

Glasgow Airport FASI-N Airspace Change Proposal

Step 2A Annex A - Design Principle Evaluation

Date: August 2022

Document Version: Final 1.3

Status: Public

Document History: V1.0 Submitted to the CAA in April 2022

V1.1 Submitted to the CAA in July 2022 (Please see the Change Record on CAA Airspace Change Portal for details of updates)

V1.2 Following CAA request, text changes between V1.0 and

V1.1 highlighted.

V1.3 Updates following clarification meeting with the CAA

(highlighted with white border).

Option The airspace design and its operation must be as s	Facilitate the growth in quicker, quieter and cleaner traffic by configuring the airspace to improve efficiency and meet the forecast demand for air transport. Design the appropriate volume of controlled airspace to support commercial air transport, enable safe, efficient access for other types of operation and release controlled airspace that is not required. Mitigate any future requirements for airborne transport, enable safe, efficient access for other types of operation and release controlled airspace that is not required.	Minimise the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing. noise dispersion through the transparent multiple route methods that are possible with	both noise concentration and the use of predictable and options and other respite thin the technical ATC system, procedural constraints. The arrival and departure routes that serve Glasgow Airport below 7000ft should avoid noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas and areas that are not currently affected by aircraft noise. Mitigate the impacts on local communities that are currently affected by aircraft noise on final approach or the vicinity of the immediate climb out, where overflight is unavoidable.	Reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Collaborate with other Scottish airports and NATS to ensure that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to a preferred level in coordination with NATS Prestwick. Minimise the growth in aircraft emissions, the further degradation in local air quality adverse ecological impacts to address growing concerns about the impact of aviation climate change.		The GLA ACP accords with the CAA's published Airspace Modernisation Strategy (CAP1711), any current or future plans associated with it and all other relevant policies and regulatory standards.
		Number of people overflown below 4000ft (centreline to centreline) Number of people within the 65dBLAmax contour (from a typical aircraft overflight) Affect on frequency of overflight for those under the extended centreline within 5nm of the runway	Mechanisms for predictable respite Noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas Overfly new areas	Complexity in CAS Bottleneck outside CAS Infringements	Local Air Quality Ecological Impacts Climate Change		Maintain and enhance high aviation safety standards Secure the efficient use of airspace and enable integration Secure the efficient use of airspace and enable integration Secure the efficient use of airspace and enable airspace network Avoid flight delays by better managing the airspace network Improve environmental performance by reducing emissions and by better managing noise Facilitate defence and by better managing noise
RWY 05 Dep Do Nothing The airspace design is as safe or safer than today with time	forecast demand for air transport. CAS volume and also offers potential to reduce the total volume of CAS Note that the control of the cont	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline) Option is expected to remain within 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight) Option is expected to have no change to the frequency of overflight for those under the extended centreline within 5nm of the runway Option doesn't see the use of multiple routes to share noise more equitably inside extended centreline within 5nm of the runway	Option doesn't contain mechanisms for predictable respite Option does not affect the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft Option does not affect the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft Option avoids overflying areas not currently affected by aircraft noise	Option is likely to stay the same or contribute to a tolerable increase in complexity for GLA ATC inside CAS. Option won't affect bottlenecks outside CAS impact on infringement	The option may not be compatible with FASI North programme as revisions to the flows within the ScTMA could require changes to traffic flows below 7000ft at Glasgow but it depends on the option taken forward by that sponsor The option may not be compatible with FASI North programme as revisions to turrently procedurally deconflicted up to FL90 and sometimes results in level off below FL90 to step up under EDI traffic. Doing nothing will not change flight paths below 1000ft off below 1000ft off below 1000ft off below FL90 to step up under EDI traffic. The airspace design is not expected to result in any changes to ecological impacts levels rise	Option is unlikely to affect maintain Glasgow's reliance on Conventional Navigation	See DP1 and DP9 See DP3 and DP4 See DP2 and DP4 See DP2, DP4, DP5, DP6, DP7, DP8, DP11, DP12 and DP13 Security objectives
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RWY 05 Dep Option E RWY 05 De	existing CAS boundaries but still offers potential to reduce the total volume of CAS. The Northbound SIDs on this option with the 7% climb gradient) Whist this option would be better than today, a single NORBO SID is not expected to meet the forecast demand of climb gradient) In or of climb gradient) In or of climb gradient as part of existing CAS boundaries but still offers potential to reduce the total volume of CAS. The Northbound SIDs on this option with the 7% climb gradient as illustrated would not quite be contained within ScTMA 7 in accordance with	Option is expected to increase the number of people overflown below 4000ft (centreline to centreline) by more than 25% Option is expected to increase the number of people within the 65dBLAmax contour (from a typical aircraft overflight) by more than 25% Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. The track adjustment on departure takes PERTH, LOMON, FOYLE and CLYDE departures away from those communities under the 5nm climbout	This is a fixed route structure. Option doesn't contain mechanisms for predictable respite Option increases the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas less frequently overflown Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown	A NORBO departure which turns right would interact with the main arrival flow from the South and so isn't as low complexity as a SID which turns left. So long as we can ensure the NORBO SID is laterally separated from the arrivals (use of PBN arrival to RWY 05 would be beneficial here so we can gurantee descent profile versus NORBO SIDs) option is still likely to contribute to a reduction in complexity for GLA ATC inside CAS.	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme The LUSIV and TALLA SIDs in this option nas a change to how aircraft will fly laterally below 1,000ft. Whilst there are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft which could affect local air quality There are no SPAs, SACs, SSSIs, NSAs or National Parks overflown by today's SID centrelines below 2000ft. This option does not overfly any more of these areas below 2000ft. (There are some of these areas overflown under route centrelines of this option between 2000-4000ft although those areas are also already overflown by RWY05 departures)	least an RNAV1 specification	See DP1 and DP9 See DP3 and DP4 DP6, DP7, DP8, defence and defence and
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RWY 05 Dep Option G RWY 05 De	for air transport, assuming the safety issues can be overcome which will be explored in more detail in the IOA. for air transport, assuming the safety issues can be overcome which will be explored in more detail in the IOA. for air transport, assuming the safety issues can be overcome which will be explored in more detail in the IOA. for air transport, assuming the safety issues can be overcome which will be explored in more detail in the IOA. for air transport, assuming the safety issues can be overcome which will be explored in more detail in the IOA. for air transport, assuming the safety issues can be overcome which will be explored in more detail in the IOA.	Option is expected to increase the number of people overflown below 4000ft (centreline to centreline) by more than 25% Option is expected to increase the number of people within the 65dBLAmax contour (from a typical aircraft overflight) by more than 25% Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. The track adjustment on departure shares the noise from NORBO, PERTH, LOMON, FOYLE and CLYDE departures over difference areas than those under the 5nm climbout.	Option does contain mechanisms for predictable respite. It contains a NORBO SID which could be different to the one(s) used during the peak departures periods. The	A NORBO departure which turns right would interact with the main arrival flow from the South and so isn't as low complexity as a SID which turns left. So long as we can ensure the NORBO SID is laterally separated from the arrivals (use of PBN arrival to RWY 05 would be beneficial here so we can gurantee descent profile versus NORBO SIDs) option is still likely to contribute to a reduction in complexity for GLA ATC inside CAS but only if SID swtiching issues are resolved (see safety assesment).	No feedback to date to suggest option is not, or cannot be, compatible with programme No feedback to date to suggest option is not, or cannot be, compatible with programme No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme No feedback to date to climb continuously to at least FL100, based on existing climb performance observed from EDI, the GLA SIDs in this option has a change to how aircraft will fly laterally below 1,000ft. Whilst there are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft which could affect local air quality No feedback to date to climb continuously to at least FL100, based on existing climb performance observed from EDI, the GLA SIDs in this option has a change to how aircraft will fly laterally below 1,000ft. Whilst there are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft which could affect local air quality No feedback to date to climb continuously to at least FL100, based on existing climb performance observed are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft. (There are some of these areas overflown under route centrelines of this option between 2000-4000ft although those areas are also already overflown by RWY05 departures)	This route structure in combination with deconflicted arrival structures would be expected to improve CCO and CDO performance This route structure in Option can be designed to at least an RNAV1 specification although RNP+RF may deliver benefit for early left turns	See DP1 and DP9 See DP3 and DP4 See DP2 and DP4 See DP2, DP4, DP5, DP6, DP7, DP8, DP11, DP12 and DP13 See DP13 See DP2 and DP4 See DP2 and DP4 See DP2, DP4, DP5, DP6, DP7, DP8, DP11, DP12 and Security objectives
RWY 05 Dep Option H RWY 05 De	The design option may require changes to the existing CAS boundaries but still offers potential to reduce the total volume of CAS. The Northbound SIDs on this option with the 7% climb gradient) of climb gradient) din further detail as part of The design option may require changes to the existing CAS boundaries but still offers potential to reduce the total volume of CAS. The Northbound SIDs on this option with the 7% climb gradient as illustrated would not quite be contained within ScTMA 7 in accordance with	Option is expected to increase the number of people overflown below 4000ft (centreline to centreline) by more than 25% Option is expected to increase the number of people within the 65dBLAmax contour (from a typical aircraft overflight) by more than 25% Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. The track adjustment on departure shares the noise from NORBO, PERTH, LOMON, FOYLE and CLYDE departures over difference areas than those under the 5nm climbout.	Option increases the number of noise sensitive areas and buildings, national parks, mechanisms for predictable option doesn't contain mechanisms for predictable option doesn't contain areas of outstanding natural overflight of areas that are option doesn't contain areas of outstanding natural overflight of areas that are	A NORBO departure which turns right would interact with the main arrival flow from the South and so isn't as low complexity as a SID which turns left. So long as we can ensure the NORBO SID is laterally separated from the arrivals (use of PBN arrival to RWY 05 would be beneficial here so we can gurantee descent profile versus NORBO SIDs) option is still likely to contribute to a reduction in complexity for GLA ATC inside CAS.	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme No feedback to date to climb continuously to at least FL100, based on existing climb performance observed from EDI, the GLA SIDs in this option should be able to climb continuously to FL90. Current information from NERL and EDI suggests that continuous climb to FL100 is likely There are no SPAs, SACs, SSSIs, NSAs or National Parks overflown by today's SID centrelines below 2000ft. This option does not overfly any more of these areas below 2000ft. (There are some of these areas overflown under route centrelines of this option between 2000-4000ft although those areas are also already overflown by RWY05 departures)	deconflicted arrival structures least an RNAV1 specification i	See DP1 and DP9 See DP3 and See DP2 and DP4 DP6, DP7, DP8, expected to affect
RWY 05 Dep Option I The early left turn towards high ground needs more dit's safe with an acceptable climb a Further assurances required. This will be investigated the IOA should this option programme to the IOA should this option programme.	d in further detail as part of NORBO routes available at all times. NORBO routes available at all times. Option with the 7% climb due to the ability to share gradient as illustrated would. NORBO departures across 2	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline) Option is expected to remain within 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight) Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. C.50% of NORBO departures turning left early takes c.40% of easterly departures away from those communities under the 1-5nm climbout	Option increases the number of noise sensitive areas and Defined doesn't contain mechanisms for predictable respite Option increases the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown	A NORBO departure which turns right would interact with the main arrival flow from the South and so isn't as low complexity as a SID which turns left. So long as we can ensure the NORBO SID is laterally separated from the arrivals (use of PBN arrival to RWY 05 would be beneficial here so we can gurantee descent profile versus NORBO SIDs) option is still likely to contribute to a reduction in complexity for GLA ATC inside CAS.	No feedback to date to suggest option is not, or cannot be, compatible with programme No feedback to date to suggest option is not, or cannot be, compatible with programme No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme Subject to EDI being able to enable their departures to climb continuously to at least FL100, based on existing climb performance observed from EDI, the GLA SIDs in this option should be able to climb continuously to FL90. Current information from NERL and EDI suggests that continuous climb to FL100 is likely Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a result of this airspace design option. Option will clearly contribute to aircraft emissions option between 2000-4000ft although those areas are also already overflown by RWY05 departures)	This route structure in combination with deconflicted arrival structures would be expected to improve CCO and CDO performance This route structure in Option can be designed to at least an RNAV1 specification although RNP+RF may deliver benefit for early left turns	

					Design Principle Evaluation					
Option Image		Design the appropriate volume of controlled airspace to eter and support commercial air space to transport, enable safe, efficient access for other types of operation and release controlled airspace that is not required. Mitigate any future requirements airborne holding for inbound traffic holding on the ground pre-departu outbound traffic.	and Minimise the total adverse effects of aircraft noise and visual intrusion on physical and	noise dispersion through the use of pred mental health and wellbeing. multiple route options and other res	The arrival and departure routes that serve Glasgow Airport below 7000ft should avoid noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas and areas that are not currently affected by aircraf	affected by aircraft noise on Reduce complexity and bottlenecks in controlled and uncontrolled airspace		Minimise the growth in aircraft emissions, the further degradation in local air quality and adverse ecological impacts to address growing concerns about the impact of aviation on climate change.	Routes should be designed to meet a RNAV1 specification as a minimum in order to gain maximum benefit of the performance capabilities of the modern aircraft fleet operating at Glasgow Airport in line with the guidance provided in CAA CAP1385 on enhanced route spacing for PBN and provide sufficient resilience and redundancy against Global Navigation Satellite System (GNSS) failure.	ACP accords with the CAA's published Airspace Modernisation Strategy (CAP1711), any current or future plans associated with it and all other relevant policies and regulatory standards.
			Number of people overflown below 4000ft Number of people within the 65dBLAmax	Affect on frequency of overflight for those under the extended centreline within 5nm of the runway Mec	Noise sensitive areas and buildings, national parks, areas respite of outstanding natural beauty/National Scenic Areas	Complexity in CAS Bottleneck outside CAS Ir	nfringements	Local Air Quality Ecological Impacts Climate Change	enha aviat	Secure the efficient use of airspace and enable integration Secure the efficient use of airspace and enable integration Avoid flight delays by better managing the airspace network Avoid flight delays by better reducing emissions and by better managing noise Improve environmental performance by reducing emissions and by better managing noise
	RWY 23 Dep Do Nothing The airspace design is as safe or safer than today with no safety concerns at this time Option is not expected to meet the demand for air transport.	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline) Option is expected to remain within 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	Option is expected to have no change to the frequency of overflight for those under the extended centreline within 5nm of the runway Option doesn't see the use of multiple routes to share noise more equitably inside 5nm however after that, routine vectoring does disperse the traffic	Option doesn't contain echanisms for predictable respite Option does not affect the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft Option does not affect the number of noise sensitive areas not currently affected by aircraft noise	Option does not make use of offset departures Option is likely to stay the same or contribute to a tolerable increase in complexity for GLA ATC inside CAS. Option won't affect bottlenecks outside CAS impact	unlikely to have an ton infringements The option may not be compatible with FASI North programme as revisions to the flows within the ScTMA could require changes to traffic flows below 7000ft at Glasgow but it depends on the option taken forward by that sponsor All routes are not procedurally deconflicted upto FL90 but ED traffic rarely causes GLA RWY2 departures to level off below FL90.	Doing nothing will not change flight paths below 1000ft The airspace design is not expected to result in any changes to ecological impacts Option has potential to contribute to an increase in aircraft emissions owing to increased delays as traffic levels rise	Option is unlikely to affect CCO/CDO performance Doing nothing would maintain Glasgow's reliance on Conventional Navigation for departures See Di	See DP3 and DP9 See DP2 and DP4 See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	This option requires a Track Adjustment on departure. These are possible within PANS OPS but in a recent ACP, the CAA IFP department wanted a not below 500ft flyover WP positioned at the DER to ensure the aircraft doesn't turn before the end of the runway. PANS OPS doesn't require this. Additional assurances will be required during IFP ground validation to ensure the WP is acceptable. Further assurances required. This will be investigated in further detail as part of the IOA should this option progress.	2 of those CAS volume and also offers the sharing of NORBO departures acr	(Ontion is expected to increase the number of light in the control of the control	Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. The track adjustment on departure takes all departures away from those communities under the 5nm climbout. In addition the NORBO traffic is shared across 2 different departure routes	Option increases the number of noise sensitive areas and buildings (but not national parks, areas of outstanding natural beauty/National Scenic Areas) overflown below 7000ft Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown today.	Option makes use of offset departures for all SIDs Option is likely to contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	unlikely to have an ton infringements No feedback to date to suggest performance observed from EDI, the GLA SIDs in this option should be able to climb	below 1,000ft. Whilst there are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft which could affect local air option does not overfly any more of these areas below 2000ft. (There are some of these areas overflown under route centrelines of this option between 2000-4000ft although	This route structure in ombination with deconflicted arrival structures would be expected to improve CCO and CDO performance CDO performance Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP3 and DP9 See DP3 and DP9 See DP2 and DP4 See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	Ontion B	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	Option is expected to increase the Number of people overflown below 4000ft (centreline to centreline) by more than 25% Option is expected to increase the number of people within the 65dBLAmax contour (from a typical aircraft overflight) by more than 25%	Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. The track adjustment on departure takes all departures away from those communities under the 5nm climbout.	Option increases the number of noise sensitive areas and buildings (but not national parks, areas of outstanding natural beauty/National Scenic Areas) overflown below 7000ft Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown today.	Option makes use of offset departures for all SIDs Option is likely to contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	unlikely to have an ton infringements No feedback to date to suggest performance observed from EDI, the GLA SIDs in this option should be able to climb	how aircraft will fly laterally below 1,000ft. Whilst there are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft centrelines below 2000ft. This option does not overfly any more of these areas below 2000ft. This option does not overfly any more of these areas below 2000ft. This option will clearly contribute to an overall reduction in aircraft these areas overflown under route centrelines of this option	arrival structures would be RNAV1 specification although is of See D	See DP3 and DP9 See DP2 and DP4 See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	This option requires a Track Adjustment on departure. These are possible within PANS OPS but in a recent ACP, the CAA IFP department wanted a not below 500ft flyover WP positioned at the DER to ensure the aircraft doesn't turn before the end of the runway. PANS OPS doesn't require this. Additional assurances will be required during IFP ground validation to ensure the WP is acceptable. The use of SIDs which turn on/off at a certain time will require additional assurances. Even if technically possible through systems and flight planning, the chances of human error (aircraft flying the wrong SID, or ATC thinking the other SID is in use) will exist. Further assurances required. This will be investigated in further detail as part of the IOA should this option progress.	contained within the existing and due to the ability to share NO departures across 2 different SIDs during the safety issues of the design option could be another nothing due to the early figure and due to the ability to share NO departures across 2 different SIDs during the safety issues of the design option could be another nothing due to the early figure and due to the early figure and due to the early figure and due to the ability to share NO departures across 2 different SIDs during the safety issues of the early figure and due to the ability to share NO departures across 2 different SIDs during the early figure and due to the ability to share NO departures across 2 different SIDs during the early figure and due to the ability to share NO departures across 2 different SIDs during the early figure and due to the early figure a	Option is expected to increase the number of people overflown below 4000ft (centreline to centreline) by more than 25% Option is expected to increase the number of people within the 65dBLAmax contour (from a typical aircraft overflight) by more	ladilistment on denartilre takes i med	Option does contain echanisms for predictable espite for the NORBO SID ch is the busiest departure route. Option increases the number of noise sensitive areas and buildings (but not national parks, areas of outstanding natural beauty/National Scenic Areas) overflown below 7000ft Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown today.	Option makes use of offset departures for all SIDs Option is likely to contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS Option may contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	I No feedback to date to suggest	This option has a change to how aircraft will fly laterally below 1,000ft. Whilst there are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft which could affect local air overflown by today's SID centrelines below 2000ft. This option does not overfly any more of these areas below 2000ft. (There are some of these areas overflown under route centrelines of this option between 2000-4000ft although		See DP3 and DP9 See DP3 and DP9 See DP2 and DP4 See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	This option requires a Track Adjustment on departure. These are possible within PANS OPS but in a recent ACP, the CAA IFP department wanted a not below 500ft flyover WP positioned at the DER to ensure the aircraft doesn't turn before the end of the runway. PANS OPS doesn't require this. Additional assurances will be required during IFP ground validation to ensure the WP is acceptable. RWY 23 Dep Option D The use of SIDs which turn on/off at a certain time will require additional assurances. Even if technically possible through systems and flight planning, the chances of human error (aircraft flying the wrong SID, or ATC thinking the other SID is in use) will exist. Further assurances required	contained within the existing and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share NO departures across 2 different SIDs during the safety issues of the carrying and due to the ability to share the carrying across a share across 2 different SIDs during the safety issues of the carrying across across 2 different SIDs during the carrying across 2 different SIDs during the carrying across 3 different SIDs	Option is expected to increase the number of people overflown below 4000ft (centreline to centreline) by more than 25% Option is expected to increase the number of people within the 65dBLAmax contour (from a typical aircraft overflight) by more	Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. The track adjustment on departure takes all departures away from those communities under the 5nm climbout. In addition the NORBO traffic is shared across 4 different departure routes	Option does contain echanisms for predictable espite for the NORBO SID ch is the busiest departure route. Option increases the number of noise sensitive areas and buildings (but not national parks, areas of outstanding natural beauty/National Scenic Areas) overflown below 7000ft Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown today.	Option makes use of offset departures for some SIDs Option is likely to contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS Option may contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	unlikely to have an option is not, or cannot be, sometible with the wider EASI.	how aircraft will fly laterally below 1,000ft. Whilst there are likely to be no increase in emissions in their totality, there will be a change in the location of emissions below 1,000ft which could affect local air centrelines below 2000ft. This option does not overfly any more of these areas below 2000ft. This option does not overfly any more of these areas below 2000ft. This option does not overfly any more of these areas below 2000ft. This option does not overfly any more of these areas below 2000ft. This option does not overfly any more of these areas below 2000ft. This option does not overfly any more of these areas below 2000ft. This option will clearly contribute to an overall reduction in aircraft emissions	This route structure in ombination with deconflicted arrival structures would be expected to improve CDO performance RNAV1 specification although is of RNP+RF may deliver benefit performance	See DP3 and DP9 See DP2 and DP4 See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	RWY 23 Dep Option E The airspace design does not feature track adjustments and is therefore expected to be as safe or safer than today with no safety concerns at this time The SIDs splitting before 5nm together sharing of NORBO departures across SIDs is expected to meet the forecast for air transport	(AS VOILIME and also offers 1	Option is expected to increase the number of	Option is expected to reduce the frequency of overflight for those under the extended centreline within 5nm of the runway This option does make use of multiple routes to share noise more equitably. The NORBO traffic is shared across 2 different departure routes	Option increases the number of noise sensitive areas and buildings (but not national parks, areas of outstanding natural beauty/National Scenic Areas) overflown below 7000ft Option has SIDs turning before 5nm therefore will see an increase in frequency of overflight of areas that are less frequently overflown today.	Option does not make use of offset departures Option does not make use of offset departures Option is likely to contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	unlikely to have an ton infringements No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme FL100, based on existing climit performance observed from EDI, the GLA SIDs in this option should be able to climb continuously to FL90. Current	overflown by today's SID Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a result of this airspace design option. overflown by today's SID centrelines below 2000ft. This option does not overfly any more of these areas below 2000ft. (There are some of these areas overflown under route centrelines of this option between 2000-4000ft although	This route structure in ombination with deconflicted arrival structures would be expected to improve CCO and CDO performance CDO performance CDO performance Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 See DP2 and DP13 Option not expected to affect defence and security objectives

	Design Principle Evaluation														_									
Option Image	Option The airspace design and its operation Name must be as safe or safer than today.		et efficient access for other type	requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound	Minimise the total adverse	effects of aircraft noise and visual intrusic mental health and wellbeing.	n on physical and tran	ommunities options for both noise concentration a ise dispersion through the use of predictable and nsparent multiple route options and other respite ds that are possible within the technical ATC syste en-route network and procedural constraints.	below 7000ft should avo buildings, national parks, m, beauty/National Scenic	oid noise sensitive areas and , areas of outstanding natural Areas and areas that are not		Reduce complexity and bottl	uce complexity and bottlenecks in controlled and uncontrolled airspace and contribute with to a reduction in airspace infringements.		Collaborate with other Scottish airports and NATS to ensure that the airspace design options are compatible with the wider programme of lower altitude and network airspace changes being coordinated by the FASI North programme. Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to a preferred level in coordination with NATS Prestwick. Prestwick.			Minimise the growth in aircraft emissions, the further degradation in local air quality and adverse ecological impacts to address growing concerns about the impact of aviation on climate change.			Aircraft operating at Glasgow Airport should climb and descend continuously to/from at least 7000ft with a preference for the most environmentally beneficial option to be chose, if both cannot be achieved simultaneously. Routes should be designed to meet a RNAV1 specification as a minimum in order to gain maximum benefit of the performance capabilities of the modern aircraft fleet operating at Glasgow Airport in line with the guidance provided in CAA CAP1385 on enhanced route spacing for PBN and provide sufficient resilience and redundancy against Global Navigation Satellite System (GNSS) failure.		The GLA ACP accords with the CAA's published Airspace Modernisation S current or future plans associated with it and all other relevant policies are t	
					below 4000ft (centreline to	65dBLAmax contour (from a extended)	t on frequency of for those under the ed centreline within n of the runway	of multiple routes Mechanisms for predictal respite	Noise sensitive areas and ble buildings, national parks, areas of outstanding natura beauty/National Scenic Area	Overfly new areas		Complexity in CAS	Bottleneck outside CAS	Infringements			Local Air Quality	Ecological Impacts	Climate Change			Maintain and enhance high aviation safety standards Secure the efficient use of airspace and enable integration	Avoid flight delays by better managing the re airspace network	Improve environmental performance by reducing emissions and by better managing noise Facilitate defence and security objectives
	RWY 05 Arrv Do Nothing The airspace design is as safe or safer than today with no safety concerns at this time	I demand for air franchorf however ho	contained within the existin	Option is not expected to affect ground or airborne holding	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline)	Option is expected to remain within 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight) Option is expected to remain Option is change overflight standard extended overflight)	expected to have no to the frequency of the for those under the discentreline within of the runway	doesn't see the use of e routes to share noise ver routine vectoring disperse the traffic	Option does not affect the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft	increase in frequency of overflight of areas that are less frequently overflown	N/A - the mitigation is provided through SIDs with track adjustments	Option is likely to stay the same or contribute to a tolerable increase in complexity for GLA ATC inside CAS.	Option won't affect bottlenecks outside CAS	Option unlikely to have an impact on infringements	The option may not be compatible with FASI North programme as revisions to the flows within the ScTMA could require changes to traffic flows below 7000ft at Glasgov but it depends on the option taken forward by that sponso	All routes are procedurally deconflicted upto FL90	Option is expected to maintain the same level of local air quality emissions	The airspace design is not expected to result in any changes to ecological impacts	Option is likely to maintain existing levels of emissions		N/A, there's no PBN specification with vectoring	See DP1 and DP9 See DP3 and DP9 DP9	See DP2 and DP4	ee DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	RWY 05 Arrival Option A RWY 05 Arrival Chances of the chances of human error (aircraft flying the wrong arrival, or ATC thinking the otherroute is in use) will exist. At this point, this assessment assumes the routes are used as single routes, not as part of an alternating system and is therefore assessed as Met.	Use of a pure PBN arrival system is expected to degrade future operation performance. This is because of the inability of ATC to provide the exact amount of spacing to the runway between pairs which is likely to lead inefficiences as well as an increase is ground and airborne holding during peak times. Option is not expected to meet the forecast demand for air transport.	The design option may require changes to the existing CAS boundaries but still offers potential to reduce the total volume of CAS. The arrival routes as illustrated would not quite be contained within ScTMA 5 in accordance with the CAA CAS containment policy.	Use of a pure PBN arrival system is expected to increase airborne holding. This is because ATC would lose the flexibility to adjust the spacing once the aircraft have left the stacks. They would also be more likely to provide increased spacing between arriving pairs as they can't manage catch up situations with speed control alone but will routinely require vectors	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%			ixed PBN arrival routes t share the noise more equitably. This option does not inclu mechanisms to provide predicatble respite from no	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natura beauty/National Scenic Area overflown below 7000ft	increase in frequency of overflight of areas that are less frequently overflown	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to	one regard but also increase in another as airborne and ground holding would increase as a result of less accurate final approach	Option has potential to contribute to an increase in bottlenecks outside CAS	Option unlikely to have an impact on infringements	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.	All routes are procedurally	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air qualit (positive or negative) as a result of this airspace design option.	expected to result in any changes to ecological impacts compared to the baseline as	Option has potential to contribute to an increase in overall aircraft emissions as this track is longer than the typical arrival track flown today.	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 and DP9 DP9		Option not expected to affect defence and security objectives
	RWY 05 Arrival Option B RWY 05 Arrival option Unless use of PBN arrival routes are used in rotation to provide respite. In which case the chances of human error (aircraft flying the wrong arrival, or ATC thinking the otherroute is in use) will exist. At this point, this assessment assumes the routes are used as single routes, not as part of an alternating system and is therefore assessed as Met.		The design option may require changes to the existing CAS boundaries but still offers potential to reduce the total volume of CAS. The arrival routes as illustrated would not quite be contained within ScTMA 5 in accordance with the CAA CAS	left the stacks. They would also be more likely to provide	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%	people within the 65dBLAmax overflight contour (from a typical extended	expected to have no to the frequency of t for those under the d centreline within n of the runway	ixed PBN arrival routes t share the noise more equitably. This option does not inclu mechanisms to provide predicatble respite from no	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natura beauty/National Scenic Area overflown below 7000ft	increase in frequency of overflight of areas that are	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	reduce contrioller workload in one regard but also increase	Option has potential to contribute to an increase in bottlenecks outside CAS	Option unlikely to have an impact on infringements	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.	All routes are procedurally deconflicted upto FL90	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air qualit (positive or negative) as a result of this airspace design option.	expected to result in any changes to ecological impacts compared to the baseline as	Option has potential to contribute to an increase in overall aircraft emissions as this track is longer than the typical arrival track flown today.	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 and DP9 DP9	See DP2 and DP4	See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	RWY 05 Arrival Option C RWY 05 Arrival Option C RWY 05 Arrival Option C	Use of a pure PBN arrival system is expected to degrade future operation performance. This is because of the inability of ATC to provide the exact amount of spacing to the runway between pairs which is likely to lead inefficiences as well as an increase is ground and airborne holding during peak times. Option is not expected to meet the forecast demand for air transport.	require changes to the existing CAS boundaries but still offers potential to reduce the total volume of CAS. The arrival routes as illustrated would not quite be containe within ScTMA 5 in accordance with the CAA CAS	Use of a pure PBN arrival system is expected to increase airborne holding. This is because ATC would lose the flexibility to adjust the spacing once the aircraft have left the stacks. They would also be more likely to provide increased spacing between arriving pairs as they can't manage catch up situations with speed control alone but will routinely require vectors	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%		expected to have no to the frequency of t for those under the d centreline within n of the runway	xed PBN arrival routes t share the noise more equitably. This option does not inclu mechanisms to provide predicatble respite from no	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natura beauty/National Scenic Area overflown below 7000ft	increase in frequency of overflight of areas that are less frequently overflown	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Option would require more CAS to the west of the transition (TMA5) or a move to the route to join Final Approach slightly closer. Subject to this, use of PBN transitions alone is likely to reduce contrioller workload in one regard but also increase in another as airborne and ground holding would increase as a result of less accurate final approach spacing.	Option has potential to contribute to an increase in bottlenecks outside CAS	Option unlikely to have an impact on infringements	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.	All routes are procedurally deconflicted upto FL90	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air qualit (positive or negative) as a result of this airspace design option.	expected to result in any changes to ecological impacts compared to the baseline as	Option has potential to contribute to an increase in overall aircraft emissions as this track is longer than the typical arrival track flown today.	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 and DP9	See DP2 and DP4	See DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	RWY 05 Arrival Option D RWY 05 Arrival option Unless use of PBN Arrival routes are used in rotation to provide respite. In which case the chances of human error (aircraft flying the wrong arrival, or ATC thinking the otherroute is in use) will exist. At this point, this assessment assumes the routes are used as single routes, not as part of an alternating system and is therefore assessed as Met.	hetween pairs which is likely to lead to	The design option may require changes to the existing CAS boundaries but still offers potential to reduce the total volume of CAS. The arrival routes as illustrated would not quite be contained within ScTMA 5 in accordance with the CAA CAS containment policy.	Use of a pure PBN arrival system is expected to increase airborne holding. This is because ATC would lose the flexibility to adjust the spacing once the aircraft have	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%	within 25% of the number of change people within the 65dBLAmax contour (from a typical extended)	to the hequency of	xed PBN arrival routes t share the noise more equitably. This option does not inclu mechanisms to provide predicatble respite from no	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natura beauty/National Scenic Area overflown below 7000ft	increase in frequency of overflight of areas that are less frequently overflown	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Option would require more CAS to the west of the transition (TMA5) or a move to the route to join Final Approach slightly closer. Subject to this, use of PBN transitions alone is likely to reduce contrioller workload in one regard but also increase in another as airborne and ground holding would increase as a result of less accurate final approach spacing.	bottlenecks outside CAS	Option unlikely to have an impact on infringements	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.	All routes are procedurally deconflicted upto FL90	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air qualit (positive or negative) as a result of this airspace design option.	expected to result in any changes to ecological impacts compared to the baseline as	Option has potential to contribute to an increase in overall aircraft emissions as this track is longer than the typical arrival track flown today.	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 and DP9 DP9	See DP2 and DP4	Option not expected to affect defence and security objectives
	RWY 05 Arrival Vectors only No safety concerns identified as this matches the existing concept of operation	Option is expected to cater for Glasgow's forecast demand for air transport	The design option could be contained within the existin CAS volume and also offers potential to reduce the tota volume of CAS	Option is not expected to affect ground or airborne holding	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline)	Option is expected to remain within 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight) Option is change change overflight extended 5nm	expected to have no to the frequency of t for those under the d centreline within n of the runway	doesn't see the use of e routes to share noise wer routine vectoring disperse the traffic	de areas and buildings, nationa	Option will not see an increase in frequency of overflight of areas that are less frequently overflown	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Option is likely to stay the same in terms of level of complexity for GLA ATC inside CAS	Option unlikely to affect bottlenecks outside CAS	Option unlikely to have an impact on infringements	The option may not be compatible with NERL only if they were to take forward Point Merge as a concept	All routes are procedurally deconflicted upto FL90	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air qualit (positive or negative) as a result of this airspace design option.	compared to the baseline as	Option is likely to maintain existing levels of emissions	Option is unlikely to affect CDO performance	N/A, there's no PBN specification with vectoring	See DP1 and DP9 See DP3 and DP9 DP9	See DP2 and DP4	ee DP2, DP4, D5, DP6, DP7, DP8, DP11, DP12 and DP13 Option not expected to affect defence and security objectives
	RWY 05 Arrival Vectors and PBN hybrid RWY 05 No safety concerns identified at this stage	Option is expected to cater for Glasgow's forecast demand for air transport and is expected to enhance Glasgow's operational performance if the future. This is because ATC can use the PBN arrivals when traffic levels at low and this will also facilitate the use of combined Tower and Approach services (Radar In Tower aswell as reducing workload to managarrivals versus departure interaction	arrival routes as illustrated would not quite be contained within ScTMA 5 in accordance with the CAA CAS	or option is not expected to affect ground or airborne holding	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline)	. //	t for those under the	oring of arrivals is a samism which shares se more equitably. er, having PBN arrivals are mandated during the nig which would provide savailable is likely to sault in increased attration compared to today. It may be possible to stipul that PBN arrivals are mandated during the nig which would provide predicatble respite to the communities not under the routes.	number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National	Assuming that the PBN path taken forward is within the existing arrival swathe, this option will not see an increase in frequency of overflight of areas that are less frequently overflown today.	track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated	Option is likely to contribute to a reduction in complexity for GLA ATC inside CAS because this option still relies on vectors but ATC can also have the benefit from PBN arrivals to reduce their workload when the situation permits. Option D would be the most favourable and ideally slightly further East to keep further from the edge of CAS.		Option unlikely to have an impact on infringements	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.	All routes are procedurally deconflicted upto FL90	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air qualit (positive or negative) as a result of this airspace design option.	expected to result in any changes to ecological impacts	Option is likely to maintain existing levels of emissions	PBN arrival routes would facilitate improved CDO performance	The PBN arrival transitions can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 and DP9 DP9	See DP2 and DP4	Option not expected to affect defence and security objectives

Option Image Option Name	The airspace design and its operation must be as safe or safer than today.	Facilitate the growth in quicker, quieter and cleaner traffic by configuring the airspace to improv efficiency and meet the forecast demand for air transport.	transport, enable safe, e efficient access for other	Mitigate any future requirements for airborne holding for inbound traffic and holding on the ground pre-departure for outbound traffic. Mitigate any future requirements for airborne holding for inbound traffic. Minimise the total adverse effects of aircraft noise and visual intrusion on physical and mental health and wellbeing. Minimise the total adverse effects of aircraft noise and visual intrusion on physical and mental health transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through the use transparent multiple route options for both noise dispersion through			or both noise concentration and hithe use of predictable and below 7000ft should avoid noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas and areas that are not			currently affected by aircraft noise on final approach or Reduce complexity and bottlenecks in controlled and uncontrol reduction in aircrace infringement		s in controlled and uncontrolled ction in airspace infringements.	incontrolled airspace and contribute to a ingements. design options are compatible with the wider programme of lower altitude		Routes to/from Glasgow and Edinburgh airports should be procedurally deconflicted from the ground to a preferred level in coordination with NATS Prestwick.	Minimise the growth in aircraft emissions, the furth adverse ecological impacts to address growing conclimate change		Airport descent further degradation in local air quality and ing concerns about the impact of aviation on change. Airport descent change air quality and preference change.		Routes should be designed to meet a RNAV1 specification as a minimum in order to gain maximum benefit of the performance capabilities of the modern aircraft fleet operating at Glasgow Airport in line with the guidance provided in CAA CAP1385 on enhanced route spacing for PBN and provide sufficient resilience and redundancy against Global Navigation Satellite System (GNSS) failure.	ation of the es of eet irport nce 85 on g for cient ency tion				
					Number of people overflown below 4000ft (centreline to centreline)	Number of people within the 65dBLAmax contour (from a typica aircraft overflight)	Affect on frequency of overflight for those under the extended centreline within 5nm of the runway	Use of multiple routes	Mechanisms for predictable respite	Noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas	Overfly new areas		Complexity in CAS	Bottleneck outside CAS	Infringements			Local Air Quality	Ecological Impacts	Climate Change			Maintain and enhance high aviation safety standards Secure the efficient use airspace an enable integration	Ir of Avoid flight envi d delays by better perfo managing the reduci airspace network and mana	Improve ironmental ormance by ing emissions d by better naging noise Facilitate defence and security objectives
RWY 23 Arrv	The airspace design is as safe or safer than today with no safety concerns at this time although some aircraft can receive GPWS alerts triggered by a high rate of descent.	however note that changes to	t contained within the existing	Option is not expected to affect ground or airborne holding	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline)	Option is expected to remain with 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	overflight for those under the	Option doesn't see the use of multiple routes to share nois however routine vectoring does disperse the traffic	Option doesn't contain mechanisms for predictable respite	Option does not affect the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft	Option will not see an increase in frequency of overflight of areas that are less frequently overflown	provided through SIDs with	Option is likely to stay the same or contribute to a tolerable increase in complexity for GLA ATC inside CAS.	hottlenecks outside CAS	Option unlikely to have an impact on infringements	The option may not be compatible with FASI North programme as revisions to the flows within the ScTMA could require changes to traffic flows below 7000ft at Glasgow but it depends on the option taken forward by that sponsor	Some routes are not procedurally deconflicted upto FL90	maintain the same level of	The airspace design is not expected to result in any changes to ecological impacts	Option is likely to maintain	Option is unlikely to affect CCO/CDO performance	N/A, there's no PBN specification with vectoring	See DP1 and DP9 DP9	See DP2 See DP2 and DP4 DP7, DP	DP4, D5, DP6, 8, DP11, DP12 nd DP13 Option not expected to affect defence and security objectives
RWY 23 Arrival Option A	Option is not separated from the GLA/EDI buffer fo when EDI on Easterly operations and GLA on Westerly operations. The requirement for this buffe will continue to exist in a future design and it would not be possible to avoid the buffer with this option Option discontinued	Use of a pure PBN arrival system is expected to degrade future operational performance. This is because of the inability of ATC to provide the exact amount of spacing to the runway between pairs which is likely to lead to inefficiences as well as an increase in ground and airborne holding during peak times. Option is not expected to meet the forecast demand for air transport.	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	Use of a pure PBN arrival system in expected to increase airborne holding. This is because ATC would lose the flexibility to adjust the spacing once the aircraft have left the stacks. They would also be more likely to provide increased spacing between arriving pairs as they can't manage catch up situations with speed control alon but will routinely require vectors	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by	Option is expected to remain with 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	in change to the frequency of overflight for those under the extended centreline within 5nm of the runway	Use of fixed PBN arrival routes does not share the noise more equitably.	This option does not include mechanisms to provide predicatble respite from noise	of noise sensitive areas and buildings, national parks, areas of outstanding natural	outside the existing main arrival swathe and will therefore result in an increase in frequency of overflight of areas that are	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Not separated from the GLA/EDI buffer for when EDI on Easterly operations. Longer track miles will mean more delay and less flexibility. Use of PBN transitions alone is likely to reduce controller workload in one regard burselso increase in another as airborne are ground holding would increase as a result of less accurate final approach spacing.	reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of	infringements because use of pure PBN arrivals to RWY23 would confirm a profile which	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.		Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a result of this airspace design option.	changes to ecological impacts compared to the baseline as	this track is much longer that	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP3 and DP0 See DP3 an	See DP2 and DP4 DP7, DP	Option not expected to affect defence and security objectives
RWY 23 Arrival Option B	Option is not separated from the GLA/EDI buffer fo when EDI on Easterly operations and GLA on Westerly operations. The requirement for this buffe will continue to exist in a future design and it would not be possible to avoid the buffer with this option Option discontinued	Use of a pure PBN arrival system is expected to degrade future operational performance. This is because of the inability of ATC to provide the exact amount of spacing to the runway between pairs which is likely to lead to inefficiences as well as an increase in ground and airborne holding during peak times. Option is not expected to meet the forecast demand for air transport.	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	Use of a pure PBN arrival system in expected to increase airborne holding. This is because ATC would lose the flexibility to adjust the spacing once the aircraft have left the stacks. They would also be more likely to provide increased spacing between arriving pairs as they can't manage catch up situations with speed control alon but will routinely require vectors	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%	Option is expected to remain with 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	extended centreline within	Use of fixed PBN arrival routes does not share the noise more equitably.	This option does not include mechanisms to provide predicatble respite from noise	of noise sensitive areas and buildings, national parks,	outside the existing main arrival swathe and will therefore result in an increase in frequency of overflight of areas that are		Longer track miles will mean more dela and less flexibility. Use of PBN transitions alone is likely to reduce	reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of	to a reduction in infringements because use of pure PBN arrivals to RWY23 would confirm a profile which could raise the base of CTA1	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.	EDI/GLA buffer, this would result in a sub-optimal profile for either GLA	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a result of this airspace design option.	changes to ecological impacts compared to the baseline as	this track is much longer that	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP3 an	See DP2 and DP4 DP7, DP	Option not expected to affect defence and security objectives
	No safety concerns identified as a standalone option unless use of PBN arrival routes are used in rotation to provide respite. In which case the chances of the chances of human error (aircraft flying the wrong arrival, or ATC thinking the otherroute is in use) will exist. At this point, this assessment assumes the routes are used as single routes, not as part of an alternating system. (Note: some arrivals experience GPWS alerts whilst establishing on final approach. It is thought that use of a PBN arrival may help alleviate these alerts and further enhance safety)	e Use of a pure PBN arrival system is expected to degrade future operational performance. This is because of the inability of ATC to provide theexact amount of spacing to the runway between pairs which is likely to lead to inefficiences as well as an increase in ground and airborne holding during peak times	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	spacing once the aircraft have lef	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%	25% of the number of people	Option is expected to have no change to the frequency of overflight for those under the extended centreline within 5nm of the runway	Use of fixed PBN arrival routes does not share the	This option does not include mechanisms to provide predicatble respite from	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft	increase in frequency of overflight of areas that are	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Use of PBN transitions alone is likely to reduce controller workload in one regard but also increase in another as airborne and ground holding would ncrease as a result of less accurate fin approach spacing. This option would require a re-design of the ILS to move the FAF closer or move the PBN path slightly further east. Need to ascertain the existing requirement that GLA ATC have to apply to vectoring of arrivals reference the Campsie Line would remain with a PBN route. This route above c.5000ft will need re-aligning to avoid the EDI/GLA buffer	Option may contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	Option is likely to contribute to a reduction in infringements because use of pure PBN arrivals to RWY23 would confirm a profile which could raise the base of CTA1 which is where 55% of Glasgow's reported infringments occurred.	suggest option is not, or cannot be, compatible with	Subject to the route being very slightly amended above c.5000ft to remain clear of EDI/GLA buffer this would also ensure it remains laterally and vertically deconflicted from EDI RWY24 departures. So long as those EDI departures can climb continuously to at least FL100, this would enable CDA for GLA RWY 23 arrivals from FL90.Current information from NERL and EDI suggests that continuous climb to FL100 is likely	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or pogative) as a	expected to result in any changes to ecological impacts compared to the baseline as	overall aircraft emissions a these tracks are longer that	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 an	See DP2 and DP4 DP7, DP	Option not expected to affect defence and security objectives
RWY 23 Arrival Option D	No safety concerns identified as a standalone option unless use of PBN arrival routes are used in rotation to provide respite. In which case the chances of the chances of human error (aircraft flying the wrong arrival, or ATC thinking the otherroute is in use) will exist. At this point, this assessment assumes the routes are used as single routes, not as part of an alternating system. (Note: some arrivals experience GPWS alerts whilst establishing on final approach. It is thought that use of a PBN arrival may help alleviate these alerts and further enhance safety)	e expected to degrade future operational performance. This is because of the inability of ATC to provide the exact amount of spacing to the runway between pairs which is likely to lead to inefficiences as well as an increase in ground and airborne holding during peak times. Option is not expected to meet the forecast	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	Use of a pure PBN arrival system i expected to increase airborne holding. This is because ATC woul lose the flexibility to adjust the spacing once the aircraft have lef the stacks. They would also be more likely to provide increased spacing between arriving pairs as they can't manage catch up situations with speed control alon but will routinely require vectors	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%	the state of the s	overflight for those under the	routes does not share the	mechanisms to provide predicatble respite from	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft	therefore not result in an increase in frequency of overflight of areas that are	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Use of PBN transitions alone is likely to reduce controller workload in one regard but also increase in another as airborne and ground holding would ncrease as a result of less accurate fin approach spacing. This option would require a re-design of the ILS to move the FAF closer or move the PBN path slightly further east. Need to ascertain the existing requirement that GLA ATC have to apply to vectoring of arrivals reference the Campsie Line would remain with a PBN route. This route above c.5000ft will need re-aligning to avoid the EDI/GLA buffer	Option may contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	infringements because use of pure PBN arrivals to RWY23	No feedback to date to suggest option is not, or cannot be, compatible with	laterally and vertically deconflicted from EDI RWY24 departures. So long as those EDI departures can climb continuously to at least	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality	The airspace design is not expected to result in any changes to ecological impacts compared to the baseline as	closley replicates where the	facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 an	See DP2 and DP4 DP7, DP	Option not expected to affect defence and security objectives
RWY 23 Arrival Option E	No safety concerns identified as a standalone option unless use of PBN arrival routes are used in rotation to provide respite. In which case the chances of the chances of human error (aircraft flying the wrong arrival, or ATC thinking the otherroute is in use) will exist. At this point, this assessment assumes the routes are used as single routes, not as part of an alternating system. (Note: some arrivals experience GPWS alerts whilst establishing on final approach. It is thought that use of a PBN arrival may help alleviate these alerts and further enhance safety)	expected to degrade future operational performance. This is because of the inability of ATC to provide the exact amount of spacing to the runway between pairs which is likely to lead to inefficiences as well as an increase in ground and airborne holding during peak times. Option is not expected to meet the forecast	The design option could be contained within the existing CAS volume and also offers potential to reduce the total	Use of a pure PBN arrival system in expected to increase airborne holding. This is because ATC would lose the flexibility to adjust the spacing once the aircraft have left he stacks. They would also be more likely to provide increased spacing between arriving pairs as they can't manage catch up situations with speed control alon but will routinely require vectors	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%	Option is expected to remain with 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	in change to the frequency of overflight for those under the extended centreline within 5nm of the runway	Use of fixed PBN arrival routes does not share the noise more equitably.	This option does not include mechanisms to provide predicatble respite from	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft	increase in frequency of overflight of areas that are less frequently overflown	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Use of PBN transitions alone is likely to reduce controller workload in one regard but also increase in another as airborne and ground holding would ncrease as a result of less accurate fin approach spacing. This option would require a re-design of the ILS to move the FAF closer or move the PBN path slightly further east. Need to ascertain the existing requirement that GLA ATC have to apply to vectoring of arrivals reference the Campsie Line would remain with a PBN route. This route above c.5000ft will need re-aligning to avoid the EDI/GLA buffer	Option may contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	Option is likely to contribute to a reduction in infringements because use of pure PBN arrivals to RWY23 would confirm a profile which could raise the base of CTA1 which is where 55% of Glasgow's reported infringments occurred.	No feedback to date to suggest option is not, or cannot be, compatible with	Subject to the route being very slightly amended above c.5000ft to remain clear of EDI/GLA buffer this would also ensure it remains laterally and vertically deconflicted from EDI RWY24 departures. So long as those EDI departures can climb continuously to at least FL100, this would enable CDA for GLA RWY 23 arrivals from FL90.Current information from NERL and EDI suggests that continuous climb to FL100 is likely	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a	changes to ecological impacts compared to the baseline as	these tracks are longer that	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP3 and DP0 See DP3 an	See DP2 and DP4 DP7, DP	Option not expected to affect defence and security objectives
RWY 23 Arrival Option F	Option is not separated from the GLA/EDI buffer fo when EDI on Easterly operations and GLA on Westerly operations. The requirement for this buffe will continue to exist in a future design and it would not be possible to avoid the buffer with this option Option discontinued	Use of a pure PBN arrival system is expected to degrade future operational performance. This is because of the inability of ATC to provide the exact amount of spacing to the runway between pairs which is likely to lead to inefficiences as well as an increase in ground and airborne holding during peak times. Option is not expected to meet the forecast demand for air transport.	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	Use of a pure PBN arrival system i expected to increase airborne holding. This is because ATC woul lose the flexibility to adjust the spacing once the aircraft have lef the stacks. They would also be more likely to provide increased spacing between arriving pairs as they can't manage catch up situations with speed control alon but will routinely require vectors	Option is expected to reduce the number of people overflown below 4000ft (centreline to centreline) by more than 25%	Option is expected to remain with 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	in change to the frequency of overflight for those under the extended centreline within 5nm of the runway	Use of fixed PBN arrival routes does not share the noise more equitably.	This option does not include mechanisms to provide predicatble respite from noise	Option reduces the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft	outside the existing main arrival swathe and will therefore result in an increase in frequency of overflight of areas that are	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Not separated from the GLA/EDI buffer for when EDI on Easterly operations. Longer track miles will mean more delay and less flexibility. Use of PBN transitions alone is likely to reduce controller workload in one regard bursalso increase in another as airborne are ground holding would increase as a result of less accurate final approach spacing.	reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of	infringements because use of pure PBN arrivals to RWY23	No feedback to date to suggest option is not, or cannot be, compatible with the wider FASI North programme.	a sub-optimal profile for either GLA	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a result of this airspace design option.	changes to ecological impacts compared to the baseline as	Option has potential to contribute to an increase in overall aircraft emissions a this track is much longer that the typical arrival track flow today.	PBN arrival routes would facilitate improved CDO performance	Option can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 and DP9	See DP2 DP7, DP	Option not expected to affect defence and security objectives
RWY23 Arrival Vectors only	No safety concerns identified as this matches the existing concept of operation. Whilst vectors are safe, today some aircraft can receive GPWS alerts triggered by a high rate of descent; this option woul not enhance safety through availability of a PBN arrival which may offer opportunities to alleviate these alerts.	Option is expected to cater for Id Glasgow's forecast demand for ai transport	The design option could be contained within the existing CAS volume and also offers potential to reduce the total volume of CAS	Option is not expected to affect ground or airborne holding	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline)	Option is expected to remain with 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	Option is expected to have not change to the frequency of overflight for those under the extended centreline within 5nm of the runway	Option doesn't see the use of multiple routes to share nois however routine vectoring does disperse the traffic	of This option does not include se mechanisms to provide predicatble respite from	Option does not affect the number of noise sensitive areas and buildings, national parks, areas of outstanding natural beauty/National Scenic Areas overflown below 7000ft	increase in frequency of overflight of areas that are less frequently overflown	N/A - the mitigation is provided through SIDs with track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into Glasgow will be investigated however, the ILS will have to remain at 3.0°	Option is likely to stay the same in tern of level of complexity for GLA ATC insid CAS	Option may contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of CAS	Option is likely to contribute to a reduction in infringements because even with continued reliance on vectors, it currently looks feasible to raise the base of CTA1 in some areas.	The option may not be compatible with NERL only if they were to take forward Point Merge as a concept	So long as those EDI departures car climb continuously to at least FL100, this would enable CDA for GLA RWY 23 arrivals from FL90.Current information from NERL and EDI suggests that continuous climb to FL100 is likely	Since this option has no change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a result of this airspace design option.	compared to the baseline as	Option is likely to maintair existing levels of emissions	Option is unlikely to affect CCO/CDO performance	N/A, there's no PBN specification with vectoring	See DP1 and DP9 DP9	See DP2 and DP4 DP7, DP ar	DP4, D5, DP6, 8, DP11, DP12 nd DP13 Option not expected to affect defence and security objectives
RWY 23 Arrival Vectors and PBN hybrid	No safety concerns identified at this stage. (Note: some arrivals experience GPWS alerts whilst establishing on final approach. It is thought that use of a PBN arrival may help alleviate these alerts and further enhance safety)	Option is expected to cater for Glasgow's forecast demand for ai transport and is expected to enhance Glasgow's operational performance in the future. This is because ATC can use the PBN arrivals when traffic levels are low and this will also facilitate the use of combined Tower and Approace services (Radar In Tower)	potential to reduce the total volume of CAS	Option is not expected to affect ground or airborne holding	Option is expected to remain within 25% of the number of people overflown below 4000ft (centreline to centreline)	Option is expected to remain with 25% of the number of people within the 65dBLAmax contour (from a typical aircraft overflight)	in Change to the frequency of overflight for those under the extended centreline within 5nm of the runway	Vectoring of arrivals is a mechanism which shares noise more equitably. However, having PBN arrival routes available is likely to result in increased concentration compared to today.	It may be possible to stipulate that PBN arrivals are mandated during the night which would provide predicatble respite to those communities not under those routes.	areas and buildings, national parks, areas of outstanding natural beauty/National		track adjustments. For arrivals, the ability for a Steeper RNP APCH arrival into	Option is likely to contribute to a reduction in complexity for GLA ATC nside CAS because this option still relic on vectors but ATC can also have the benefit from PBN arrivals to reduce their workload when the situation permits. Either PBN route C, D or E would preferred subject to FAF distances, Campsie Line investigation and re-alignment of routes above c.5000ft to avoid EDI/GLA buffer	Option may contribute to a reduction in bottlenecks outside CAS because this option can be contained within existing CAS whilst offering opportunity to reduce the total volume of	Option is likely to contribute to a reduction in infringements because even with continued reliance on vectors, it currently looks feasible to raise the base of CTA1 in some areas.	suggest option is not, or cannot be, compatible with the wider FASI North	Subject to either Option C, D or E being slightly amended above c.5000ft to avoid GLA/EDI buffer this would enable CDA for GLA RW 23 arrivals from FL90 so long as ED departures can climb continuously to at least FL100. Current information from NERL and EDI suggests that continuous climb to FL100 is likely	change to how aircraft fly below 1,000ft compared to today, there are likely to be no changes to local air quality (positive or negative) as a result of this airspace design	The airspace design is not expected to result in any changes to ecological impacts compared to the baseline as no change below 2000ft	Option is likely to maintair existing levels of emissions	PBN arrival routes would facilitate improved CDO performance	The PBN arrival transitions can be designed to at least an RNAV1 specification although is of RNP+RF may deliver benefit	See DP1 and DP9 See DP3 and DP9	See DP2 and DP4 See DP2 and DP4 ar	DP4, D5, DP6, 8, DP11, DP12 nd DP13 Option not expected to affect defence and security objectives