested Changes section.

A group at the aviation workshop also commented on the difference in wording between DP6 and DP7; specifically, the use of "endeavour" versus "we will be minimising". There was agreement that the wording between these two principles should be consistent. As covered below, several attendees also commented on the negative wording of DP6 and DP7 which could be interpreted as suggesting that changes will detrimentally impact the MoD/ GA.

Community stakeholders had no issues with this Design Principle and respected the requirement to integrate with the military.

Although this draft Design Principle received the lowest proportion of the top rating "*1 – Extremely Important*" (25% of respondents), just under half of all respondents scored it with the second highest rating of "2". Asides from the few grammatical changes suggested below, this was not a contentious principle for stakeholders.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholders – workshop feedback	Wording between DP6 and DP7 should be more consistent – "*endeavour*" in DP6 versus "*will be minimised*" in DP7. Stakeholders suggested "*to satisfy the need of …*" or "*endeavour to be minimised*".	The wording of DP6 will be updated to *"The Cardiff FASI-S Airspace Change Proposal will minimise impacts on the MoD"*.
Aviation stakeholders – workshop feedback	The word "*endeavour*" should be changed as Cardiff must be compatible with the MoD; suggestion to change to "*shall be compatible*".	Cardiff Airport cannot guarantee that there will be no impacts to other airspace users and may require compromise on their part. The design options will seek to

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholder – questionnaire feedback	Replace the wording "*will endeavour to"* with *"shall"*	minimise this as much as possible. The word "*endeavour*" will therefore be replaced with "*should*" as a compromise.
Aviation stakeholder – questionnaire feedback	"*Endeavour"* to read "*shall"*	
Aviation stakeholder – questionnaire feedback	Remove the word 'endeavour' from this design principle; a compatible agreement should be reached.	
Aviation stakeholder – questionnaire feedback	Change "*will endeavour"* to "*shall"*	
Aviation stakeholder – questionnaire feedback	Use of *endeavour* not applicable	
Aviation stakeholders – workshop feedback	Flip the wording to suggest progress as opposed to giving the impression that changes will be detrimental to the MoD/ GA	Cardiff Airport cannot guarantee that there will be no impacts to other airspace users: either positive or negative.
Aviation stakeholder – questionnaire feedback	Add an additional Design Principle to cover "blue light services"	Cardiff Airport will continue to cooperate and fully comply with emergency flights. This Design Principle is specifically in relation to MoD who have very specific requirements and areas in which they operate. However, a note will be appended to the "details" section of DP7 to make it clear that "blue light services" are included under other airspace others.
Aviation stakeholder – questionnaire feedback	Either included in this DP or as a standalone DP, the needs or "blue light aviation" should be included. The proposal should not reduce the flexibility of such aircraft to transit controlled airspace as quickly as possible.	

Final Design Principle Wording and Priority

The wording of this Design Principle will be simplified and aligned with DP7 as a result of the feedback received. Specifically, the word "*endeavour"* will be removed following several comments raising an issue with this sounding insubstantial. An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received.

Final Design Principle 6 (DP6) Airspace Access and Integration (MoD Requirements): The Cardiff FASI-S Airspace Change Proposal should minimise impacts on the MoD

Details: *Cardiff Airport's proposed design will take into consideration the requirements of the military. The MoD will be involved and engaged with throughout the process, particularly in design work which may propose changes to airspace or procedures.*

This Design Principle will be assigned a **medium** priority as, alongside DP7, consideration of other airspace users is very important for Cardiff Airport. Stakeholders were in agreement that the requirements of the military should be a vital consideration for Cardiff Airport.

Draft Design Principle 7 (DP7) Technical (GA (General Aviation) Impacts) – The impacts on GA and other civilian airspace users – due to the Cardiff FASI-S ACP – will be minimised

Aviation stakeholders were in support of this principle but felt that - alongside DP6 – the phraseology should be further strengthened.

A group at the aviation workshop also commented on the difference in wording between DP6 and DP7; specifically, the use of "*endeavour*" versus "*we will be minimising*". There was agreement that the wording between these two principles should be consistent. As covered below, several attendees also commented on the negative wording of DP6 and DP7 which could be interpreted as suggesting that changes will detrimentally impact GA operations/ the MoD.

There were no specific issues raised during the community stakeholder workshops.

This draft Design Principle received slightly more favourable scores than DP6 (MoD impacts) although only a third of respondents scored the highest rating of "*1 – Extremely Important*". Overall, this principle only generated a few grammatical criticisms and no attendees rated it as one of the two lowest levels of importance to them (4 or 5).

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholders – workshop feedback	Wording between DP6 and DP7 should be more consistent – "*endeavour*" in DP6 versus "*will be minimised*" in DP7. Stakeholders suggested "*to satisfy the need of …*" or "*endeavour to be minimised*".	The wording of DP7 will be updated to *"The Cardiff FASI-S Airspace Change Proposal will minimise impacts on GA and other civilian airspace users"*
Aviation stakeholders – workshop feedback	Flip the wording to suggest progress as opposed to giving the impression that changes will be detrimental to the MoD/ GA	Cardiff Airport cannot guarantee that there will be no impacts to other airspace users: either positive or negative. Cardiff Airport's proposed airspace change will fully take other airspace user's requirements and location into consideration and where possible, benefit other users. This will arise from continued engagement with these stakeholders throughout the entire process.
Community stakeholder – questionnaire feedback	The word "*minimum"*, from the perspective of the GA community, would not be acceptable. Minimum is subjective.	
Aviation stakeholder – questionnaire feedback	Opportunity to enhance but words suggest otherwise	
Aviation and community stakeholders –	No mention of police operations	Examples to cover what is meant by "*Civilian airspace users*" will be included – such as police operations – within an

Stakeholder	Proposed Amendment	Cardiff Airport's Response
workshop feedback		additional "details" description to give the Design Principle further context.
Community stakeholder – questionnaire feedback	There should be a separate Design Principle for "emergency services"	
Aviation stakeholder – questionnaire feedback	All airspace users must be considered as valid users of airspace.	
Aviation stakeholder – workshop feedback	Strengthen the wording by changing "*will be minimised*" to "*shall be minimised*"	The word "shall" should be used for first person pronouns and will therefore not be used. Cardiff Airport cannot guarantee that there will be no impacts to other airspace users and may require compromise on their part. The design options will seek to minimise this as much as possible. The word "*endeavour*" will therefore be replaced with "*should*" as a compromise.
Aviation stakeholder – questionnaire feedback	Change "*will*" to "*shall*"	
Aviation stakeholder – workshop feedback	The GA Alliance suggested a number of proposed "principles" including: "*Recognition that GA including sporting and recreational aviation has legitimate rights of access to airspace*".	An additional "details" section will be included to provide examples of civilian airspace users.

Final Design Principle Wording and Priority

The wording of this Design Principle will be simplified and aligned with DP6 as a result of the feedback received.

There were a number of comments raised in relation to DP6 about including "blue light aviation" within the principle wording or as a separate principle. Emergency services traffic are captured under this Design Principle – as civilian airspace users. This will be captured under an additional "details" text which will be appended to the principle in order to provide further context.

Final Design Principle 7 (DP7) Airspace Access and Integration (GA (General Aviation) Impacts): **The Cardiff FASI-S Airspace Change Proposal should minimise impacts on GA and other civilian airspace users**

Details: *In accordance with the Airspace Modernisation Strategy, Cardiff Airport should consider an Airspace Change Proposal that facilitates and accommodates access to airspace for GA and other civilian airspace users such as emergency service traffic and training flights.*

This Design Principle will be assigned a **medium** priority as, alongside DP6, consideration of other airspace users is very important for Cardiff Airport; which was also supported by stakeholders.

Draft Design Principle 8 (DP8) Technical (Minimise CAS (Controlled Airspace)) – The volume of controlled airspace required for the Cardiff FASI-S ACP should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of UK airspace users

There were a few suggestions made by attendees at the aviation stakeholder workshop which have been covered under Suggested Changes below.

Some attendees at the community stakeholder workshops were concerned that this Design Principle could potentially restrict the future growth and development of Cardiff Airport. When submitting their proposed designs, Cardiff Airport will have to fully justify all proposed changes which should ensure they are not constrained by factors such as available airspace.

Just under three quarters of all stakeholders rated this draft Design Principle as one of the top two highest priorities (1 and 2) and no one considered it "Not Important". Although this principle didn't generate a lot of discussion in comparison to some of the others, attendees were in agreement that conflict with other airspace users should be mitigated and their requirements considered.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholders – workshop feedback	Include the word "*all*" to read "*the needs of all UK airspace users*"	The word "*all*" will be included in response to the feedback received. The wording will also be updated to read "*all airspace users*". The word "UK" has been removed as the proposed changes could potentially affect airspace users from other states e.g. whilst flying in UK airspace.
Aviation stakeholder – questionnaire feedback	All UK airspace users should be included	
Aviation stakeholder – questionnaire feedback	Add "*all*" airspace users covering the needs of ALL UK airspace users	
Aviation stakeholder – workshop feedback	Local users should be included in DP8 as well	Covered above.
Aviation stakeholder – workshop feedback	The wording should include "*volume and classification*"	The Design Principle will be updated to reflect this.
Community stakeholders – workshop feedback	Change the wording from "*minimum*" to "*minimum foreseeable*"	This doesn't change the meaning of the Design Principle and could potentially make it less clear. Requirements of other airspace users will be collated and fully considered, rather than 'estimating', which this wording could potentially imply.
Community stakeholders – workshop feedback	Include "*(having regard to growth potential)*" after "*… should be the minimum necessary…*" in the wording	Any changes to airspace will be based on safe containment of Cardiff's procedures rather than a buffer for potential future growth therefore this will not be included in the description. However, an additional 'details' section will be included to explain that the proposed CAS will be the minimum required to deliver a safe and efficient operation.

Final Design Principle Wording and Priority

In response to the engagement feedback received, the wording of this Design Principle will be updated slightly to make it clear that "controlled airspace" encompasses both volume and classification consideration and that "all" relevant airspace users are considered. An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received.

Final Design Principle 8 (DP8) Airspace Access and Integration (Minimise CAS (Controlled Airspace)): **The volume and classification of controlled airspace required for the Cardiff FASI-S ACP should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of all airspace users**

Details: *Cardiff Airport's proposed design, including any changes to controlled airspace, will ensure the delivery of a safe and efficient operation. The reference to "other airspace users" covers adjacent aerodromes, General Aviation users and the MoD; amongst others.*

This Design Principle has been given a **medium** priority, alongside DP6 and DP7 which cover the impact on other airspace users. Although Cardiff Airport cannot guarantee no change to controlled airspace, ensuring that all proposed changes are appropriate and minimal in impact will be central to our design work.

Draft Design Principle 11 (DP11) Technical (Impact on Adjacent Airfields/ Aerodromes) – The proposed airspace should achieve a mutually beneficial solution to surrounding airfields ensuring equitable access to the airspace 'shared' with Bristol Airport

Aviation and community stakeholders agreed that a collaborative approach to airspace change with adjacent airfields/ aerodromes is desirable. Several stakeholders included additional comments in the questionnaire that other airports should be considered and that this is a great opportunity to work collaboratively towards a more efficient future airspace design.

Aviation stakeholders also discussed whether any other airfields should be specifically mentioned alongside Bristol; as covered under the Suggested Changes below.

An aviation stakeholder asked – via their questionnaire – whether the "airspace" refers to airspace access or the actual airspace that is delegated from Cardiff to Bristol. This Design Principle is in relation to any proposed changes in relation to the airspace (e.g. classification, dimensions) or procedures that Cardiff Airport is responsible for. This could include changes in delegated airspace between Cardiff/ Bristol or any other ATS unit.

Although a small number of attendees (less than 10%) considered this to be one of the two lowest priority ratings, the vast majority (just under 80%) scored it as one of the two highest ratings. There was no further feedback received to suggest why some attendees didn't consider this as important as others.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholders – workshop feedback	Alongside Bristol, mention St Athan and Cardiff Heliport	Examples of other adjacent airfields will be included in an additional 'details' section to expand upon Cardiff's design work considering the requirements of adjacent airfields/ aerodromes such as those mentioned.
Aviation stakeholder – workshop feedback	Include the network alongside airfields/ aerodromes	Maintaining resilience of the ATC network is covered under DP1 whereas this Design Principle is specifically focussed on surrounding airfields/ aerodromes. These principles can be evaluated discretely as part of Stage 2 and will therefore be kept separate.

Final Design Principle Wording and Priority

An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received. The wording "where possible" has also been added to the Design Principle text, as it is possible that a proposed design requires a level of compromise.

Final Design Principle 11 (DP11) Airspace Access and Integration (Impact on Adjacent Airfields/ Aerodromes) – **The proposed airspace should where possible, achieve a mutually beneficial solution to surrounding airfields ensuring equitable access to the airspace 'shared' with Bristol Airport**

Details: *Cardiff Airport will engage with surrounding airfields throughout their design work to mitigate the impact on neighbouring airports such as Bristol Airport, Exeter Airport, St Athan and Cardiff Heliport.*

Achieving a design which is beneficial where possible, and in conjunction with other airfields is a key objective of Cardiff's airspace change proposal. In recognition of the coordination required, this Design Principle will be assigned a **high/ medium** priority. It has not been assigned the highest priority as there may need to be an element of compromise.

Draft Design Principle 9 (DP9) Technical (Use of PBN (Performance Based Navigation)) – The route network linking airport procedures with the enroute phase of flight will be designed to yield maximum safety and efficiency benefits by using an appropriate standard of PBN. It will mitigate the dependencies on and future removal of legacy navigational aids and will comply with the requirements of known PBN implementing rules.

Both aviation and community stakeholders were in support of this Design Principle; understanding it to be a legislative requirement alongside allowing Cardiff to make use of the latest technology.

Aviation stakeholders didn't have many comments about the wording of Design Principles 9 and 10 but spent time discussing the implementation of PBN technology and what would happen with aircraft who didn't use the latest technology. The remit of this Design Principle covers Cardiff's routes rather than stipulating technology used on-board by operators and their associated manufacturers. However, Cardiff Airport will ensure that the known fleet mix flying to/ from the Airport will continue to be facilitated; a comment raised in the questionnaire by an aviation specialist.

Stakeholders recognised the wider benefits of improved navigational systems linked to other Design Principles; such as more efficient procedures and noise mitigation techniques.

Attendees at the community stakeholder workshop expressed support as long as there is a back-up system if the satellite system were to fail. Cardiff Airport's current and future procedures/ systems all have back-ups and contingency plans in place.

85% of all workshop attendees rated the importance of this draft Design Principle against the two highest ratings. This correlates with the feedback received that best use should be made of technology, allowing Cardiff Airport to future-proof its airspace and procedures.

Suggested Changes

The following changes to draft Design Principle were submitted during the workshops or via the questionnaire completed.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Community stakeholders – workshop feedback	Replace the word "*maximum*" with "*optimum*"	The word "*maximum*" will be retained as Cardiff Airport would wish to maximise safety and efficiency benefits. "Optimising" a benefit is not appropriate in this context.
Community stakeholder – questionnaire feedback	Suggest "*optimum*" rather than "*maximum*"	
Aviation stakeholders – workshop feedback	The wording is misleading and could suggest that there is an intention to rip the legacy equipment out	An additional "details" section will be included alongside the Design Principle to explain that all current and future systems have back-up procedures in place. NATS is currently rationalising the UK network of ground-based navigation aids. Although the actual number of navaids will be reduced, a mandatory level of coverage will be maintained.
Community stakeholder – questionnaire feedback	For the consultation phase, the meaning of the word "*appropriate*" (and who determines such appropriateness) should be explained.	A note on designing procedures to an RNAV standard will be included in the additional "details" section.

Final Design Principle Wording and Priority

An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received. The second line in the original draft principle ("*It will mitigate …"*) will be moved to the details text for simplicity.

Final Design Principle 9 (DP9) Use of Advanced Navigation Technology (PBN (Performance Based Navigation)): The route network linking airport procedures with the enroute phase of flight will be designed to yield maximum safety and efficiency benefits by using an appropriate standard of PBN.

Details: *Cardiff Airport will remove the dependencies on legacy navigational aids and will comply with the requirements of known PBN implementing rules. Changes to arrival and departure routes will be designed to make full use of modern navigation technology. Any changes to airspace or systems will have back-up procedures in place.*

This Design Principle has been assigned a high priority because the use of PBN technology is necessary for ensuring an efficient airspace design. It is also aligned with the CAA's Airspace Modernisation Strategy. The feedback received from stakeholders was in support of using the latest navigation technology and the benefits gleaned from it.

Theme Six: Policy (Use of Advanced Navigation Technology)

Draft Design Principle 10 (DP10) Policy (PBN IR (Implementing Rule)) – The proposed Cardiff FASI-S airspace will fulfil the requirements of the PBN IR

Alongside DP9, both aviation and community stakeholders were in support of this Design Principle and acknowledged it as a statutory requirement. The benefits of PBN and its close link to other Design Principles – such as noise impacts – were recognised.

There was only one specific comment in relation to this Design Principle, as covered below.

Across all stakeholders, 90% ranked this as one of the top two priority ratings (1 and 2) and nobody considered it to be unimportant ("*5 – Not Important*").

Suggested Changes

The following change to this draft Design Principle was submitted during the workshop.

Stakeholder	Proposed Amendment	Cardiff Airport's Response
Aviation stakeholder – workshop feedback	Rather than specifically mentioning PBN IR, it should be a general commitment to regulatory requirements.	Agreed to update the wording thus catering for all regulatory requirements. An additional "details" section will be included which will note PBN Implementing Regulation as an example.
Aviation stakeholder – questionnaire feedback	Reword "*PBN IR*" & replace with regulatory requirements. Priority: **high**	

Final Design Principle Wording and Priority

As a consequence of the feedback received, the wording of this Design Principle will be made generic in order to cover all relevant laws and policies. An additional "details" text will be appended to the principle in order to provide further context and address some of the feedback received.

Final Design Principle 10 (DP10) Use of Advanced Navigation Technology (Policy) – **The proposed Cardiff FASI-S airspace design must be compliant with all relevant laws and regulatory requirements**

Details: *Cardiff Airport will ensure accordance with all relevant policies – such as the PBN Implementing Rule – for compliance and maintenance of safety standards.*

This Design Principle has been assigned the maximum **high** priority as it is compulsory that Cardiff Airport complies with law and policies. Stakeholders were in full agreement that this principle must be adhered to.

6. Conclusion and Next Steps

As part of the CAP1616 Stage 1 define work, Cardiff Airport have identified appropriate aviation industry and community stakeholders, for their Airspace Change Proposal. Stakeholders were invited to attend one of three stakeholder engagement workshops where Cardiff Airport encouraged discussion on a set of draft Design Principles, which were sent prior to the workshops.

Cardiff Airport received feedback on the draft Design Principles and amended some of the wording, provided justification and included relative priorities. This evidence has been compiled within this Issue 1 of the Design Principles document.

This document will be submitted to the CAA as evidence to support Stage 1B of the CAP1616 Airspace Change Process. In turn, this will complete the evidence required for the Stage 1 Assessment Gateway (document deadline 28th February 2020, for the CAA's Assessment Gateway scheduled for 27th March 2020).

This document was also sent to all stakeholders who attended the Design Principles engagement workshop in recognition of their attendance and contribution; on the day of submission to the CAA (Friday 28th February 2020).

7. List of References

Reference	Title and Description
Ref 1 Supplied to the CAA	*Cardiff Airport Stage 1B Engagement Report V1.0* Contains: Stakeholder engagement process Summary of feedback from workshop discussion groups Summary of feedback received from questionnaires Appendices include a list of all stakeholders invited to workshops; a list of registered attendees; a communications log; evidence of communications; and slides presented at the workshops.
Ref 2 Supplied to the CAA	*Joint Cardiff, Bristol, Exeter and NATS LAMP ACP Meeting Notes – 121018* Notes summarising the updates provided on airport ACPs and wider network changes
Ref 3 Supplied to the CAA	*Joint Cardiff, Bristol, Exeter, ACOG and NATS LAMP ACP Meeting Notes – 260719* Notes summarising the updates provided on airport ACPs, ACOG and wider network changes
Ref 4 Supplied to the CAA	*Cardiff Airport Consultative Committee Meeting Notes – 291019* Notes summarising the topics covered at the committee meeting including on update on Cardiff's Airspace Change Proposal