# Future Airspace Strategy Implementation South (FASI-S) Bristol Airport

Gateway documentation:

Stage 2 Develop & Assess

Step 2B Options Appraisal (Phase 1 Initial) including Safety Considerations





### Sign-Off

Action	Role	Date
Produced	Airspace Change Specialist	28/01/2022
Reviewed Approved	Bristol General Manager	28/01/2022
Reviewed Approved	Bristol Head of Airside Operations and Safety	28/01/2022

### Publication History

Issue	Date	Comments
Issue 1.0	28/01/2022	First issue submitted to the CAA

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# Introduction

This document forms part of the document set required in accordance with the requirements of the CAP1616 airspace change process. It aims to provide adequate evidence to satisfy *Stage 2 Develop and Assess Gateway, Step 2B Options Appraisal Safety Assessment.* 

This document has been submitted to the CAA to satisfy the requirements for Stage 2 alongside the *Design Options* and *Design Principle Evaluation* documentation which can also be found on the portal (link).

This Initial Options Appraisal is the first of three options appraisals as part of CAP1616. The design options presented herein all passed the required criteria of the *Stage 2 – Step 2A Design Principle Evaluation*.

This Initial Options Appraisal builds on the Design Principle evaluation and identifies the key impacted audiences of the design options and a qualitative assessment of each. This assessment takes into consideration feedback received from stakeholders during the Stage 2 engagement activities alongside operational knowledge of the ACP design team.

The changes in this ACP impact flights below 7,000ft – including arrival and departure routes to/ from Bristol Airport - and has consequently been categorised as a Level 1 change. In line with the requirements for a Level 1 change, this Initial Options Appraisal contains a qualitative environmental impact assessment which has been conducted on the basic of  $CO_2$  emissions and noise impact.

The baseline (do nothing) option would not deliver any improvement or modernisation from today's operations and is used as the benchmark against which the benefits of the proposed change can be measured. The Design Principles are either not met or met by default for this option, i.e., 'no change'. As such, this option is not being progressed.

The detailed makeup of the baseline option and the Hold/ SID options, including evaluation is detailed in Stage 2 Develop and Assess: *Step 2A(i) Design Options* and *Step 2A(ii) Design Principle Evaluation*.

Following on from the Design Principle Evaluation, Bristol Airport is progressing the following different design options which form the focus of this Initial Options Appraisal:

- 4 options for a Hold
- 14 options for Runway 09 SIDs
- 13 options for Runway 27 SIDs

### Hold Options Hold A



Group	Impact
Communities	Noise impact on health and quality of life
	should avoid overflying any large populations however, may overfly a small (new) quantity of ground-based Bristol Airport. This can be minimised through PBN routing. Whilst transitions to Runway 09 should mainly occur
Communities	Air quality
Arriving aircraft will still de	es that aircraft flying above 1,000ft are unlikely to have a significant impact on local quality. scend through 1,000ft on final approach, between 2 and 4 nautical miles (about 4-7km) from touchdown at either close to landing, in the very final stages of the approach, and is no change from today.
Wider society	Greenhouse gas impact
location therefore no super	s Hold is close to the airport. Fuel planning does not have to take into account additional track miles due to the rfluous environmental impact. Net increase in CO2 emissions would be small as holding will not be employed for equired for reasons such as delay absorption, or bad weather conditions).
Wider society	Capacity/ resilience
departure routes but can b connectivity from the netw	verhead thus enabling more use of continuous climb operations (CCO) for departures. Cross-over with potential e managed through vertical profile restrictions and/or tactically. Well positioned for Bristol arrivals and vork. ork required to ensure required Hold levels can be obtained due to busy network traffic.
General Aviation	Access
Minimum new Controlled A	Airspace (CAS) required: lower base level of Control Area (CTA) needed south of the Hold to accommodate the lowest level would be around 5,500ft so minimal impact on GA.
General Aviation/ commerce airlines	cial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commer airlines	cial Fuel Burn
	s Hold is close to the airport. Fuel planning therefore does not have to take into account additional track miles due se in GA routings expected.
Commercial airlines	Training costs
	ures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are f	oreseen.
Airport/ ANSP	Infrastructure costs
	ted to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some Iments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expect	ted to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator faci operation.	to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use lities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reporte operational controllers dur service delivery.	to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs d etc. Some staff may only require briefings. There may be occasions where the reduced availability of ing their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation wil	d also require updating

#### Hold B



Group	Impact
Communities	Noise impact on health and quality of life
Transitions would not overfly a minimise overflying population	any large populations with arrivals to Runway 09 partially overflying the water. PBN routing will be used to n centres.
Communities	Air quality
Arriving aircraft will still desce	hat aircraft flying above 1,000ft are unlikely to have a significant impact on local quality. nd through 1,000ft on final approach, between 2 and 4 nautical miles (about 4-7km) from touchdown at either se to landing, in the very final stages of the approach, and is no change from today.
Wider society	Greenhouse gas impact
location therefore no superflue	old is close to the airport. Fuel planning does not have to take into account additional track miles due to the ous environmental impact. Net increase in CO2 emissions would be small as holding will not be employed for red for reasons such as delay absorption, or bad weather conditions).
Wider society	Capacity/ resilience
Removes Hold from the overh	ead thus enabling more use of continuous climb operations (CCO) for departures.
General Aviation	Access
Small amount of new CAS req minimal impact on GA.	uired for containment of a Hold in this location. Expectation that the lowest level would be around 6,500ft so
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
	old is close to the airport. Fuel planning therefore does not have to take into account additional track miles due se in GA routings expected, at medium levels only.
Commercial airlines	Training costs
	change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fores	seen.
Airport/ ANSP	Infrastructure costs
	to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some ents (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected	to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilities operation.	equire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use s at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported et	un the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs cc. Some staff may only require briefings. There may be occasions where the reduced availabilty of their conversion training could mean operational rostering becomes a factor when considering continuous





Group	Impact
Communities	Noise impact on health and quality of life
Transitions would not overfly an minimise overflying population of	y large populations with arrivals to Runway 09 partially overflying the water. PBN routing will be used to entres.
Communities	Air quality
Arriving aircraft will still descend	at aircraft flying above 1,000ft are unlikely to have a significant impact on local quality. through 1,000ft on final approach, between 2 and 4 nautical miles (about 4-7km) from touchdown at either to landing, in the very final stages of the approach, and is no change from today.
Wider society	Greenhouse gas impact
when compared to other design	ghts are from the south, the Transition from Hold C to Runway 27 would increase the environmental impact options. Net increase in CO <sub>2</sub> emissions would be small as holding will not be employed for most arrivals such as delay absorption, or technical troubleshooting).
Wider society	Capacity/ resilience
	d thus enabling more use of continuous climb operations (CCO) for departures. ainment. Capacity could be constrained due to length of transition to Runway 27. Also situated within a very
General Aviation	Access
Small extension of CAS required minimal impact on GA.	to accommodate a Hold in this location. Expectation that the lowest level would be around 6,500ft so
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
	n for a large proportion of arrivals from the south. However, fuel planning would have to take into account the when compared to other options) which would increase fuel burn for airlines. cted.
Commercial airlines	Training costs
	hange worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if ticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are foresed	en.
Airport/ ANSP	Infrastructure costs
	change airport or ANSP infrastructure, beyond the initial deployment phase which would require some s (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected to	change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilities a operation.	uire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use at both locations. Training may also be required at Cardiff Airport if design changes impact upon their the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs
to be recorded and reported etc. operational controllers during the service delivery.	Some staff may only require briefings. There may be occasions where the reduced availability of eir conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation will also	require updating.

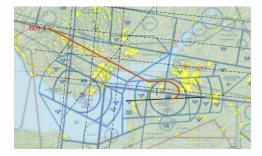


#### Hold F

Group	Impact
Communities	Noise impact on health and quality of life
Transitions may overfly new	populations, albeit not huge numbers of people. PBN routing will be used to minimise impact.
Communities	Air quality
Government guidance state	s that aircraft flying above 1,000ft are unlikely to have a significant impact on local quality.
	cend through 1,000ft on final approach, between 2 and 4 nautical miles (about 4-7km) from touchdown at either ose to landing, in the very final stages of the approach, and is no change from today.
Wider society	Greenhouse gas impact
to take into account addition	Hold is close to the airport and the majority of arrivals are from the south and east. Fuel planning does not have hal track miles due to the location therefore no superfluous environmental impact. Net increase in CO <sub>2</sub> emissions ill not be employed for most arrivals (only when required for reasons such as delay absorption, or technical
Wider society	Capacity/ resilience
Geographically well suited for	rhead thus enabling more use of continuous climb operations (CCO) for departures. or Bristol arrivals and connectivity from the network. containment – more than Hold B or Hold C.
General Aviation	Access
New CAS required to accom minimal.	odate a Hold in this location but base level expected to be around 6,500ft. Impact on GA therefore expected to be
General Aviation/ commerci airlines	al Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commerci airlines	al Fuel Burn
not have to take into accour	Hold is close to the airport and the majority of arrivals are from the south and east. Fuel planning therefore does at additional track miles due to Hold location.
-	is expected, at medium levels only.
Commercial airlines	Training costs
	es change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if ot anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are for	reseen.
Airport/ ANSP	Infrastructure costs
	d to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some nents (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expecte	d to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilit operation. Support staff are required to to be recorded and reported	e require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use ties at both locations. Training may also be required at Cardiff Airport if design changes impact upon their o run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs etc. Some staff may only require briefings. There may be occasions where the reduced availability of ig their conversion training could mean operational rostering becomes a factor when considering continuous

# Runway 09 SID Options

Runway 09 SID: B09-1 (north-west departure)



Group	Impact
Communities	Noise impact on health and quality of life
Some of the climb will be ove central Bristol.	er the Channel. It turns earlier than the current SID which could reduce the population overflown by avoiding
Any re-alignment from the cu	urrent NPR could overfly new communities closer to the airport.
Communities	Air quality
Departing aircraft will still clin runway. However, there may	s that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. mb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the be a slight re-alignment of the current Noise Preferential Routes (NPR) to achieve the requirement of reduced s, subject to further design work.
Wider society	Greenhouse gas impact
More direct route than the cu Should also allow CCOs.	urrent departure therefore, reducing greenhouse gas impact.
Wider society	Capacity/ resilience
splits from other east and no	mpared to the current procedure and well positioned for network connectivity. Anticipated to support 1-minute orthbound departures. ed for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to contair may require lowering part of	n SID within existing CAS therefore minimal impact. However, the early turn to minimise population overflown CTA7.
General Aviation/ commercia airlines	al Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercia airlines	al Fuel Burn
Shorter and more direct route track miles.	e will result in modest savings for commercial traffic. Airline fuel planning would take in account a reduction in
Commercial airlines	Training costs
	es change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if ot anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are for	eseen.
Airport/ ANSP	Infrastructure costs
	d to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some nents (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected	d to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use ies at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported operational controllers during service delivery.	run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs etc. Some staff may only require briefings. There may be occasions where the reduced availability of g their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation will a	aiso require updating.

#### Runway 09 SID: B09-1A (alternate north-west departure)



Group	Impact
Communities	Noise impact on health and quality of life
overfly the Mendip AoN	e over the Channel. The right turn from Runway 09 would completely avoid overflying Bristol City. However, it would B. he current NPR could overfly new communities.
Communities	
	Air quality
Departing aircraft will st	tates that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. ill climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals n work.
Wider society	Greenhouse gas impact
A direct route to the nor Should also allow CCOs	th-west from Runway 09 therefore minimal environmental impact.
Wider society	Capacity/ resilience
	ork connectivity. Anticipated to support 1-minute splits from other east and northbound departures. Offers a SID B09-1 to provide respite.
All SID options will be ex	plored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to co	ntain SID within existing CAS therefore minimal impact.
General Aviation/ comm airlines	nercial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ comm airlines	nercial Fuel Burn
Direct route will minimis	e fuel burn. Airline fuel planning would take into account a reduction in track miles.
Commercial airlines	Training costs
	edures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs ar	e foreseen.
Airport/ ANSP	Infrastructure costs
	ected to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some endments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not exp	ected to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator fa	ed to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use acilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and repo operational controllers of service delivery.	ed to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs rted etc. Some staff may only require briefings. There may be occasions where the reduced availabilty of during their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation	will also require undating

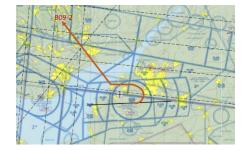


#### Runway 09 SID: B09-1B

(alternate left turn north-west departure)

Group	Impact
Communities	Noise impact on health and quality of life
Some of the climb will be over the	e Channel and avoids overflying Bristol City centre.
Any re-alignment from the curren	t NPR could overfly new communities.
Communities	Air quality
Departing aircraft will still climb t	t aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. hrough 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals,
Wider society	Greenhouse gas impact
Longer track distance than B09-1	therefore increased environmental impact.
Wider society	Capacity/ resilience
	09-1 for low performance aircraft. Anticipated to support 1-minute splits from southbound departures. r suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to contain SID	within existing CAS therefore minimal impact.
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
A longer track distance than B09- miles.	-1 will result in an increase in fuel burn. Airline fuel planning would take into account an increase in track
Commercial airlines	Training costs
	ange worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if ticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are foresee	n.
Airport/ ANSP	Infrastructure costs
	change airport or ANSP infrastructure, beyond the initial deployment phase which would require some s (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected to o	change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilities a operation.	ire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use t both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported etc. operational controllers during the service delivery.	the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs Some staff may only require briefings. There may be occasions where the reduced availability of ir conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation will also	equire updating.

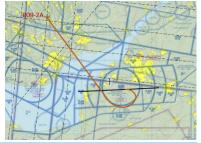
### Runway 09 SID: B09-2 (left turn north-west departure)



Group	Impact
Communities	Noise impact on health and quality of life
Some of the climb will be over the	e Channel and avoids overflying Bristol City centre.
Any re-alignment from the curre	nt NPR could overfly new communities.
Communities	Air quality
Departing aircraft will still climb	at aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals,
Wider society	Greenhouse gas impact
More direct route than the curre Should also allow CCOs.	nt departure therefore, reducing its greenhouse gas impact.
Wider society	Capacity/ resilience
	pated to support 1-minute splits from other southbound and possibly eastbound departures. or suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to contain SI CTA7.	O within existing CAS. However, an early turn to minimise population oveflown may result in lowering part of
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Direct route will minimise fuel be	urn. Airline fuel planning would take into account a reduction in track miles.
Commercial airlines	Training costs
	hange worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if nticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are forese	en.
Airport/ ANSP	Infrastructure costs
	change airport or ANSP infrastructure, beyond the initial deployment phase which would require some ts (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected to	change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	uire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported etc.	the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs Some staff may only require briefings. There may be occasions where the reduced availability of eir conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation will also	require updating.

### Runway 09 SID: B09-2A

(alternate right turn north-west departure)



Group	Impact
Communities	Noise impact on health and quality of life
Some of the climb will be c overfly the Mendip AoNB.	over the Channel. The right turn from Runway 09 would completely avoid overflying Bristol City. However, it would
Any re-alignment from the	current NPR could overfly new communities.
Communities	Air quality
Departing aircraft will still o	tes that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. Climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the ay be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, York.
Wider society	Greenhouse gas impact
Longer route than some of	the other options to the north-west therefore an increased environmental impact.
Wider society	Capacity/ resilience
Should support 1-minute s alternative to SID B09-2	plits from other east and northbound departures. Good connectivity to the network. Potentially a respite
All SID options will be explo	pred for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to conta	ain SID within existing CAS.
General Aviation/ commer airlines	cial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commer airlines	cial Fuel Burn
Longer route than some of account an increase in trac	the other options to the north-west therefore an increase in fuel burn. Airline fuel planning would take into ck miles.
Commercial airlines	Training costs
	ures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are f	oreseen.
Airport/ ANSP	Infrastructure costs
	ted to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some dments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expect	ted to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
This proposal is expected t of the NATS simulator faci operation. Support staff are required to be recorded and reporte operational controllers dur	to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use lities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs d etc. Some staff may only require briefings. There may be occasions where the reduced availability of ing their conversion training could mean operational rostering becomes a factor when considering continuous
service delivery. Internal documentation wil	Il also require undating

### Runway 09 SID: B09-2B

(alternate left turn north-west departure)



Group	Impact
Communities	Noise impact on health and quality of life
	e Channel. The left turn from Runway 09 would avoid overflying Bristol City centre. nt NPR could overfly new communities.
Communities	Air quality
Departing aircraft will still climb	at aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. Through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals,
Wider society	Greenhouse gas impact
Longer route than the other optic	ons to the north-west therefore an increased environmental impact.
Wider society	Capacity/ resilience
Should be suitable for low perfor All SID options will be explored for	mance aircraft. or suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to contain SI	) within existing CAS.
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Longer route than the other optic increase in track miles.	ons to the north-west therefore an increase in fuel burn. Airline fuel planning would take into account an
Commercial airlines	Training costs
	nange worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if ticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are foresed	en.
Airport/ ANSP	Infrastructure costs
	change airport or ANSP infrastructure, beyond the initial deployment phase which would require some s (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected to	change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilities a operation. Support staff are required to run to be recorded and reported etc.	uire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use at both locations. Training may also be required at Cardiff Airport if design changes impact upon their the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs Some staff may only require briefings. There may be occasions where the reduced availability of eir conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation will also	require updating.

### Runway 09 SID: B09-5B



Group	Impact
Communities	Noise impact on health and quality of life
	Bristol. Could potentially be used as a respite route.
Any re-alignment from the o	current NPR could overfly new communities.
Communities	Air quality
-	es that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality.
	limb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the y be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals ork.
Wider society	Greenhouse gas impact
Less direct and longer track	< distance than B09-5C therefore an increased environmental impact.
Wider society	Capacity/ resilience
height requirements.	ivity to the network. Suitable for low performance aircraft providing greater track distance to achieve network
Formalises what is currentl	•
	red for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
-	in SID within existing CAS therefore minimal impact.
General Aviation/ commerc airlines	ial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commerc airlines	ial Fuel Burn
Less direct and longer track increase in track miles.	k distance than B09-5C therefore an increase in fuel burn. Airline fuel planning would take into account an
Commercial airlines	Training costs
	res change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fo	preseen.
Airport/ ANSP	Infrastructure costs
	ed to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some ments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expect	ed to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	o require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use ities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
Support staff are required t to be recorded and reported	o run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs d etc. Some staff may only require briefings. There may be occasions where the reduced availabilty of ng their conversion training could mean operational rostering becomes a factor when considering continuous
Internal decumentation will	also require updating.

### Runway 09 SID: B09-5C

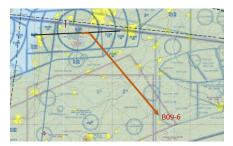
All and a second second

(north-east departure)	
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Group	Impact
Communities	Noise impact on health and quality of life
Precisely positioned to mi	nimise population overflown (subjcet to detailed design).
Any re-alignment from the	current NPR could overfly new communities closer to the airport.
Communities	Air quality
Departing aircraft will still	tes that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the ay be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals vork.
Wider society	Greenhouse gas impact
Direct departure route and	I shorter than current route.
However, speed restriction	ns may be required to achieve network height requirements which could increase emissions.
Wider society	Capacity/ resilience
Well positioned for connect	ctivity to the network. Suitable for high performance aircraft.
	tly a tactical route (today's NPR).
· · · · · · · · · · · · · · · · · · ·	ored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to cont	ain SID within existing CAS therefore minimal impact.
General Aviation/ comme airlines	rcial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ comme airlines	rcial Fuel Burn
Direct departure route and	shorter than current route. Should achieve continuous climbs.
However, network speed r take account of this).	estrictions may be required to achieve climb which could increase fuel burn (airline fuel planning would have to
Commercial airlines	Training costs
	ures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are	foreseen.
Airport/ ANSP	Infrastructure costs
	ted to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some dments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expec	ted to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with us ilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reporte operational controllers du service delivery.	to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs ed etc. Some staff may only require briefings. There may be occasions where the reduced availabilty of ring their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation w	ill also require updating.

### Runway 09 SID: B09-6

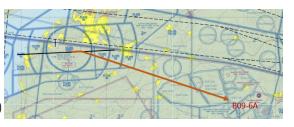
(south-east departure for first rotation traffic)



Group	Impact
Communities	Noise impact on health and quality of life
New route intended only for so	me early morning departures. Does not overfly any heavily populated areas.
Communities	Air quality
Departing aircraft will still clim	hat aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. b through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the e a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals,
Wider society	Greenhouse gas impact
When in use, this route will pro	vide good greenhouse gas/ fuel burn savings from reduced track mileage (more direct than today).
Wider society	Capacity/ resilience
network connectivity (further w	eparture delay during first rotation (a known high demand period). However, it would not comply with current vork required). Potential to achieve reduced departure separation from north and eastbound departures. for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
This SID will require change of military operations should be r	classification of airspace but limited to early morning periods (e.g. before 08.30) so impact on GA access or ninimal.
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter and more direct route would take into account a redu	will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning Iction in track miles.
Commercial airlines	Training costs
	change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fores	een.
Airport/ ANSP	Infrastructure costs
	to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some nts (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected t	o change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilities operation.	quire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use s at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported et	In the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs c. Some staff may only require briefings. There may be occasions where the reduced availability of their conversion training could mean operational rostering becomes a factor when considering continuous
	o i cyuii ci upualing.

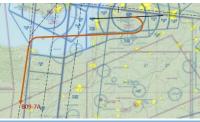
### Runway 09 SID: B09-6A

(alternate south-east departure for first rotation traffic)



Group	Impact
Communities	Noise impact on health and quality of life
New route intended only fo	r some early morning departures. Does not overfly any heavily populated areas.
Communities	Air quality
Departing aircraft will still c	es that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. limb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the ay be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, ork.
Wider society	Greenhouse gas impact
When in use, this route will	provide good greenhouse gas/ fuel burn savings from reduced track mileage (more direct than today).
Wider society	Capacity/ resilience
network connectivity (furth	re-departure delay during first rotation (a known high demand period). However, it would not comply with current er work required). Achieving reduced departure separation from east or southbound traffic will depend upon NPR III be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
This SID will require change should be low.	e of classification of airspace but limited to early morning periods (e.g. before 08.30) so impact on GA access
General Aviation/ commerce airlines	cial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commerc airlines	cial Fuel Burn
Shorter and more direct rou would take into account a r	ute will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning reduction in track miles.
Commercial airlines	Training costs
	rres change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fo	preseen.
Airport/ ANSP	Infrastructure costs
	ed to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some Iments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expect	ed to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	o require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use ities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported operational controllers duri service delivery.	to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs d etc. Some staff may only require briefings. There may be occasions where the reduced availability of ng their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation will	i also require updating.

### Runway 09 SID: B09-7A



Group	Impact
Communities	Noise impact on health and quality of life
Does not overfly any he	avily populated areas however, overflies the Mendip AoNB.
Any re-alignment from t	he current NPR could overfly new communities.
Communities	Air quality
Departing aircraft will st	states that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. A cill climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, on work.
Wider society	Greenhouse gas impact
This route should allow	CCOs depending on cross-over with the inbound Transition.
Wider society	Capacity/ resilience
Well positioned for con	
	plored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
	rmanent CAS which could impact GA operations (gliding site in this region).
General Aviation/ comn airlines	nercial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ comm airlines	nercial Fuel Burn
Shorter and more direct track miles.	route will result in good savings for commercial traffic. Airline fuel planning would take into account a reduction in
Commercial airlines	Training costs
	edures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs a	re foreseen.
Airport/ ANSP	Infrastructure costs
	ected to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some endments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not exp	ected to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	ed to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use acilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and repo operational controllers service delivery.	ed to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs rted etc. Some staff may only require briefings. There may be occasions where the reduced availability of during their conversion training could mean operational rostering becomes a factor when considering continuous will also require updating.

### Runway 09 SID: B09-7B

(alternate southern departure)



Group	Impact
Communities	Noise impact on health and quality of life
Does not overfly any heavily pop	ulated areas however, overflies the Mendip AoNB.
Any re-alignment from the curre	nt NPR could overfly new communities.
Communities	Air quality
Departing aircraft will still climb	at aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals
Wider society	Greenhouse gas impact
This route should also CCOs dep	pending on cross-over with inbound Transition.
Wider society	Capacity/ resilience
Should support 1-minute splits f	rom north or eastbound departures.
Well positioned for connectivity	
	or suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Likely to require new permanent	CAS which could impact GA operations (gliding site in this region).
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter and more direct route wi track miles.	Il result in good savings for commercial traffic. Airline fuel planning would take into account a reduction in
Commercial airlines	Training costs
	hange worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if nticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are forese	en.
Airport/ ANSP	Infrastructure costs
	change airport or ANSP infrastructure, beyond the initial deployment phase which would require some s (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected to	change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	uire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with us at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
Support staff are required to run to be recorded and reported etc.	the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs Some staff may only require briefings. There may be occasions where the reduced availability of eir conversion training could mean operational rostering becomes a factor when considering continuous

### Runway 09 SID: B09-7C



Group	Impact
Communities	Noise impact on health and quality of life
Does not overfly any heavily po	opulated areas however, overflies the Mendip AoNB.
Any re-alignment from the cur	rent NPR could overfly new communities.
Communities	Air quality
Departing aircraft will still clim	that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. b through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the is a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals,
Wider society	Greenhouse gas impact
This route should allow CCOs	depending on cross-over with the inbound Transition.
Wider society	Capacity/ resilience
Well positioned for connectivit	s from north or eastbound departures. y to the network. I for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Likely to require new permane	nt CAS which could impact GA operations (gliding site in this region).
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter and more direct route track miles.	will result in good savings for commercial traffic. Airline fuel planning would take into account a reduction in
Commercial airlines	Training costs
	change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fores	seen.
Airport/ ANSP	Infrastructure costs
	to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some ents (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected	to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilities operation. Support staff are required to ru to be recorded and reported et	equire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use s at both locations. Training may also be required at Cardiff Airport if design changes impact upon their un the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs tc. Some staff may only require briefings. There may be occasions where the reduced availability of their conversion training could mean operational rostering becomes a factor when considering continuous
service delivery. Internal documentation will als	

### Runway 09 SID: B09-7D

(alternate southern departure)



	609-7D
Group	Impact
Communities	Noise impact on health and quality of life
	eavily populated areas however, overflies the Mendip AoNB.
Any re-alignment from	the current NPR could overfly new communities.
Communities	Air quality
Departing aircraft will s	states that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. Still climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the The may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals on work.
Wider society	Greenhouse gas impact
	an what is currently flown therefore, will provide good greenhouse gas/ fuel burn savings from reduced track mileage y). It should also allow CCOs as it is designed to be separated from the inbound Transition.
Wider society	Capacity/ resilience
	te splits from east or northbound departures.
	nectivity to the network.
All SID options will be e	explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
would be limited to abo	cant amount of new permanent CAS which could potentially impact GA or military operations. Although, this new CAS ove 4,000ft which would lessen the impact. ire more CAS than options B09-7A, B09-7B or B09-7C.
General Aviation/ comr	
airlines	
No effect on capacity.	
General Aviation/ comr airlines	mercial Fuel Burn
Shorter and more direc track miles.	t route will result in good savings for commercial traffic. Airline fuel planning would take into account a reduction in
Commercial airlines	Training costs
	cedures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if I is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs a	ire foreseen.
Airport/ ANSP	Infrastructure costs
	pected to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some nendments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not exp	pected to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	ted to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with us facilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
Support staff are requir to be recorded and repo	red to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs orted etc. Some staff may only require briefings. There may be occasions where the reduced availability of during their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation	n will also require updating.

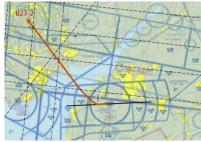
# Runway 27 SID Options

Runway 27 SID: B27-1 (north-west departure)

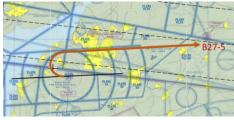


Group	Impact
Communities	Noise impact on health and quality of life
Much of the climb will be which could overfly new o	over the Channel however a small (new) population could be affected by a re-alignment from the current NPR communities.
Communities	Air quality
Departing aircraft will still	ates that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. I climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the nay be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, work.
Wider society	Greenhouse gas impact
	e current departure therefore, reducing greenhouse gas impact. subject to design separation from Cardiff procedures).
Wider society	Capacity/ resilience
separation from southbo	compared to the current procedure and well positioned for network connectivity. Should support reduced und departures. Plored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to con	tain SID within existing CAS therefore minimal impact.
General Aviation/ comme airlines	
No effect on capacity.	
General Aviation/ comme airlines	ercial Fuel Burn
Shorter and more direct r in track miles.	oute will result in fuel burn savings for commercial traffic. Airline fuel planning would take into account a reduction
Commercial airlines	Training costs
	dures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if s not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are	foreseen.
Airport/ ANSP	Infrastructure costs
	cted to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some ndments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expe	cted to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator fac operation.	to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with us cilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and report	d to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs ted etc. Some staff may only require briefings. There may be occasions where the reduced availability of uring their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation w	vill also require updating

#### Runway 27 SID: B27-2 (north-west departure, towards Brecon)



Group	Impact
Communities	Noise impact on health and quality of life
Much of the climb will be ove	r the Channel and can be aligned to avoid large population centres.
	rrent NPR could overfly new communities close to the airport.
Communities	Air quality
Departing aircraft will still clin	that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. nb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, <.
Wider society	Greenhouse gas impact
More direct route than the cu	rrent departure therefore, reducing greenhouse gas impact.
Should also allow CCOs (subj	ect to design separation from Cardiff procedures).
Wider society	Capacity/ resilience
separation from southbound	npared to the current procedure and well positioned for network connectivity. Should support reduced departures. d for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
	SID within existing CAS therefore minimal impact.
General Aviation/ commercia airlines	
No effect on capacity.	
General Aviation/ commercia airlines	l Fuel Burn
Shorter and more direct route in track miles.	e will result in fuel burn savings for commercial traffic. Airline fuel planning would take into account a reduction
Commercial airlines	Training costs
	s change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if t anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fore	rseen.
Airport/ ANSP	Infrastructure costs
	to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some ents (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected	to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator facilitie operation.	require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use as at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported e	run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs etc. Some staff may only require briefings. There may be occasions where the reduced availability of their conversion training could mean operational rostering becomes a factor when considering continuous



#### Runway 27 SID: B27-5 (eastern departure)

Group	Impact
Communities	Noise impact on health and quality of life
	route, however depending on climb requirements may be below 7,000ft above parts of Bristol City. rent NPR could overfly new communities.
Communities	Air quality
Departing aircraft will still clim	hat aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. b through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the e a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals,
Wider society	Greenhouse gas impact
More direct route than the curr Should also allow CCOs.	rent departure therefore, reducing greenhouse gas impact.
Wider society	Capacity/ resilience
climb to avoid other traffic flow southbound departures.	ork therefore reduced ATC and pilot workload compared to current procedures. However, may require step- vs and speed limits to achieve required turn performance. Should support reduced departure separation from I for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to contain S	SID within existing CAS therefore minimal impact.
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter and more direct route in track miles.	will result in fuel burn savings for commercial traffic. Airline fuel planning would take into account a reduction
Commercial airlines	Training costs
	change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fores	jeen.
Airport/ ANSP	Infrastructure costs
	to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some nts (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected t	to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	equire air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use s at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and reported et	In the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs c. Some staff may only require briefings. There may be occasions where the reduced availability of their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation will als	;o require updating.

### Runway 27 SID: B27-5A (alternate eastern departure)



Group	Impact
Communities	Noise impact on health and quality of life
Could potentially be use	nalises the current tactical option of left-turn out. ed as a respite route – avoiding both Bath and Bristol - from the normal right-turn departure route. e Mendip Area of Outstanding Natural Beauty (AoNB).
Communities	Air quality
Departing aircraft will st	states that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. ill climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, n work.
Wider society	Greenhouse gas impact
Network alignment resu	Its in shorter track than the current departure therefore, reducing greenhouse gas impact.
Wider society	Capacity/ resilience
required turn performan	nectivity to the network. However, may require step-climb to avoid other traffic flows and speed limits to achieve nce. Should support reduced separation from northbound departures. xplored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
New SID but design inte	ention is to contain within existing CAS.
General Aviation/ comm airlines	nercial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ comm airlines	nercial Fuel Burn
Shorter and more direct in track miles.	route will result in fuel burn savings for commercial traffic. Airline fuel planning would take into account a reduction
Commercial airlines	Training costs
	edures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs ar	re foreseen.
Airport/ ANSP	Infrastructure costs
	ected to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some endments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not exp	ected to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	ed to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use acilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and report operational controllers of service delivery.	ed to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs orted etc. Some staff may only require briefings. There may be occasions where the reduced availability of during their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation	will also require updating.

### Runway 27 SID: B27-5B

(alternate eastern departure for slow climbing aircraft)



Group	Impact
Communities	Noise impact on health and quality of life
performance aircraft as it	e climb to be over the channel and avoids Bristol City. Could be used as a respite route to the east or for low provides a longer track distance to achieve height requirements. e current NPR could over-fly new communities.
Communities	Air quality
Departing aircraft will still	ites that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the nay be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, work.
Wider society	Greenhouse gas impact
Shorter track than the cur compared to SID B27-5.	rent departure therefore, reducing greenhouse gas impact. However, an increased environmental impact when
Wider society	Capacity/ resilience
	formance aircraft and well positioned for connectivity to the network. Reduced ATC and pilot workload. lored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
Design intention is to cont	ain within existing CAS.
General Aviation/ comme airlines	rcial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ comme airlines	rcial Fuel Burn
	rent departure therefore, reducing airline fuel burn. However, an increased track length when compared to SID B27- avoid populated areas. Airline fuel planning would have to take into account this increase in track miles.
Commercial airlines	Training costs
	lures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are	foreseen.
Airport/ ANSP	Infrastructure costs
	sted to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some Idments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not exped	cted to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
of the NATS simulator fac operation. Support staff are required to be recorded and report operational controllers du service delivery.	to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use illities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs ed etc. Some staff may only require briefings. There may be occasions where the reduced availability of ring their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation w	ili also require updating.

### Runway 27 SID: B27-6

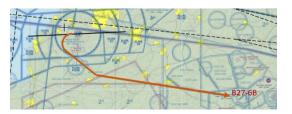
(south-east departure for first rotation traffic)



Communities       Noise impact on health and quality of life         New route intended only for some early morning departures. Does not overfly any heavily populated areas however, will overfly the Mendip AONS.         Communities       Air quality         Government guidance states that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality.         Departing aircraft will still climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the runway. However, there may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals subject to further design work.         Wider society       Greenhouse gas impact         Wider society       Capacity/ resilience         Would be used to reduce pre-departure delay during first rotation (a known high demand period). However, it would not comply with current network connectivity (further work required).         All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.         General Aviation       Access         The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.         General Aviation/ commercial airlines       Economic impact from increased effective capacity airlines         No effect on capacity.       General Aviation/ commercial Fuel Burn airlines         Shorter and more direct route will result in go
AONB.     Air quality       Communities     Air quality       Covernment guidance states that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality.       Departing aircraft will still climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the runway. However, there may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals subject to further design work.       Wider society     Greenhouse gas impact       Wider society     Capacity/ resilience       Would be used to reduce pre-departure delay during first rotation (a known high demand period). However, it would not comply with current network connectivity (further work required).       All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.       Ceneral Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       Ceneral Aviation/ commercial airlines     Economic impact from increased effective capacity airlines       No effect on capacity.     General Aviation/ commercial miles.       Commercial airlines     Fuel Burn airlines       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this redwrites.       Co
Covernment guidance states that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality.       Departing aircraft will still climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the runway. However, there may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals subject to further design work.       Wider society     Greenhouse gas impact       Wider society     Capacity/ resilience       Would be used to reduce pre-departure delay during first rotation (a known high demand period). However, it would not comply with current network connectivity (further work required).       All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.       General Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation / commercial airlines     Fuel Burn airlines       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anticipated to require additional training costs for airlines.       Commercial
Departing aircraft will still climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the runway. However, there may be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals subject to further design work.       Wider society     Greenhouse gas impact       Wider society     Capacity/ resilience       Would be used to reduce pre-departure delay during first rotation (a known high demand period). However, it would not comply with current network connectivity (further work-required).       All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.       General Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation / commercial airlines     Economic impact from increased effective capacity airling context methods.       No effect on capacity.     General Aviation / commercial airling costs       Commercial airlines     Fuel Burn       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result miles.       Commercial airlines     Training costs       Qualitatively, flight procedures charge worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if requiried. This proposal is not articipated to require addi
When in use, this route will provide good greenhouse gas/ fuel burn savings from reduced track mileage (more direct than today).       Wider society     Capacity/ resilience       Would be used to reduce pre-departure delay during first rotation (a known high demand period). However, it would not comply with current network connectivity (further work required).       All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.       General Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation/ commercial airlines     Economic impact from increased effective capacity       No effect on capacity.     General Aviation/ commercial airlines       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anticipated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseen.     Other costs
Wider society     Capacity/ resilience       Would be used to reduce pre-departure delay during first rotation (a known high demand period). However, it would not comply with current network connectivity (further work required).       All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.       General Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation/ commercial airlines     Economic impact from increased effective capacity       No effect on capacity.     General Aviation/ commercial airlines       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anticipated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseen.
Would be used to reduce pre-departure delay during first rotation (a known high demand period). However, it would not comply with current network connectivity (further work required).       All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.       General Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation/ commercial airlines     Economic impact from increased effective capacity       General Aviation/ commercial airlines     Fuel Burn       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anticipated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseen.
network connectivity (further work required).       All SID options will be explored for suitability of applying reduced departure separations, thus reducing pre-departure delay.       General Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation/ commercial airlines     Economic impact from increased effective capacity       General Aviation/ commercial airlines     Fuel Burn       Reneral Aviation/ commercial sinter subt in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning       Qualitatively, flight procedures charge worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not access are foreseew.       Commercial airlines     Other costs
General Aviation     Access       The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation/ commercial airlines     Economic impact from increased effective capacity       No effect on capacity.     General Aviation/ commercial airlines       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anticipated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseen.
The SID will require a change of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access should be minimal.       General Aviation/ commercial airlines     Economic impact from increased effective capacity       No effect on capacity.     General Aviation/ commercial airlines       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning mould take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this result in good savings for commercial traffic when available (early mornings only). Airline fuel planning be the procedures the procedures the procedures the procedures the procedures the proce
airlines       No effect on capacity.       General Aviation/ commercial airlines     Fuel Burn       shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures charge worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anti-jated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseer.
General Aviation/ commercial airlinesFuel BurnShorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.Commercial airlinesTraining costsQualitatively, flight procedures charge worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anticipated to require additional training costs for airlines.Commercial airlinesOther costsNo other airline costs are foreseen.
airlines       Shorter and more direct route will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures charge worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not articipated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseer.
would take into account this reduction in track miles.       Commercial airlines     Training costs       Qualitatively, flight procedures charge worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not article to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseer.
Qualitatively, flight procedures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if required. This proposal is not anticipated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseen.
required. This proposal is not anticipated to require additional training costs for airlines.       Commercial airlines     Other costs       No other airline costs are foreseen.
No other airline costs are foreseen.
Airport/ ANSP   Infrastructure costs
This proposal is not expected to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some system engineering amendments (internal ATC system adaptation changes only).
Airport/ ANSP Operational costs
This proposal is not expected to change airport or ANSP operational costs.
Airport/ ANSP   Deployment costs
This proposal is expected to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with us of the NATS simulator facilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their operation.
Support staff are required to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs to be recorded and reported etc. Some staff may only require briefings. There may be occasions where the reduced availability of operational controllers during their conversion training could mean operational rostering becomes a factor when considering continuous service delivery.
Internal documentation will also require updating.

### Runway 27 SID: B27-6B

(alternate south-east departure for first rotation traffic)



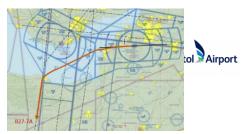
Group	Impact
Communities	Noise impact on health and quality of life
An alternative route 6 inte the Mendip AONB.	nded only for some early morning departures. Does not overfly any heavily populated areas however, will overfly
Communities	Air quality
Departing aircraft will still	ates that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from either end of the nay be a slight re-alignment of the current NPR to achieve the requirement of reduced minimum departure intervals, work.
Wider society	Greenhouse gas impact
When in use, this route wi	Il provide good greenhouse gas/ fuel burn savings from reduced track mileage (more direct than today).
Wider society	Capacity/ resilience
	pre-departure delay during first rotation (a known high demand period). Iored for suitability of applying reduced departure separations, thus reducing pre-departure delay.
General Aviation	Access
The SID will require a char should be low.	nge of airspace classification but limited to early morning periods (e.g. before 08.30) so impact on GA access
General Aviation/ comme airlines	rcial Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ comme airlines	rcial Fuel Burn
	oute will result in good savings for commercial traffic when available (early mornings only). Airline fuel planning his reduction in track miles.
Commercial airlines	Training costs
	lures change worldwide with each AIRAC cycle and airlines would update their procedures accordingly, training if s not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are	foreseen.
Airport/ ANSP	Infrastructure costs
	cted to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some adments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not exped	cted to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use illities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their
to be recorded and report	I to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs ed etc. Some staff may only require briefings. There may be occasions where the reduced availability of ring their conversion training could mean operational rostering becomes a factor when considering continuous
Internal documentation w	ill also require updating.



### Runway 27 SID: B27-7 (southern departure)

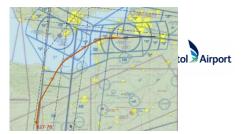
Group	Impact
Communities	Noise impact on health and quality of life
Potential to avoid overflying lar	ge population centres. Some of the climb is situated over the Channel.
Any re-alignment from the curr	ent NPR could over-fly new communities close to the airport.
Communities	Air quality
Departing aircraft will still climb either end of the runway. Howe	nat aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. o through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from ever, there may be a slight re-alignment of the current NPR to achieve the requirement of tervals, subject to further design work.
Wider society	Greenhouse gas impact
This route will provide greenho	use gas/ fuel burn savings from reduced track mileage (more direct than today).
Wider society	Capacity/ resilience
	nnectivity and would support reduced separation from north or eastbound departures. for suitability of applying reduced departure separations, thus reducing pre-departure
General Aviation	Access
The SID will require some chan low.	ge of airspace classification but only at higher levels so impact on GA access should be
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter route than currently pu into account this reduction in t	blished; airlines will often request this route for fuel saving. Airline fuel planning would take rack miles.
Commercial airlines	Training costs
	change worldwide with each AIRAC cycle and airlines would update their procedures . This proposal is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fores	een.
Airport/ ANSP	Infrastructure costs
	o change airport or ANSP infrastructure, beyond the initial deployment phase which would ng amendments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected t	o change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
Bristol Airport with use of the N design changes impact upon the Support staff are required to ru analysts, outputs to be recorded the reduced availability of operations.	n the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety d and reported etc. Some staff may only require briefings. There may be occasions where ational controllers during their conversion training could mean operational rostering ering continuous service delivery.

### Runway 27 SID: B27-7A



Group	Impact
Communities	Noise impact on health and quality of life
Much of the initial climb will below 7,000ft.	be over the Channel although lower performance aircraft may overfly Weston-Super-Mare
Any re-alignment from the c	urrent NPR could over-fly new communities close to the airport.
Communities	Air quality
Departing aircraft will still cli either end of the runway. Ho	s that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. mb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from wever, there may be a slight re-alignment of the current NPR to achieve the requirement of e intervals, subject to further design work.
Wider society	Greenhouse gas impact
N/A - little change from route	e alignment today.
Wider society	Capacity/ resilience
	ell positioned for connectivity to the network. ed for suitability of applying reduced departure separations, thus reducing pre-departure
General Aviation	Access
Design intention is to contain	n SID within existing CAS.
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter route than the currer	nt published route. Airline fuel planning would take into account this reduction in track miles.
Commercial airlines	Training costs
	es change worldwide with each AIRAC cycle and airlines would update their procedures ed. This proposal is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are for	reseen.
Airport/ ANSP	Infrastructure costs
	d to change airport or ANSP infrastructure, beyond the initial deployment phase which would ering amendments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expecte	d to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
Bristol Airport with use of the design changes impact upor Support staff are required to analysts, outputs to be record the reduced availability of op	require air traffic controller training for controllers and assistants at NATS Swanwick and e NATS simulator facilities at both locations. Training may also be required at Cardiff Airport if n their operation. run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety ded and reported etc. Some staff may only require briefings. There may be occasions where erational controllers during their conversion training could mean operational rostering sidering continuous service delivery.
Internal documentation will a	also require updating.

### Runway 27 SID: B27-7B



Group	Impact
Communities	Noise impact on health and quality of life
over the Channel.	overfly some of Weston-Super-Mare below 7000ft. Much of the remaining climb is situated rent NPR could over-fly new communities close to the airport
Communities	
	Air quality hat aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality.
Departing aircraft will still climl either end of the runway. Howe	b through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from ever, there may be a slight re-alignment of the current NPR to achieve the requirement of itervals, subject to further design work.
Wider society	Greenhouse gas impact
This route will provide some gr	eenhouse gas/ fuel burn savings from reduced track mileage (more direct than today).
Wider society	Capacity/ resilience
Well positioned for connectivity	y to the network and should support CCOs.
All SID options will be explored delay.	for suitability of applying reduced departure separations, thus reducing pre-departure
General Aviation	Access
Design intention is to contain S	SID within existing CAS.
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter route than the current	published route. Airline fuel planning would take into account this reduction in track miles.
Commercial airlines	Training costs
	change worldwide with each AIRAC cycle and airlines would update their procedures I. This proposal is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fores	een.
Airport/ ANSP	Infrastructure costs
	o change airport or ANSP infrastructure, beyond the initial deployment phase which would ing amendments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected t	o change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
Bristol Airport with use of the N design changes impact upon the Support staff are required to ru analysts, outputs to be recorded the reduced availability of opera becomes a factor when consid	In the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety ad and reported etc. Some staff may only require briefings. There may be occasions where ational controllers during their conversion training could mean operational rostering lering continuous service delivery.
Internal documentation will als	o require updating.

### Runway 27 SID: B27-7C



Group	Impact
Communities	Noise impact on health and quality of life
	overfly some of Weston-Super-Mare below 7000ft. Much of the remaining climb is situated
over the Channel.	overny some of weston Super Mare below 70001. Much of the remaining climb is situated
Any re-alignment from the curr	ent NPR could over-fly new communities close to the airport.
Communities	Air quality
Departing aircraft will still climl either end of the runway. How	hat aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. b through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from ever, there may be a slight re-alignment of the current NPR to achieve the requirement of intervals, subject to further design work.
Wider society	Greenhouse gas impact
This route will provide some gr	eenhouse gas/ fuel burn savings from reduced track mileage (more direct than today).
Wider society	Capacity/ resilience
Well positioned for connectivity	y to the network and should support CCO.
All SID options will be explored delay.	for suitability of applying reduced departure separations, thus reducing pre-departure
General Aviation	Access
Design intention is to contain S	BID within existing CAS.
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
Shorter route than the current	published route. Airline fuel planning would take into account this reduction in track miles.
Commercial airlines	Training costs
	change worldwide with each AIRAC cycle and airlines would update their procedures I. This proposal is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs are fores	een.
Airport/ ANSP	Infrastructure costs
	to change airport or ANSP infrastructure, beyond the initial deployment phase which would ing amendments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not expected t	o change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
Bristol Airport with use of the N design changes impact upon t Support staff are required to ru analysts, outputs to be recorded the reduced availability of opera	In the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety ad and reported etc. Some staff may only require briefings. There may be occasions where ational controllers during their conversion training could mean operational rostering lering continuous service delivery.

#### Runway 27 SID: B27-7D

Well positioned for connectivity to the network.

Communities

Communities

Wider society

southern Hold. Wider society

**General** Aviation

should be low General Aviation/

commercial airlines No effect on capacity. General Aviation/

commercial airlines

Commercial airlines

delav

over the Channel.

(alternate southern departure)

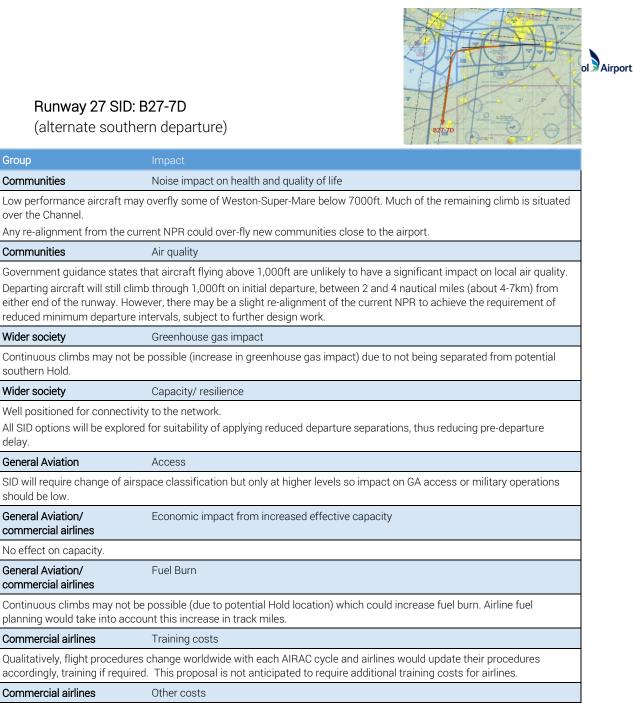
Air quality

Access

Fuel Burn

Training costs

Other costs



Commercial airlines

No other airline costs are foreseen.

Airport/ ANSP Infrastructure costs

This proposal is not expected to change airport or ANSP infrastructure, beyond the initial deployment phase which would require some system engineering amendments (internal ATC system adaptation changes only).

Airport/ ANSP Operational costs

This proposal is not expected to change airport or ANSP operational costs.

Airport/ ANSP Deployment costs

This proposal is expected to require air traffic controller training for controllers and assistants at NATS Swanwick and Bristol Airport with use of the NATS simulator facilities at both locations. Training may also be required at Cardiff Airport if design changes impact upon their operation.

Support staff are required to run the simulator - planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs to be recorded and reported etc. Some staff may only require briefings. There may be occasions where the reduced availability of operational controllers during their conversion training could mean operational rostering becomes a factor when considering continuous service delivery.

### Runway 27 SID: B27-7E

(alternate southern departure)



Group	Impact
Communities	Noise impact on health and quality of life
-	d overflying large population centres below 7,000ft.
Any re-alignment from	the current NPR could over-fly new communities close to the airport.
Communities	Air quality
Departing aircraft will s either end of the runwa	states that aircraft flying above 1,000ft are unlikely to have a significant impact on local air quality. till climb through 1,000ft on initial departure, between 2 and 4 nautical miles (about 4-7km) from y. However, there may be a slight re-alignment of the current NPR to achieve the requirement of arture intervals, subject to further design work.
Wider society	Greenhouse gas impact
	y not be possible (increase in greenhouse gas impact) due to not being separated from potential h could be offset by the route alignment being shorter than today
Wider society	Capacity/ resilience
	nectivity to the network. xplored for suitability of applying reduced departure separations, thus reducing pre-departure
General Aviation	Access
SID will require change should be low.	of airspace classification but only at higher levels so impact on GA access or military operations
General Aviation/ commercial airlines	Economic impact from increased effective capacity
No effect on capacity.	
General Aviation/ commercial airlines	Fuel Burn
	y not be possible (potential transitions location) which could increase fuel burn (although route is line fuel planning would take into account this potential increase.
Commercial airlines	Training costs
	edures change worldwide with each AIRAC cycle and airlines would update their procedures required. This proposal is not anticipated to require additional training costs for airlines.
Commercial airlines	Other costs
No other airline costs a	re foreseen.
Airport/ ANSP	Infrastructure costs
	pected to change airport or ANSP infrastructure, beyond the initial deployment phase which would ngineering amendments (internal ATC system adaptation changes only).
Airport/ ANSP	Operational costs
This proposal is not exp	pected to change airport or ANSP operational costs.
Airport/ ANSP	Deployment costs
	ed to require air traffic controller training for controllers and assistants at NATS Swanwick and of the NATS simulator facilities at both locations. Training may also be required at Cardiff Airport if t upon their operation.
analysts, outputs to be the reduced availability	red to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety recorded and reported etc. Some staff may only require briefings. There may be occasions where of operational controllers during their conversion training could mean operational rostering a considering continuous service delivery.
Internal documentation	n will also require updating.

**NATS** Internal



## Safety Assessment

A qualitative safety assessment has been completed for each of the above design options and also includes those which were rejected as part of the *Stage 2 – Step 2A Design Principle Evaluation*.

This safety report documents the initial safety appraisal of the Bristol Airport design options by providing a summary of potential safety implications and a qualitative statement for each design option.

The safety assessment has been summarised in a separate report and uploaded to the portal (link) alongside this document.

## Conclusion and Next Steps

This proposal has been developed following the submission of the <u>linked</u> Statement of Need to the CAA Airspace Regulation. This summarised Bristol Airport's requirement for an airspace change including a reduction of emissions through minimisation of additional track miles and better management of noise impact.

This document has described the design options which address the Statement of Need by the proposed introduction of new arrival and departure procedures. These options have been developed through engagement with Bristol Airport's stakeholders including representatives from airlines and the GA/ MoD communities. Bristol Airport thanks all of these stakeholders and looks forward to continuing the development of this proposal alongside them.

These design options have been qualitatively appraised and will be taken forward for further development and consultation. Subject to CAA approval at the *Stage 2 Develop and Assess* Gateway Assessment, this proposal will then move on to *Stage 3 Consult*.