# Design Principles Overview

In accordance with the Government's Airspace Modernisation Strategy, Bristol Airport is in the early stages of planning for airspace improvements which are scheduled for implementation in 2023.

As part of the Civil Aviation Authority's (CAA) CAP 1616 Airspace Change Process, Bristol Airport must create Design Principles and formally submit these to the CAA. These encompass the safety, environmental and operational objectives that we wish to achieve through our Airspace Change. This is part of Stage 1 of CAP 1616 which is the start of the process and does not involve any actual airspace design work; this follows in Stage 2.

The Design Principles should be aligned with the Statement of Need which Bristol Airport formally submitted to the CAA in October 2018. This outlines why Bristol Airport is proposing an Airspace Change and the benefits we hope to achieve - which the entire Airspace Change Proposal will be assessed against. As with all submitted CAP 1616 documentation, the Statement of Need is publicly available via the Bristol Airport page on the CAA's online portal here.

Bristol Airport will engage with a representative group of aviation industry and community stakeholders in workshops planned for September 2019. We have a number of initial Design Principles which we are seeking feedback on, through discussion at the workshops. These can be found at the bottom of this document.

These are initial Design Principles to be reviewed at the workshops at which stakeholders will be encouraged to provide feedback, add their own examples and consider any relative priorities. We will take on board all feedback received and use it to update our Design Principles on which we will seek final feedback from stakeholders, before formally submitting to the CAA.

The document we submit to the CAA will summarise how this engagement has influenced the Design Principles. Subject to approval of CAP 1616 Stage 1, we will formally adopt them for this Airspace Change Proposal.

The planned stakeholder engagement will allow the Design Principles to be developed though a two-way process between Bristol Airport and our stakeholders.

## Design Principle Guidance

As mentioned above, the Design Principles will address safety, environmental and operational objectives, such as environmental impacts, but Design Principles should also be developed in a local context. For example, by addressing whether aircraft should as a priority avoid flying over specific local areas or populations.

However, the Design Principles should not be prescriptive or dictate the final design. They should provide a framework and a set of objectives for the Stage 2 work, where Design Options are created. They should not, for example, provide design solutions in the shape of specific flight paths.

It should be noted that some of the initial Design Principles listed below are mandatory due to safety requirements, government policies and strategies this Airspace Change must align to, and the CAA's Airspace Modernisation Strategy. These compulsory Design Principles have been assigned with the prefix '**must**' to reflect this.

The other initial Design Principles below (prefixed with '**should**') have been written to link clearly back to the Statement of Need. These initial Design Principles are open to discussion at the workshops, alongside any alternative Design Principles suggested.

## Initial Design Principles

| Category | Design Principle | Details |
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| 1. **Safety** | Must maintain and where possible, enhance safety standards | Safety is at the forefront of everything Bristol Airport does. We believe that it is crucial that a new airspace design maintains and where possible enhances current safety standards |
| 2. **Policy** | Must accord with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it | CAP 1711 describes what airspace modernisation must deliver including:<br>- the need to increase aviation capacity;<br>- growth to be sustainable;<br>- the need to maximise the utilisation of existing runway capacity |
| 3. **Regulation** | Must be compliant with all relevant laws and regulations | To maintain safety and ensure integration with the wider airspace |
| 4. **Technical** | Must maximise efficiency by using modern navigation technology | The reliance on legacy technology must be removed. Furthermore, aircraft navigation capabilities have increased. To maximise the benefits that these improvements bring, including satellite navigation standards, arrival and departure routes must be designed to make full use of modern navigation technology |
| 5. **Operational** | Must provide sufficient capacity to support future demand | We believe that Bristol Airport will need to respond to future growth opportunities and as part of the Airspace Modernisation Strategy programme will, in accordance with government policy, ensure that any new airspace design is sufficient to cope with increased demand and link efficiently into the national network |
| 6. **Environmental** | Should minimise fuel burn and CO2 emissions as far as possible | Bristol Airport should, through airspace design, seek to implement the most efficient flight profiles |

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| 7. Environmental | Should minimise the impact of aircraft noise on the local community and stakeholders<br><br>**Please refer to the Noise Mitigation section which details the methods for consideration** | Bristol Airport should, where possible, reduce and mitigate noise and it's distribution in order to manage the impact of aviation growth on local communities in line with government policies |
| 8. Operational | Should maintain or enhance operational resilience of the Air Traffic Control network | Bristol Airport should consider airspace and route designs that benefit the operation and resilience of the national airspace network |
| 9. Technical | Should minimise impact on other airspace users | In accordance with the CAA's published Airspace Modernisation Strategy, Bristol Airport should consider designs and procedures that facilitate and accommodate access to airspace for non-commercial users, including General Aviation (e.g. recreational aviation or private transport), Ministry of Defence and other aviation communities |
| 10. Technical | Should minimise controlled airspace (CAS) and impact on adjacent aerodrome and airfields | The volume of controlled airspace considered by Bristol Airport should be the minimum necessary to deliver an efficient operation, taking into account the needs of adjacent aerodromes and airfields |

### Noise Mitigation Design Principles

We will seek to minimise noise effects where possible, and we will consider local circumstances when evaluating the noise impact.

Government guidance states that minimising noise should be the priority (over environmental considerations) for the design below 7,000ft. We recognise that there are many potential applications of this principle which are sometimes contradictory. This principle is therefore broken down into prioritised sub-principles.

We also seek your feedback on the below initial Design Principles which specifically relate to noise mitigations. As with all Design Principles, these can contradict each other but some may be prioritised over others.

| Noise Mitigation Design Principles | Details |
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| 11. Use noise efficient operational practices | To operate in a way that minimises the noise impact e.g. maximising altitude wherever possible |
| 12. Minimise the number of people newly overflown | To avoid exposing areas to aircraft noise who are currently not exposed |
| 13. Maximise sharing through predictable respite routes | Operate multiple arrival and departure routes, and alternate between these routes at different times of the day or days of the week. This would allow communities to have predictable periods of respite |

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| 14. Avoid overflying communities with multiple routes, including from other airports. | Use the opportunity to work with other airports to find a solution for this |
| 15. Maximise sharing through managed dispersal | An alternative approach to maximising sharing is to spread routes over a wider area to share the impact of noise. This would mean each flight path was flown less frequently but a wider area would be affected by noise" |
| 16. Minimise the total population overflown | Concentrating aircraft along defined routes to minimise the total number of people exposed to aircraft noise. |